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United States  
Department of  
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Agricultural  
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June 1998

# Plant Inventory No. 206, Part II

Plant Materials Introduced  
July 1 to December 31, 1997  
(Nos. 599111 to 601816)



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# **Plant Inventory No. 206, Part II**

**Plant Materials Introduced  
July 1 to December 31, 1997  
(Nos. 599111 to 601816)**

**R.A. Norris, editor**

Norris, R.A., ed. 1998. Plant Inventory No. 206, Part II. Plant Materials Introduced July 1 to December 31, 1997, Nos. 599111 to 601816. U.S. Department of Agriculture, Agricultural Research Service, 360 pp.

Plant Inventory No. 206 is a listing of plant materials introduced into the U.S. National Plant Germplasm System during calendar year 1997. It is not a listing of plant material for distribution.

Questions about data organization and proper plant identifications should be directed to the editor: R.A. Norris, National Germplasm Resources Laboratory, 10300 Baltimore Blvd., Bldg. 003, 4<sup>th</sup> Floor, Beltsville, MD 20705.

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The following were developed by S. J. Chater, 343 Gardenia Ave., Camarillo, California 93610, United States. Received 01/02/1997.

- PI 599111. *Punica granatum* L.**  
Cultivar. "AMBROSIA"; DPUN 048. Fruits large, taste tart and sweet with pleasant aroma. Kernels large and thick. Good for jelly, syrup, and fresh eating.
- PI 599112. *Punica granatum* L.**  
Cultivar. "BLAZE"; DPUN 049. Plant showy with flowers and shiny red fruit rind. Fruit tart, pulp deep purple at maturity. Kernels red. Excellent for desert and jelly.
- PI 599113. *Punica granatum* L.**  
Cultivar. "EVERSWEET"; DPUN 050. Plants produce 2-3 crops of mature fruit each year in southern California, beginning in mid-summer and continuing through late fall. Fruit sweet even when small and immature, flesh light pink red, excellent for wine, syrup, or fresh. Patented: No. 5,418, March 19, 1985 as cv. Armchat later changed to Eversweet.
- PI 599114. *Punica granatum* L.**  
Cultivar. "GOLDING GLOBE"; DPUN 051. Fruits large, color golden, sweet. Kernels large. Matures August to October, about one month earlier than Green Globe.
- PI 599115. *Punica granatum* L.**  
Cultivar. "GREEN GLOBE"; DPUN 052. Fruits large, up to 840 g., green, sweet, hang down like a chandelier, mature from September to November, later will split. Kernels large.
- PI 599116. *Punica granatum* L.**  
Cultivar. "LOFFANI"; DPUN 053.
- PI 599117. *Punica granatum* L.**  
Cultivar. "LOULOU"; DPUN 054. Fruits small, sweet.
- PI 599118. *Punica granatum* L.**  
Cultivar. "PHOENICIA"; DPUN 055. Fruits large, uniform, red and greenish rind, semi-tart. Maturity October. Best in jelly and syrup.
- PI 599119. *Punica granatum* L.**  
Cultivar. "PURPLE HEART"; DPUN 056.
- PI 599120. *Punica granatum* L.**  
Cultivar. "ROSAMIA"; DPUN 057. Fruits similar to Eversweet in size and taste. Produces single crop.

The following were collected by J. Manisterski, Tel Aviv University, Liberman Germplasm Bank, Institute for Cereal Crops Improvement, Ramat Aviv, Israel. Donated by Yehoshua Anikster, Tel Aviv University, Institute for Cereal Crops Improvement, Ramat-Aviv, Israel. Received 02/05/1993.

- PI 599121. *Aegilops searsii*** Feldman & Kislev ex K. Hammer  
Wild. AEG-3068-18. Collected 06/08/1988 in Israel. Latitude 31 deg. 58'  
N. Longitude 35 deg. 20' E. Elevation 575 m. Kokav haShahar, Judean  
Desert. Annual precip. 479 mm.
- PI 599122. *Aegilops searsii*** Feldman & Kislev ex K. Hammer  
Wild. AEG-3069-19. Collected 06/08/1988 in Israel. Latitude 31 deg. 58'  
N. Longitude 35 deg. 20' E. Elevation 575 m. Kokav haShahar, Judean  
Desert. Annual precip. 479 mm.
- PI 599123. *Aegilops searsii*** Feldman & Kislev ex K. Hammer  
Wild. AEG-3070-20. Collected 06/08/1988 in Israel. Latitude 31 deg. 58'  
N. Longitude 35 deg. 20' E. Elevation 575 m. Kokav haShahar, Judean  
Desert. Annual precip. 479 mm.
- PI 599124. *Aegilops searsii*** Feldman & Kislev ex K. Hammer  
Wild. AEG-3071-21. Collected 06/08/1988 in Israel. Latitude 31 deg. 58'  
N. Longitude 35 deg. 20' E. Elevation 575 m. Kokav haShahar, Judean  
Desert. Annual precip. 479 mm.
- PI 599125. *Aegilops searsii*** Feldman & Kislev ex K. Hammer  
Wild. AEG-3072-22. Collected 06/08/1988 in Israel. Latitude 31 deg. 58'  
N. Longitude 35 deg. 20' E. Elevation 575 m. Kokav haShahar, Judean  
Desert. Annual precip. 479 mm.
- PI 599126. *Aegilops searsii*** Feldman & Kislev ex K. Hammer  
Wild. AEG-3074-24. Collected 06/08/1988 in Israel. Latitude 31 deg. 58'  
N. Longitude 35 deg. 20' E. Elevation 575 m. Kokav haShahar, Judean  
Desert. Annual precip. 479 mm.
- PI 599127. *Aegilops searsii*** Feldman & Kislev ex K. Hammer  
Wild. AEG-3075-25. Collected 06/08/1988 in Israel. Latitude 31 deg. 58'  
N. Longitude 35 deg. 20' E. Elevation 575 m. Kokav haShahar, Judean  
Desert. Annual precip. 479 mm.
- PI 599128. *Aegilops searsii*** Feldman & Kislev ex K. Hammer  
Wild. AEG-3077-27. Collected 06/08/1988 in Israel. Latitude 31 deg. 58'  
N. Longitude 35 deg. 20' E. Elevation 575 m. Kokav haShahar, Judean  
Desert. Annual precip. 479 mm.
- PI 599129. *Aegilops searsii*** Feldman & Kislev ex K. Hammer  
Wild. AEG-3080-30. Collected 06/08/1988 in Israel. Latitude 31 deg. 58'  
N. Longitude 35 deg. 20' E. Elevation 575 m. Kokav haShahar, Judean  
Desert. Annual precip. 479 mm.

The following were collected by M. van Slageren, Int. Center for Agricultural Research for the Dry Areas, P.O. Box 5466, Aleppo, Syria; A. A. Jaradat, Jordan University of Science & Technology, Irbid, Jordan. Donated by Ardeshir Damania, Int. Center for Agricultural Research in the Dry Areas, P.O. Box 5466, Aleppo, Syria. Received 03/03/1993.

- PI 599130. *Aegilops searsii*** Feldman & Kislev ex K. Hammer  
Wild. MSAJ 88016; ICAG 400750. Collected 05/23/1988 in Jordan. Latitude

32 deg. 23' N. Longitude 35 deg. 59' E. Elevation 740 m. 3 km southeast of Tumeira on road Irbid-Bal'ama, Jarash. Annual precip. 250 mm. Barley field.

- PI 599131. *Aegilops searsii* Feldman & Kislev ex K. Hammer**  
Wild. MSAJ 88017; ICAG 400751. Collected 05/23/1988 in Jordan. Latitude 32 deg. 21' N. Longitude 36 deg. 2' E. Elevation 840 m. El Buweida, on road Irbid-Bal'ama, Mafrag. Annual precip. 200 mm. Small population.
- PI 599132. *Aegilops searsii* Feldman & Kislev ex K. Hammer**  
Wild. MSAJ 88019; ICAG 400753. Collected 05/23/1988 in Jordan. Latitude 32 deg. 15' N. Longitude 36 deg. 7' E. Elevation 740 m. Haiyan er Ruweibid, near Bal'ama, Mafrag. Annual precip. 200 mm. Small population.
- PI 599133. *Aegilops searsii* Feldman & Kislev ex K. Hammer**  
Wild. MSAJ 88023; ICAG 400757. Collected 05/23/1988 in Jordan. Latitude 32 deg. 17' N. Longitude 35 deg. 59' E. Elevation 850 m. El Madwar, 10 km east of Jarash. Annual precip. 275 mm. With wild oats.
- PI 599134. *Aegilops searsii* Feldman & Kislev ex K. Hammer**  
Wild. MSAJ 88040; ICAG 400770. Collected 05/26/1988 in Jordan. Latitude 32 deg. 22' N. Longitude 35 deg. 55' E. Elevation 830 m. Balila, on road Irbid-Jarash. Annual precip. 300 mm. *Pinus halepensis* dominant. Scattered.
- PI 599135. *Aegilops searsii* Feldman & Kislev ex K. Hammer**  
Wild. MSAJ 88052; ICAG 400781. Collected 05/30/1988 in Jordan. Latitude 32 deg. 21' N. Longitude 35 deg. 56' E. Elevation 880 m. Quafqafa, 10 km north of Jarash. Annual precip. 275 mm. Dominant *Molucella*. Large and scattered.
- PI 599136. *Aegilops searsii* Feldman & Kislev ex K. Hammer**  
Wild. MSAJ 88056; ICAG 400785. Collected 05/30/1988 in Jordan. Latitude 32 deg. 10' N. Longitude 35 deg. 52' E. Elevation 600 m. Between El-Mastaba and Jubba, Jarash. Annual precip. 300 mm. Small population. With *A. peregrina*.
- PI 599137. *Aegilops searsii* Feldman & Kislev ex K. Hammer**  
Wild. MSAJ 88066; ICAG 400792. Collected 05/31/1988 in Jordan. Latitude 31 deg. 50' N. Longitude 35 deg. 47' E. Elevation 850 m. El Rawdha, 10 km southwest of Naur, Madaba. Annual precip. 300 mm. Scattered and small. Next to durum wheat field.
- PI 599138. *Aegilops searsii* Feldman & Kislev ex K. Hammer**  
Wild. MSAJ 88067; ICAG 400793. Collected 05/31/1988 in Jordan. Latitude 31 deg. 46' N. Longitude 35 deg. 43' E. Elevation 800 m. 5 km west of Jureina, Madaba. Annual precip. 350 mm. Dense stand among thistles.
- PI 599139. *Aegilops searsii* Feldman & Kislev ex K. Hammer**  
Wild. MSAJ 88070; ICAG 400796. Collected 05/31/1988 in Jordan. Latitude 31 deg. 35' N. Longitude 35 deg. 41' E. Elevation 710 m. 7 km west of Ibb, Madaba. Annual precip. 250 mm. Small and scattered in olive orchard.
- PI 599140. *Aegilops searsii* Feldman & Kislev ex K. Hammer**

Wild. MSAJ 88077; ICAG 400803. Collected 06/01/1988 in Jordan. Latitude 30 deg. 41' N. Longitude 35 deg. 45' E. Elevation 1200 m. 10 km east of Rashadiya, Tafila. Annual precip. 150 mm. Soil silt clay loam. Near barley, with other *Aegilops* sp.

The following were collected by M. van Slageren, Int. Center for Agricultural Research for the Dry Areas, P.O. Box 5466, Aleppo, Syria; B. Humeid, Jordan University of Science & Technology, Irbid, Jordan; A. A. Jaradat, Jordan University of Science & Technology, Irbid, Jordan. Donated by Ardeshir Damania, Int. Center for Agricultural Research in the Dry Areas, P.O. Box 5466, Aleppo, Syria. Received 03/03/1993.

**PI 599141. *Aegilops searsii* Feldman & Kislev ex K. Hammer**

Wild. MSBHAJ 88156; ICAG 400837. Collected 06/23/1988 in Jordan. Latitude 31 deg. 20' N. Longitude 35 deg. 45' E. Elevation 900 m. 3 km north of Qasr on Kings Highway, Karak. Annual precip. 300 mm. With *A. crassa*.

**PI 599142. *Aegilops searsii* Feldman & Kislev ex K. Hammer**

Wild. MSBHAJ 88158; ICAG 400838. Collected 06/23/1988 in Jordan. Latitude 31 deg. 4' N. Longitude 35 deg. 41' E. Elevation 1200 m. 500 m south of Mauta on Kings Highway, Karak. Annual precip. 320 mm. Durum wheat and thistles.

**PI 599143. *Aegilops searsii* Feldman & Kislev ex K. Hammer**

Wild. MSBHAJ 88167; ICAG 400845. Collected 06/24/1988 in Jordan. Latitude 30 deg. 21' N. Longitude 35 deg. 30' E. Elevation 1300 m. Near El-Hai, road Shoubak-Petra, Ma'an. Annual precip. 150 mm. Parent rock flint outcrop. With *A. crassa*.

**PI 599144. *Aegilops searsii* Feldman & Kislev ex K. Hammer**

Wild. MSBHAJ 88169; ICAG 400847. Collected 06/24/1988 in Jordan. Latitude 30 deg. 14' N. Longitude 35 deg. 31' E. Elevation 1300 m. Northwest of Basta on road Petra-Ma'an. Annual precip. 150 mm. With *A. crassa*.

**PI 599145. *Aegilops searsii* Feldman & Kislev ex K. Hammer**

Wild. MSBHAJ 88188; ICAG 400865. Collected 06/28/1988 in Jordan. Latitude 32 deg. 7' N. Longitude 35 deg. 48' E. Elevation 750 m. Er Rumeimin, along road to Um El-Amad, Salt. Annual precip. 300 mm. With other *Aegilops* sp.

**PI 599146. *Aegilops searsii* Feldman & Kislev ex K. Hammer**

Wild. MSBHAJ 88198; ICAG 400873. Collected 06/29/1988 in Jordan. Latitude 32 deg. 15' N. Longitude 35 deg. 55' E. Elevation 850 m. 10 km east of Jarash towards Zarqa. Annual precip. 200 mm. Barley field.

The following were collected by M. van Slageren, Int. Center for Agricultural Research for the Dry Areas, P.O. Box 5466, Aleppo, Syria; G. Mir Ali, ARCD, Syria. Donated by Ardeshir Damania, Int. Center for Agricultural Research in the Dry Areas, P.O. Box 5466, Aleppo, Syria. Received 03/03/1993.

**PI 599147. *Aegilops searsii* Feldman & Kislev ex K. Hammer**

Wild. MSGM 88086; ICAG 400883. Collected 06/12/1988 in Syria. Latitude 33 deg. 5' N. Longitude 36 deg. 33' E. Elevation 700 m. El Hasim, on road Damascus-Sweida. Annual precip. 200 mm. Scattered with Phalaris and Eucalyptus.

The following were collected by K.S. Obari, Genetic Resources Unit, Agriculture Research Directorate, P.O. Box 113, Douma, Syria; M. van Slageren, Int. Center for Agricultural Research for the Dry Areas, P.O. Box 5466, Aleppo, Syria; G. Mir Ali, ARCD, Syria. Donated by Ardeshir Damania, Int. Center for Agricultural Research in the Dry Areas, P.O. Box 5466, Aleppo, Syria. Received 03/03/1993.

**PI 599148. *Aegilops searsii* Feldman & Kislev ex K. Hammer**  
Wild. MSGMKO 88113; ICAG 400902. Collected 06/17/1988 in Syria. Latitude 33 deg. 41' N. Longitude 36 deg. 7' E. Elevation 1180 m. 1.8 km before Maddaya towards Zabadani, Damascus. Annual precip. 550 mm. Walled orchard. With other *Aegilops* sp.

The following were collected by J. Manisterski, Tel Aviv University, Liberman Germplasm Bank, Institute for Cereal Crops Improvement, Ramat Aviv, Israel. Donated by Yehoshua Anikster, Tel Aviv University, Institute for Cereal Crops Improvement, Ramat-Aviv, Israel. Received 02/05/1993.

**PI 599149. *Aegilops searsii* Feldman & Kislev ex K. Hammer**  
Wild. AEG-1589-3. Collected 06/20/1988 in Israel. Latitude 31 deg. 21' N. Longitude 35 deg. 7' E. Elevation 850 m. Yattir Forest, Judean Mountains. Annual precip. 383 mm.

**PI 599150. *Aegilops searsii* Feldman & Kislev ex K. Hammer**  
Wild. AEG-1590-4. Collected 06/20/1988 in Israel. Latitude 31 deg. 21' N. Longitude 35 deg. 7' E. Elevation 850 m. Yattir Forest, Judean Mountains. Annual precip. 383 mm.

**PI 599151. *Aegilops searsii* Feldman & Kislev ex K. Hammer**  
Wild. AEG-1592-6. Collected 06/20/1988 in Israel. Latitude 31 deg. 21' N. Longitude 35 deg. 7' E. Elevation 850 m. Yattir Forest, Judean Mountains. Annual precip. 383 mm.

**PI 599152. *Aegilops searsii* Feldman & Kislev ex K. Hammer**  
Wild. AEG-1594-8. Collected 06/20/1988 in Israel. Latitude 31 deg. 21' N. Longitude 35 deg. 7' E. Elevation 850 m. Yattir Forest, Judean Mountains. Annual precip. 383 mm.

**PI 599153. *Aegilops searsii* Feldman & Kislev ex K. Hammer**  
Wild. AEG-1595-9. Collected 06/20/1988 in Israel. Latitude 31 deg. 21' N. Longitude 35 deg. 7' E. Elevation 850 m. Yattir Forest, Judean Mountains. Annual precip. 383 mm.

**PI 599154. *Aegilops searsii* Feldman & Kislev ex K. Hammer**  
Wild. AEG-1596-10. Collected 06/20/1988 in Israel. Latitude 31 deg. 21' N. Longitude 35 deg. 7' E. Elevation 850 m. Yattir Forest, Judean Mountains. Annual precip. 383 mm.

- PI 599155. *Aegilops searsii*** Feldman & Kislev ex K. Hammer  
Wild. AEG-1597-11. Collected 06/20/1988 in Israel. Latitude 31 deg. 21'  
N. Longitude 35 deg. 7' E. Elevation 850 m. Yattir Forest, Judean  
Mountains. Annual precip. 383 mm.
- PI 599156. *Aegilops searsii*** Feldman & Kislev ex K. Hammer  
Wild. AEG-1598-12. Collected 06/20/1988 in Israel. Latitude 31 deg. 21'  
N. Longitude 35 deg. 7' E. Elevation 850 m. Yattir Forest, Judean  
Mountains. Annual precip. 383 mm.
- PI 599157. *Aegilops searsii*** Feldman & Kislev ex K. Hammer  
Wild. AEG-1599-13. Collected 06/20/1988 in Israel. Latitude 31 deg. 21'  
N. Longitude 35 deg. 7' E. Elevation 850 m. Yattir Forest, Judean  
Mountains. Annual precip. 383 mm.
- PI 599158. *Aegilops searsii*** Feldman & Kislev ex K. Hammer  
Wild. AEG-1600-14. Collected 06/20/1988 in Israel. Latitude 31 deg. 21'  
N. Longitude 35 deg. 7' E. Elevation 850 m. Yattir Forest, Judean  
Mountains. Annual precip. 383 mm.
- PI 599159. *Aegilops searsii*** Feldman & Kislev ex K. Hammer  
Wild. AEG-1602-16. Collected 06/20/1988 in Israel. Latitude 31 deg. 21'  
N. Longitude 35 deg. 7' E. Elevation 850 m. Yattir Forest, Judean  
Mountains. Annual precip. 383 mm.
- PI 599160. *Aegilops searsii*** Feldman & Kislev ex K. Hammer  
Wild. AEG-1603-17. Collected 06/20/1988 in Israel. Latitude 31 deg. 21'  
N. Longitude 35 deg. 7' E. Elevation 850 m. Yattir Forest, Judean  
Mountains. Annual precip. 383 mm.
- PI 599161. *Aegilops searsii*** Feldman & Kislev ex K. Hammer  
Wild. AEG-1606-20. Collected 06/20/1988 in Israel. Latitude 31 deg. 21'  
N. Longitude 35 deg. 7' E. Elevation 850 m. Yattir Forest, Judean  
Mountains. Annual precip. 383 mm.
- PI 599162. *Aegilops searsii*** Feldman & Kislev ex K. Hammer  
Wild. AEG-1607-21. Collected 06/20/1988 in Israel. Latitude 31 deg. 21'  
N. Longitude 35 deg. 7' E. Elevation 850 m. Yattir Forest, Judean  
Mountains. Annual precip. 383 mm.
- PI 599163. *Aegilops searsii*** Feldman & Kislev ex K. Hammer  
Wild. AEG-1610-24. Collected 06/20/1988 in Israel. Latitude 31 deg. 21'  
N. Longitude 35 deg. 7' E. Elevation 850 m. Yattir Forest, Judean  
Mountains. Annual precip. 383 mm.
- PI 599164. *Aegilops searsii*** Feldman & Kislev ex K. Hammer  
Wild. AEG-1613-27. Collected 06/20/1988 in Israel. Latitude 31 deg. 21'  
N. Longitude 35 deg. 7' E. Elevation 850 m. Yattir Forest, Judean  
Mountains. Annual precip. 383 mm.
- PI 599165. *Aegilops searsii*** Feldman & Kislev ex K. Hammer  
Wild. AEG-1615-29. Collected 06/20/1988 in Israel. Latitude 31 deg. 21'  
N. Longitude 35 deg. 7' E. Elevation 850 m. Yattir Forest, Judean  
Mountains. Annual precip. 383 mm.

- PI 599166. *Aegilops searsii* Feldman & Kislev ex K. Hammer**  
Wild. AEG-1616-30. Collected 06/20/1988 in Israel. Latitude 31 deg. 21'  
N. Longitude 35 deg. 7' E. Elevation 850 m. Yattir Forest, Judean  
Mountains. Annual precip. 383 mm.
- PI 599167. *Aegilops searsii* Feldman & Kislev ex K. Hammer**  
Wild. AEG-1617-31. Collected 06/20/1988 in Israel. Latitude 31 deg. 21'  
N. Longitude 35 deg. 7' E. Elevation 850 m. Yattir Forest, Judean  
Mountains. Annual precip. 383 mm.
- PI 599168. *Aegilops searsii* Feldman & Kislev ex K. Hammer**  
Wild. AEG-1618-32. Collected 06/20/1988 in Israel. Latitude 31 deg. 21'  
N. Longitude 35 deg. 7' E. Elevation 850 m. Yattir Forest, Judean  
Mountains. Annual precip. 383 mm.
- PI 599169. *Aegilops searsii* Feldman & Kislev ex K. Hammer**  
Wild. AEG-1619-33. Collected 06/20/1988 in Israel. Latitude 31 deg. 21'  
N. Longitude 35 deg. 7' E. Elevation 850 m. Yattir Forest, Judean  
Mountains. Annual precip. 383 mm.
- PI 599170. *Aegilops searsii* Feldman & Kislev ex K. Hammer**  
Wild. AEG-1621-35. Collected 06/20/1988 in Israel. Latitude 31 deg. 21'  
N. Longitude 35 deg. 7' E. Elevation 850 m. Yattir Forest, Judean  
Mountains. Annual precip. 383 mm.
- PI 599171. *Aegilops searsii* Feldman & Kislev ex K. Hammer**  
Wild. AEG-1628-42. Collected 06/20/1988 in Israel. Latitude 31 deg. 21'  
N. Longitude 35 deg. 7' E. Elevation 850 m. Yattir Forest, Judean  
Mountains. Annual precip. 383 mm.
- PI 599172. *Aegilops searsii* Feldman & Kislev ex K. Hammer**  
Wild. AEG-1629-43. Collected 06/20/1988 in Israel. Latitude 31 deg. 21'  
N. Longitude 35 deg. 7' E. Elevation 850 m. Yattir Forest, Judean  
Mountains. Annual precip. 383 mm.
- PI 599173. *Aegilops searsii* Feldman & Kislev ex K. Hammer**  
Wild. AEG-1630-44. Collected 06/20/1988 in Israel. Latitude 31 deg. 21'  
N. Longitude 35 deg. 7' E. Elevation 850 m. Yattir Forest, Judean  
Mountains. Annual precip. 383 mm.
- PI 599174. *Aegilops searsii* Feldman & Kislev ex K. Hammer**  
Wild. AEG-3063-13. Collected 06/08/1988 in Israel. Latitude 31 deg. 58'  
N. Longitude 35 deg. 20' E. Elevation 575 m. Kokav haShahar, Judean  
Desert. Annual precip. 479 mm.
- PI 599175. *Aegilops searsii* Feldman & Kislev ex K. Hammer**  
Wild. AEG-3064-14. Collected 06/08/1988 in Israel. Latitude 31 deg. 58'  
N. Longitude 35 deg. 20' E. Elevation 575 m. Kokav haShahar, Judean  
Desert. Annual precip. 479 mm.
- PI 599176. *Aegilops searsii* Feldman & Kislev ex K. Hammer**  
Wild. AEG-3065-15. Collected 06/08/1988 in Israel. Latitude 31 deg. 58'  
N. Longitude 35 deg. 20' E. Elevation 575 m. Kokav haShahar, Judean  
Desert. Annual precip. 479 mm.



**PI 599177. *Aegilops searsii* Feldman & Kislev ex K. Hammer**

Wild. AEG-3066-16. Collected 06/08/1988 in Israel. Latitude 31 deg. 58' N. Longitude 35 deg. 20' E. Elevation 575 m. Kokav haShahar, Judean Desert. Annual precip. 479 mm.

The following were developed by Hassan A. Melouk, USDA, ARS, Oklahoma State University, Department of Plant Pathology, Stillwater, Oklahoma 74078, United States; Donald J. Banks, P.O. Box 2286, Stillwater, Oklahoma 74076-2286, United States; James S. Kirby, Oklahoma State University, Department of Agronomy, 368 Agriculture Hall, Stillwater, Oklahoma 74078, United States; T. E. Stevens, Jr., Oklahoma State University, Dept. of Agronomy, Stillwater, Oklahoma 74078-6028, United States; J. R. Sholar, Oklahoma State University, Dept. of Agronomy, Stillwater, Oklahoma 74078-6028, United States; J. P. Damicone, Oklahoma State University, Dept. of Plant Pathology, Stillwater, Oklahoma 74078-9947, United States; K. E. Jackson, Oklahoma State University, Dept. of Plant Pathology, Stillwater, Oklahoma 74078-9947, United States. Received 07/28/1997.

**PI 599178. *Arachis hypogaea* L.**

Cultivar. Pureline. "SOUTHWEST RUNNER". CV-58. Pedigree - Comet/Florunner F9. Unique growth habit. Lateral branches prostrate, robust, main stem prominent and bearing flowers. Pods and seed average 12-15% smaller than Florunner. Moderate resistance to *Sclerotinia minor*, comparable to Tamspar 90. Slightly more susceptible to *Cercospora arachidicola* than Florunner. Maturity 7-10 days earlier than Florunner in Oklahoma. Limited chemical and flavor testing detected no appreciable differences with Florunner.

The following were collected by Charles E. Simpson, Texas A&M University, P. O. Box 292, Stephenville, Texas 76401, United States; Jose F. M. Valls, EMBRAPA, CENARGEN, SAIN Parque Rural - C.P. 10.2372, CEP 70.770, Brasilia, Federal District 70770, Brazil; Roy N. Pittman, USDA, ARS, University of Georgia, Plant Genetic Resources Conservation Unit, Griffin, Georgia 30223-1797, United States; Glocimar P. de Silva, CENARGEN/EMBRAPA, Brasilia, Federal District, Brazil. Received 05/21/1997.

**PI 599179. *Arachis stenosperma* Krapov. & W. C. Greg.**

Wild. 13672; BRA 33596. Collected in Mato Grosso, Brazil. Latitude 15 deg. 42' 0'' S. Longitude 52 deg. 44' 0'' W. General Carneiro.

**PI 599180. *Arachis stenosperma* Krapov. & W. C. Greg.**

Wild. 13693; BRA 33642. Collected in Mato Grosso, Brazil. Latitude 16 deg. 24' 0'' S. Longitude 54 deg. 3' 0'' W. Elevation 490 m. Guiratinga/E de V. Rico.

**PI 599181. *Arachis* sp.**

Wild. 13721; BRA 33723. Collected in Mato Grosso, Brazil. Latitude 16 deg. 9' 0'' S. Longitude 58 deg. 27' 0'' W. Elevation 280 m. Porto Esperidiao.

**PI 599182. *Arachis glandulifera* Stalker**

Wild. 13738; BRA 33774. Collected in Mato Grosso, Brazil. Latitude 16 deg. 13' 0'' S. Longitude 59 deg. 7' 0'' W. Elevation 320 m. P.

Esperidiao (Buriti).

**PI 599183. *Arachis magna* Krapov. et al.**

Wild. 13752; BRA 33821. Collected in Mato Grosso, Brazil. Latitude 16 deg. 8' 0'' S. Longitude 59 deg. 37' 0'' W. Elevation 450 m. Pontes e Lacerda.

**PI 599184. *Arachis magna* Krapov. et al.**

Wild. 13760; BRA 33839. Collected in Mato Grosso, Brazil. Latitude 15 deg. 19' 0'' S. Longitude 60 deg. 3' 0'' W. Elevation 390 m. Vila Bela S. Trindade.

The following were collected by Charles E. Simpson, Texas A&M University, P. O. Box 292, Stephenville, Texas 76401, United States; Jose F. M. Valls, EMBRAPA, CENARGEN, SAIN Parque Rural - C.P. 10.2372, CEP 70.770, Brasilia, Federal District 70770, Brazil; Roy N. Pittman, USDA, ARS, University of Georgia, Plant Genetic Resources Conservation Unit, Griffin, Georgia 30223-1797, United States; Wantuil L. Werneck, CENARGEN / EMBRAPA, Brasilia, Federal District, Brazil. Received 05/21/1997.

**PI 599185. *Arachis stenosperma* Krapov. & W. C. Greg.**

Wild. 13796; BRA 33898. Collected in Mato Grosso, Brazil. Latitude 15 deg. 46' 0'' S. Longitude 51 deg. 56' 0'' W. Elevation 310 m. Araguaiana (Faz.B.Flor).

**PI 599186. *Arachis* sp.**

Wild. 13824; BRA 33936. Collected in Goias, Brazil. Latitude 13 deg. 13' 0'' S. Longitude 50 deg. 34' 0'' W. Elevation 280 m. S. Mig. Araguaia/L. Alves.

**PI 599187. *Arachis* sp.**

Wild. 13828; BRA 33944. Collected in Goias, Brazil. Latitude 13 deg. 12' 0'' S. Longitude 50 deg. 35' 0'' W. Elevation 280 m. S. Mig. Araguaia/L. Alves.

**PI 599188. *Arachis* sp.**

Wild. 13832; BRA 33961. Collected in Goias, Brazil. Latitude 13 deg. 13' 0'' S. Longitude 50 deg. 34' 0'' W. Elevation 280 m. S. Mig. Araguaia/L. Alves.

**PI 599189. *Arachis* sp.**

Wild. 13844; BRA 33987. Collected in Tocantins, Brazil. Latitude 12 deg. 36' 0'' S. Longitude 49 deg. 20' 0'' W. Elevation 310 m. Araguacu (Rio Pau Seco).

The following were collected by Roy N. Pittman, USDA, ARS, University of Georgia, Plant Genetic Resources Conservation Unit, Griffin, Georgia 30223-1797, United States; Wantuil L. Werneck, CENARGEN / EMBRAPA, Brasilia, Federal District, Brazil. Received 05/21/1997.

**PI 599190. *Arachis dardani* Krapov. & W. C. Greg.**

Wild. 197; BRA 32263. Collected in Bahia, Brazil. Santana.

The following were developed by K.N. Rai, Int. Crops Res. Inst. for the Semi-Arid Tropics, Cereals Program, Patancheru, Andhra Pradesh 502 324, India ; A. Rao, Int. Crops Res. Inst. for the Semi-Arid Tropics, Patancheru, Andhra Pradesh 502324, India. Received 08/18/1997.

**PI 599191. Pennisetum glaucum (L.) R. Br.**

Breeding. Inbred. ICMB 89111. PL-34. Pedigree - 843B x (GNS x SS-48-40-4)-1-9-8. Seed parent of a commercial grain hybrid developed by a private seed company in India. Resistant to downy mildew (*Sclerospora graminicola*) in the disease nurseries in India. Mean plant height approx. 1.1 m. 50% flowering approx. 54 days. Panicles 3-4, small (16-18 cm) per plant, seed size medium (8-9 g/1000 seeds), and exertion excellent.

**PI 599192. Pennisetum glaucum (L.) R. Br.**

Breeding. Inbred. ICMA 89111. PL-35. Pedigree - Seven generations of backcrossing (from F7 onward) of the maintainer progeny into the A1 cytoplasm. Seed parent of a commercial grain hybrid developed by a private seed company in India. Resistant to downy mildew (*Sclerospora graminicola*) in the disease nurseries in India. Male sterility found stable across seasons and sites. Mean plant height approx. 1.1 m. 50% flowering approx. 54 days. Panicles 3-4, small (16-18 cm) per plant, seed size medium (8-9 g/1000 seeds), and excellent exertion. Can be used to produce both dwarf and tall hybrids for grain and forage production.

The following were developed by Edward J. Souza, University of Idaho, Aberdeen Research & Extension Center, P.O. Box AA, Aberdeen, Idaho 83210, United States; Larry Robertson, University of Idaho, Research & Extension Center, P.O. Box AA, Aberdeen, Idaho 83210-0530, United States; Robert S. Zemetra, University of Idaho, Department of Plant, Soil and Entomology, Moscow, Idaho 83843, United States; J.M. Windes, Idaho Agr. Exp. Sta., Univ. of Idaho, Plant, Soils, and Entomological Sci., Aberdeen Research and Extension Ctr., Aberdeen, Idaho 83210, United States; M. Lauver, University of Idaho, Dept. of Plant, Soil, and Ent. Sci., Moscow, Idaho 83844, United States; B.D. Brown, University of Idaho, Parma Research & Extension Center, 29603 U of I Lane, Parma, Idaho 83660, United States; S.O. Guy, University of Idaho, Plant, Soils, and Entomological Sciences, Moscow, Idaho 83844-2339, United States; M. Kruk, Wheat Marketing Center, Portland, Oregon 97209, United States. Received 08/11/1997.

**PI 599193. Triticum aestivum L., nom. cons.**

Cultivar. Pureline. "BRUNDAGE". CV-860. Pedigree - Stephens/Geneva. Soft white winter. Early, awnletted, short semi-dwarf, with excellent straw strength. Glumes white, shoulder oblique, and beak obtuse. Kernels white, soft, ovate, with crease mid-deep to deep. Foliage blue green. Moderate resistance to stripe rust (*Puccinia striiformis*). High yielding, high test weight, with excellent end-use quality characteristics.

The following were developed by An H Hang, Washington State University, Irrigated Agriculture Res. & Ext. Center, Route 2, Box 2953-A, Prosser, Washington 99350-9687, United States; An Hang, USDA, ARS, National Small

Grains Germplasm, Research Facility, Aberdeen, Idaho 83210, United States; George L. Hosfield, USDA, ARS, Michigan State University, Department of Crop & Soil Science, East Lansing, Michigan 48824, United States; Matt Silbernagel, USDA, ARS, Vegetable Crop Production, IAREC, P.O. Box 30, Prosser, Washington 99350, United States; Phil Miklas, USDA, ARS, Irrigated Agric. Research & Extension Ctr., 24106 North Bunn Road, Prosser, Washington 99350, United States. Received 08/05/1997.

**PI 599194. Phaseolus vulgaris L.**

Cultivar. "BURKE". CV-155. Pedigree - Othello/Sierra. High yielding, semi-upright, maturity mid-season, and disease resistant (bean common mosaic, necrosis virus, curly top virus, and root rot). Seed tan, cuboid, dark brown mottled, with pinkish orange hilar ring (corona), size slightly larger than Othello, 39 vs 36 g 100-1 seeds. Canning quality acceptable and better than parental cultivars for uniformity, color, appearance, and overall quality.

The following were developed by Mark McCaslin, Vista Research, Route 1, Gills Coulee Rd., Forest Genetics Research, West Salem, Wisconsin 54669, United States; Bill Knipe, Forage Genetics, 1918 S. Middleton Road, Nampa, Idaho 83686, United States; Dennis Cash, Montana State University, Dept. of Plant, Soils & Environmental Sciences, P.O. Box 173120, Bozeman, Montana 59717-3120, United States. Received 05/21/1997.

**PI 599195. Medicago sativa L. ssp. sativa**

Cultivar. Population. "PARADE". CV-197. Pedigree - Strain crosses of Mede and Pierce with Legend and AZMFA-1. Germplasm sources were: African (25%), Turkistan (16%), Indian (14%), Chilean (13%), Ladak (12%), Flemish (11%), M. varia (2%), M. falcata (1%), Peruvian (1%), and unknown (5%). Synthetic cultivar with 634 parent plants. Fall dormancy similar to Mesilla. Flower color purple 99%, Variegated 1%, and trace of white, cream, or yellow. High resistance to anthracnose Race 1, fusarium wilt, phytophthora root rot, spotted alfalfa aphid, and pea aphid. Resistant to blue alfalfa aphid, northern root-knot nematode, stem nematode, and verticillium wilt. Moderate resistance to bacterial wilt. High multifoliolate expression.

The following were developed by Seminis Vegetable Seeds, Inc., Woodland, California, United States. Received 08/12/1997.

**PI 599196. Phaseolus vulgaris L.**

Cultivar. "XP B346". PVP 9700330.

The following were developed by Pioneer Hi-Bred International, Inc., 6800 Pioneer Pkwy., P.O. Box 316, Johnston, Iowa 50131-0316, United States. Received 08/18/1997.

**PI 599197. Triticum aestivum L., nom. cons.**

Cultivar. "25W33". PVP 9700350.

**PI 599198. Triticum aestivum L., nom. cons.**

Cultivar. "25R26". PVP 9700351.

**PI 599199. *Triticum aestivum* L., nom. cons.**  
Cultivar. "25R57". PVP 9700352.

The following were developed by Seminis Vegetable Seeds, Inc., Woodland, California, United States. Received 08/18/1997.

**PI 599200. *Lactuca sativa* L.**  
Cultivar. "SONOMA". PVP 9700353.

The following were developed by Sulton Seed Research Corporation, United States. Received 07/16/1997.

**PI 599201. *Cynara cardunculus* L. ssp. *cardunculus***  
Cultivar. "D.G.-101". PVP 9700354.

The following were developed by Jim Helm, Alberta Agriculture, Field Crop Development Centre, 5030 50 Street, Lacombe, Alberta T4L 1W8, Canada. Received 10/20/1997.

**PI 599202. *Hordeum vulgare* L. ssp. *vulgare***  
Cultivar. Pureline. "TERCEL"; HB 605. Pedigree - WA7698-62/RPB222-69//Firlbecks III/Julia///Clipper/APM-IB65. Two-row, hullless, medium maturity, spring habit feed barley. Rough-awned, height medium. Coleoptile green and juvenile growth habit semi-erect. Flag leaf dark green, narrow, long, and attitude semi-erect. Auricles white, sheath waxy. Stem green and waxy. Spikes dense, nodding, medium long. Kernels medium long and wide, aleurone yellow. Rachilla short, hairs long. High yield and protein content, good straw. Moderately susceptible to common root rot. Intermediate reaction to stem rust and net blotch. Susceptible to loose smut and scald.

The following were developed by Seed Research of Oregon, Inc., Corvallis, Oregon, United States. Received 07/23/1997.

**PI 599203. *Lolium perenne* L.**  
Cultivar. "PENGUIN". PVP 9700356.

The following were developed by Central Valley Seeds, Inc., United States. Received 07/24/1997.

**PI 599204. *Lactuca sativa* L.**  
Cultivar. "RED FOX". PVP 9700357.

The following were developed by Loft's Pedigreed Seed, Inc., One Chimney Rock Road, P.O. Box 146, Bound Brook, New Jersey 08805, United States. Received 07/25/1997.

**PI 599205. *Lolium perenne* L.**

Cultivar. "PALMER III". PVP 9700358.

**PI 599206. *Lolium perenne* L.**  
Cultivar. "PRELUDE III". PVP 9700359.

**PI 599207. *Lolium perenne* L.**  
Cultivar. "REPELL III". PVP 9700360.

The following were developed by International Seeds Inc., P.O. Box 168, Halsey, Oregon 97348, United States. Received 07/28/1997.

**PI 599208. *Festuca arundinacea* Schreb.**  
Cultivar. "PRIDE". PVP 9700361.

The following were developed by E.F. Burlingham & Sons, 1936 19th Avenue, P.O. Box 217, Forest Grove, Oregon 97116, United States. Received 08/01/1997.

**PI 599209. *Lolium perenne* L.**  
Cultivar. "MAJESTY". PVP 9700364.

**PI 599210. *Lolium perenne* L.**  
Cultivar. "LINE DRIVE". PVP 9700365.

**PI 599211. *Lolium perenne* L.**  
Cultivar. "PENNANT II". PVP 9700366.

The following were developed by Loft's Pedigreed Seed, Inc., One Chimney Rock Road, P.O. Box 146, Bound Brook, New Jersey 08805, United States. Received 08/05/1997.

**PI 599212. *Lolium perenne* L.**  
Cultivar. "LRF-94-B7E". PVP 9700367.

The following were donated by California Crop Imp. Assoc., Davis, California, United States. Received 1962.

**PI 599213. *Vigna unguiculata* (L.) Walp.**  
Cultivar. CALIFORNIA BLACK EYE 3.

The following were developed by Coastal Seeds, Inc., United States. Received 08/26/1997.

**PI 599214. *Lactuca sativa* L.**  
Cultivar. "BRONCO". PVP 9500116.

The following were developed by Grassland West, United States. Received 08/26/1997.

**PI 599215. *Lolium perenne* L.**

Cultivar. "SECRETARIAT". PVP 9700375.

**PI 599216. Festuca rubra L.**  
Cultivar. "MAGIC". PVP 9700376.

The following were developed by Cascade International Seed Company, 8483 W. Stayton Rd., Aumsville, Oregon 97325, United States. Received 08/26/1997.

**PI 599217. Lolium perenne L.**  
Cultivar. "ARCHER". PVP 9700377.

The following were developed by J. Buck, Buck S.A., La Dulce, Buenos Aires, Argentina. Received 08/26/1997.

**PI 599218. Triticum aestivum L., nom. cons.**  
Cultivar. "NORA". PVP 9700378.

The following were developed by HybriTech Seed International, Inc., A Unit of Monsanto Company, United States. Received 08/26/1997.

**PI 599219. Triticum aestivum L., nom. cons.**  
Cultivar. "B1183". PVP 9700379.

The following were developed by University of Georgia Research Foundation, Inc., Georgia, United States. Received 08/26/1997.

**PI 599220. Avena sativa L.**  
Cultivar. "CHAPMAN". PVP 9700380.

The following were developed by Jacklin Seed Company, 5300 West Riverbend Avenue, Post Falls, Idaho 83854-9499, United States. Received 08/26/1997.

**PI 599221. Poa pratensis L.**  
Cultivar. "NUGLADE". PVP 9700381.

**PI 599222. Poa pratensis L.**  
Cultivar. "AWARD". PVP 9700382.

**PI 599223. Poa pratensis L.**  
Cultivar. "RUGBY II". PVP 9700383.

**PI 599224. Poa pratensis L.**  
Cultivar. "BLUE CHIP". PVP 9700384.

**PI 599225. Poa pratensis L.**  
Cultivar. "IMPACT". PVP 9700385.

**PI 599226. Poa pratensis L.**  
Cultivar. "ODYSSEY". PVP 9700386.

**PI 599227. *Poa pratensis* L.**  
Cultivar. "EXPLORER". PVP 9700387.

The following were developed by Turf Merchants, Inc., United States. Received 08/26/1997.

**PI 599228. *Poa trivialis* L.**  
Cultivar. "STARDUST". PVP 9700388.

The following were developed by W. Atlee Burpee Company, 300 Park Avenue, Warminster, Pennsylvania 18974, United States. Received 1974.

**PI 599229. *Callistephus chinensis* (L.) Nees**  
Cultivar. "IDEAL DARK BLUE". PVP 7100053.

**PI 599230. *Callistephus chinensis* (L.) Nees**  
Cultivar. "IDEAL ROSE". PVP 7100054.

**PI 599231. *Callistephus chinensis* (L.) Nees**  
Cultivar. "ROSE". PVP 7100077.

**PI 599232. *Callistephus chinensis* (L.) Nees**  
Cultivar. "EXTRA EARLY SCARLET MORN". PVP 7100078.

**PI 599233. *Callistephus chinensis* (L.) Nees**  
Cultivar. "TOTEM POLE AZURE BLUE". PVP 7100005.

**PI 599234. *Callistephus chinensis* (L.) Nees**  
Cultivar. "TOTEM POLE DARK BLUE". PVP 7100006.

**PI 599235. *Callistephus chinensis* (L.) Nees**  
Cultivar. "TOTEM POLE ROSE-PINK". PVP 7100003.

**PI 599236. *Callistephus chinensis* (L.) Nees**  
Cultivar. "TOTEM POLE SCARLET-CERISE". PVP 7100004.

**PI 599237. *Callistephus chinensis* (L.) Nees**  
Cultivar. "TOTEM POLE WHITE". PVP 7100002.

The following were developed by Ferry-Morse Seed Company, Inc., P.O. Box 100, Mountain View, California 94042, United States. Received 1975.

**PI 599238. *Lathyrus odoratus* L.**  
Cultivar. "JET SET KILARNEY". PVP 7200122.

The following were developed by W. Atlee Burpee Company, 300 Park Avenue, Warminster, Pennsylvania 18974, United States. Received 1975.

**PI 599239. *Callistephus chinensis* (L.) Nees**  
Cultivar. "RED MOUND". PVP 7500025.



The following were developed by Ferry-Morse Seed Company, Inc., P.O. Box 100, Mountain View, California 94042, United States. Received 1975.

PI 599240. *Lathyrus odoratus* L.  
Cultivar. "JET SET MORITZ". PVP 7200125.

PI 599241. *Lathyrus odoratus* L.  
Cultivar. "JET SET MADRID". PVP 7200124.

The following were developed by Cargill Wheat Research Farm, 2450 Drake Rd., Fort Collins, Colorado, United States. Received 1975.

PI 599242. *Carthamus tinctorius* L.  
Cultivar. "CARGILL DWARF 101". PVP 7300060.

The following were developed by W. Atlee Burpee Company, 300 Park Avenue, Warminster, Pennsylvania 18974, United States. Received 1975.

PI 599243. *Lathyrus odoratus* L.  
Cultivar. "LAVENDER DELIGHT". PVP 7100086.

PI 599244. *Lathyrus odoratus* L.  
Cultivar. "SALMONETTE". PVP 7100085.

PI 599245. *Lathyrus odoratus* L.  
Cultivar. "TANGERINE". PVP 7100087.

The following were developed by Turf-Seed, Inc., New Jersey, United States. Received 1976.

PI 599246. *Lolium perenne* L.  
Cultivar. "CITATION". CV-46; PVP 7500003.

The following were developed by Zwaan & de Wiljes Seed Company, Inc., Scheemda, Groningen, Netherlands. Received 1976.

PI 599247. *Lolium perenne* L.  
Cultivar. "SPRINTER". PVP 7200065.

PI 599248. *Phleum bertolonii* DC.  
Cultivar. "MATCH". PVP 7200061.

The following were developed by J. Joordens Zaadhandel B.V., Netherlands. Received 1977.

PI 599249. *Lolium multiflorum* Lam.  
Cultivar. "AUBADE". PVP 7100043.

The following were developed by Zwaan & de Wiljes Seed Company, Inc.,  
Scheemda, Groningen, Netherlands. Received 1977.

**PI 599250. *Lolium perenne* L.**  
Cultivar. "SCORE". PVP 7500078.

The following were developed by W.W. Mitchell, Palmer Research Center, Alaska  
Agric. and Forestry Exp. Station, 533 E Fireweed, Palmer, Alaska 99645,  
United States. Donated by University of Alaska, Agricultural Experiment  
Station, College, Alaska, United States. Received 1977.

**PI 599251. *Poa glauca* Vahl**  
Cultivar. "TUNDRA"; 1AS 305. CV-19; PVP 7700033. Pedigree - Synthetic  
tracing to bulk seed collections (1AS 231) made along the Sagavanirktok  
River in arctic Alaska in 1969 and 1970. Adapted to extreme northern  
areas with severe environmental conditions. Short-to-medium height,  
tufted bluegrass, 5.5 dm tall. Basal clump of narrow leaves, short  
inflorescence. Susceptible to powdery mildew.

The following were developed by W. Atlee Burpee Company, 300 Park Avenue,  
Warminster, Pennsylvania 18974, United States. Received 1977.

**PI 599252. *Eschscholzia californica* Cham.**  
Cultivar. "BALLERINA YELLOW". PVP 7400030.

The following were developed by Pacific Oilseeds, Inc., Woodland, California,  
United States. Received 1978.

**PI 599253. *Carthamus tinctorius* L.**  
Cultivar. "S-317". PVP 7700021.

**PI 599254. *Carthamus tinctorius* L.**  
Cultivar. "S-400". PVP 7700027.

The following were donated by A. E. Hall, University of California,  
Department of Botany & Plant, Sciences, Riverside, California 92521, United  
States. Received 01/21/1997.

**PI 599255. *Vigna unguiculata* (L.) Walp. *ssp. unguiculata***  
Cultivated. UCR 5281; NJC-1. Collected in Niger. Many brown specks.  
Heat resistant.

The following were donated by H. Uhrig, Karl von Linne Weg #10, Cologne,  
Germany. Received 12/07/1990.

**PI 599256. *Solanum tuberosum* L.**  
Cultivar. "H80.572/5"; Q 28363. Diploid cultivar. Immune to potato virus  
Y (PVY).

The following were donated by Nelson Estrada-Ramos, PROINPA, Casilla Postal 4285, Cochabamba, Cochabamba, Bolivia. Received 03/11/1994.

**PI 599257. *Solanum tuberosum* L.**

Cultivar. "90-20-18"; BE-6048; Q 32923.

**PI 599258. *Solanum x curtilobum* Juz. & Bukasov**

Cultivated. BOL 3418; Laran Luki; Loran Luky; BE-7687; Q 35803; BO 17. Extremely frost tolerant bitter potato (papa amarga). High levels of glycoalkaloids, processed into chuno. See Q 35804 also.

**PI 599259. *Solanum x juzepczukii* Bukasov**

Cultivated. BOL 3455; Lucky; Luky Bol; Q 35804; BE-7687; BO 18. Extremely frost tolerant bitter potato (papa amarga). High levels of glycoalkaloids, processed into chuno. Also see Q 35803.

The following were donated by Oscar A. Hidalgo, International Potato Center, Apartado 5969, Lima, Lima, Peru. Received 03/05/1996.

**PI 599260. *Solanum tuberosum* L.**

Cultivar. "LBR-46"; CIP 387312.2; Q 36025. Pedigree - 382119.15 (378508.277 x MEX BULK)/C83.119. Late Blight resistant breeding stock.

**PI 599261. *Solanum tuberosum* L.**

Cultivar. "LBR-18"; CIP 387315.27; Q 36026. Pedigree - 382121.25 (378508.295 x MEX BULK)/C83119. Late Blight resistant breeding stock.

**PI 599262. *Solanum tuberosum* L.**

Cultivar. "LBR-7"; CIP 387326.2; Q 36027. Pedigree - 382140.8 (377803.11 x MEX BULK)/C83119. Late Blight resistant breeding stock.

**PI 599263. *Solanum tuberosum* L.**

Cultivar. "LBR-47"; CIP 387334.5; Q 36028. Pedigree - 382155.2 (CFJ-69-1 x MEX BULK)/C83.119. Late Blight resistant breeding stock.

**PI 599264. *Solanum tuberosum* L.**

Cultivar. "LBR-50"; CIP 387338.3; Q 36029. Pedigree - 382160.30 (ROSITA x MEX BULK)/C83.119. Late Blight resistant breeding stock.

**PI 599265. *Solanum tuberosum* L.**

Cultivar. "LBR-8"; CIP 387348.20; Q 36030. Pedigree - 382181.27.27 (378508.277 x LB BULK)/C83119. Late Blight resistant breeding stock.

**PI 599266. *Solanum tuberosum* L.**

Cultivar. "LBR-9"; CIP 387410.7; Q 36031. Pedigree - I-931/AVRDC-1287.19 Late Blight resistant breeding stock.

**PI 599267. *Solanum tuberosum* L.**

Cultivar. "LBR-10"; CIP 387411.40; Q 36032. Pedigree - I-1039/AVRDC-1287.19. Late Blight resistant breeding stock.

**PI 599268. *Solanum tuberosum* L.**

Cultivar. "LBR-11"; CIP 387411.41; Q 36033. Pedigree -

- I-1039/AVRDC-1287.19. Late Blight resistant breeding stock.
- PI 599269. Solanum tuberosum L.**  
Cultivar. "LBR-23"; CIP 387411.49; Q 36034. Pedigree -  
I-1039/AVRDC-1287.19. Late Blight resistant breeding stock.
- PI 599270. Solanum tuberosum L.**  
Cultivar. "LBR-12"; CIP 387413.21; Q 36035. Pedigree - P-3/AVRDC-1287.19  
. Late Blight resistant breeding stock.
- PI 599271. Solanum tuberosum L.**  
Cultivar. "LBR-13"; CIP 387413.54; Q 36036. Pedigree - P-3/AVRDC-1287.19  
. Late Blight resistant breeding stock.
- PI 599272. Solanum tuberosum L.**  
Cultivar. "LBR-16"; CIP 387415.26; Q 36037. Pedigree - P-7/AVRDC-1287.19  
. Late Blight resistant breeding stock.
- PI 599273. Solanum tuberosum L.**  
Cultivar. "LBR-17"; CIP 387415.32; Q 36038. Pedigree - P-7/AVRDC-1287.19  
. Late Blight resistant breeding stock.
- PI 599274. Solanum tuberosum L.**  
Cultivar. "LBR-24"; CIP 387415.40; Q 36039. Pedigree - P-7/AVRDC-1287.19  
. Late Blight resistant breeding stock.
- PI 599275. Solanum tuberosum L.**  
Cultivar. "LBR-25"; CIP 387415.47; Q 36040. Pedigree - P-7/AVRDC-1287.19  
. Late Blight resistant breeding stock.
- PI 599276. Solanum tuberosum L.**  
Cultivar. "LBR-26"; CIP 387415.49; Q 36041. Pedigree - P-7/AVRDC-1287.19  
. Late Blight resistant breeding stock.
- PI 599277. Solanum tuberosum L.**  
Cultivar. "LBR-14"; CIP 387415.6; Q 36042. Pedigree - P-7/AVRDC-1287.19.  
Late Blight resistant breeding stock.
- PI 599278. Solanum tuberosum L.**  
Cultivar. "LBR-15"; CIP 387415.7; Q 36043. Pedigree - P-7/AVRDC-1287.19.  
Late Blight resistant breeding stock.
- PI 599279. Solanum tuberosum L.**  
Cultivar. "LARAM AJAWIRI"; CIP 2 702683; Q 36044. Quechua names for  
primitive cultivars from Bolivia. From CIP virus free collection.
- PI 599280. Solanum tuberosum L.**  
Cultivar. "(UNKNOWN)"; CIP 702802; Q 36045. Quechua names for primitive  
cultivars from Bolivia. From CIP virus free collection.
- PI 599281. Solanum tuberosum L.**  
Cultivar. "LUKE"; CIP 702455; Q 36046. Quechua names for primitive  
cultivars from Bolivia. From CIP virus free collection.
- PI 599282. Solanum tuberosum L.**

Cultivar. "HUACA COROTA"; CIP 702543; Q 36047. Quechua names for primitive cultivars from Bolivia. From CIP virus free collection.

**PI 599283. Solanum tuberosum L.**

Cultivar. "TUMBAY"; CIP 701862; Q 36048. Quechua names for primitive cultivars from Bolivia. From CIP virus free collection.

**PI 599284. Solanum tuberosum L.**

Cultivar. "ZAPALLO"; CIP 703244; Q 36049. Quechua names for primitive cultivars from Bolivia. From CIP virus free collection.

**PI 599285. Solanum tuberosum L.**

Cultivar. "KAISALLA"; CIP 702619; Q 36051. Quechua names for primitive cultivars from Bolivia. From CIP virus free collection.

**PI 599286. Solanum tuberosum L.**

Cultivar. "CKANCHALI MORODO"; CIP 703258; Q 36052. Quechua names for primitive cultivars from Bolivia. From CIP virus free collection.

The following were donated by M.S. Ramanna, Agricultural University, P.O.B. 386 / 6700 AJ, Lawickse Allee 166, Wageningen, Netherlands. Received 10/28/1996.

**PI 599287. Solanum tuberosum L.**

Cultivar. BE62; Q 36544. Pedigree - ds1/ds/. (ds1/ds/) 2n-pollen producer.

**PI 599288. Solanum tuberosum L.**

Cultivar. BE 1050; Q 36546.

**PI 599289. Solanum tuberosum L.**

Cultivar. USW 5295.7; B; Q 36547. Pedigree - Ds-1/Ds-1.

**PI 599290. Solanum tuberosum L.**

Cultivar. USW 7589.2; D; Q 36549. Pedigree - Ds-1/Ds-1.

**PI 599291. Solanum tuberosum L.**

Cultivar. CE8; Q 36551. Pedigree - Ds-1/Ds-1. FDR clone produces 5-6 seeds/berry. Used as seed parent.

**PI 599292. Solanum tuberosum L.**

Cultivar. CE13; Q 36552. Pedigree - Ds-1/Ds-1. FDR clone, produces 8-10 seeds/berry. Used as a seed parent.

**PI 599293. Solanum tuberosum L.**

Cultivar. CE120; Q 36554. Pedigree - Ds-1/Ds-1. Produces more than 25% 2n pollen, female sterile.

**PI 599294. Solanum tuberosum L.**

Cultivar. CD1015; Q 36556.

**PI 599295. Solanum tuberosum L.**

Cultivar. CD1047; Q 36558.

The following were donated by Eugeny Zaychenko, DOKA Company, 360 Zelenograd, Moscow, Russian Federation; Boris Gabel, DOKA Company, 360 Zelenograd, Moscow, Russian Federation. Received 11/21/1996.

**PI 599296. *Solanum tuberosum* L.**  
Cultivar. "LUGOVSKOY"; Q 36615.

**PI 599297. *Solanum tuberosum* L.**  
Cultivar. "LUKIANOVSKY"; Q 36616.

**PI 599298. *Solanum tuberosum* L.**  
Cultivar. "NEVSKY"; Q 36617.

The following were developed by James H. Orf, University of Minnesota, Dept. of Agronomy and Plant Genetics, Minnesota Agr. Exp. Sta., St. Paul, Minnesota 55108, United States; R.A. Scott, South Dakota State University, Plant Science Dept., Brookings, North Dakota 57007, United States. Received 08/27/1997.

**PI 599299. *Glycine max* (L.) Merr.**  
Cultivar. Pureline. "Stride". CV-373; PVP 9800136. Pedigree - Hack/Lambert. Indeterminate with relative maturity 1.3. Flowers purple, pubescence gray, and pods brown at maturity. Seeds yellow with shiny luster and imperfect black hila. Three year avg. seed yield 3574 kg ha-1, quality 1.4 (1 = very good, 5 = very poor), weight 17.5 g 100 seed, protein 420 g kg-1 and oil concentration 210 g kg-1, lodging score 1.2 (1 = erect, 5 = prostrate), plant height 73.5 cm. Iron deficiency chlorosis 3.7 (1 = no chlorosis, 5 = severe chlorosis). Rps1 gene resistance to phytophthora root rot (*Phytophthora sojae*).

**PI 599300. *Glycine max* (L.) Merr.**  
Cultivar. Pureline. "Surge". CV-374; PVP 9800137. Pedigree - Hack/Zane//Kato. Indeterminate with relative maturity 0.9. Flowers purple, pubescence gray, and pods brown at maturity. Seeds yellow with dull luster and imperfect black hila. Three year avg. seed yield 3574 kg ha-1, quality 1.6 (1 = very good, 5 = very poor), weight 20 g 100 seed, protein 439 g kg-1 and oil concentration 199 g kg-1, lodging 1.5 (1 = erect, 5 = prostrate), plant height 81 cm. Iron deficiency chlorosis 2.7 (1 = no chlorosis, 5 = severe chlorosis). Rps1 gene resistance to phytophthora root rot (*Phytophthora sojae*).

The following were developed by Millhan Cagirgan, Akdeniz University, Department of Field Crops, Faculty of Agriculture, Antalya, Turkey; K. Visser, Leiden University, Center for Phytotechnology, Wassenaarseweg 64, Leiden, Netherlands; C. Toker, Akdeniz University, Plant Mutation Research Group, P.O. Box 510, Antalya, Turkey; M. Wang, Leiden University, Center for Phytotechnology, Wassenaarseweg 64, Leiden, Netherlands; M.E. Tugay, Akdeniz University, Plant Mutation Research Group, P.O. Box 510, Antalya, Turkey; M.B. Yildirim, Akdeniz University, Plant Mutation Research Group, P.O. Box 510, Antalya, Turkey; F. Heidekamp, Leiden University, Center for Phytotechnology, Wassenaarseweg 64, Leiden, Netherlands. Received 08/27/1997.

**PI 599301. *Hordeum vulgare* L. ssp. *vulgare***

Breeding. Pureline. M-Q-54; Akdeniz (M-Q-54). CV-270. Pedigree - Gamma ray induced mutant selected from Quantum. Released 08/1997. Advanced generation mutant from Austrian spring habit two-rowed grayish kernel colored Quantum. Slightly larger than semi-dwarf wild type. Adaptability wider, stem thicker, seeds larger, drought and cold tolerance higher, yielding capacity higher under drought stress, and more anthers. Almost insensitive to abscisic acid with regard to embryo germination.

The following were developed by Kay H. Asay, USDA, ARS, Forage & Range Research Unit, Utah State University, Logan, Utah 84322-6300, United States; N. Jerry Chatterton, USDA-ARS, Forage & Range Research, Utah State University, Logan, Utah 84322-6300, United States; Kevin B. Jensen, USDA, ARS, Utah State University, Forage & Range Research Laboratory, Logan, Utah 84322-6300, United States; W.H. Horton, USDA, ARS, Forage and Range Research Laboratory, Utah State University, Logan, Utah 84322-6300, United States; Douglas A. Johnson, USDA, ARS, Forage and Range Research Laboratory, Utah State University, Logan, Utah 84322-6300, United States; A.J. Palazzo, U.S. Army Cold Regions Res. and Engineering Lab., 72 Lyme Road, Hanover, New Hampshire 03755-1290, United States. Received 09/23/1997.

**PI 599302. *Psathyrostachys juncea* (Fisch.) Nevski**

Breeding. Population. RWR-Tetra-1. GP-75. Pedigree - 10 parental accessions of Russian wildrye, natural tetraploids AJC538, AJC539, AJC540, AJC601, and induced tetraploids AJC595, AJC596, AJC597, AJC598, AJC599, AJC600. First release of naturally occurring tetraploid Russian Wildrye germplasm. Previous work limited to tetraploids artificially induced from diploids. Seeds heavier, 0.53 g 100 seeds<sup>-1</sup>. Seedling vigor greater, rate of emergence at depth of 7.6 cm is 3.4 seedling/day. Stature taller, 103 cm. Leaves longer and wider, 15.2 x 5.6 cm. Dry matter production and crude protein similar to current cultivars under different environments. Water-use efficiency better than diploids as determined by carbon isotope discrimination measurement.

The following were developed by R. Assaf, Agricultural Research Organization, Neve-Ya'ar Research Center, Dept. of Fruit Culture, Ramat Yishay, Israel. Donated by Oded Reuveni, Institute of Horticulture, The Volcani Center, ARO, P.O. Box 6, Bet Dagan, Israel. Received 02/13/1996.

**PI 599303. *Ficus carica* L.**

Cultivar. "NAZARTI"; DFIC 163. Collected 1961 in Israel. Found in a convent in Nazareth. Selected from large population as having superior traits. Early fruit large, green-yellow, taste good, yield high, keeping quality poor. Maturity in Israel early May-June. Late fruit green-yellow, very sweet with honey aroma, parthenocarpic without seeds. Maturity in Israel late July-August. Quality high in dried form.

The following were developed by Ferry-Morse Seed Company, Inc., P.O. Box 100, Mountain View, California 94042, United States. Received 09/23/1997.

**PI 599304. *Lactuca sativa* L.**

Cultivar. "PACIFIC PRIDE". PVP 9700270.

The following were developed by Asgrow Seed Company, Kalamazoo, Michigan, United States. Received 09/23/1997.

PI 599305. *Glycine max* (L.) Merr.  
Cultivar. "SF567RR". PVP 9700272.

PI 599306. *Glycine max* (L.) Merr.  
Cultivar. "Delta King 5961". PVP 9700273.

PI 599307. *Glycine max* (L.) Merr.  
Cultivar. "SF477RR". PVP 9700274.

The following were developed by DeKalb-Pfizer Genetics, United States. Received 09/23/1997.

PI 599308. *Glycine max* (L.) Merr.  
Cultivar. "CX570C". PVP 9700292.

The following were developed by Saskatchewan Wheat Pool, #15 Innovation Blvd., 207 - 112 Research Drive, Saskatoon, Saskatchewan S7N 2XB, Canada. Received 09/23/1997.

PI 599310. *Hordeum vulgare* L.  
Cultivar. "TR-133". PVP 9700296.

The following were developed by AgriPro Seeds, R.R. #2, Box 411, Brookston, Indiana 47923, United States. Received 09/23/1997.

PI 599311. *Glycine max* (L.) Merr.  
Cultivar. "HY 663". PVP 9700297.

The following were developed by Seminis Vegetable Seeds, Inc., Woodland, California, United States. Received 09/23/1997.

PI 599312. *Lactuca sativa* L.  
Cultivar. "DESERT GREEN". PVP 9700298.

The following were developed by DeKalb-Pfizer Genetics, United States. Received 09/23/1997.

PI 599313. *Medicago sativa* L.  
Cultivar. "DK141". PVP 9700299.

The following were developed by Limagrain Genetics, Inc., France. Received 09/23/1997.

PI 599314. *Brassica napus* L.



Cultivar. "MAGNUM". PVP 9700320.

**PI 599315. Brassica napus L.**

Cultivar. "LG 3310". PVP 9700321.

**PI 599316. Brassica napus L.**

Cultivar. "TRAILBLAZER". PVP 9700322.

**PI 599317. Brassica napus L.**

Cultivar. "EBONY". PVP 9700323.

**PI 599318. Brassica napus L.**

Cultivar. "LG 3333". PVP 9700324.

**PI 599319. Brassica napus L.**

Cultivar. "LG 3260". PVP 9700325.

The following were developed by AgriPro Seeds, R.R. #2, Box 411, Brookston, Indiana 47923, United States. Received 09/23/1997.

**PI 599320. Gossypium hirsutum L.**

Cultivar. "DP 2379". PVP 9700326.

The following were developed by Seminis Vegetable Seeds, Inc., Woodland, California, United States. Received 09/23/1997.

**PI 599321. Phaseolus vulgaris L.**

Cultivar. "XP B344". PVP 9700327.

**PI 599322. Phaseolus vulgaris L.**

Cultivar. "PIX". PVP 9700328.

**PI 599323. Phaseolus vulgaris L.**

Cultivar. "XP B323". PVP 9700329.

The following were developed by Harris Moran Seed Company, P.O. Box 4938, Modesto, California 95352-4938, United States. Received 09/23/1997.

**PI 599324. Phaseolus vulgaris L.**

Cultivar. "SONATA". PVP 9700405.

The following were developed by Holden's Foundation Seeds, Inc., United States. Received 09/23/1997.

**PI 599325. Zea mays L. ssp. mays**

Cultivar. "LH292". PVP 9700406.

**PI 599326. Zea mays L. ssp. mays**

Cultivar. "LH300". PVP 9700407.

**PI 599327. Zea mays L. ssp. mays**

Cultivar. "LH237". PVP 9700408.

**PI 599328. *Zea mays* L. ssp. *mays***  
Cultivar. "LH238". PVP 9700409.

The following were developed by Harris Moran Seed Company, P.O. Box 4938, Modesto, California 95352-4938, United States. Received 09/23/1997.

**PI 599329. *Lactuca sativa* L.**  
Cultivar. "RUBY RUFFLES". PVP 9700404.

The following were developed by John Bodger & Sons Company, United States. Received 09/23/1997.

**PI 599330. *Catharanthus roseus* (L.) G. Don**  
Cultivar. "HEATWAVE ROSE". PVP 9700403.

**PI 599331. *Tagetes patula* L.**  
Cultivar. "HERO BEE". PVP 9700402.

The following were developed by Pickseed West, Inc., P.O. Box 888, 33149 Highway 99E, Tangent, Oregon 97389, United States. Received 09/23/1997.

**PI 599332. *Lolium perenne* L.**  
Cultivar. "HEADSTART". PVP 9700401.

The following were developed by Clemson University, South Carolina Agr. Exp. Sta., Clemson, South Carolina 29817, United States. Received 09/23/1997.

**PI 599333. *Glycine max* (L.) Merr.**  
Cultivar. "Musen". PVP 9700396.

The following were developed by HybriTech Seed International, Inc., A Unit of Monsanto Company, United States. Received 09/23/1997.

**PI 599334. *Triticum aestivum* L., nom. cons.**  
Cultivar. "SOLOMON". PVP 9700397.

The following were developed by Western Plant Breeders, Phoenix, Arizona, United States. Received 09/23/1997.

**PI 599335. *Triticum aestivum* L., nom. cons.**  
Cultivar. "WESTBRED 470". PVP 9700398.

**PI 599336. *Triticum aestivum* L., nom. cons.**  
Cultivar. "MORGAN". PVP 9700399.

The following were developed by E. D. Donnelly, Auburn University, Agronomy

and Soils Department, Auburn, Alabama 36830, United States. Donated by Auburn University, Alabama Agr. Exp. Sta., Auburn, Alabama, United States. Received 1961.

**PI 599337. *Vicia sativa* L.**

Cultivar. "WARRIOR". CV-2. Pedigree - Composite of 5 lines evaluated for seed and herbage production and cold tolerance. Released 1958. High seed yield. Early maturing variety produces high yields of herbage and is resistant to the vetch bruchid *Bruchus brachialis* and to three species of root-knot nematodes (*Meloidogyne javanica*, *M. incognita*, and *M. incognita acrita*).

The following were collected by J. Arguelles, USDA-ARS, Plant Industry Station, New Crops Research Branch, Crops Research Division, Beltsville, Maryland 20705-2350, United States. Donated by I.A. Wolff, NURDD, Peoria, Illinois, United States. Received 01/24/1984.

**PI 599338. *Amaranthus* hybrid**

Landrace. No. 22; NUNO 38200; NU 38200; guegui; Ames 3088; PQ A881. Collected 01/12/1959 in Sonora, Mexico. Harvested in Babicora, Sonora. Pedigree - Possible hybrid of *Amaranthus cruentus* and *Amaranthus powellii*, then selected for white seeds. Seeds white. Two types--one with red foliage and flower, and one with green foliage and flower. Tallest and latest flowering plants are red. In the field at Ames, Iowa, most plants matured seeds in 1997 and grew.

The following were donated by Michael Knudson, USDA, NRCS, Plant Materials Center, 3308 University Drive, Bismarck, North Dakota 58504-7564, United States. Received 08/22/1997.

**PI 599339. *Dalea purpurea* Vent.**

Wild. ND-1481; 9006032; DAPU5; Purple Prairie Clover; Ames 23866. Collected 1975 in South Dakota, United States. Latitude 43 deg. 54' 35" N. Longitude 100 deg. 3' 30" W. Elevation 1800 m. Approximately 5 miles east of Presho, Lyman County. Pedigree - Increase of an ecotype collection from the initial evaluation of 11 North and South Dakota collections. Alternate, pinnately compound leaves. Vigor and foliage abundance superior, and seed amount excellent compared to other ecotype collections. Multiple, upright stems arise annually from a woody crown which is subtended by an extensive tap root system. As the season progresses, the early upright stems tend to become prostrate. Used in range, pasture, reclamation, and beautification.

The following were developed by Robert T. Lewellen, USDA, ARS, U.S. Agricultural Research Station, 1639 E. Alisal St., Salinas, California 93905, United States. Received 09/23/1997.

**PI 599340. *Beta vulgaris* L.**

Breeding. C67; Y767. Pedigree - Increase of backcrosses of C51 (50% Bvm) to C31 type germplasm. Released 01/14/1998. Multigerm, self-sterile. Approx. 10% of germplasm derived from *B.v.* subsp. *maritima* through C51. Rhizomania resistance from Rz and C51 factor(s). Background similar to

C69. Sprouts 100 seeds-1 is 161. Hypocotyle color R:rr.

**PI 599341. *Beta vulgaris* L.**

Breeding. C69; Y769. Pedigree - Increase of composite cross (C31/6, C31-43, C31-89, C39, C91) x Rx [(C31/6, C39, C46/2, C47, C49, C54, C91, C92, Y48, Y56, Y57) x (C78, C79, C80, C82)]. Released 01/14/1998. Multigerm, self-sterile. Rz resistance to rhizomania, tolerance to virus yellows, resistance to Erwinia, and moderate resistance to powdery mildew. Relatively high %S. Broadbased with high percentage of C31-type germplasm. Sprouts 100 seeds-1 is 206. Hypocotyle color R:rr.

**PI 599342. *Beta vulgaris* L.**

Breeding. C72; Y772. Pedigree - Increase of backcrosses of C51 (50% Bvm) to C82 and C80. Released 01/15/1998. Multigerm, self-sterile. Approx. 5% of germplasm derived from *B. v. subsp. maritima* through C51. Resistance to rhizomania from Rz allele and C51 factor(s). Sprouts 100 seeds-1 is 166. Hypocotyle color R:rr.

**PI 599343. *Beta vulgaris* L.**

Breeding. CZ25; Z730; Z725. Pedigree - Increase of (C918-type x Polish) x [C918-type x (C918-type x Polish)] recombined through ms. Released 01/14/1998. Multigerm, self-fertile population, segregates for genetic ms (aa) and resistance to rhizomania (Rz). Approx. 37% of germplasm derived from high %S lines (ZZ-types) obtained from Poland in 1988. Approx. 63% from populations similar to C918. Should have genetic variability for high %S and combined disease resistance. Sprouts 100 seeds-1 is 116. Hypocotyle color R:rr.

The following were developed by S.N. Nigam, Int. Crops Res. Inst. for the Semi-Arid Tropics, Legumes Program, Patancheru, Andhra Pradesh 502 324, India ; A.G.S. Reddy, Int. Crops Res. Inst. for the Semi-Arid Tropics, Asia Center, Patancheru, Andhra Pradesh 502324, India; H.D. Upadhyaya, Int. Crops Res. Inst. for the Semi-Arid Tropics, Genetic Enhancement Division, ICRISAT Asia Center, Patancheru, Andhra Pradesh 502 324, India; M.J.V. Rao, ICI Limited, Agricultural Research Station, Begur, Karnataka, India; N.S. Reddy, Int. Crops Res. Inst. for the Semi-Arid Tropics, Genetic Enhancement Division, ICRISAT Asia Center, Patancheru, Andhra Pradesh 502324, India; N. Yellaiah, Int. Crops Res. Inst. for the Semi-Arid Tropics, Patancheru P.O., Andhra Pradesh 502 324, India. Received 10/06/1997.

**PI 599344. *Arachis hypogaea* L.**

Cultivar. "ICGV 92196". GP-92. Pedigree - Chico/ICGV 86052 F2-B1-B1-B1-B1-B2-B1-B1-B1-B1. Early maturing, 75-85 days after planting, similar to early maturing germplasm line Chico. Growth habit erect, branching sequential, leaves light green and elliptical. Pods small, two-seeded, beak slight, constriction slight, and reticulation slight. Seed testae tan, weight 35-36 g 100 seed-1.

**PI 599345. *Arachis hypogaea* L.**

Cultivar. "ICGV 92206". GP-93. Pedigree - Chico/ICGV 86533 F2-P11-B1-B1-B1-B2-B1-B1. Early maturing, 75-85 days after planting, similar to early maturing germplasm line Chico. Growth habit erect, branching sequential, leaves light green and elliptical. Pods small two-seeded, beak slight, constriction slight, and reticulation slight.

Seed testae tan, weight 35-36 g 100 seed-1.

**PI 599346. *Arachis hypogaea* L.**

Cultivar. "ICGV 92234". GP-94. Pedigree - ICGV 86162/Shuikouyazai F2-B1-B1-B2-B1. Early maturing, 75-85 days after planting, similar to early maturing germplasm line Chico. Growth habit erect, branching sequential, leaves light green and elliptical. Pods small, two-seeded, beak slight to moderate, constriction moderate, and reticulation moderate. Seed testae tan, weight 35-36 g 100 seed-1.

**PI 599347. *Arachis hypogaea* L.**

Cultivar. "ICGV 92243". GP-95. Pedigree - ICGV 86093/ICG 261 F2-B1-B1-B1-B1-B1-B1-B1-B1-B1. Early maturing, 75-85 days after plating, similar to early maturing germplasm line Chico. Growth habit erect, branching sequential, leaves light green and elliptical. Pods small, two with occasional three-seeded, beak slight, constriction slight, and reticulation slight. Seed testae red, weight 38 g 100 seed-1.

The following were developed by Charles Murdoch, University of Hawaii, Department of Horticulture, 3190 Maile Way, Honolulu, Hawaii 96822, United States; A. E. Dudeck, University of Florida, Department of Environmental Horticulture, 1545 W. M. Fifield Hall, Gainesville, Florida 32611-0670, United States. Received 09/23/1997.

**PI 599348. *Cynodon* sp.**

Cultivar. "FLORADWARF". CV-35. Pedigree - Vegetative selection as off-type, presumably mutation, from Tifgreen bermudagrass thought to have been planted 11 years before collection. Dense, fine textured creeping turfgrass. Growth habit dwarf. Nonflowering, sterile. Photoperiod responsive, leaves longer and wider under long days. Compared to Tifdwarf has greater turf density, superior turf quality with less top growth at high fertility, unmowed growth height avg. 8 mm, purple coloration during winter 53% less, and putting quality better. Thatch develops in short time period requiring timely control measures involving combinations of vertical mowing and topdressing.

The following were developed by Robert T. Lewellen, USDA, ARS, U.S. Agricultural Research Station, 1639 E. Alisal St., Salinas, California 93905, United States. Received 09/24/1997.

**PI 599349. *Beta vulgaris* ssp. *maritima* (L.) Arcang.**

Breeding. N499. Pedigree - Intercross of annual plants. Original origin unknown. Received from KWS (Germany) in 1994. Partial resistance to sugarbeet cyst nematode, probably WB242 type. Cyst counts low but not immune or highly resistant like *B. procumbens* type. Mostly annual. Sprouts 100 seeds-1 is 164. Hypocotyle color R-:rr. Weight 150 g.

**PI 599350. *Beta vulgaris* ssp. *maritima* (L.) Arcang.**

Breeding. R423. Pedigree - Intercross of *Beta vulgaris* *maritima*. Selected for resistance to rhizomania and increased in bulk. From 1992 & 1993 CGC evaluations at Salinas. PI's include those within *B. maritima* 518000 series. Sprouts 100 seeds-1 is 213. Hypocotyle color R-:rr. Weight 150 g.

**PI 599351. *Beta vulgaris* ssp. *maritima* (L.) Arcang.**  
Breeding. R423B. Pedigree - Intercross of *Beta vulgaris* *maritima*.  
Increased in same plot as R423. PI's include those within *B. maritima*  
518408-540610. Wild beet component of line R26. Sprouts 100 seeds-1 is  
123. Hypocotyle color R-:rr. Weight 150 g.

**PI 599352. *Beta vulgaris* ssp. *maritima* (L.) Arcang.**  
Breeding. R720. Pedigree - Intercross of *Beta vulgaris* *maritima*  
accessions. Selected for resistance to rhizomania and increased in bulk.  
From 1996 CGC evaluations at Salinas. PI's include 518426, 35, 40,  
535833, 35, 43, 540568, 75, 88, 93, 96, 98, 99, 540600, 01-05. Mostly  
from France and UK. Sprouts 100 seeds-1 is 93. Hypocotyle color R-.  
Weight 150 g.

The following were developed by David A. Sleper, University of Missouri,  
Department of Agronomy, 201 Waters Hall, Columbia, Missouri 65211, United  
States; Michael D. Casler, University of Wisconsin, Department of Agronomy,  
1575 Linden Drive, Madison, Wisconsin 53706-1597, United States; Reed E.  
Barker, USDA, ARS, Forage Seed & Cereal Research, 3450 S.W. Campus Way, OSU,  
Corvallis, Oregon 97331-7102, United States; Clyde C. Berg, USDA, ARS, U.S.  
Regional Pasture Research Lab., University Park, Pennsylvania 16802, United  
States; I.T. Carlson, Iowa Agr. Exp. Sta., Iowa State University, Dept. of  
Agronomy, Ames, Iowa, United States. Received 09/30/1997.

**PI 599353. *Dactylis glomerata* L.**  
Cultivar. Population. "ALBERT"; W011-C2. CV-15. Pedigree - Ambassador,  
Comet, Crown, Hallmark, Ina, Juno, Kay, Napier, Orbit, Orion, Potomac,  
Prarial, Prime, Rancho, Mandan A, WO-1. Maturity medium-late. Forage and  
seed yield high across a wide range of environments. Excellent  
winterhardiness and good crown and stem rust resistance.

The following were donated by M. C. Engelke, Texas A&M University, Research  
and Extension Center, 17360 Coit Road, Dallas, Texas 75252, United States.  
Received 09/14/1993.

**PI 599354. *Zoysia japonica* Steud.**  
Wild. 41; BE-5897; Q 32600. Collected in China.

**PI 599355. *Zoysia japonica* Steud.**  
Wild. 45; BE-5897; Q 32601. Collected in China.

**PI 599356. *Cynodon dactylon* (L.) Pers. var. *dactylon***  
Wild. 54; BE-5897; Q 32647. Collected in China. Collected Nanjing,  
Jiangsu Province.

The following were developed by Keisuke Horiike and Hawaiian Solo Company,  
Ltd., Hawaii, United States. Received 10/14/1997.

**PI 599357. *Carica papaya* L.**  
Cultivar. "HAWAIIAN QUEEN". PVP 9700393.

The following were developed by Virginia Polytechnic Institute and State University, Department of Horticulture, Blacksburg, Virginia, United States. Received 10/14/1997.

**PI 599358. *Glycine max* (L.) Merr.**  
Cultivar. "MFL-552". PVP 9700410.

The following were developed by Kieft Bloemzaden B.V. and Celex B.V., Netherlands. Received 10/14/1997.

**PI 599359. *Celosia argentea* var. *cristata* (L.) Kuntze**  
Cultivar. "BOMBAY WINERED". PVP 9700411.

The following were developed by Novartis Seeds, Inc., United States. Received 10/14/1997.

**PI 599360. *Pisum sativum* L.**  
Cultivar. "SD496-1-2-3". PVP 9700412.

The following were developed by Kieft Bloemzaden B.V. and Celex B.V., Netherlands. Received 10/14/1997.

**PI 599361. *Celosia argentea* var. *cristata* (L.) Kuntze**  
Cultivar. "BOMBAY PURPLE". PVP 9700413.

The following were developed by Novartis Seeds, Inc., United States. Received 10/14/1997.

**PI 599362. *Pisum sativum* L.**  
Cultivar. "SUGAR LACE". PVP 9700414.

The following were developed by Saatzucht Quedlinburg GmbH, Germany. Received 10/14/1997.

**PI 599363. *Ocimum basilicum* L.**  
Cultivar. "OSMIN". PVP 9700415.

The following were developed by Progeny Advanced Genetics, Inc., Salinas, California, United States. Received 10/14/1997.

**PI 599364. *Lactuca sativa* L.**  
Cultivar. "CARNIVAL". PVP 9700416.

The following were developed by Garst Seed Company, United States. Received 10/14/1997.

**PI 599365. *Zea mays* L. ssp. *mays***

Cultivar. "IB29". PVP 9700417.

The following were donated by Wanda W. Collins, North Carolina State University, Department of Horticultural Sciences, Box 7609, Raleigh, North Carolina 27695-7609, United States. Received 03/16/1983.

**PI 599366. *Ipomoea* sp.**

C 11237; Q 23722. Collected in Peru.

The following were donated by M.M. Gonzales, Sector Publico Agro. Y De Alimentacion, Inst. De Ciencia Y Tecnologia Agricolas, Avenida Reforma 8-60, Zona 9, Edificio, Guatemala. Received 12/31/1984.

**PI 599367. *Ipomoea batatas* (L.) Lam. var. *batatas***

531; Q 25336.

The following were donated by Dan Austin, Florida Atlantic University, Department of Biological Services, Boca Raton, Florida 33431, United States. Received 10/26/1987.

**PI 599368. *Ipomoea batatas* (L.) Lam. var. *batatas***

Cultivar. "CUBA 2"; BE-1532; Q 26990. Collected in Cuba.

**PI 599369. *Ipomoea batatas* (L.) Lam. var. *batatas***

Cultivar. "HAITI"; BE-1532; Q 26998. Collected in Cuba.

The following were donated by D.C.S. Tay, Asian Vegetable Res. & Dev. Ctr., Genetic Resources & Seed Unit, P.O. Box 42, Shanhua, Tainan, Taiwan. Received 05/10/1989.

**PI 599370. *Ipomoea batatas* (L.) Lam. var. *batatas***

Cultivated. CN 1525-11; BE-2335; Q 27798. Maturity early. Plants semi-prostrate. Roots yellow, 29% dry matter. Flesh yellow. Texture slightly dry after cooking. Suitable for cool-dry (28 t/ha as compared to 20 for hot-wet season).

The following were donated by Peter Beetham, Plant Research Institute, Dept. of Agric. and Rural Affairs, Burnley Gardens, Swan Street, Burnley, Victoria 3121, Australia. Received 10/07/1991.

**PI 599371. *Ipomoea batatas* (L.) Lam. var. *batatas***

Cultivar. "TONGAMAI"; U2; BE-3654; Q 28715. Collected in Tonga.

**PI 599372. *Ipomoea batatas* (L.) Lam. var. *batatas***

Cultivar. "KALOTI"; U7; BE-3654; Q 28719. Collected in Tonga.

The following were donated by Australian Department of Agriculture, Institute of Plant Sciences, Burnley Gardens, Swan Street, Burnley, Victoria 3121, Australia. Received 02/09/1993.



- PI 599373. *Ipomoea batatas* (L.) Lam. var. *batatas*  
IPS 10; BE-4494; Q 29593.
- PI 599374. *Ipomoea batatas* (L.) Lam. var. *batatas*  
IPS 30; BE-4494; Q 29602.
- PI 599375. *Ipomoea batatas* (L.) Lam. var. *batatas*  
IPS 127; BE-4494; Q 29642.
- PI 599376. *Ipomoea batatas* (L.) Lam. var. *batatas*  
IPS 148; BE-4494; Q 29649.
- PI 599377. *Ipomoea batatas* (L.) Lam. var. *batatas*  
IPS 163; BE-4494; Q 29653.
- PI 599378. *Ipomoea batatas* (L.) Lam. var. *batatas*  
IPS 167; BE-4494; Q 29656.
- PI 599379. *Ipomoea batatas* (L.) Lam. var. *batatas*  
IPS 172; BE-4494; Q 29657.
- PI 599380. *Ipomoea batatas* (L.) Lam. var. *batatas*  
IPS 183; BE-4494; Q 29665.

The following were donated by Chia-Yi Substation, Agricultural Research Station-Taiwan, No. 2 Ming-chuan Road, Chiayi, Taiwan. Received 08/18/1994.

- PI 599381. *Ipomoea batatas* (L.) Lam. var. *batatas*  
Cultivar. "Tainung 63"; TN 63 940722; BE-7196; Q 35212.

The following were donated by International Potato Center, Apartado 5969, Lima, Lima, Peru. Received 03/20/1995.

- PI 599382. *Ipomoea batatas* (L.) Lam. var. *batatas*  
Cultivar. "Pedro"; 4841 USA; CIP 420019; RCB IN-162; BE-7445; Q 35645.
- PI 599383. *Ipomoea batatas* (L.) Lam. var. *batatas*  
Cultivar. "Camote Negro"; 4844 USA; CIP 420021; ARB231; BE-7445; Q 35647.
- PI 599384. *Ipomoea batatas* (L.) Lam. var. *batatas*  
Cultivar. "Pata de Oso"; 4842 USA; CIP 420022; ARB 426; BE-7445; Q 35648.
- PI 599385. *Ipomoea batatas* (L.) Lam. var. *batatas*  
Cultivar. "IITA-TIS 9101"; 4873 USA; CIP 440099; TIS 9101; BE-7445; Q 35658.
- PI 599386. *Ipomoea batatas* (L.) Lam. var. *batatas*  
Cultivar. "Minamiyutaka"; 5054 USA; CIP 440102; Norin 34; BE-4775; Q 35662. Pedigree - Female parent 1/8 *I. trifida*.

The following were donated by Oscar A. Hidalgo, International Potato Center,

Apartado 5969, Lima, Lima, Peru. Received 09/13/1995.

**PI 599387. Ipomoea batatas (L.) Lam. var. batatas**  
Cultivar. "Jonathan"; BE-7644; Q 35737.

The following were donated by Xuzhou Sweetpotato Research Center, Xuzhou, Jiangsu, China. Received 10/16/1995.

**PI 599388. Ipomoea batatas (L.) Lam. var. batatas**  
Cultivar. "Liaoshu 40"; ZS 634; BE-7677; Q 35791. High quality and dry matter content.

**PI 599389. Ipomoea batatas (L.) Lam. var. batatas**  
Cultivar. "Qunli 1"; ZS 658; BE-7677; Q 35792. High yield. Tolerant to high humidity.

**PI 599390. Ipomoea batatas (L.) Lam. var. batatas**  
Cultivar. "Jishu 5"; ZS 716; BE-7677; Q 35794. High yield. Tolerant to drought. Resistant to disease.

**PI 599391. Ipomoea batatas (L.) Lam. var. batatas**  
Cultivar. "Yanshu 1"; ZS 736; BE-7677; Q 35795. Early maturing. Tolerant to drought and sterility.

**PI 599392. Ipomoea batatas (L.) Lam. var. batatas**  
Cultivar. "Gaozi 1"; ZS 909; BE-7677; Q 35802. High yield, high quality, nature flowering.

The following were donated by Oscar A. Hidalgo, International Potato Center, Apartado 5969, Lima, Lima, Peru. Received 03/29/1996.

**PI 599393. Ipomoea batatas (L.) Lam. var. batatas**  
Cultivar. "TIB 4"; IITA-TIB4; CIP 440060; Q 36133.

**PI 599394. Ipomoea batatas (L.) Lam. var. batatas**  
Cultivar. "BEERWAH GOLD"; CIP 440252; ACIAR126; BEEWAH GOLD; Q 36135.

**PI 599395. Ipomoea batatas (L.) Lam. var. batatas**  
Cultivar. "TIS 2498"; CIP 440038; Q 36147.

**PI 599396. Ipomoea batatas (L.) Lam. var. batatas**  
Cultivar. "TIS 3053"; CIP 440065; Q 36150.

**PI 599397. Ipomoea batatas (L.) Lam. var. batatas**  
Cultivar. "TIS 8401"; CIP 440071; Q 36151.

**PI 599398. Ipomoea batatas (L.) Lam. var. batatas**  
Cultivar. "TIS 70357"; CIP 440078; Q 36152.

**PI 599399. Ipomoea batatas (L.) Lam. var. batatas**  
Cultivar. "TIS 80/637"; CIP 440080; Q 36154.

The following were collected by R. Pullen, CSIRO, Division of Plant Industry, Plant Introd. and Seed Exchange Unit, Canberra, Austr. Capital Terr., Australia; J. Grant, CSIRO, Canberra, Austr. Capital Terr., Australia. Donated by A.D.H. Brown, CSIRO, Division of Plant Industry, G.P.O. Box 1600, Canberra, Austr. Capital Terr. 2601, Australia. Received 10/21/1997.

**PI 599400. *Glycine argyrea* Tindale**

Wild. 0732+; IL 1301; G 2003; CANB355568; 11093+. Collected 12/15/1984 in Queensland, Australia. Latitude 26 deg. 58' 0'' S. Longitude 153 deg. 8' 0'' E. Elevation 80 m. 4 km SSW of Double Island Point, near Noosa Head.

The following were collected by J. B. Hacker, CSIRO, Cunningham Laboratory, 306 Carmody Road, St. Lucia, Queensland 4067, Australia. Donated by A.D.H. Brown, CSIRO, Division of Plant Industry, G.P.O. Box 1600, Canberra, Austr. Capital Terr. 2601, Australia. Received 10/21/1997.

**PI 599401. *Glycine argyrea* Tindale**

Wild. 799; G 2448; IL 1305; CQ2924. Collected in Queensland, Australia. Latitude 25 deg. 54' 0'' S. Longitude 153 deg. 5' 0'' E. Elevation 10 m. Cooloola National Park, near Gympic.

The following were collected by A.D.H. Brown, CSIRO, Division of Plant Industry, G.P.O. Box 1600, Canberra, Austr. Capital Terr. 2601, Australia; J. Grace, CSIRO, Division of Plant Industry, GPO Box 1600, Canberra, Austr. Capital Terr. 2601, Australia; J. Grant, CSIRO, Canberra, Austr. Capital Terr., Australia. Donated by A.D.H. Brown, CSIRO, Division of Plant Industry, G.P.O. Box 1600, Canberra, Austr. Capital Terr. 2601, Australia. Received 10/21/1997.

**PI 599402. *Glycine clandestina* Wendl.**

Wild. GBG 904; IL 0991; G 2357. Collected 10/24/1985 in South Australia, Australia. Latitude 32 deg. 44' 0'' S. Longitude 138 deg. 4' 0'' E. Elevation 600 m. Alligator Creek, 14 km S of Wilmington, Mount Remarkable National Park.

The following were collected by P. Broue, CSIRO, Division of Plant Industry, Section of Genetic Resources, Canberra, Austr. Capital Terr., Australia. Donated by A.D.H. Brown, CSIRO, Division of Plant Industry, G.P.O. Box 1600, Canberra, Austr. Capital Terr. 2601, Australia. Received 10/21/1997.

**PI 599403. *Glycine cyrtoloba* Tindale**

Wild. IL 1309; G 1102; CANB408442. Collected 12/01/1978 in Queensland, Australia. Latitude 28 deg. 5' 0'' S. Longitude 153 deg. 22' 0'' E. Elevation 50 m. Mudgeeraba, on netting fence.

The following were collected by I.B. Staples, Department of Primary Industry, Marceba, Queensland, Australia; L. Pedley. Donated by A.D.H. Brown, CSIRO, Division of Plant Industry, G.P.O. Box 1600, Canberra, Austr. Capital Terr. 2601, Australia. Received 10/21/1997.

**PI 599404. *Glycine cyrtoloba* Tindale**

Wild. SP2466; G 1418; IL 1311; CANB344669. Collected 05/01/1979 in Queensland, Australia. Latitude 17 deg. 23' 0'' S. Longitude 145 deg. 21' 0'' E. Elevation 780 m. Herberton, Petford Road, 0.9 km E of crest of Great Dividing Range, Queensland, Australia.

The following were collected by G.P. Wilson, Grafton Experiment Station, Grafton, New South Wales, Australia. Donated by A.D.H. Brown, CSIRO, Division of Plant Industry, G.P.O. Box 1600, Canberra, Austr. Capital Terr. 2601, Australia. Received 10/21/1997.

**PI 599405. *Glycine cyrtoloba* Tindale**

Wild. P15724; IL 1312; G 1465. Collected 05/01/1982 in New South Wales, Australia. Latitude 30 deg. 37' 0'' S. Longitude 150 deg. 57' 0'' E. Elevation 20 m. Mountain View, 10 km NW of Grafton, Copmanhurst Road.

The following were collected by J. Grace, CSIRO, Division of Plant Industry, GPO Box 1600, Canberra, Austr. Capital Terr. 2601, Australia; J. Burdon, CSIRO, Plant Industry, GPO Box 1600, Canberra, Austr. Capital Terr. 2601, Australia. Donated by A.D.H. Brown, CSIRO, Division of Plant Industry, G.P.O. Box 1600, Canberra, Austr. Capital Terr. 2601, Australia. Received 10/21/1997.

**PI 599406. *Glycine cyrtoloba* Tindale**

Wild. IL 1313; G 1553. Collected 04/15/1982 in New South Wales, Australia. Latitude 30 deg. 40' 0'' S. Longitude 152 deg. 37' 0'' E. Elevation 340 m. Purgatory Creek, 36.3 km W of Grafton.

The following were collected by R. Pullen, CSIRO, Division of Plant Industry, Plant Introd. and Seed Exchange Unit, Canberra, Austr. Capital Terr., Australia; J. Grant, CSIRO, Canberra, Austr. Capital Terr., Australia. Donated by A.D.H. Brown, CSIRO, Division of Plant Industry, G.P.O. Box 1600, Canberra, Austr. Capital Terr. 2601, Australia. Received 10/21/1997.

**PI 599407. *Glycine cyrtoloba* Tindale**

Wild. 0516; IL 1314; G 1623; CANB342458; 11060. Collected 07/01/1983 in Queensland, Australia. Latitude 25 deg. 56' 0'' S. Longitude 153 deg. 6' 0'' E. Elevation 5 m. 3 km from Rainbow Beach.

**PI 599408. *Glycine cyrtoloba* Tindale**

Wild. 0527; IL 1315; G 1630. Collected 07/02/1983 in Queensland, Australia. Latitude 25 deg. 30' 0'' S. Longitude 153 deg. 7' 0'' E. Elevation 100 m. 2 km W of Eurong, Fraser Island.

The following were collected by I.B. Staples, Department of Primary Industry, Marceba, Queensland, Australia. Donated by A.D.H. Brown, CSIRO, Division of Plant Industry, G.P.O. Box 1600, Canberra, Austr. Capital Terr. 2601, Australia. Received 10/21/1997.

**PI 599409. *Glycine cyrtoloba* Tindale**

Wild. IBS2646; IL 1316; G 1688. Collected 06/09/1983 in Queensland,

Australia. Latitude 23 deg. 10' 0'' S. Longitude 150 deg. 42' 0'' E. Elevation 50 m. SW of Yeppoon on Rockhampton Road, at "Hidden Valley Syndicate."

The following were collected by R. Pullen, CSIRO, Division of Plant Industry, Plant Introd. and Seed Exchange Unit, Canberra, Austr. Capital Terr., Australia; J. Grant, CSIRO, Canberra, Austr. Capital Terr., Australia. Donated by A.D.H. Brown, CSIRO, Division of Plant Industry, G.P.O. Box 1600, Canberra, Austr. Capital Terr. 2601, Australia. Received 10/21/1997.

**PI 599410. *Glycine cyrtoloba* Tindale**

Wild. IL 1317; G 1730. Collected 07/01/1983 in Queensland, Australia. Latitude 25 deg. 56' 0'' S. Longitude 153 deg. 6' 0'' E. Elevation 5 m. 2.25 km from Rainbow Beach.

The following were collected by S. Barrett, CSIRO, Plant Industry, GPO Box 1600, Canberra, Austr. Capital Terr. 2601, Australia. Donated by A.D.H. Brown, CSIRO, Division of Plant Industry, G.P.O. Box 1600, Canberra, Austr. Capital Terr. 2601, Australia. Received 10/21/1997.

**PI 599411. *Glycine cyrtoloba* Tindale**

Wild. IL 1318; G 1908; CANB452369. Collected 10/01/1984 in Queensland, Australia. Latitude 25 deg. 54' 0'' S. Longitude 153 deg. 5' 0'' E. Elevation 150 m. Cooloola National Park, near Noosa Head.

The following were collected by R. Pullen, CSIRO, Division of Plant Industry, Plant Introd. and Seed Exchange Unit, Canberra, Austr. Capital Terr., Australia; J. Grant, CSIRO, Canberra, Austr. Capital Terr., Australia. Donated by A.D.H. Brown, CSIRO, Division of Plant Industry, G.P.O. Box 1600, Canberra, Austr. Capital Terr. 2601, Australia. Received 10/21/1997.

**PI 599412. *Glycine cyrtoloba* Tindale**

Wild. 0718; IL 1319; G 2022; 11083; CANB355570. Collected 12/12/1984 in Queensland, Australia. Latitude 25 deg. 57' 0'' S. Longitude 153 deg. 7' 0'' E. Elevation 130 m. Rainbow Beach, Freshwater Track, 4 km from Rainbow Beach Road, near Noosa Head.

**PI 599413. *Glycine cyrtoloba* Tindale**

Wild. 0729; IL 1320; G 2023. Collected 12/14/1984 in Queensland, Australia. Latitude 26 deg. 0' 0'' S. Longitude 153 deg. 9' 0'' E. Elevation 40 m. Near Freshwater Lake, SW of Burwilla Landscape, near Noosa Head.

**PI 599414. *Glycine cyrtoloba* Tindale**

Wild. 0767; IL 1321; G 2024. Collected 12/16/1984 in Queensland, Australia. Latitude 25 deg. 58' 0'' S. Longitude 153 deg. 8' 0'' E. Elevation 180 m. 100 m from junction of Freshwater and Double Island Point walking track, near Noosa Head.

**PI 599415. *Glycine cyrtoloba* Tindale**

Wild. 0786; IL 1322; G 2025. Collected 12/18/1984 in Queensland, Australia. Latitude 27 deg. 26' 0'' S. Longitude 153 deg. 31' 0'' E.

Elevation 76 m. Fisherman's track, 1 km off road going from Dunwich to Point L/O, near North Stradbroke.

**PI 599416. *Glycine cyrtoloba* Tindale**

Wild. 0725; IL 1323; G 2342; 11085; CANB355581. Collected 12/13/1984 in Queensland, Australia. Latitude 25 deg. 57' 0'' S. Longitude 153 deg. 7' 0'' E. Elevation 10 m. 5 km SE of Rainbow Beach, Cooloola National Park.

The following were collected by R. Pullen, CSIRO, Division of Plant Industry, Plant Introd. and Seed Exchange Unit, Canberra, Austr. Capital Terr., Australia. Donated by A.D.H. Brown, CSIRO, Division of Plant Industry, G.P.O. Box 1600, Canberra, Austr. Capital Terr. 2601, Australia. Received 10/21/1997.

**PI 599417. *Glycine cyrtoloba* Tindale**

Wild. IL 1325; G 2490; CANB452366. Collected 08/21/1986 in Queensland, Australia. Latitude 27 deg. 33' 0'' S. Longitude 153 deg. 28' 0'' E. Elevation 76 m. N. Stradbroke Island, south end of Blue Lake National Park.

The following were collected by G. Lawrence, CSIRO, Plant Industry, GPO Box 1600, Canberra, Austr. Capital Terr. 2601, Australia. Donated by A.D.H. Brown, CSIRO, Division of Plant Industry, G.P.O. Box 1600, Canberra, Austr. Capital Terr. 2601, Australia. Received 10/21/1997.

**PI 599418. *Glycine cyrtoloba* Tindale**

Wild. IL 1326; G 2502; CANB438213. Collected 05/28/1986 in Queensland, Australia. Latitude 17 deg. 10' 0'' S. Longitude 145 deg. 33' 0'' E. Elevation 680 m. Tinaroo Falls Dam Lookout, Atherton Tablelands, near Gordonvale.

The following were collected by R.J. Lawn, CSIRO, Division of Tropical Crops and Pastures, 306 Carmody Road, St Lucia, Queensland 4067, Australia. Donated by A.D.H. Brown, CSIRO, Division of Plant Industry, G.P.O. Box 1600, Canberra, Austr. Capital Terr. 2601, Australia. Received 10/21/1997.

**PI 599419. *Glycine cyrtoloba* Tindale**

Wild. CQ2270; G 2616; IL 1327; Acc503. Collected 07/11/1983 in Queensland, Australia. Latitude 17 deg. 41' 0'' S. Longitude 145 deg. 7' 0'' E. Elevation 710 m. Mount Garnet.

The following were collected by R. Pullen, CSIRO, Division of Plant Industry, Plant Introd. and Seed Exchange Unit, Canberra, Austr. Capital Terr., Australia. Donated by A.D.H. Brown, CSIRO, Division of Plant Industry, G.P.O. Box 1600, Canberra, Austr. Capital Terr. 2601, Australia. Received 10/21/1997.

**PI 599420. *Glycine cyrtoloba* Tindale**

Wild. IL 1328; G 2718; 11258; CANB384302. Collected 06/01/1988 in Queensland, Australia. Latitude 22 deg. 48' 0'' S. Longitude 150 deg. 45' 0'' E. Elevation 100 m. East of Bowenia Forest Camp, Byfield via

Yeppoon.

**PI 599421. *Glycine tomentella* Hayata**

Wild. CANB452389; IL 1334; G 2724. Collected 06/10/1988 in Queensland, Australia. Latitude 20 deg. 6' 0'' S. Longitude 144 deg. 20' 0'' E. Elevation 400 m. 115 km N of Hughenden.

The following were collected by J. Grace, CSIRO, Division of Plant Industry, GPO Box 1600, Canberra, Austr. Capital Terr. 2601, Australia; S. Speer, CSIRO, Plant Industry, GPO Box 1600, Canberra, Austr. Capital Terr. 2601, Australia. Donated by A.D.H. Brown, CSIRO, Division of Plant Industry, G.P.O. Box 1600, Canberra, Austr. Capital Terr. 2601, Australia. Received 10/21/1997.

**PI 599422. *Glycine tomentella* Hayata**

Wild. IL 1358; G 2062; CANB452398. Collected 02/08/1983 in Queensland, Australia. Latitude 28 deg. 19' 0'' S. Longitude 151 deg. 55' 0'' E. Elevation 550 m. 11.1 km S of Warwick.

The following were collected by Fred J. Muehlbauer, USDA, ARS, Washington State University, Grain Legume Genetics & Phys. Res. Unit, Pullman, Washington 99164-6434, United States; Edward J. Garvey, USDA, ARS, Natl. Germplasm Resources Laboratory, Room 409, Building 003, BARC-West, Beltsville, Maryland 20705-2350, United States; Lufter Xhuveli, Agricultural University of Tirana, Dept. of Agronomy, Rr."Myslym Shyri", Tirana, Albania. Received 09/1996.

**PI 599423. *Capsicum annuum* L.**

Cultivated. Al 024. Collected 08/25/1996 in Albania. Latitude 40 deg. 32' 44'' N. Longitude 19 deg. 25' 6'' E. Elevation 20 m. Vlore, open market. Produced in Peshkepi. Fruit bell pepper shape but smaller, 3-4cm diameter, 6-8cm long. Flesh white. Used for stuffing with rice and meat.

**PI 599424. *Capsicum annuum* L.**

Cultivated. Al 025; Kape. Collected 08/25/1996 in Albania. Latitude 40 deg. 32' 44'' N. Longitude 19 deg. 25' 6'' E. Elevation 20 m. Vlore, open market. Produced in Peshkepi. Fruit elongated. Flesh green, sweet.

**PI 599425. *Capsicum annuum* L.**

Cultivated. Al 076; Gogazhare. Collected 08/28/1996 in Albania. Latitude 40 deg. 37' 11'' N. Longitude 20 deg. 46' 56'' E. Elevation 320 m. Korce, market. Bright red, sweet when ripe. Shape somewhat like a squashed bell pepper, short, approx. 4cm long x 12cm wide, prominent sections.

**PI 599426. *Capsicum annuum* L.**

Cultivated. Al 077. Collected 08/28/1996 in Albania. Latitude 40 deg. 37' 11'' N. Longitude 20 deg. 46' 56'' E. Elevation 320 m. Korce, market. Color bright red. Fruit about 2.5cm diameter.

The following were developed by E.L. Turcotte, USDA-ARS, Maricopa

Agricultural Research Station, 37860 W. Smith-Enke Road, Maricopa, Arizona 85239, United States; Richard Percy, USDA, ARS, Maricopa Agricultural Research Ctr., 37860 W. Smith-Enke Rd., Maricopa, Arizona 85339, United States. Received 10/20/1997.

**PI 599427. *Gossypium barbadense* L.**

Breeding. Pureline. 89590; AMERICAN PIMA. GP-670. Pedigree - Sea Island cultivar, St. Vincent V-135 / early maturing experimental line P62. Long fibered, heat tolerant, with agronomically acceptable growth characteristics. Fiber avg. 38 mm, or 3 mm longer than Pima S-7, an industry standard. Fiber strength avg. 340 kNm Kg-1, Micronaire avg. 3.6, and length uniformity avg. 44.3%. Compared to Pima S-7 is approx. 4% taller, yield potential 75-85%, and maturation time approx. same.

**PI 599428. *Gossypium barbadense* L.**

Breeding. Pureline. 8810; AMERICAN PIMA. GP-671. Pedigree - Cross of two experimental Pima lines, 86-355 and P73. Strong fibered, heat tolerant, with agronomically acceptable growth characteristics. Fiber strength avg. 369 kNm kg-1, or 46 kNm kg-1 stronger than Pima S-7, an industry standard. 2.5% fiber span of 35 mm, fiber length uniformity 48.9%, and micronaire 4.0 units. Compared to Pima S-7 is approx. 3% taller, yield potential 75-85%, and maturation time approx. same.

The following were developed by James S. Beaver, University of Puerto Rico, Mayaguez Camp, Department of Agronomy & Soils, P. O. Box 5000, Mayaguez, Puerto Rico; James R. Steadman, University of Nebraska, Department of Plant Pathology, 406 Plant Science Hall, Lincoln, Nebraska 68583, United States; Juan C. Rosas, Escuela Agrícola Panamericana, El Zamorano, P.O. Box 93, Tegucigalpa, Francisco Morazan, Honduras; Jim Kelly, Michigan State University, Department of Crop & Soil Science, East Lansing, Michigan 48824, United States; Phil Miklas, USDA, ARS, Irrigated Agric. Research & Extension Ctr., 24106 North Bunn Road, Prosser, Washington 99350, United States. Received 10/20/1997.

**PI 599429. *Phaseolus vulgaris* L.**

Breeding. Pureline. PR9357-107. GP-180. Pedigree - Desarrural I//T1033/Desarrural I. Growth habit indeterminate, prostrate, Type III. Maturity 75-80 days during winter months in Puerto Rico. Commercially acceptable small red seed, weight avg. 27 g. Multiple disease resistance, resistant to rust (*Uromyces appendiculatus*) and bc-3 gene which confers resistance to all known strains of bean common mosaic virus and bean common mosaic necrosis virus. Susceptible to bean golden mosaic and common bacterial blight (*Xantomonas campestris*).

The following were collected by Richard M. Hannan, USDA, ARS, Washington State University, Regional Plant Introduction Station, Pullman, Washington 99164-6402, United States; Walter J. Kaiser, USDA, ARS, Washington State University, Regional Plant Introduction Station, Pullman, Washington 99164-6402, United States. Received 10/23/1997.

**PI 599430. *Anthoxanthum odoratum* L.**

Wild. B96-269. Collected 07/12/1996 in Bulgaria. Latitude 42 deg. 49' 5'' N. Longitude 24 deg. 57' 38'' E. Elevation 1850 m. Grassy hillside.



- PI 599431. *Anthoxanthum odoratum* L.  
Wild. B96-283. Collected 07/13/1996 in Bulgaria. Latitude 42 deg. 49' 15'' N. Longitude 24 deg. 57' 14'' E. Elevation 1575 m. 1 km north of Aprilci. Grassy area under woods.
- PI 599432. *Bothriochloa ischaemum* (L.) Keng var. *ischaemum*  
Wild. B96-277. Collected 07/12/1996 in Bulgaria. Latitude 42 deg. 49' 59'' N. Longitude 24 deg. 58' 47'' E. Elevation 1700 m. Above village of Aprilci. Grassy hillside with vetch.
- PI 599433. *Bothriochloa ischaemum* (L.) Keng var. *ischaemum*  
Wild. B96-84. Collected 07/06/1996 in Bulgaria. Latitude 42 deg. 5' 52'' N. Longitude 24 deg. 27' 25'' E. Elevation 1100 m. Two km SW of Nobusevo, 1 km east of Ispershovo. Rocky, grassy hillside.
- PI 599434. *Bituminaria bituminosa* (L.) C. H. Stirt.  
Wild. B96-103. Collected 07/06/1996 in Bulgaria. Latitude 42 deg. 7' 30'' N. Longitude 24 deg. 25' 53'' E. Elevation 900 m. Rocky hillside with gentle slope. Good for erosion control.

The following were donated by USDA, ARS, Texas Agric. Exp. Station, College Station, Texas, United States. Received 1961.

- PI 599435. *Sesamum indicum* L.  
Cultivar. SI 003; BLANCO.
- PI 599436. *Sesamum indicum* L.  
Cultivar. "LLANO"; SI 008. Resistant to bacterial leaf spot. Early maturing, branching.
- PI 599437. *Sesamum indicum* L.  
Cultivar. "MARGO"; SI 039. Commercial variety. Dehiscent, nonbranching, seed tan.
- PI 599438. *Sesamum indicum* L.  
Cultivar. SI 046; DULCE.

The following were donated by USDA, ARS, Plant Science Research Division, Beltsville, Maryland 20705, United States. Received 1961.

- PI 599439. *Sesamum indicum* L.  
Cultivar. "ORO"; SI 061. Commercial variety. Dihescent, branching, seed off-white.

The following were donated by USDA, ARS, Texas Agric. Exp. Station, College Station, Texas, United States. Received 1961.

- PI 599440. *Sesamum indicum* L.  
Cultivar. SI 078; RIO.

The following were donated by Texas Research Foundation, Renner, Texas, United States. Received 1961.

- PI 599441. *Sesamum indicum* L.  
Cultivar. RENNER NO 1.
- PI 599442. *Sesamum indicum* L.  
Cultivar. RENNER COMBINE NO 15.
- PI 599443. *Sesamum indicum* L.  
Cultivar. RENNER NO 2.

The following were donated by University of California, California Agr. Exp. Sta., Davis, California 95616, United States. Received 1963.

- PI 599444. *Sesamum indicum* L.  
Cultivar. SI 047; CALINDA.

The following were donated by USDA, ARS, Texas Agric. Exp. Station, College Station, Texas, United States. Received 1977.

- PI 599445. *Sesamum indicum* L.  
Cultivar. "BACO"; SI 162. Indehiscent, branching erect, short, single capsule per leaf axil, seed tan.
- PI 599446. *Sesamum indicum* L.  
Cultivar. "PALOMA"; SI 128. Indehiscent, nonbranching. Long papershell capsules, three per leaf axil, seed off-white.
- PI 599447. *Sesamum indicum* L.  
Cultivar. "T 59022 sel."; SI 164. Dihescent, medium early, height medium, nonbranching. Seed coat rough, seed large, tan. Resistant to Race 2 *Pseudomonas sesami*.
- PI 599448. *Sesamum indicum* L.  
Cultivar. "T 59326 sel."; SI 175. Dihescent, placenta attachment, medium early, height medium. Seed white. Resistant to Race 2 *Pseudomonas sesami*.
- PI 599449. *Sesamum indicum* L.  
Cultivar. "T 59108 sel."; SI 163. Dihescent, tall, maturity medium, branching lax, single capsule per leaf axil. Seed off-white. Resistant BLS Race 2.
- PI 599450. *Sesamum indicum* L.  
Cultivar. "T 60073 sel."; SI 173. Dihescent, height medium, early, branching. Seed large off-white. Resistant Race 2.
- PI 599451. *Sesamum indicum* L.  
Cultivar. "T 61325 sel."; SI 180. Indehiscent, medium early, height medium, branching, three capsules per leaf axil, seed tan.
- PI 599452. *Sesamum indicum* L.

- Cultivar. "T 62046 sel."; SI 182. Indehiscent, medium early, height medium, single capsule per leaf axil, branching, seed tan.
- PI 599453. *Sesamum indicum* L.**  
Cultivar. "T 62281-B-2-B"; SI 183. Dihescent Llano derivatives resistant to Race 2 *Pseudomonas sesami*.
- PI 599454. *Sesamum indicum* L.**  
Cultivar. "T 62281-B-6-B"; SI 184. Dihescent, Llano derivative resistant to Race T. *Pseudomonas Sesami*.
- PI 599455. *Sesamum indicum* L.**  
Cultivar. "T 61521-B-2-7-B"; SI 185. Dihescent, Margo derivatives resistant to Race 2 *Pseudomonas sesami*.
- PI 599456. *Sesamum indicum* L.**  
Cultivar. "T 61521-B-2-10-B"; SI 186. Dihescent, Margo derivative resistant to Race 2 *Pseudomonas sesami*.
- PI 599457. *Sesamum indicum* L.**  
Cultivar. "T 61226-B-1-1-B"; SI 187. Dihescent, nonbranching, single capsule per leaf axil.
- PI 599458. *Sesamum indicum* L.**  
Cultivar. "T 61357-B-1-1-B"; SI 188. Indehiscent.
- PI 599459. *Sesamum indicum* L.**  
Cultivar. "T 61421-B-1-1-1"; SI 189. Placenta attachment line.
- PI 599460. *Sesamum indicum* L.**  
Cultivar. "T 61424-B-2-7-1"; SI 190. Placenta attachment line.
- PI 599461. *Sesamum indicum* L.**  
Cultivar. "T 61429-B-4-1-2"; SI 191. Placenta attachment line.
- PI 599462. *Sesamum indicum* L.**  
Cultivar. "T 61429-B-4-1-3"; SI 192. Placenta attachment line.
- PI 599463. *Sesamum indicum* L.**  
Cultivar. "T 61429-B-4-2-1"; SI 193. Placenta attachment line.
- PI 599464. *Sesamum indicum* L.**  
Cultivar. "T 61429-B-9-1-1"; SI 194. Placenta attachment line.
- PI 599465. *Sesamum indicum* L.**  
Cultivar. "T 61429-B-9-1-2"; SI 195. Placenta attachment line.
- PI 599466. *Sesamum indicum* L.**  
Cultivar. "T 62276-B-2-1"; SI 196. Bacterial leaf spot resistant Llano derivative.
- PI 599467. *Sesamum indicum* L.**  
Cultivar. "T 62282-B-2-1"; SI 197. Bacterial leaf spot resistant Llano derivative.

- PI 599468. *Sesamum indicum* L.  
Cultivar. "T 62282-B-2-2"; SI 198. Bacterial leaf spot resistant Llano derivative.
- PI 599469. *Sesamum indicum* L.  
Cultivar. "T 62282-B-2-3"; SI 199. Bacterial leaf spot resistant Llano derivative.
- PI 599470. *Sesamum indicum* L.  
Cultivar. "T 62287-B-1-1"; SI 200. Bacterial leaf spot resistant Llano derivative.
- PI 599471. *Sesamum indicum* L.  
Cultivar. "T 62287-B-4-1"; SI 201. Bacterial leaf spot resistant, Llano derivative.
- PI 599472. *Sesamum indicum* L.  
Cultivar. "T 61521-B-3-3-1"; SI 202. Margo derivative resistant to Race 2 of *Pseudomonas sesami*. Earlier in maturity.
- PI 599473. *Sesamum indicum* L.  
Cultivar. "T 61521-B-3-3-4"; SI 203. Margo derivative resistant to Race 2 of *Pseudomonas sesami*. Earlier in maturity.
- PI 599474. *Sesamum indicum* L.  
Cultivar. "T 61521-B-3-7-3"; SI 204. Margo derivative resistant to Race 2 of *Pseudomonas sesami*. Earlier in maturity.
- PI 599475. *Sesamum indicum* L.  
Cultivar. "T 61521-B-3-8-3"; SI 205. Margo derivative resistant to Race 2 of *Pseudomonas sesami*. Earlier in maturity.
- PI 599476. *Sesamum indicum* L.  
Cultivar. "T 61502-25-1-1-1"; SI 206. Margo derivative resistant to Race 2 of *Pseudomonas sesami*. Earlier in maturity.
- PI 599477. *Sesamum indicum* L.  
Cultivar. "T 61502-25-1-1-2"; SI 207. Margo derivative resistant to Race 2 of *Pseudomonas sesami*. Earlier in maturity.
- PI 599478. *Sesamum indicum* L.  
Cultivar. "T 61502-25-1-3-1"; SI 208. Margo derivative resistant to Race 2 of *Pseudomonas sesami*. Earlier in maturity.
- PI 599479. *Sesamum indicum* L.  
Cultivar. "T 61502-25-1-3-2"; SI 209. Margo derivative resistant to Race 2 of *Pseudomonas sesami*. Earlier in maturity.
- PI 599480. *Sesamum indicum* L.  
Cultivar. "T 61502-25-1-3-3"; SI 210. Margo derivative resistant to Race 2 of *Pseudomonas sesami*. Earlier in maturity.
- PI 599481. *Sesamum indicum* L.  
Cultivar. "T 61502-25-1-5-1"; SI 211. Margo derivative resistant to Race 2 of *Pseudomonas sesami*. Earlier in maturity.

- PI 599482. *Sesamum indicum* L.  
Cultivar. "T 61502-25-1-5-4"; SI 212. Margo derivative resistant to Race 2 of *Pseudomonas sesami*. Earlier in maturity.
- PI 599483. *Sesamum indicum* L.  
Cultivar. "T 61502-25-1-6-1"; SI 213. Margo derivative resistant to Race 2 of *Pseudomonas sesami*. Earlier in maturity.
- PI 599484. *Sesamum indicum* L.  
Cultivar. "T 61502-25-1-6-2"; SI 214.
- PI 599485. *Sesamum indicum* L.  
Cultivar. "T 61502-25-1-8-3"; SI 215. Margo derivative resistant to Race 2 of *Pseudomonas sesami*. Earlier in maturity.
- PI 599486. *Sesamum indicum* L.  
Cultivar. "T 61015-B-64-1-1-1"; SI 216. Margo derivative resistant to Race 2 of *Pseudomonas sesami*. Earlier in maturity.
- PI 599487. *Sesamum indicum* L.  
Cultivar. "T 61015-B-64-1-1-2"; SI 217. Margo derivative resistant to Race 2 of *Pseudomonas sesami*. Earlier in maturity.
- PI 599488. *Sesamum indicum* L.  
Cultivar. "T 61015-B-64-1-1-3"; SI 218. Margo derivative resistant to Race 2 of *Pseudomonas sesami*. Earlier in maturity.
- PI 599489. *Sesamum indicum* L.  
Cultivar. "T 61511-61-1-4-1"; SI 219. Margo derivative resistant to Race 2 of *Pseudomonas sesami*. Earlier in maturity.
- PI 599490. *Sesamum indicum* L.  
Cultivar. "T 61502-25-2"; SI 220. Margo derivative resistant to Race 2 of *Pseudomonas sesami*. Earlier in maturity.
- PI 599491. *Sesamum indicum* L.  
Cultivar. "T 61502-25-3"; SI 221. Margo derivative resistant to Race 2 of *Pseudomonas sesami*. Earlier in maturity.
- PI 599492. *Sesamum indicum* L.  
Cultivar. "T 58546-B-1-1-1-1-1"; SI 222. Indehiscent.
- PI 599493. *Sesamum indicum* L.  
Cultivar. "T 58564-B-B-1-3-1-3-1"; SI 223. Indehiscent.
- PI 599494. *Sesamum indicum* L.  
Cultivar. "T 58564-B-B-1-1-1-2-1"; SI 224. Indehiscent.
- PI 599495. *Sesamum indicum* L.  
Cultivar. "T 591000-B-1-1-3-3-4-1"; SI 225. Indehiscent.
- PI 599496. *Sesamum indicum* L.  
Cultivar. "T 59260-B-1-1-4-2-1"; SI 226. Indehiscent.

- PI 599497. *Sesamum indicum* L.  
Cultivar. "T 61066-B-1-1-1"; SI 227. Indehiscent.
- PI 599498. *Sesamum indicum* L.  
Cultivar. "T 61178-B-4-5-1"; SI 228. Indehiscent.
- PI 599499. *Sesamum indicum* L.  
Cultivar. "T 61499-B-1-2-1"; SI 229. Indehiscent.
- PI 599500. *Sesamum indicum* L.  
Cultivar. "T 61357-B-1-2-1"; SI 230. Indehiscent.
- PI 599501. *Sesamum indicum* L.  
Cultivar. "T 61358-B-4-1-1"; SI 231. Indehiscent.
- PI 599502. *Sesamum indicum* L.  
Cultivar. "T 61361-B-3-2-1"; SI 232. Indehiscent.
- PI 599503. *Sesamum indicum* L.  
Cultivar. "T 62130-B-1-1"; SI 233. Indehiscent.
- PI 599504. *Sesamum indicum* L.  
Cultivar. "T 62335-B1-1-B-1"; SI 234. Indehiscent.
- PI 599505. *Sesamum indicum* L.  
Cultivar. "T 62396-2-3-1"; SI 235. Indehiscent.
- PI 599506. *Sesamum indicum* L.  
Cultivar. "T 63039-B-3-1"; SI 236. Indehiscent.

The following were collected by Walter J. Kaiser, USDA, ARS, Washington State University, Regional Plant Introduction Station, Pullman, Washington 99164-6402, United States; Fred J. Muehlbauer, USDA, ARS, Washington State University, Grain Legume Genetics & Phys. Res. Unit, Pullman, Washington 99164-6434, United States. Received 07/12/1990.

- PI 599507. *Glycine max* (L.) Merr.  
Cultivated. WJK-PRC-100; W6 4558. Collected 06/06/1990 in Yunnan, China. Elevation 1900 m. Grown around Kunming, Yunnan Province. Mixture of types. Used as a feed for birds, like pigeons. Grown locally.
- PI 599508. *Glycine max* (L.) Merr.  
Cultivated. WJK-PRC-101; W6 4559. Collected 06/06/1990 in Yunnan, China. Elevation 1900 m. Grown around Kunming, Yunnan Province. Mixture of types. Used as a feed for birds, like pigeons. Grown locally.

The following were collected by Roshan Klein, Richland, Washington, United States. Donated by Walter J. Kaiser, USDA, ARS, Washington State University, Regional Plant Introduction Station, Pullman, Washington 99164-6402, United States. Received 10/1996.

- PI 599509. *Glycine max* (L.) Merr.  
Cultivated. W6 18607. Collected 09/1995 in Xinjiang, China. From the

bazaar (market) in city of Kashgar.

The following were donated by Todd Kennedy, California Rare Fruit Growers, 1315 - 33rd Ave., San Francisco, California 94122, United States. Received 11/12/1997.

**PI 599510. Punica granatum L.**

Cultivar. "SWEET"; DPUN 020. Tree ornamental, precocious, productive. Fruit color lighter than Wonderful, slightly greenish with red flush when ripe. Flesh pink, sweet, excellent in fruit punch.

**PI 599511. Punica granatum L.**

Cultivar. "CANA"; DPUN 024. Desert type (eaten fresh). Originally from Palestine.

**PI 599512. Punica granatum L.**

Cultivar. "DARU"; Daran; Dalim; DPUN 027. Shrub, spreading, hardy, adapted to poor soils. Fruit small, globular, yellowish-green tinged with red. Arils deep red to pinkish-white, acid high. Used to make the spice anardana and for medicinal purposes. Native to western Himalayas.

**PI 599513. Punica granatum L.**

Cultivar. "FLESHMAN"; DPUN 028. Tree, vigorous, productive. Fruit large, diameter 7-10 cm, roundish, pink. Flesh pink, very sweet. Seeds relatively soft. Matures September. Selected and named by Paul H. Thomson in Fallbrook, CA.

**PI 599514. Punica granatum L.**

Cultivar. "KING"; DPUN 029. Tree shrubby, somewhat shy bearer. Fruit medium to large. Flesh very sweet. Originated in Fallbrook, CA. Selected by Sam King.

**PI 599515. Punica granatum L.**

Cultivar. "VINA"; DPUN 035. Fruit papershell type, rind pale with some pink flush. Originally from the Trappist Monastery, Vina, CA. Probably part of old plantings of the original Stanford Ranch.

**PI 599516. Punica granatum L.**

Cultivar. "BALEGAL"; DPUN 038. Fruit large, roundish, pale pink. Flesh pink, very sweet. Originated in San Diego, CA. Selected by Paul H. Thomson.

The following were developed by University of California, Pomology Dept., One Shields Avenue, Davis, California 95616, United States. Received 11/12/1997.

**PI 599517. Punica granatum L.**

Cultivar. "WONDERFUL"; WEO-01; DPUN 081. Standard variety in CA. Fruit large, red. Arils red. Juice red, sweet sour. Seeds medium soft. Selected and named by Mr. Bearss.

**PI 599518. Punica granatum L.**

Cultivated. WEO-03; DPUN 082. Fruit pink, size medium, attractive. Arils pink. Juice pink, sweet. Seeds soft.

- PI 599519. *Punica granatum* L.**  
Cultivated. WEO-04; DPUN 083. Fruit greenish-yellow with pink blush, small. Arils small, pink. Juice pink, sweet. Seeds soft.
- PI 599520. *Punica granatum* L.**  
Cultivar. "CLOUD"; WEO-10; DPUN 084. Fruit greenish-yellow with pink blush, medium to large. Arils large, almost clear. Juice light yellow, sweet, watery. Seeds hard. Named by John Lovell.
- PI 599521. *Punica granatum* L.**  
Cultivar. "CRAB"; WEO-12; DPUN 085. Fruit bronze-red, size medium, blocky pleasant appearance. Arils deep red. Juice red, mild sour. Named by John Lovell.
- PI 599522. *Punica granatum* L.**  
Cultivar. "CRANBERRY"; WEO-20; DPUN 086. Fruit uniformly cranberry red, size medium, appearance good. Juice light red, rich sour taste. Suitable for culinary use. Productive. Named by John Lovell.
- PI 599523. *Punica granatum* L.**  
Cultivar. "NAE"; WEO-21; DPUN 087. Fruit light red or pink, medium to small. Arils deep red. Juice red, slightly sour, watery. Named by John Lovell.
- PI 599524. *Punica granatum* L.**  
Cultivar. "ELF"; WEO-24; DPUN 088. Dwarf. Fruit greenish-yellow with orange blush, shape blocky, size small to medium. Arils large, translucent pink. Juice light pink, slightly tart and watery. Named by John Lovell.
- PI 599525. *Punica granatum* L.**  
Cultivar. "EVE"; WEO-33; DPUN 089. Fruit red, large. Arils deep red. Juice red, good sweet/acid balance. Seeds hard. Productive. Rated excellent. Named by John Lovell.
- PI 599526. *Punica granatum* L.**  
Cultivar. "SOUR"; WEO-34; DPUN 090. Fruit slightly striped red, yellow-green, size medium. Arils large, deep red. Juice sour. Seeds hard. Suitable for culinary use. Named by John Lovell.
- PI 599527. *Punica granatum* L.**  
Cultivar. "DEWEY"; WEO-37; DPUN 091. Fruit medium to large, reddish-pink, pleasant appearance. Juice sweet, somewhat bland and watery. Named by John Lovell.
- PI 599528. *Punica granatum* L.**  
Cultivar. "GOLD"; WEO-39; DPUN 092. Fruit size medium, vivid gold. Arils and juice pink, sweet. Seeds medium soft. Named by John Lovell.

The following were donated by USDA, ARS, Nat. Clonal Germplasm Repository, University of California, One Shields Avenue, Davis, California 95616, United States. Received 11/12/1997.



**PI 599529. *Punica granatum* L.**

Cultivar. "NANA"; DPUN 021. Collected in California, United States. Village Homes, Davis. Dense shrub, dwarf to 1.5 m, ornamental, useable as hedge plant. Flowers orange-red, single. Fruit very small, red, edible. Cuttings taken from hedge.

The following were developed by Steve Spangler, Exotica Fruit Nursery, 2508-B E. Vista Way, P.O. Box 160, Vista, California 92085, United States. Received 11/12/1997.

**PI 599530. *Punica granatum* L.**

Cultivar. "PALERMO"; DPUN 093. Collected 1980 in Italy. Fruit large to extra large, round, medium, red-yellow rind, flavor rich-tart, slightly acid. Cuttings introduced in early 1980's from Joseph Sammut home, Palermo, Italy, and established at his Vista, CA home.

The following were developed by National Research Center on Arid Agriculture, C-35 Sadulgant, Bikaner, Rajasthan, India. Received 11/12/1997.

**PI 599531. *Punica granatum* L.**

Cultivar. "GANESH"; DPUN 094. Reportedly seedless.

The following were developed by USDA, ARS, Plant Introduction Station, Pacific West Area, Chico, California, United States. Received 11/12/1997.

**PI 599532. *Punica granatum* L.**

Cultivar. "CHICO"; DPUN 095. Dwarf, compact, ornamental. Flowers orange-red, double, carnation-like, long season. No fruit.

The following were collected by Charles West, University of Arkansas, Altheimer Laboratory-Agronomy, 276 Altheimer Drive, Fayetteville, Arkansas 72703, United States; David A. Slepser, University of Missouri, Department of Agronomy, 201 Waters Hall, Columbia, Missouri 65211, United States; Saddik Saidi, Morocco. Received 04/18/1997.

**PI 599533. *Festuca arundinacea* Schreb.**

Wild. 93001; W6 20070. Collected 06/1993 in Morocco. Latitude 32 deg. 48' 0'' N. Longitude 4 deg. 57' 0'' W. Elevation 1455 m. Zeida, near Highway P21, in province of Khenifra. Friable, gritty, deep soil. Drainage moderate, in ditch. Basalt parent rock and loam texture. Stand density common, pH 7.8, precipitation 372 mm.

**PI 599534. *Festuca arundinacea* Schreb.**

Wild. 93002; W6 20071. Collected 06/1993 in Morocco. Latitude 32 deg. 48' 0'' N. Longitude 4 deg. 57' 0'' W. Elevation 1455 m. Zeida, near river, P21, in province of Khenifra. Soil friable, gritty, moderately deep. In ditch, moderate drainage, loam, basalt parent rock. Stand density sparse, pH 7.8, precipitation 372 mm.

**PI 599535. *Festuca arundinacea* Schreb.**

Wild. 93003; W6 20072. Collected 06/1993 in Morocco. Latitude 32 deg.

39' 0'' N. Longitude 4 deg. 44' W. Elevation 1488 m. Midelt, traffic circle garden, in province of Khenifra. Soil friable, stony, moderate depth. Drainage good, flat and irrigated, loam. Limestone parent material. Stand density common, grazing intensity nil, pH 8.0, precipitation 226 mm.

**PI 599536. *Festuca arundinacea* Schreb.**

Wild. 93006; W6 20073. Collected 06/1993 in Morocco. Latitude 32 deg. 40' 0'' N. Longitude 4 deg. 47' 0'' W. Elevation 1440 m. 5 km north of Midelt, P21, in province of Khenifra. Soil friable, rocky, deep. Good drainage, in ditch, clay loam, limestone parent material. Stand density common, grazing intensity low, pH 8.0, precipitation 226 mm.

**PI 599537. *Festuca arundinacea* Schreb.**

Wild. 93007; W6 20074. Collected 06/1993 in Morocco. Latitude 32 deg. 40' 0'' N. Longitude 4 deg. 49' 0'' W. Elevation 1490 m. 20 km north of Midelt, P21, in province of Khenifra. Soil friable, rocky, deep. Good drainage, in ditch, clay loam, limestone parent material. Stand density common, grazing intensity low, pH 7.5, precipitation 226 mm.

**PI 599538. *Festuca arundinacea* Schreb.**

Wild. 93008; W6 20075. Collected 06/1993 in Morocco. Latitude 32 deg. 40' 0'' N. Longitude 4 deg. 39' 0'' W. Elevation 1500 m. 6 km east of Midelt, P21, in province of Khenifra. Soil friable, rocky, and shallow. Good drainage, flat, sandy loam, limestone/quartz parent material. Stand density dense, grazing intensity low, pH 8.0, precipitation 226 mm.

**PI 599539. *Festuca arundinacea* Schreb.**

Wild. 93010; W6 20076. Collected 06/1993 in Morocco. Latitude 32 deg. 39' 0'' N. Longitude 4 deg. 35' 0'' W. Elevation 1550 m. Zebzat, Highway P21, in province of Khenifra. Soil hardness moderate, rocky, shallow. Good drainage, slope variable, loam, limestone parent material. Stand density common, grazing intensity nil, pH 8.0, precipitation 304 mm.

**PI 599540. *Festuca arundinacea* Schreb.**

Wild. 93011; W6 20077. Collected 06/1993 in Morocco. Latitude 32 deg. 19' 0'' N. Longitude 4 deg. 24' 0'' W. Elevation 1650 m. 46 km south of Midelt, P21, in province of Er Rachidia. Soil hard, stony, shallow. Good drainage, in ditch, clay loam, parent material shale limestone. Stand density sparse, grazing intensity high, pH 8.0, precipitation 240 mm.

**PI 599541. *Festuca arundinacea* Schreb.**

Wild. 93012; W6 20078. Collected 06/1993 in Morocco. Latitude 32 deg. 17' 0'' N. Longitude 4 deg. 33' 0'' W. Elevation 1400 m. 71 km south of Midelt, P21, in province of Er Rachidia. Soil hard, stony, moderately deep. Good drainage, in ditch, clay, parent material granite/limestone. Stand density dense, grazing intensity nil, pH 8.5, precipitation 200 mm.

**PI 599542. *Festuca arundinacea* Schreb.**

Wild. 93013; W6 20079. Collected 06/1993 in Morocco. Latitude 32 deg. 15' 0'' N. Longitude 4 deg. 33' 0'' W. Elevation 1350 m. North side of Rich in province of Er Rachidia. Soil friable, stony, moderate depth. Good drainage, in ditch, clay, limestone parent material. Stand density

dense, grazing intensity low, pH 8.2, precipitation 200 mm.

**PI 599543. *Festuca arundinacea* Schreb.**

Wild. 93014; W6 20080. Collected 06/1993 in Morocco. Latitude 32 deg. 13' 0'' N. Longitude 4 deg. 39' 0'' W. Elevation 1330 m. 20 km west of Rich, Highway 3442, in province of Er Rachidia. Soil friable, stony, moderate depth. Good drainage, in ditch, silt/clay, limestone parent material. Stand density moderate, grazing intensity low, pH 8.5, precipitation 200 mm.

**PI 599544. *Festuca arundinacea* Schreb.**

Wild. 93015; W6 20081. Collected 06/1993 in Morocco. Latitude 32 deg. 14' 0'' N. Longitude 4 deg. 27' 0'' W. Elevation 1320 m. Ait Koujmane, Oued Ziz, P21, in province of Er Rachidia. Soil friable, stony, moderate depth. Good drainage, in ditch, silt/clay, limestone parent material. Stand density common, grazing intensity medium, pH 8.5, precipitation 200 mm.

**PI 599545. *Festuca arundinacea* Schreb.**

Wild. 93016; W6 20082. Collected 06/1993 in Morocco. Latitude 32 deg. 14' 0'' N. Longitude 4 deg. 22' 0'' W. Elevation 1322 m. Oued Ziz, Highway 3468, in province of Er Rachidia. Soil friable, stony, shallow. Good drainage, in ditch, clay/loam, limestone parent material. Stand density common, grazing intensity medium, pH 8.5, precipitation 200 mm.

**PI 599546. *Festuca arundinacea* Schreb.**

Wild. 93018; W6 20083. Collected 06/1993 in Morocco. Latitude 32 deg. 14' 0'' N. Longitude 4 deg. 22' 0'' W. Elevation 1322 m. Tiouzaguine, in province of Er Rachidia. Soil friable, stony, moderate depth. Good drainage, in ditch, clay/loam, parent material granite shist/limestone. Stand density dense, pH 8.2, precipitation 220 mm.

**PI 599547. *Festuca arundinacea* Schreb.**

Wild. 93020; W6 20084. Collected 06/1993 in Morocco. Latitude 32 deg. 10' 0'' N. Longitude 4 deg. 24' 0'' W. Elevation 1250 m. Karrandou, P21, in province of Er Rachidia. Soil friable, stony, shallow. Good drainage, in ditch, sandy loam, parent material limestone. Stand density sparse, grazing intensity high, pH 8.5, precipitation 200 mm.

**PI 599548. *Festuca arundinacea* Schreb.**

Wild. 93021; W6 20085. Collected 06/1993 in Morocco. Latitude 32 deg. 4' 0'' N. Longitude 4 deg. 23' 0'' W. Elevation 1220 m. South end of Gorges du Ziz, P21, in province of Er Rachidia. Soil friable, stony, and shallow. Good drainage, in ditch, silt loam, and parent material limestone. Stand density sparse, grazing intensity medium, pH 8.2, precipitation 200 mm.

**PI 599549. *Festuca arundinacea* Schreb.**

Wild. 93023; W6 20086. Collected 06/1993 in Morocco. Latitude 31 deg. 35' 0'' N. Longitude 5 deg. 35' 0'' W. Elevation 1410 m. Tinerhir, Gorges du todra, Highway 3483, in province of Ouarzazate. Soil friable, rocky, shallow. Poor drainage, river bank, gravel, parent material limestone. Stand density sparse, grazing intensity nil, pH 7.5, precipitation is 87 mm.

- PI 599550. *Festuca arundinacea* Schreb.**  
Wild. 93024; W6 20087. Collected 06/1993 in Morocco. Latitude 31 deg. 22' 0'' N. Longitude 5 deg. 47' 0'' W. Elevation 1550 m. Imider, Highway P32, in province of Ouarzazate. Soil friable, moderate depth. Good drainage, in ditch, clay loam, parent material limestone. Stand density common, grazing intensity low, pH 8.2, precipitation 107 mm.
- PI 599551. *Festuca arundinacea* Schreb.**  
Wild. 93025; W6 20088. Collected 06/1993 in Morocco. Latitude 31 deg. 20' 0'' N. Longitude 6 deg. 0' 0'' W. Elevation 1530 m. Boumalne Dades, Highway P32, in province of Ouarzazate. Soil friable, stony, moderate depth. Good drainage, in ditch, clay loam, parent material limestone. Stand density dense, grazing intensity low, pH 8.5, precipitation 140 mm.
- PI 599552. *Festuca arundinacea* Schreb.**  
Wild. 93026; W6 20089. Collected 06/1993 in Morocco. Latitude 31 deg. 30' 0'' N. Longitude 5 deg. 57' 0'' W. Elevation 1660 m. Boumalne Dades Gorges, Highway 6905, in province of Ouarzazate. Soil friable, stony, shallow. Good drainage, in ditch, clay loam, parent material limestone. Stand density common, grazing intensity low, pH 8.5, precipitation 140 mm.
- PI 599553. *Festuca arundinacea* Schreb.**  
Wild. 93027; W6 20090. Collected 06/1993 in Morocco. Latitude 31 deg. 2' 0'' N. Longitude 7 deg. 15' 0'' W. Elevation 1310 m. Ait Benhaddou, Highway 6803, in province of Ouarzazate. Soil friable, stony, shallow. Good drainage, variable terrain, clay, parent material limestone. Stand density dense, grazing intensity medium, pH 8.5, precipitation 120 mm.
- PI 599554. *Festuca arundinacea* Schreb.**  
Wild. 93028; W6 20091. Collected 06/1993 in Morocco. Latitude 31 deg. 4' 0'' N. Longitude 7 deg. 21' 0'' W. Elevation 1500 m. Tiseldi, Highway P31, in province of Ouarzazate. Soil friable, stony, moderate depth. Good drainage, in ditch, clay loam, parent material limestone. Stand density dense, grazing intensity low, pH 8.2, precipitation 90 mm.
- PI 599555. *Festuca arundinacea* Schreb.**  
Wild. 93032; W6 20092. Collected 06/1993 in Morocco. Latitude 32 deg. 37' 0'' N. Longitude 4 deg. 48' 0'' W. Elevation 1550 m. 10 km southwest of Midelt, Highway 3424, in province of Khenifra. Soil friable, stony, shallow. Good drainage, in ditch, silt loam, parent material limestone. Stand density dense, grazing intensity low, pH 7.7, precipitation 226 mm.
- PI 599556. *Festuca arundinacea* Schreb.**  
Wild. 93033; W6 20093. Collected 06/1993 in Morocco. Latitude 32 deg. 49' 0'' N. Longitude 4 deg. 47' 0'' W. Elevation 980 m. 2 km northeast of Ksabi, Highway 3419, in province of Boulemane. Soil moderate hardness, stony, moderate depth. Good drainage, in ditch, clay loam, parent material limestone. Stand density common, grazing intensity nil, pH 7.8, precipitation 159 mm.
- PI 599557. *Festuca arundinacea* Schreb.**  
Wild. 93034; W6 20094. Collected 06/1993 in Morocco. Latitude 33 deg. 2'

0' N. Longitude 4 deg. 6' 0'' W. Elevation 1000 m. 3 km northeast of Highway S329 and S330, in province of Boulemane. Soil friable, stony shallow. Good drainage, river bank, silt loam, parent material limestone. Stand density sparse, grazing intensity high, pH 7.5, precipitation 159 mm.

**PI 599558. *Festuca arundinacea* Schreb.**

Wild. 93035; W6 20095. Collected 06/1993 in Morocco. Latitude 33 deg. 19' 0'' N. Longitude 3 deg. 44' 0'' W. Elevation 790 m. 3 km west of Outat Oulad El haj, Road 4958, in province of Boulemane. Soil moderately hard, stony, moderately deep. Good drainage, in ditch, clay loam, parent material limestone. Stand density sparse, grazing intensity medium, pH 8.0, precipitation 153 mm.

**PI 599559. *Festuca arundinacea* Schreb.**

Wild. 93036; W6 20096. Collected 06/1993 in Morocco. Latitude 33 deg. 21' 0'' N. Longitude 3 deg. 49' 0'' W. Elevation 850 m. 8 km west of Outat Oulad El Haj, Road 4958, in province of Boulemane. Soil moderately hard, rocky, shallow. Good drainage, in ditch, clay loam, parent material limestone. Stand density sparse, grazing intensity moderate, pH 8.0, precipitation 153 mm.

**PI 599560. *Festuca arundinacea* Schreb.**

Wild. 93037; W6 20097. Collected 06/1993 in Morocco. Latitude 33 deg. 34' 0'' N. Longitude 3 deg. 36' 0'' W. Elevation 700 m. 30 km north of Outat Oulad El Haj, Highway S3290, in province of Boulemane. Soil hard, stony, shallow. Good drainage, river bank, loam, parent material limestone. Stand density sparse, grazing intensity medium, pH 8.5, precipitation 192 mm.

The following were developed by Michael Knudson, USDA, NRCS, Plant Materials Center, 3308 University Drive, Bismarck, North Dakota 58504-7564, United States. Received 10/1997.

**PI 599561. *Spartina pectinata* Link**

Cultivated. 9069159; W6 20098. Pedigree - Composite of 4 NRCS accessions: 9063065, 9063068, 9063072, and 9063082 that were selected from an evaluation nursery of 20 accessions. All accessions vegetatively collected in September and October 1990 from Cass and Grand Forks Counties in North Dakota and Day County, SD, and Grant County, MN. Cross-pollinated, 10 chromosomes, C4 photosynthetic pathway, perennial, rhizomatous, erect, 6 feet in height. Hardiness Zone 3, 120 frost free days, precipitation 14-25 inches. Soil loams, hydric. Some salinity tolerance. Inundation tolerance. Primary use wetland restoration and enhancement, streambank stabilization. Secondary use windstrip barriers, filter strips, prairie landscaping.

The following were developed by Pickseed West, Inc., P.O. Box 888, 33149 Highway 99E, Tangent, Oregon 97389, United States. Received 11/12/1997.

**PI 599562. *Lolium perenne* L.**

Cultivar. "LYNX". PVP 9700400.

The following were developed by International Seeds Inc., P.O. Box 168, Halsey, Oregon 97348, United States. Received 11/12/1997.

**PI 599563. *Festuca arundinacea* Schreb.**  
Cultivar. "HOUND OG 5". PVP 9800003.

**PI 599564. *Poa trivialis* L.**  
Cultivar. "SABRE II". PVP 9800004.

The following were developed by Sakata Seed Corporation, Japan. Received 11/12/1997.

**PI 599565. *Bellis perennis* L.**  
Cultivar. "GALAXY RED". PVP 9800005.

**PI 599566. *Bellis perennis* L.**  
Cultivar. "GALAXY ROSE". PVP 9800006.

**PI 599567. *Bellis perennis* L.**  
Cultivar. "GALAXY WHITE". PVP 9800007.

The following were developed by Helm Bean & Seed, A Subsidiary of ConAgr, United States. Received 11/12/1997.

**PI 599568. *Cicer arietinum* L.**  
Cultivar. "STAN". PVP 9800008.

The following were developed by California Oils Corporation, California, United States. Received 11/12/1997.

**PI 599569. *Carthamus tinctorius* L.**  
Cultivar. "S-345". PVP 9800009.

**PI 599570. *Carthamus tinctorius* L.**  
Cultivar. "S-735". PVP 9800010.

**PI 599571. *Carthamus tinctorius* L.**  
Cultivar. "S-901". PVP 9800011.

The following were developed by International Seeds Inc., P.O. Box 168, Halsey, Oregon 97348, United States. Received 11/12/1997.

**PI 599572. *Poa trivialis* L.**  
Cultivar. "Pt 90172DK". PVP 9800012.

The following were developed by Sakata Seed Corporation, Japan. Received 11/12/1997.

**PI 599573. *Zinnia* sp.**

Cultivar. "PROFUSION ORANGE". PVP 9800013.

**PI 599574. *Zinnia* sp.**

Cultivar. "PROFUSION ROSE". PVP 9800014.

The following were developed by Seminis Vegetable Seeds, Inc., Woodland, California, United States. Received 11/12/1997.

**PI 599575. *Phaseolus vulgaris* L.**

Cultivar. "CLOUDBURST". PVP 9800015.

**PI 599576. *Phaseolus vulgaris* L.**

Cultivar. "SARATOGA". PVP 9800016.

The following were developed by Shibaura Institute of Technology, Tokyo, Japan. Received 11/12/1997.

**PI 599577. *Glyceria ischyronaura* Steud.**

Cultivar. "SHIBAURASHIBA". PVP 9800017.

The following were developed by Shibamichi Nursery, Kawaguchi, Japan. Donated by USDA, ARS, U.S. National Arboretum, National Germplasm Repository, Washington, District of Columbia 20002, United States. Received 07/06/1939.

**PI 599578. *Punica granatum* L.**

Cultivar. "HAKU-BATAN"; NA 57173; DPUN 007. Ornamental. Flower white.

**PI 599579. *Punica granatum* L.**

Cultivar. "HAKU-TAKA"; NA 57176; DPUN 008. Ornamental.

**PI 599580. *Punica granatum* L.**

Cultivar. "KI-ZAKURO"; NA 57174; DPUN 009. Ornamental.

**PI 599581. *Punica granatum* L.**

Cultivar. "NOCHI-SHIBORI"; NA 57180; DPUN 010. Ornamental.

**PI 599582. *Punica granatum* L.**

Cultivar. "TORYU-SHIBORI"; NA 57181; DPUN 011. Ornamental.

The following were developed by Jerry W. Johnson, University of Georgia, Department of Crop and Soil Sciences, 1109 Experiment Street, Griffin, Georgia 30223-1797, United States. Received 10/22/1997.

**PI 599583. *Triticum aestivum* L., nom. cons.**

Cultivar. Pureline. "ROBERTS"; 871339-1. Pedigree - GA Gore/Coker 86-31. Yield high, maturity late, height medium, awnless. 5 days earlier than GA Dozier and 2 days earlier than Coker 9134. Resistant to leaf rust, glume blotch, and Hessian fly. Moderate resistance to powdery mildew.

The following were developed by James R. Wilcox, USDA, ARS, Purdue

University, Department of Agronomy, West Lafayette, Indiana 47907-1150, United States. Received 10/31/1997.

**PI 599584. *Glycine max* (L.) Merr.**

Breeding. Pureline. C1944. GP-259. Pedigree - CRS3-998-24-1 x HC85-2206. Indeterminate. Flowers purple, pubescence gray, pods either brown or tan at maturity, seeds yellow with imperfect black hila. Average seed yield 2999 kg/ha, maturity date Sept. 24, lodging score 1.1, height 86 cm, seed protein 488 g/kg, seed oil 184 g/kg. Compared to IA2022 with avg. seed yield 3404 kg/ha, maturity Sept. 24, lodging 1.0, height 94 cm, seed protein 435 g/kg, and seed oil 20.4 g/kg.

**PI 599585. *Glycine max* (L.) Merr.**

Breeding. Pureline. C1945. GP-260. Pedigree - F4 derived line from recurrent selection population for high seed protein. Original parents Beeson, Corsoy, Hank, Wells, and Pando. Indeterminate. Flower purple, pubescence tawny, pods brown at maturity, seeds yellow with black hila. Average seed yield 3161 kg/ha, maturity date Sept. 27, lodging score 1.8, height 102 cm, seed protein 485 g/kg, and seed oil 188 g/kg. Compared to Probst with avg. seed yield 3510 kg/ha, maturity Sept. 27, lodging 1.4, height 89 cm, seed protein 419 g/kg, and seed oil 206 g/kg.

The following were collected by W.A. Archer, USDA-ARS, Plant Industry Station, Horticultural Crops Research Branch, Plant Introduction Section, Beltsville, Maryland 20705-2350, United States. Received 01/18/1951.

**PI 599586. *Cucurbita maxima* Duchesne ex Lam.**

8698; PI 193499. Collected 1950 in Ethiopia. Market, Diredawa. A component mixed with original seed lot of PI 193499 (*C. pepo*).

The following were donated by USDA, ARS, Nat. Clonal Germplasm Repository, University of California, One Shields Avenue, Davis, California 95616, United States. Received 07/06/1939.

**PI 599587. *Punica granatum* L.**

Cultivar. DPUN 001; Double Red-White. Ornamental. Rootstocks own.

**PI 599588. *Punica granatum* L.**

Cultivar. DPUN 002; Double Red. Ornamental, some fruiting. Rootstocks own.

**PI 599589. *Punica granatum* L.**

Cultivar. DPUN 003; Double Red #2. Ornamental. Rootstocks own.

**PI 599590. *Punica granatum* L.**

Cultivar. DPUN 004; Orange. Fruit very large, reddish orange. Rootstocks own.

**PI 599591. *Punica granatum* L.**

Cultivar. DPUN 005; Small Leaf. Fruit small. Rootstocks own.

The following were developed by AgraTech Seeds, Inc., Seed Testing Lab.,



United States. Received 11/18/1997.

**PI 599592. *Arachis hypogaea* L.**  
Cultivar. "GK-7 HIGH OLEIC". PVP 9800019.

The following were developed by Western Plant Breeders, Phoenix, Arizona, United States. Received 11/18/1997.

**PI 599593. *Triticum durum* Desf.**  
Cultivar. "MOHAWK". PVP 9800020.

**PI 599594. *Triticum durum* Desf.**  
Cultivar. "TACNA". PVP 9800021.

The following were developed by AgraTech Seeds, Inc., Seed Testing Lab., United States. Received 11/18/1997.

**PI 599595. *Arachis hypogaea* L.**  
Cultivar. "VIRUGARD". PVP 9800022.

The following were developed by Progeny Advanced Genetics, Inc., Salinas, California, United States. Received 11/18/1997.

**PI 599596. *Lactuca sativa* L.**  
Cultivar. "HEADMASTER". PVP 9800023.

**PI 599597. *Lactuca sativa* L.**  
Cultivar. "GREEN LIGHTNING". PVP 9800024.

The following were developed by Hartz Seed Company-A Unit of Monsanto, United States. Received 11/18/1997.

**PI 599598. *Glycine max* (L.) Merr.**  
Cultivar. "H4994 Roundup Ready"; Hartz Variety H4994 Roundup Ready. PVP 9800025.

The following were collected by Norman L. Taylor, University of Kentucky, Department of Agronomy, N-122 Agric. Sci. Bldg. -N, Lexington, Kentucky 40546-0019, United States; Ken H. Quesenberry, University of Florida, Department of Agronomy, 304 Newell Hall, Gainesville, Florida 32611-0500, United States; Anna Halford, U.S. Dept. of Interior, Bureau of Land Management, 785 N. Main St., Suite E, Bishop, California 93514, United States; Rhonda Gildersleve, Inyo-Mono County Extension, 207 West South Street, Bishop, California 93514, United States. Received 10/29/1996.

**PI 599599. *Trifolium variegatum* Nutt.**  
Wild. C-117. Collected 08/09/1995 in California, United States. Latitude 38 deg. 15' 56'' N. Longitude 118 deg. 58' 51'' W. Elevation 2560 m. Cal Mono Co. 3 miles past Bodie Hist. Site on top of mountain at Beauty Peak. Near large vernal lake. Soil sandy loam, poor drainage. Flower

pure white. Very low mat.

**PI 599600. *Trifolium variegatum* Nutt.**

Wild. C-116. Collected 08/08/1995 in California, United States. Latitude 38 deg. 9' 22'' N. Longitude 119 deg. 7' 48'' W. Elevation 2164 m. Cal Mono Co. Near Bridgeport. Bridgeport Canyon S on 395 then E on 270. Near small creek. Soil sandy, sand 58%, silt 27%, clay 16%, drainage poor. Flower whitish purple.

**PI 599601. *Trifolium microcephalum* Pursh**

Wild. C-115. Collected 08/09/1995 in California, United States. Latitude 38 deg. 9' 22'' N. Longitude 119 deg. 7' 48'' W. Elevation 2164 m. Cal Mono Co. Near Bridgeport. Bridgeport Canyon S on 395 then E on 270. Near small creek. Soil sandy; sand 58%, silt 27%, clay 16%, drainage poor.

**PI 599602. *Trifolium cyathiferum* Lindl.**

Wild. C-112; Bowl clover. Collected 08/09/1995 in California, United States. Latitude 38 deg. 9' 22'' N. Longitude 119 deg. 7' 48'' W. Elevation 2164 m. Cal Mono Co. Near Bridgeport. Bridgeport Canyon S on 395 then E on 270. Near small creek. Soil sandy, sand 58%, silt 27%, clay 16%, drainage poor.

The following were collected by Norman L. Taylor, University of Kentucky, Department of Agronomy, N-122 Agric. Sci. Bldg. -N, Lexington, Kentucky 40546-0019, United States; Ken H. Quesenberry, University of Florida, Department of Agronomy, 304 Newell Hall, Gainesville, Florida 32611-0500, United States; John Dennis, USDA, Forest Service, Plumas National Forest, Mohawk Road, Blairsden, California 96103, United States. Received 10/29/1996.

**PI 599603. *Trifolium microcephalum* Pursh**

Wild. C-109; Small headed clover. Collected 08/08/1995 in California, United States. Latitude 40 deg. 3' 1'' N. Longitude 120 deg. 34' 9'' W. Elevation 1707 m. Sandy, very stony poorly drained soil. Growth habit upright, spreading.

**PI 599604. *Trifolium cyathiferum* Lindl.**

Wild. C-108; Bowl clover. Collected 08/08/1995 in California, United States. Latitude 40 deg. 3' 1'' N. Longitude 120 deg. 34' 9'' W. Elevation 1707 m. Along 4-wheel vehicle trail near stream. Rocky loam soil.

The following were collected by Norman L. Taylor, University of Kentucky, Department of Agronomy, N-122 Agric. Sci. Bldg. -N, Lexington, Kentucky 40546-0019, United States; Ken H. Quesenberry, University of Florida, Department of Agronomy, 304 Newell Hall, Gainesville, Florida 32611-0500, United States; Paula Brooks, Wallowa-Whitman National Forest, P. O. Box 907, Baker City, Oregon 97814, United States. Received 10/29/1997.

**PI 599605. *Trifolium cyathiferum* Lindl.**

Wild. OR 46; Bowl Clover. Collected 08/14/1995 in Oregon, United States. Elevation 1722 m. Union Co., upper Wolf Creek along service road #4430-035, about 12 miles NW of North Powder to 55, R 37E Sec 36. Poorly drained soil.

The following were collected by David E. Williams, USDA, ARS, Natl. Germplasm Resources Laboratory, Building 003, Room 400, BARC-West, Beltsville, Maryland 20705-2350, United States. Donated by Thomas G. Isleib, North Carolina State University, Department of Crop Science, Box 5155, Raleigh, North Carolina 27695-7629, United States; David E. Williams, USDA, ARS, Natl. Germplasm Resources Laboratory, Building 003, Room 400, BARC-West, Beltsville, Maryland 20705-2350, United States. Received 07/14/1997.

**PI 599606. *Arachis hypogaea* var. *fastigiata* (Waldron) Krapov. & W. C. Greg.**

Landrace. DEW 1010; mani de cascara negra. Collected 09/25/1989 in Beni, Bolivia. Latitude 14 deg. 30' 0'' S. Longitude 67 deg. 30' 0'' W. Elevation 320 m. Dept. Beni, Prov. Ballivian, Carmen Florida, 7 km upriver from Rurrenabaque on right bank of the Rio Beni. Small village of acculturated Tacana and Quechua natives. Cultivated in chaco (swidden field) in upland forest. Plants erect. Flowers orange. Fruits large, turning dark brown or black when mature, containing 4 red seeds. Pegs purple. Once-common local landrace now rare.

**PI 599607. *Arachis hypogaea* var. *fastigiata* (Waldron) Krapov. & W. C. Greg.**

Landrace. DEW 925; mani colorado. Collected 06/10/1989 in Santa Cruz, Bolivia. Latitude 17 deg. 45' 0'' S. Longitude 63 deg. 22' 0'' W. Elevation 400 m. Dept. Santa Cruz, Prov. Andres Ibanez, Canton Terebinto, 35km W of Santa Cruz. Cultivated on Lic. G. Coimbra Sanz's property. Pods fairly straight, fairly smooth with slight constriction, small humps, slight beak, containing 3 red seeds. Local variety traditionally grown in the area.

**PI 599608. *Arachis hypogaea* var. *fastigiata* (Waldron) Krapov. & W. C. Greg.**

Landrace. DEW 928; mani. Collected 06/12/1989 in Beni, Bolivia. Latitude 14 deg. 30' 0'' S. Longitude 67 deg. 30' 0'' W. Elevation 268 m. Dept. Beni, Prov. Ballivian, Rurrenabaque. Purchased at corner store, Calle Comercio. Cultivated locally. Mix of two kinds of fruits. Some reticulated and some almost or completely devoid of reticulation. Reticulated pods fairly straight, with humps, some beak, little or no constriction, containing 3-4 predominantly red, some white seeds. Non-reticulated pods very smooth, sometimes enlarged at base, with humps, beak, little or no constriction, containing 3-4 almost exclusively red seeds, with a very few pods containing white seeds. Fruits dusty, suggesting chaco rather than sandy playa cultivation. White seeds now turned tan with age. Probably from last year's harvest.

**PI 599609. *Arachis hypogaea* var. *fastigiata* (Waldron) Krapov. & W. C. Greg.**

Landrace. DEW 930; mani negro. Collected 07/19/1989 in Beni, Bolivia. Latitude 14 deg. 30' 0'' S. Longitude 67 deg. 30' 0'' W. Elevation 268 m. Dept. Beni, Prov. Ballivian, Rurrenabaque. Cultivated locally. Fruit straight, with humps, beak, little or no constriction, containing 3-4 very dark purple seeds. Only 3 such fruits were found when shelling part of sample #929.

**PI 599610. *Arachis hypogaea* var. *fastigiata* (Waldron) Krapov. & W. C. Greg.**

Landrace. DEW 978; mani blanco; mani colorado. Collected 09/13/1989 in Beni, Bolivia. Latitude 14 deg. 30' 0'' S. Longitude 67 deg. 30' 0'' W. Elevation 320 m. Dept. Beni, Prov. Ballivian, Carmen Florida, 7 km upriver from Rurrenabaque on right bank of the Rio Beni. Small village of acculturated Tacana and Quechua natives. Cultivated on playa in sandy alluvium. Mix of red and white seed. Freshly harvested from local seed.

**PI 599611. *Arachis hypogaea* var. *peruviana* Krapov. & W. C. Greg.**

Landrace. DEW 1001; mani peruano. Collected 09/16/1989 in Beni, Bolivia. Latitude 14 deg. 30' 0'' S. Longitude 67 deg. 30' 0'' W. Elevation 320 m. Dept. Beni, Prov. Ballivian, Carmen Florida, 7 km upriver from Rurrenabaque on right bank of the Rio Beni. Small village of acculturated Tacana and Quechua natives. Floodplain of the Rio Beni. Cultivated on playa, interplanted with yellow peanuts. Plants erect. Intermixed with sample #1000. Fruits with outstanding longitudinal venation, with 4 purple seeds. Fruits ready for harvest.

**PI 599612. *Arachis hypogaea* var. *fastigiata* (Waldron) Krapov. & W. C. Greg.**

Landrace. DEW 1028; mani amarillo. Collected 10/04/1989 in Beni, Bolivia. Latitude 14 deg. 30' 0'' S. Longitude 67 deg. 30' 0'' W. Elevation 320 m. Dept. Beni, Prov. Ballivian, Carmen Florida, 7 km upriver from Rurrenabaque on right bank of the Rio Beni. Small village of acculturated Tacana and Quechua natives. Cultivated in loose, sandy soil of riverine playa. Plants compact, erect to 30 cm. Flowers bi-colored. Pegs yellow. Fruits straight, slender, with little or no constriction, humps, beak, keel, prominent reticulation, containing 4 light yellow seeds. Local landrace, now somewhat rare. Seeds are reported to have distinctive, sweet flavor. Seeds used medicinally as an antidote for tarantula bites. The yellow seeds are first masticated and then applied repeatedly as a poultice to the bite, drawing out the poisonous venom from the wound. Recognized locally as a heavy producer and one of the earliest to mature.

**PI 599613. *Arachis hypogaea* var. *fastigiata* (Waldron) Krapov. & W. C. Greg.**

Landrace. DEW 1034; mani colorado. Collected 10/05/1989 in Beni, Bolivia. Latitude 14 deg. 30' 0'' S. Longitude 67 deg. 30' 0'' W. Elevation 320 m. Dept. Beni, Prov. Ballivian, Carmen Florida, 7 km upriver from Rurrenabaque on right bank of the Rio Beni. Small village of acculturated Tacana and Quechua natives. Floodplain of the Rio Beni. Cultivated in floodplain chaco in association with maize and tomatoes. Plants erect, to 80 cm. Flowers orange. Seeds red.

**PI 599614. *Arachis hypogaea* var. *fastigiata* (Waldron) Krapov. & W. C. Greg.**

Landrace. DEW 1055; daba chunyes; daba jaibas. Collected 12/01/1989 in Beni, Bolivia. Latitude 14 deg. 40' 0'' S. Longitude 67 deg. 25' 0'' W. Dept. Beni, Prov. Ballivian, Rio Quiquibey. Asencion, Moseten and Chimane Indian village 2 km upstream from river's mouth, right bank. Planted in chaco. Fruits mixed, red and white seeded.

The following were developed by Jerry W. Johnson, University of Georgia, Department of Crop and Soil Sciences, 1109 Experiment Street, Griffin, Georgia 30223-1797, United States. Received 10/22/1997.

**PI 599615. *Triticum aestivum* L., nom. cons.**

Cultivar. Pureline. "GA-FLEMING"; FLEMING; 90078-1. PVP 9800040. Pedigree - GA 821264-2 \*3/GA 79102 (Blueboy/Amigo). Developed by backcross method with selection made in the BCF2, BCF3, BCF4, and BCF5 generations. High-yielding, early maturing, semi-dwarf and awned variety. Two-days earlier in maturity and 5cm shorter than Morey. Excellent test weight. Possesses the 1A/1R translocation from Amigo. Resistance to powdery mildew (Pm17) and leaf rust (Lr24). Soft milling and baking quality is adequate.

The following were donated by Antonin Dreiseitl, Agricultural Research Institute, P.O. Box 55, Havlickova CZ-767, Kromeriz, South Moravia, Czech Republic. Received 03/17/1997.

**PI 599616. *Hordeum vulgare* L. ssp. vulgare**

Cultivar. Pureline. "RATBORSKY"; NSGC 6374. Developed in Czech Republic. Pedigree - selection from Kvasicky. Released 1925.

**PI 599617. *Hordeum vulgare* L. ssp. vulgare**

Cultivar. Pureline. "BUCIANSKY"; NSGC 6375. Developed in Czech Republic. Pedigree - selection from Opavsky Kneifel. Released 1946.

The following were developed by Detenice, Czechoslovakia. Donated by Antonin Dreiseitl, Agricultural Research Institute, P.O. Box 55, Havlickova CZ-767, Kromeriz, South Moravia, Czech Republic. Received 03/17/1997.

**PI 599618. *Hordeum vulgare* L. ssp. vulgare**

Cultivar. Pureline. "BOHATYR"; NSGC 6376. Pedigree - Hanna/Kargyn. Released 1948.

The following were developed by Celechovice, Czech Republic. Donated by Antonin Dreiseitl, Agricultural Research Institute, P.O. Box 55, Havlickova CZ-767, Kromeriz, South Moravia, Czech Republic. Received 03/17/1997.

**PI 599619. *Hordeum vulgare* L. ssp. vulgare**

Cultivar. Pureline. "CELECHOVICKY HANACKY"; NSGC 6377. Pedigree - Haisa I//Starnovsky Kneifel/Dregerov Imperial Typ A. Released 1956.

The following were developed by Semcice, Czech Republic. Donated by Antonin Dreiseitl, Agricultural Research Institute, P.O. Box 55, Havlickova CZ-767, Kromeriz, South Moravia, Czech Republic. Received 03/17/1997.

**PI 599620. *Hordeum vulgare* L. ssp. vulgare**

Cultivar. Pureline. "SEMCICKY HOSPODARSKY"; NSGC 6378. Pedigree - Dobrovicky Staroceph/Maja. Released 1956.

The following were developed by Plant Breeding Station Stupice, Prague, Central Bohemia, Czech Republic. Donated by Antonin Dreiseitl, Agricultural Research Institute, P.O. Box 55, Havlickova CZ-767, Kromeriz, South Moravia, Czech Republic. Received 03/17/1997.

**PI 599621. *Hordeum vulgare* L. ssp. *vulgare***

Cultivar. Pureline. "ATLAS"; NSGC 6379. Pedigree - Mutant SS 55/Diamant. Released 1976.

The following were developed by Hrubice, Czechoslovakia. Donated by Antonin Dreiseitl, Agricultural Research Institute, P.O. Box 55, Havlickova CZ-767, Kromeriz, South Moravia, Czech Republic. Received 03/17/1997.

**PI 599622. *Hordeum vulgare* L. ssp. *vulgare***

Cultivar. Pureline. "SAFIR"; NSGC 6380. Pedigree - Valticky/Kneifel//Diamant/3/Arabische Zweilige. Released 1978.

**PI 599623. *Hordeum vulgare* L. ssp. *vulgare***

Cultivar. Pureline. "OPAL"; NSGC 6381. Pedigree - Ametyst/Palestine 10//Sladar. Released 1980.

The following were developed by Research Institute of Cereal Crops, Kromeriz, South Moravia, Czech Republic. Donated by Antonin Dreiseitl, Agricultural Research Institute, P.O. Box 55, Havlickova CZ-767, Kromeriz, South Moravia, Czech Republic. Received 03/17/1997.

**PI 599624. *Hordeum vulgare* L. ssp. *vulgare***

Cultivar. Pureline. "KARAT"; NSGC 6383. Pedigree - Valticky/B2145//Carlsberg/Firlsbecks Union/3/Diamant/1293-70. Released 1981.

The following were developed by Hrubice, Czechoslovakia. Donated by Antonin Dreiseitl, Agricultural Research Institute, P.O. Box 55, Havlickova CZ-767, Kromeriz, South Moravia, Czech Republic. Received 03/17/1997.

**PI 599625. *Hordeum vulgare* L. ssp. *vulgare***

Cultivar. Pureline. "KRYSTAL"; NSGC 6384. Pedigree - Koral/Rapid. Released 1981.

The following were donated by Antonin Dreiseitl, Agricultural Research Institute, P.O. Box 55, Havlickova CZ-767, Kromeriz, South Moravia, Czech Republic. Received 03/17/1997.

**PI 599626. *Hordeum vulgare* L. ssp. *vulgare***

Cultivar. Pureline. "ZEFIR"; NSGC 6385. Developed in Czech Republic. Pedigree - Firlbecks Union/Diamant//Jantar/Emir. Released 1981.

The following were developed by Hrubice, Czechoslovakia. Donated by Antonin Dreiseitl, Agricultural Research Institute, P.O. Box 55, Havlickova CZ-767, Kromeriz, South Moravia, Czech Republic. Received 03/17/1997.

**PI 599627. *Hordeum vulgare* L. ssp. *vulgare***  
Cultivar. Pureline. "RUBIN"; NSGC 6386. Pedigree -  
Valticky/3/Algerian/Valticky/Union/4/Diamant/H.st.1373-64. Released  
1982.

The following were developed by Sladkovice, Czech Republic. Donated by  
Antonin Dreiseitl, Agricultural Research Institute, P.O. Box 55, Havlickova  
CZ-767, Kromeriz, South Moravia, Czech Republic. Received 03/17/1997.

**PI 599628. *Hordeum vulgare* L. ssp. *vulgare***  
Cultivar. Pureline. "HORAL"; NSGC 6387. Pedigree -  
Sladar/Minerva//Sladar/Amsel/3/FUD II. Released 1982.

The following were developed by Plant Breeding Station Stupice, Prague,  
Central Bohemia, Czech Republic. Donated by Antonin Dreiseitl, Agricultural  
Research Institute, P.O. Box 55, Havlickova CZ-767, Kromeriz, South Moravia,  
Czech Republic. Received 03/17/1997.

**PI 599629. *Hordeum vulgare* L. ssp. *vulgare***  
Cultivar. Pureline. "MARS"; NSGC 6388. Pedigree - ST 9060-70/Abel Lofa.  
Released 1983.

The following were developed by Hrubice, Czechoslovakia. Donated by Antonin  
Dreiseitl, Agricultural Research Institute, P.O. Box 55, Havlickova CZ-767,  
Kromeriz, South Moravia, Czech Republic. Received 03/17/1997.

**PI 599630. *Hordeum vulgare* L. ssp. *vulgare***  
Cultivar. Pureline. "BONUS"; NSGC 6389. Pedigree - R964-71/HE  
858//R964-71/Nadja. Released 1984.

**PI 599631. *Hordeum vulgare* L. ssp. *vulgare***  
Cultivar. Pureline. "JASPIS"; NSGC 6391. Pedigree - ST 6984/Opal.  
Released 1986.

The following were developed by Sladkovice, Czech Republic. Donated by  
Antonin Dreiseitl, Agricultural Research Institute, P.O. Box 55, Havlickova  
CZ-767, Kromeriz, South Moravia, Czech Republic. Received 03/17/1997.

**PI 599632. *Hordeum vulgare* L. ssp. *vulgare***  
Cultivar. Pureline. "ORBIT"; NSGC 6392. Pedigree - SK 783/CE DC-74.  
Released 1986.

The following were developed by Research Institute of Cereal Crops, Kromeriz,  
South Moravia, Czech Republic. Donated by Antonin Dreiseitl, Agricultural  
Research Institute, P.O. Box 55, Havlickova CZ-767, Kromeriz, South Moravia,  
Czech Republic. Received 03/17/1997.

**PI 599633. *Hordeum vulgare* L. ssp. *vulgare***  
Cultivar. Pureline. "JAREK"; NSGC 6393. Pedigree - KM 1192/Sladar//Opal.

Released 1987.

The following were developed by Hrubice, Czechoslovakia. Donated by Antonin Dreiseitl, Agricultural Research Institute, P.O. Box 55, Havlickova CZ-767, Kromeriz, South Moravia, Czech Republic. Received 03/17/1997.

**PI 599634. Hordeum vulgare L. ssp. vulgare**

Cultivar. Pureline. "PERUN"; NSGC 6394. Pedigree - HE 1728/Karat.  
Released 1987.

The following were developed by Sladkovice, Czech Republic. Donated by Antonin Dreiseitl, Agricultural Research Institute, P.O. Box 55, Havlickova CZ-767, Kromeriz, South Moravia, Czech Republic. Received 03/17/1997.

**PI 599635. Hordeum vulgare L. ssp. vulgare**

Cultivar. Pureline. "NOVUM"; NSGC 6395. Pedigree - SK 1429/Krystal.  
Released 1988.

The following were donated by Antonin Dreiseitl, Agricultural Research Institute, P.O. Box 55, Havlickova CZ-767, Kromeriz, South Moravia, Czech Republic. Received 03/17/1997.

**PI 599636. Hordeum vulgare L. ssp. vulgare**

Cultivar. Pureline. "PROFIT"; NSGC 6396. Developed in Czech Republic.  
Pedigree - Koral/H 357//Juliana/Jantar. Released 1988.

**PI 599637. Hordeum vulgare L. ssp. vulgare**

Cultivar. Pureline. "MALVAZ"; NSGC 6397. Developed in Czech Republic.  
Pedigree - Z8-75/293-77//P1447-77. Released 1989.

**PI 599638. Hordeum vulgare L. ssp. vulgare**

Cultivar. Pureline. "TERNO"; NSGC 6398. Developed in Czech Republic.  
Pedigree - S170-74/Opal. Released 1991.

**PI 599639. Hordeum vulgare L. ssp. vulgare**

Cultivar. Pureline. "JUBILANT"; NSGC 6399. Developed in Czech Republic.  
Pedigree - SK 1952-7/Dera. Released 1991.

**PI 599640. Hordeum vulgare L. ssp. vulgare**

Cultivar. Pureline. "HERAN"; NSGC 6400. Developed in Czech Republic.  
Pedigree - Slo. HE 3380/Salome. Released 1992.

**PI 599641. Hordeum vulgare L. ssp. vulgare**

Cultivar. Pureline. "LADIK"; NSGC 6401. Developed in Czech Republic.  
Pedigree - Slo. KM 499-293-80/HVS 1461. Released 1992.

**PI 599642. Hordeum vulgare L. ssp. vulgare**

Cultivar. Pureline. "SLADKO"; NSGC 6402. Developed in Czech Republic.  
Pedigree - SK 2043/HVS 827-77 (Salome). Released 1992.

**PI 599643. Hordeum vulgare L. ssp. vulgare**

Cultivar. Pureline. "SVIT"; NSGC 6403. Developed in Czech Republic.



Pedigree - SK-TR 1147-5/KM 605. Released 1992.

- PI 599644. *Hordeum vulgare* L. ssp. *vulgare***  
Cultivar. Pureline. "AKCENT"; NSGC 6404. Developed in Czech Republic.  
Pedigree - HVS 827/EP 79. Released 1992.
- PI 599645. *Hordeum vulgare* L. ssp. *vulgare***  
Cultivar. Pureline. "STABIL"; NSGC 6405. Developed in Czech Republic.  
Pedigree - Orbit/HE 2592. Released 1993.
- PI 599646. *Hordeum vulgare* L. ssp. *vulgare***  
Cultivar. Pureline. "FORUM"; NSGC 6406. Developed in Czech Republic.  
Pedigree - H387-75/Horpadsi Ketscoroso//O 44-78. Released 1993.
- PI 599647. *Hordeum vulgare* L. ssp. *vulgare***  
Cultivar. Pureline. "PAX"; NSGC 6407. Developed in Czech Republic.  
Pedigree - SK 1952/HVS 59393. Released 1994.
- PI 599648. *Hordeum vulgare* L. ssp. *vulgare***  
Cultivar. Pureline. "VIKTOR"; NSGC 6408. Developed in Czech Republic.  
Pedigree - KM 341//Zenit/Kym. Released 1994.
- PI 599649. *Hordeum vulgare* L. ssp. *vulgare***  
Cultivar. Pureline. "AMULET"; NSGC 6409. Developed in Czech Republic.  
Pedigree - Salome/Perun. Released 1995.
- PI 599650. *Hordeum vulgare* L. ssp. *vulgare***  
Cultivar. Pureline. "PRIMUS"; NSGC 6410. Developed in Czech Republic.  
Pedigree - Jaspis/E 1197-85. Released 1995.
- PI 599651. *Hordeum vulgare* L. ssp. *vulgare***  
Cultivar. Pureline. "LUMAR"; NSGC 6411. Developed in Czech Republic.  
Pedigree - Slo. KM 341/BR 2174. Released 1995.
- PI 599652. *Hordeum vulgare* L. ssp. *vulgare***  
Cultivar. Pureline. "OLBRAM"; NSGC 6412. Developed in Czech Republic.  
Pedigree - HVS 1703-82/BR 2174. Released 1996.
- PI 599653. *Hordeum vulgare* L. ssp. *vulgare***  
Cultivar. Pureline. "FAMIN"; NSGC 6413. Developed in Czech Republic.  
Pedigree - ST 145 (Akcent)/CE 597. Released 1996.
- PI 599654. *Hordeum vulgare* L. ssp. *vulgare***  
Cultivar. Pureline. "PEJAS"; NSGC 6414. Developed in Czech Republic.  
Pedigree - Perun/Jaspis. Released 1996.
- PI 599655. *Hordeum vulgare* L. ssp. *vulgare***  
Cultivar. Pureline. "ATRIBUT"; NSGC 6415. Developed in Czech Republic.  
Pedigree - KM V3-83/BR 2174. Released 1996.

The following were collected by Ying Wu, University of Idaho, Aberdeen R&E Center, P.O. Box AA, Aberdeen, Idaho 83210, United States. Received 11/15/1996.

**PI 599656. *Hordeum vulgare* L. ssp. vulgare**

Cultivated. NSGC 6416. Collected 11/1996 in Xinjiang, China. Latitude 46 deg. 34' 0'' N. Longitude 83 deg. 36' 0'' E. Emin (Dorbiljin). market.

The following were developed by Richard Pickering, Crop & Food Research, Private Bag 4704, Christchurch, South Island, New Zealand. Received 10/30/1994.

**PI 599657. *Hordeum vulgare* L. ssp. vulgare**

Genetic. 449. Pedigree - variant in spring breeding line CRD 732.01. Non-glaucous leaf, sheath and spike. New Zealand J. Exp. Agric. 16:305-306, 1988.

The following were donated by David Spooner, University of Wisconsin, Department of Horticulture, 1575 Linden Drive, Madison, Wisconsin 53706, United States. Received 03/06/1995.

**PI 599658. *Hordeum vulgare* L. ssp. vulgare**

Cultivar. "SOLU UWA". Developed in Nepal.

The following were collected by David Spooner, University of Wisconsin, Department of Horticulture, 1575 Linden Drive, Madison, Wisconsin 53706, United States. Received 03/06/1995.

**PI 599659. *Hordeum vulgare* L. ssp. vulgare**

Cultivar. "BONUS". Collected in Nepal.

The following were donated by Irina Terentijeva, N.I. Vavilov All-Russian Institute of Plant Genetic Resources, Dept. of Rye, Barley, and Oat, 44 Bolshaya Morskaya, St. Petersburg, Leningrad 190000, Russian Federation. Received 11/28/1994.

**PI 599660. *Hordeum vulgare* L. ssp. vulgare**

Cultivar. WIR 29216; "DINA". Developed in Russian Federation. Medium maturity. Height medium. Moderate resistance to powdery mildew and net blotch.

**PI 599661. *Hordeum vulgare* L. ssp. vulgare**

Cultivar. WIR 29352; "RISK". Developed in Russian Federation. Early maturity. Resistant to powdery mildew and loose smut. Moderate resistance to leaf rust.

**PI 599662. *Hordeum vulgare* L. ssp. vulgare**

Cultivar. WIR 29438; "PRERIYA". Developed in Ukraine. Medium maturity. Excellent resistance to drought, moderate resistance to lodging, susceptible to loose smut.

The following were developed by Warren E. Kronstad, Oregon State University, Dept. of Crop and Soil Science, Corvallis, Oregon 97331, United States. Received 11/21/1997.

PI 599663. *Triticum aestivum* L., nom. cons.  
Cultivar. Pureline. "FOOTE"; OR880172; NSGC 6442. Pedigree -  
Heima//Kalyansona/Bluebird/3/WWP7147,F1/4/Davis 6301/Heine  
VII/era/3/Buckbuck. Soft white winter wheat.

PI 599664. *Triticum aestivum* L., nom. cons.  
Cultivar. Pureline. "IVORY"; OR850513; NSGC 6443. Pedigree -  
Riebesel/Anza/3/Kavkaz/Hyslop//Yamhill/Tobari 66/4/Bobwhite 'S'. Hard  
white winter wheat.

PI 599665. *Triticum compactum* Host  
Cultivar. Pureline. "TEMPLE"; 92054; 92CL0054; NSGC 6444. Pedigree -  
Tres/VPM 1. Soft white winter club wheat.

The following were donated by O.W. Norvell, Stanford University, Palo Alto,  
California, United States. Received 01/01/1989.

PI 599666. *Strophostyles helvula* (L.) Elliott  
760; W6 15695. Collected in Missouri, United States.

The following were collected by Craig Sandlin, University of Nebraska,  
Department of Plant Pathology, Lincoln, Nebraska 68583-0722, United States;  
Marcelo Salgado, Instituto Nacional de Tecnologia Agropecuaria, C.C. 228,  
Salta, Salta 4400, Argentina; Roberto Neumann, Instituto Nacional de  
Tecnologia Agropecuaria, C.C. 228, Salta, Salta 4400, Argentina. Received  
1995.

PI 599667. *Vigna unguiculata* (L.) Walp. *ssp. unguiculata*  
Landrace. W6 17489. Collected 05/1995 in Argentina. Latitude 22 deg. 16'  
0'' S. Longitude 64 deg. 41' 0'' W. Elevation 1650 m. Los Toldos, Jujuy.  
A field south of town. Mixed landrace *Phaseolus vulgaris* and *Vigna* sp.  
growing with corn. Flowers both yellow and purple.

The following were developed by Lee Panella, USDA, ARS, Colorado State  
University, Sugarbeet Research, Crops Research Lab., Fort Collins, Colorado  
80536-2083, United States. Received 11/12/1997.

PI 599668. *Beta vulgaris* L.  
Breeding. Population. FC 709-2. Pedigree - Three cycles of mass  
selection within the most resistant population (871016) that went into  
FC 709. Two cycles for resistance to *Rhizoctonia* root rot and one cycle  
of individual roots for increased percent sucrose. Multigerm (MM), non  
O-type, pseudo self-fertile, and 13% green hypocotyls. Segregating with  
approx. 19% male sterility. Excellent resistance to *Rhizoctonia* root rot  
when tested under strong disease pressure. Good resistance to *Cercospora*  
leaf spot when tested in an artificial epiphytotic. No tolerance to  
curly top virus. Very low frequency of plants with resistance to  
rhizomania. Released for use as pollinator for making *Rhizoctonia* root  
rot and *Cercospora* leaf spot resistant hybrids, or as a source  
population from which such pollinators can be selected.

**PI 599669. *Beta vulgaris* L.**

Breeding. Population. FC 727. Pedigree - FC703 (50% of the genetic contribution) and three high sucrose sources - Polish AJ, -ZZ (16%), the Spanish line Aula Dei 13 (21%), and American Crystal's 67-436 (13%). Eight generations of mass selection for resistance to *Rhizoctonia* root rot and four simultaneous generations of mass selection of individual roots for high sucrose. Multigerm (MM), non O-type, and 51% green hypocotyls. Excellent resistance to *Rhizoctonia* root rot when tested under strong disease pressure. Some resistance to *Cercospora* leaf spot. No tolerance to curly top virus. Relatively good combining ability for sucrose yield when used as a pollinator on several diverse CMS lines. Potential for use as pollinator or population from which to choose pollinators with good combining ability. Should contribute to synthesis of high sucrose hybrids with resistance to *Rhizoctonia* root rot.

The following were collected by Peter Kulakow, Kansas State University, Department of Agronomy, Crop, Soil, and Range Sciences, Manhattan, Kansas 66506-5501, United States; Denise K. Klenda, Kansas State University, Department of Agronomy, 2004 Throckmorton Hall, Manhattan, Kansas 66506-5501, United States; Michael Horak, Kansas State University, Department of Agronomy, 2004 Throckmorton Hall, Manhattan, Kansas 66506-5501, United States. Donated by Denise K. Klenda, Kansas State University, Department of Agronomy, 2004 Throckmorton Hall, Manhattan, Kansas 66506-5501, United States. Received 10/10/1997.

**PI 599670. *Amaranthus arenicola* I. M. Johnst.**

Wild. A; Ames 23972. Collected 08/13/1997 in Kansas, United States. Latitude 37 deg. 58' 19'' N. Longitude 100 deg. 51' 26'' W. 1 mile east of Garden City, Finney County. Soil sandy, near the Arkansas River.

**PI 599671. *Amaranthus arenicola* I. M. Johnst.**

Wild. B; Ames 23973. Collected 08/13/1997 in Kansas, United States. Latitude 37 deg. 48' 31'' N. Longitude 100 deg. 27' 15'' W. 1 mile south of Ingalls, Gray County. Soil sandy, near the Arkansas River.

**PI 599672. *Amaranthus arenicola* I. M. Johnst.**

Wild. C; Ames 23974. Collected 08/13/1997 in Kansas, United States. Latitude 37 deg. 43' 55'' N. Longitude 99 deg. 56' 6'' W. Fort Dodge, Ford County. Soil sandy, near the Arkansas River.

**PI 599673. *Amaranthus arenicola* I. M. Johnst.**

Wild. D; Ames 23975. Collected 08/13/1997 in Kansas, United States. Latitude 37 deg. 55' 23'' N. Longitude 99 deg. 24' 34'' W. Kinsley, Edwards County. Soil sandy, near the Arkansas River.

The following were developed by David A. Dierig, USDA, ARS, U.S. Water Conservation Laboratory, 4331 E. Broadway, Phoenix, Arizona 85040, United States. Received 11/18/1997.

**PI 599674. *Parthenium argentatum* A. Gray**

Breeding. Population. AZ-1. Compared in field tests to the released lines N565 and 11591 after 2 and 3 years of growth. Produced more rubber after 2 and 3 years and more biomass after 3 years than the checks.

**PI 599675. *Parthenium argentatum* A. Gray**

Breeding. Population. AZ-2. Compared in field tests to the released lines N565 and 11591 after 2 and 3 years of growth. Produced more biomass after 2 years and grew faster than the checks.

**PI 599676. *Parthenium argentatum* A. Gray**

Breeding. Population. AZ-3. Compared in field test to the released lines N565 and 11591 after 2 and 3 years. Produced the highest biomass after 3 years of all lines.

**PI 599677. *Parthenium argentatum* A. Gray**

Breeding. Population. AZ-4. Compared in field tests to the released lines N565 and 11591 after 2 and 3 years of growth. Released for faster regrowth after an initial harvest.

**PI 599678. *Parthenium argentatum* A. Gray**

Breeding. Population. AZ-5. Compared in field tests to the released lines N565 and 11591 after 2 and 3 years of growth. Released for faster regrowth after an initial harvest. More uniform in plant traits than AZ-4.

**PI 599679. *Parthenium argentatum* A. Gray**

Breeding. Population. AZ-6. Compared in field tests to the released lines N565 and 11591 after 2 and 3 years of growth. Produced more rubber after 2 and 3 years than all but one of the other lines.

The following were collected by David Brenner, Iowa State University, Regional Plant Introduction Station, Room G208, Agronomy Building, Ames, Iowa 50011, United States. Received 11/13/1997.

**PI 599680. *Amaranthus albus* L.**

Wild. DB 97424; Ames 24071. Collected 10/27/1997 in California, United States. Latitude 33 deg. 36' 0'' N. Longitude 117 deg. 41' 0'' W. Elevation 200 m. West of Interstate 5, between La Paz and Crown Valley roads, Orange County. A depression under an electric power transmission tower, at a right angle bend in the electric line.

The following were collected by Subodh Jain, University of California, Department of Agronomy, Davis, California 95616, United States. Donated by David Brenner, Iowa State University, Regional Plant Introduction Station, Room G208, Agronomy Building, Ames, Iowa 50011, United States. Received 11/13/1997.

**PI 599681. *Amaranthus dubius* C. Mart. ex Thell.**

Wild. UC 113 segregate; DB 96609; Ames 24072. Collected 1980 in Madhya Pradesh, India. Pedigree - 11 plants segregated from UC 113, Ames 23271 96ncao01, Row 515, because they were a different species than that accession. Stems have red stripes, petioles faintly red, leaf blades green.

The following were collected by Lincoln Carney. Donated by David Brenner,

Iowa State University, Regional Plant Introduction Station, Room G208, Agronomy Building, Ames, Iowa 50011, United States. Received 11/13/1997.

**PI 599682. *Amaranthus hypochondriacus* L.**

Cultivated. DB 97179; RRC 541 segregate; Ames 24073. Collected 11/09/1979 in Sonora, Mexico. Pedigree - 49 plants segregated from Ames 5323 90ncei01, Row 539, because they were a different species than that accession. Stems have red stripes, blades red, and inflorescence erect and red.

The following were collected by Subodh Jain, University of California, Department of Agronomy, Davis, California 95616, United States. Donated by David Brenner, Iowa State University, Regional Plant Introduction Station, Room G208, Agronomy Building, Ames, Iowa 50011, United States. Received 11/13/1997.

**PI 599683. *Amaranthus tricolor* L.**

Wild. UC 113 segregate; DB 96610; Ames 24074. Collected 1980 in Madhya Pradesh, India. Pedigree - 8 plants segregated from UC 113, Ames 23271 96ncao01, Row 515, because they were a different species than that accession. Stems red but fade to red stripes with age. Blades green with red veins.

The following were collected by David Brenner, Iowa State University, Regional Plant Introduction Station, Room G208, Agronomy Building, Ames, Iowa 50011, United States. Received 11/13/1997.

**PI 599684. *Perilla frutescens* (L.) Britton**

Cultivated. DB 97406; Ames 24075. Collected 09/28/1997 in Iowa, United States. Latitude 42 deg. 0' 0'' N. Longitude 93 deg. 36' 0'' W. 1214 Marston Avenue, Ames, Story County. Cultivated as ornamentals. Foliage bright attractive red, blades ruffled. Adapted for seed maturity in Ames, Iowa, and seeds survive in the soil over winter.

The following were developed by Boreal Plant Breeding, Myllytie 10, Jokioinen, Hame FIN-31600, Finland. Donated by Marketta Saastamoinen, Boreal Plant Breeding, Myllytie 10, Jokioinen, Hame FIN-31600, Finland. Received 05/05/1997.

**PI 599685. *Avena sativa* L.**

Cultivar. Pureline. "AARRE"; NSGC 6418.

**PI 599686. *Avena sativa* L.**

Cultivar. Pureline. "KATRI"; NSGC 6419.

**PI 599687. *Avena nuda* L.**

Cultivar. Pureline. "LISBETH"; NSGC 6420.

**PI 599688. *Avena sativa* L.**

Cultivar. Pureline. "ROOPE"; NSGC 6421.

The following were developed by M. Ken Aycocock, Jr., University of Maryland, Department of Agronomy, College Park, Maryland 20742, United States; C.L. Mulchi, University of Maryland, Maryland Agric. Exp. Sta., Dept. of Nat. Resource Sciences and Landscape Architecture, College Park, Maryland 20742-4452, United States. Received 11/25/1997.

**PI 599689. *Nicotiana tabacum* L.**

Breeding. Pureline. LAMD 609. GP-52. Pedigree - [(MD 609 x LA Burley 21) x MD 609] BC6F5. Low-alkaloid Maryland tobacco germplasm line. Total alkaloids .06% compared to MD 609 at 1.93%. Total nitrogen 3.8%, MD 609 is 4.01%. Lower in yield and leaf quality than MD 609. Flowers 70 days after transplanting.

The following were developed by An Hang, USDA, ARS, National Small Grains Germplasm, Research Facility, Aberdeen, Idaho 83210, United States; Matt Silbernagel, USDA, ARS, Vegetable Crop Production, IAREC, P.O. Box 30, Prosser, Washington 99350, United States; Phil Miklas, USDA, ARS, Irrigated Agric. Research & Extension Ctr., 24106 North Bunn Road, Prosser, Washington 99350, United States. Received 11/25/1997.

**PI 599690. *Phaseolus vulgaris* L.**

Breeding. USWA-27 ANASAZI BEANS (R); ANASAZI BEANS (R). GP-178. Pedigree - (A55/Anasazi bean). Growth habit upright. Lodging resistance and unprotected dominant I gene resistance to bean common mosaic virus and curly top virus. Late maturing with potential high yield. Seed black and white mottled, strong vigor, size medium and plump, weight 27-30 g 100 seed-1.

**PI 599691. *Phaseolus vulgaris* L.**

Breeding. USWA-20. GP-179. Pedigree - (Othello/Sierra). Plant habit floppy, indeterminate, short vine, III-A CIAT classification, and maturity late. Yield higher and seed size larger than parents (Othello and Sierra). Seed similar to Sierra, plump with faintly colored pale corona and slightly large background. Resistant to bean common mosaic virus, curly top virus, and root rot complex present in Pacific Northwest of US. High level of broad spectrum resistance to Fusarium Yellow root rot (*Fusarium oxysporium* sp. *phaseoli*) including the highly virulent strain found in Colorado and Nebraska.

The following were developed by Lynn M. Gourley, Mississippi State University, Box 9555, Mississippi State, Mississippi 39762, United States. Received 11/25/1997.

**PI 599692. *Sorghum bicolor* (L.) Moench**

Breeding. Pureline. MP 26; (BMR Silage 1)-24-1-1-1. Pedigree - [(CS 3541\*1005)-1\*((Stoneville Synthetic\*Leoti Derivative Low Bloom)\*(IS 38-2934\*BMR 18))-1-6-2]-24-1-1-1. Inbred 1 of 20 (Group 1). Silage or food-quality dual purpose R-line with recessive brown-midrib gene, *bmr-12* or *bmr-18*, which are allelic. Plant color tan, grain with white epicarp, absence of testa, panicle semi-open, exertion approx. 10 cm. Seed weight 2.28 gm 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, had days to 50% anthesis 73 and 74, and plant height 125 and 207 cm. respectively.

- PI 599693. Sorghum bicolor (L.) Moench**  
 Breeding. Pureline. MP 27; (BMR Silage 1)-54-2-1-1. Pedigree - [(CS 3541\*1005)-1\*((Stoneville Synthetic\*Leoti Derivative Low Bloom)\*(IS 38-2934\*BMR 18))-1-6-2]-54-2-1-1. Inbred 2 of 20 (Group 1). Silage or food-quality dual purpose R-line with recessive brown midrib gene, bmr-12 or bmr-18, which are allelic. Plant color tan, epicarp white, testa absent, panicle semi-open, exsertion approx. 15 cm. Seed weight 2.04 gm 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 71 and 77, and plant height 140 and 189 cm. respectively.
- PI 599694. Sorghum bicolor (L.) Moench**  
 Breeding. Pureline. MP 28; (BMR Silage 2)-2-1-1-1. Pedigree - [(MN 752\*BMR 12)\*(Stoneville Synthetic\*Leoti Derivative Low Bloom))-16-1-1\*(CS 3541\*1005)-1]-2-1-1-1. Inbred 3 of 20 (Group 1). Silage or food-quality dual purpose R-line with recessive brown midrib gene bmr-12 or bmr-18, which are allelic. Plant color tan, epicarp white, testa absent, panicle semi-compact, exsertion approx. 5 cm. Seed weight 2.60 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 69 and 70, and plant height 140 and 174 cm. respectively.
- PI 599695. Sorghum bicolor (L.) Moench**  
 Breeding. Pureline. MP 29; (BMR Silage 2)-2-1-2-1. Pedigree - [(MN 752\*BMR 12)\*(Stoneville Synthetic\*Leoti Derivative Low Bloom))-16-1-1\*(CS 3541\*1005)-1]-2-1-2-1. Inbred 4 of 20 (Group 1). Silage or food-quality dual purpose R-line with recessive brown midrib gene bmr-12 or bmr-18, which are allelic. Plant color tan, epicarp white, testa absent, panicle semi-compact, exsertion approx. 10 cm. Seed weight 2.41 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 72 and 76, and plant height 143 and 155 cm. respectively.
- PI 599696. Sorghum bicolor (L.) Moench**  
 Breeding. Pureline. MP 30; (BMR Silage 2)-53-1-1-1. Pedigree - [(MN 752\*BMR 12)\*(Stoneville Synthetic\*Leoti Derivative Low Bloom))-16-1-1\*(CS 3541\*1005)-1]-53-1-1-1. Inbred 5 of 20 (Group 1). Silage or food-quality dual purpose R-line with recessive brown midrib gene bmr-12 or bmr-18, which are allelic. Plant color tan, epicarp white, testa absent, panicle semi-compact, exsertion approx. 2 cm. Seed weight 2.18 gm 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 71 and 71, and plant height 140 and 171 cm. respectively.
- PI 599697. Sorghum bicolor (L.) Moench**  
 Breeding. Pureline. MP 31; (BMR Silage 2)-54-2-1-1. Pedigree - [(MN 752\*BMR 12)\*(Stoneville Synthetic\*Leoti Derivative Low Bloom))-16-1-1\*(CS 3541\*1005)-1]-54-2-1-1. Inbred 6 of 20 (Group 1). Silage or food-quality dual purpose R-line with recessive brown midrib gene bmr-12 or bmr-18, which are allelic. Plant color tan, epicarp white, testa absent, panicle semi-compact, exsertion approx. 2 cm. Seed weight 2.91 gm 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 72 and 69,.



- PI 599698. *Sorghum bicolor* (L.) Moench**  
 Breeding. Pureline. MP 32; (BMR Silage 2)-54-2-2-1. Pedigree - [(MN 752\*BMR 12)\*(Stoneville Synthetic\*Leoti Derivative Low Bloom))-16-1-1\*(CS 3541\*1005)-1]-54-2-2-1. Inbred 7 of 20 (Group 1). Silage or food-quality dual purpose R-line with recessive brown midrib gene bmr-12 or bmr-18, which are allelic. Plant color tan, epicarp white, testa absent, panicle semi-compact, exsertion approx. 8 cm. Seed weight 3.13 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 73 and 69, and plant height 146 and 168 cm. respectively.
- PI 599699. *Sorghum bicolor* (L.) Moench**  
 Breeding. Pureline. MP 33; (BMR Silage 2)-66-1-2-1. Pedigree - [(MN 752\*BMR 12)\*(Stoneville Synthetic\*Leoti Derivative Low Bloom))-16-1-1\*(CS 3541\*1005)-1]-66-1-2-1. Inbred 8 of 20 (Group 1). Silage or food-quality dual purpose R-line with recessive brown midrib gene bmr-12 or bmr-18, which are allelic. Plant color tan, epicarp white, testa absent, panicle semi-compact, exsertion approx. 10 cm. Seed weight 2.20 gm 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 68 and 63, and plant height 152 and 171 cm. respectively.
- PI 599700. *Sorghum bicolor* (L.) Moench**  
 Breeding. Pureline. MP 34; (BMR Silage 2)-79-1-1-1. Pedigree - [(MN 752\*BMR 12)\*(Stoneville Synthetic\*Leoti Derivative Low Bloom))-16-1-1\*(CS 3541\*1005)-1]-79-1-1-1. Inbred 9 of 20 (Group 1). Silage or food-quality dual purpose R-line with recessive brown midrib gene bmr-12 or bmr-18, which are allelic. Plant color tan, epicarp white, testa absent, panicle semi-compact, exsertion approx. 2 cm. Seed weight 2.43 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 67 and 73 respectively.
- PI 599701. *Sorghum bicolor* (L.) Moench**  
 Breeding. Pureline. MP 35; (BMR Silage 2)-79-1-2-1. Pedigree - [(MN 752\*BMR 12)\*(Stoneville Synthetic\*Leoti Derivative Low Bloom))-16-1-1\*(CS 3541\*1005)-1]-79-1-2-1. Inbred 10 of 20 (Group 1). Silage or food-quality dual purpose R-line with recessive brown midrib gene bmr-12 or bmr-18, which are allelic. Plant color tan, epicarp white, testa absent, panicle semi-open, exsertion approx. 15 cm. Seed weight 2.01 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 68 and 76, and plant height 165 and 165 cm. respectively.
- PI 599702. *Sorghum bicolor* (L.) Moench**  
 Breeding. Pureline. MP 36; (BMR Silage 3)-25-1-2-1. Pedigree - [(SC-108-3\*E 35-1)-29-2\*((MN 752\*BMR 12)\*(Stoneville Synthetic\*Leoti Derivative Low Bloom))-16-1-1]-25-1-2-1. Inbred 11 of 20 (Group 1). Silage or food-quality dual purpose R-line with recessive brown midrib gene bmr-12 or bmr-18, which are allelic. Plant color tan, epicarp white, testa absent, panicle semi-compact, exsertion approx. 20 cm. Seed weight 2.42 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 73 and 67, and plant height 171 and 207 cm. respectively.
- PI 599703. *Sorghum bicolor* (L.) Moench**

Breeding. Pureline. MP 37; (BMR Silage 3)-28-1-1-1. Pedigree - [(SC-108-3\*E 35-1)-29-2\*((MN 752\*BMR 12)\*(Stoneville Synthetic\*Leoti Derivative Low Bloom))-16-1-1]-28-1-1-1. Inbred 12 of 20 (Group 1). Silage or food-quality dual purpose R-line with recessive brown midrib gene bmr-12 or bmr-18, which are allelic. Plant color tan, epicarp white, testa absent, panicle semi-compact, exsertion approx. 30 cm. Seed weight 2.37 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 71 and 69, and plant height 189 and 201 cm. respectively.

**PI 599704. Sorghum bicolor (L.) Moench**

Breeding. Pureline. MP 38; (BMR Silage 3)-28-1-2-1. Pedigree - [(SC-108-3\*E 35-1)-29-2\*((MN 752\*BMR 12)\*(Stoneville Synthetic\*Leoti Derivative Low Bloom))-16-1-1]-28-1-2-1. Inbred 13 of 20 (Group 1). Silage or food-quality dual purpose R-line with recessive brown midrib gene bmr-12 or bmr-18, which are allelic. Plant color tan, epicarp white, testa absent, panicle semi-compact, exsertion approx. 25 cm. Seed weight 2.06 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 71 and 67, and plant height 192 and 198 cm. respectively.

**PI 599705. Sorghum bicolor (L.) Moench**

Breeding. Pureline. MP 39; (BMR Silage 3)-43-1-1-1. Pedigree - [(SC-108-3\*E 35-1)-29-2\*((MMN 752\*BMR 12)\*(Stoneville Synthetic\*Leoti Derivative Low Bloom))-16-1-1]-43-1-1-1. Inbred 14 of 20 (Group 1). Silage or food-quality dual purpose R-line with recessive brown midrib gene bmr-12 or bmr-18, which are allelic. Plant color tan, epicarp white, testa absent, panicle semi-open, exsertion approx. 25 cm. Seed weight 2.44 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 71 and 66, and plant height 198 and 219 cm. respectively.

**PI 599706. Sorghum bicolor (L.) Moench**

Breeding. Pureline. MP 40; (BMR Silage 4)-6-1-2-1. Pedigree - [(SC-108-3\*E 35-1)-29-2\*((MN 752\*BMR 12)\*(Stoneville Synthetic\*Leoti Derivative Low Bloom))-30-3-6-1]-6-1-2-1. Inbred 15 of 20 (Group 1). Silage or food-quality dual purpose R-line with recessive brown midrib gene bmr-12 or bmr-18, which are allelic. Plant color tan, epicarp white, testa absent, panicle semi-compact, exsertion approx. 20 cm. Seed weight 2.45 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 71 and 66, and plant height 165 and 186 cm. respectively.

**PI 599707. Sorghum bicolor (L.) Moench**

Breeding. Pureline. MP 41; (BMR Silage 4)-26-1-1-1. Pedigree - [(SC-108-3\*E 35-1)-29-2\*((MN 752\*BMR 12)\*(Stoneville Synthetic\*Leoti Derivative Low Bloom))-303-3-6-1]-26-1-1-1. Inbred 16 of 20 (Group 1). Silage or food-quality dual purpose R-line with recessive brown midrib gene bmr-12 or bmr-18, which are allelic. Plant color tan, epicarp white, testa absent, panicle semi-compact, exsertion approx. 5 cm. Seed weight 1.83 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 69 and 64, and plant height 165 and 183 cm. respectively.

**PI 599708. Sorghum bicolor (L.) Moench**

Breeding. Pureline. MP 42; (MS2)-16-1-2-1. Pedigree - [(MN 752\*BMR 12)\*(Stoneville Synthetic\*Leoti Derivative Low Bloom)]-16-1-2-1. Inbred 17 of 20 (Group 1). Silage or food-quality dual purpose R-line with recessive brown midrib gene bmr-12 or bmr-18, which are allelic. Plant color tan, epicarp white, testa absent, panicle semi-compact, exsertion approx. 20 cm. Seed weight 2.36 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 68 and 63, and plant height 171 and 204 cm. respectively.

**PI 599709. Sorghum bicolor (L.) Moench**

Breeding. Pureline. MP 43; (MS2)-16-1-4-1. Pedigree - [(MN 752\*BMR 12)\*(Stoneville Synthetic\*Leoti Derivative Low Bloom)]-16-1-4-1. Inbred 18 of 20 (Group 1). Silage or food-quality dual purpose R-line with recessive brown midrib gene bmr-12 or bmr-18, which are allelic. Plant color tan, epicarp white, testa absent, panicle semi-compact, exsertion approx. 20 cm. Seed weight 2.50 gm 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 67 and 66, and plant height 177 and 183 cm. respectively.

**PI 599710. Sorghum bicolor (L.) Moench**

Breeding. Pureline. MP 44; (MS2)-16-1-5-1. Pedigree - [(MN 752\*BMR 12)\*(Stoneville Synthetic\*Leoti Derivative Low Bloom)]-16-1-5-1. Inbred 19 of 20 (Group 1). Silage or food-quality dual purpose R-line with recessive brown midrib gene bmr-12 or bmr-18, which are allelic. Plant color tan, epicarp white, testa absent, panicle semi-compact, exsertion approx. 5 cm. Seed weight 2.19 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 68 and 70, and plant height 171 and 180 cm. respectively.

**PI 599711. Sorghum bicolor (L.) Moench**

Breeding. Pureline. MP 45; (MS2)-30-3-6-1. Pedigree - [(MN 752\*BMR 12)\*(Stoneville Synthetic\*Leoti Derivative Low Bloom)]-30-3-6-1. Inbred 20 of 20 (Group 1). Silage or food-quality dual purpose R-line with recessive brown midrib gene bmr-12 or bmr-18, which are allelic. Plant color tan, epicarp white, testa absent, panicle semi-compact, exsertion approx. 25 cm. Seed weight 2.30 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 71 and 63, and plant height 155 and 163 cm. respectively.

**PI 599712. Sorghum bicolor (L.) Moench**

Breeding. Pureline. MP 46; (MS2)-24-2-4-1. Pedigree - [(MN 752\*BMR 12)\*(Stoneville Synthetic\*Leoti Derivative Low Bloom)]-24-2-4-1. Inbred 1 of 19 (Group 2). Sudangrass line with recessive brown midrib gene bmr-12 or bmr-18, which are allelic. Plant color tan, epicarp white, testa absent, panicle semi-open, exsertion approx. 25 cm. Seed weight 2.28 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 69 and 67, and plant height 168 and 207 cm. respectively.

**PI 599713. Sorghum bicolor (L.) Moench**

Breeding. Pureline. MP 47; (MS2)-30-3-5-1. Pedigree - [(MN 752\*BMR 12)\*(Stoneville Synthetic\*Leoti Derivative Low Bloom)]-30-3-5-1. Inbred 2 of 19 (Group 2). Sudangrass line with recessive brown midrib gene bmr-12 or bmr-18, which are allelic. Plant color tan, epicarp white, testa absent, panicle semi-compact, exsertion approx. 30 cm. Seed weight

2.27 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 70 and 70, and plant height 183 and 225 cm. respectively.

**PI 599714. Sorghum bicolor (L.) Moench**  
Breeding. Pureline. MP 48; (GLBMR6\*2\*18)-9-2-3-2. Pedigree - [Greenleaf BMR 6\*((OK 11\*BMR 2)BC3-1-3-2-2\*(B-Yellow PI\*BMR 18)BC2-11-2-2-2-1)]-9-2-3-2. Inbred 3 of 19 (Group 2). Sudangrass line with recessive brown midrib gene bmr-6 or bmr-17, which are allelic. Plant color tan, epicarp white, testa absent, panicle open, exsertion approx. 5 cm. Seed weight 1.91 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 67 and 63, and plant height 158 and 169 cm. respectively.

**PI 599715. Sorghum bicolor (L.) Moench**  
Breeding. Pureline. MP 49; (GLBMR6\*2\*18)-9-2-3-3. Pedigree - [Greenleaf BMR 6\*((OK 11\*BMR 2)BC3-1-3-2-2\*(B-Yellow PI\*BMR 18)BC2-11-2-2-2-1)]-9-2-3-3. Inbred 4 of 19 (Group 2). Sudangrass line with recessive brown midrib gene bmr-6 or bmr-17, which are allelic. Plant color tan, epicarp white, testa absent, panicle open, exsertion approx. 5 cm. Seed weight 2.15 gm 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 68 and 76, and plant height 177 and 189 cm. respectively.

**PI 599716. Sorghum bicolor (L.) Moench**  
Breeding. Pureline. MP 50; (PBMR6\*2\*12)-3-1-1-2. Pedigree - [Piper BMR 6\*((OK 11\*BMR 2)BC3-1-3-2-2\*(OK 11\*BMR 12)BC2-7-1-3-1-2)]-3-1-1-2. Inbred 5 of 19 (Group 2). Sudangrass line with recessive brown midrib gene bmr-6 or bmr-17, which are allelic. Plant color tan, epicarp white, testa absent, panicle open, exsertion approx. 10 cm. Seed weight 1.44 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 74 and 67, and plant height 195 and 186 cm. respectively.

**PI 599717. Sorghum bicolor (L.) Moench**  
Breeding. Pureline. MP 51; (PBMR6\*2\*12)-3-1-2-1. Pedigree - [Piper BMR 6\*((OK 11\*BMR 2)BC3-1-3-2-2\*(OK 11\*BMR 12)BC2-7-1-3-1-2)]-3-1-2-1. Inbred 6 of 19 (Group 2). Sudangrass line with recessive brown midrib gene bmr-6 or bmr-17, which are allelic. Plant color tan, epicarp brown, testa present, panicle open, exsertion approx. 25 cm. Seed weight 1.57 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 70 and 65, and plant height 183 and 192 cm. respectively.

**PI 599718. Sorghum bicolor (L.) Moench**  
Breeding. Pureline. MP 52; (PBMR6\*2\*12)-3-1-2-3. Pedigree - [Piper BMR 6\*((OK 11\*BMR 2)BC3-1-3-2-2\*(OK 11\*BMR 12)BC2-7-1-3-1-2)]-3-1-2-3. Inbred 7 of 19 (Group 2). Sudangrass line with recessive brown midrib gene bmr-6 or bmr-17, which are allelic. Plant color tan, epicarp brown, testa present, panicle open, exsertion approx. 25 cm. Seed weight 1.57 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 70 and 65, and plant height 201 and 183 cm. respectively.

**PI 599719. Sorghum bicolor (L.) Moench**

Breeding. Pureline. MP 53; (PBMR6\*2\*12)-27-2-1-1. Pedigree - [Piper BMR 6\*((OK 11\*BMR 2)BC3-1-3-2-2\*(OK 11\*BMR 12)BC2-7-1-3-1-2)]-27-2-1-1. Inbred 8 of 19 (Group 2). Sudangrass line with recessive brown midrib gene bmr-6 or bmr-17, which are allelic. Plant color tan, epicarp white, testa absent, panicle open, exsertion approx. 10 cm. Seed weight 2.07 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 70 and 63, and plant height 162 and 152 cm. respectively.

**PI 599720. Sorghum bicolor (L.) Moench**

Breeding. Pureline. MP 54; (PBMR6\*2\*12)-27-2-1-3. Pedigree - [Piper BMR 6\*((OK 11\*BMR 2)BC3-1-3-2-2\*(OK 11\*BMR 12)BC2-7-1-3-1-2)]-27-2-1-3. Inbred 9 of 19 (Group 2). Sudangrass line with recessive brown midrib gene bmr-6 or bmr-17, which are allelic. Plant color tan, epicarp white, testa absent, panicle open, exsertion approx. 15 cm. Seed weight 1.44 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 71 and 65, and plant height 155 and 131 cm. respectively.

**PI 599721. Sorghum bicolor (L.) Moench**

Breeding. Pureline. MP 55; (BMR Sudan 1)-11-1-1-2. Pedigree - [(Greenleaf BMR 6\*((Stoneville Synthetic\*Leoti Derivative Low Bloom))\*(IS 38-2934\*BMR 18))-33-3-4]-11-1-1-2. Inbred 10 of 19 (Group 2). Sudangrass line with recessive brown midrib gene bmr-6 or bmr-17, which are allelic. Plant color tan, epicarp brown, testa present, panicle open, exsertion approx. 15 cm. Seed weight 1.53 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 64 and 66, and plant height 162 and 154 cm. respectively.

**PI 599722. Sorghum bicolor (L.) Moench**

Breeding. Pureline. MP 56; (BMR Sudan 2)-23-2-2-1. Pedigree - [(Greenleaf BMR 6\*((MN 752\*BMR 12)\*(Stoneville Synthetic\*Leoti Derivative Low Bloom)))-24-4-7-1]-23-2-2-1. Inbred 11 of 19 (Group 2). Sudangrass line with recessive brown midrib gene bmr-6 or bmr-17, which are allelic. Plant color tan, epicarp brown, testa present, panicle open, exsertion approx. 5 cm. Seed weight 2.08 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 63 and 64, and plant height 152 and 162 cm. respectively.

**PI 599723. Sorghum bicolor (L.) Moench**

Breeding. Pureline. MP 57; (BMR Sudan 2)-23-2-2-2. Pedigree - [(Greenleaf BMR 6\*((MN 752\*BMR 12)\*(Stoneville Synthetic\*Leoti Derivative Low Bloom)))-24-4-7-1]-23-2-2-2. Inbred 12 of 19 (Group 2). Sudangrass line with recessive brown midrib gene bmr-6 or bmr-17, which are allelic. Plant color tan, epicarp brown, testa present, panicle open, exsertion approx. 5 cm. Seed weight 1.70 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 65 and 66, and plant height 165 and 189 cm. respectively.

**PI 599724. Sorghum bicolor (L.) Moench**

Breeding. Pureline. MP 58; (BMR Sudan 2)-25-2-2-1. Pedigree - [(Greenleaf BMR 6\*((MN 752\*BMR 12)\*(Stoneville Synthetic\*Leoti Derivative Low Bloom)))-24-4-7-1]-25-2-2-1. Inbred 13 of 19 (Group 2). Sudangrass line with two recessive brown midrib genes, bmr-6 or bmr-17, which are allelic, and bmr-12 or bmr-18, also allelic. Plant color tan,

epicarp white, testa absent, panicle open, exsertion approx. 15 cm. Seed weight 1.74 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 69 and 64, and plant height 174 and 210 cm. respectively.

**PI 599725. *Sorghum bicolor* (L.) Moench**

Breeding. Pureline. MP 59; (BMR Sudan 2)-25-2-2-3. Pedigree - [(Greenleaf BMR 6\*((MN 752\*BMR 12)\*(Stoneville Synthetic\*Leoti Derivative Low Bloom))-24-4-7-1]-25-2-2-3. Inbred 14 of 19 (Group 2). Sudangrass line with recessive brown midrib gene bmr-12 or bmr-18, which are allelic. Plant color tan, epicarp white, testa absent, Panicle open, exsertion approx. 10 cm. Seed weight 1.72 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 69 and 65, and plant height 180 and 219 cm. respectively.

**PI 599726. *Sorghum bicolor* (L.) Moench**

Breeding. Pureline. MP 60; (BMR Sudan 3)-9-1-1-2. Pedigree - [(Piper BMR 6\*((MN 752\*BMR 12)\*(Stoneville Synthetic\*Leoti Derivative Low Bloom))-24-2-7]-9-1-1-2. Inbred 15 of 19 (Group 2). Sudangrass line with two recessive brown midrib genes, bmr-6 or bmr-17, which are allelic, and bmr-12 or bmr-18, also allelic. Plant color tan, epicarp white, testa absent, panicle open, exsertion approx. 10 cm. Seed weight 1.34 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 68 and 64, and plant height 162 and 152 cm. respectively.

**PI 599727. *Sorghum bicolor* (L.) Moench**

Breeding. Pureline. MP 61; (BMR Sudan 4)-4-1-1-2. Pedigree - [(Piper BMR 6\*((MN 752\*BMR 12)\*(Stoneville Synthetic\*Leoti Derivative Low Bloom))-30-3-5-2]-4-1-1-2. Inbred 16 of 19 (Group 2). Sudangrass line with two recessive brown midrib genes, bmr-6 or bmr-17, which are allelic, and bmr-12 or bmr-18, also allelic. Plant color tan, epicarp white, testa absent, panicle open, exsertion approx. 15 cm. Seed weight 1.38 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 71 and 73, and plant height 189 and 195 cm. respectively.

**PI 599728. *Sorghum bicolor* (L.) Moench**

Breeding. Pureline. MP 62; (BMR Sudan 4)-4-1-1-3. Pedigree - [(Piper BMR 6\*((MN 752\*BMR 12)\*(Stoneville Synthetic\*Leoti Derivative Low Bloom))-30-3-5-2]-4-1-1-3. Inbred 17 of 19 (Group 2). Sudangrass line with two recessive brown midrib genes, bmr-6 or bmr-17, which are allelic, and bmr-12 or bmr-18, also allelic. Plant color tan, epicarp white, testa absent, panicle open, exsertion approx. 5 cm. Seed weight 1.51 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 69 and 67, and plant height 165 and 201 cm. respectively.

**PI 599729. *Sorghum bicolor* (L.) Moench**

Breeding. Pureline. MP 63; (BMR Sudan 4)-23-1-1-2. Pedigree - [(Piper BMR 6\*((MN 752\*BMR 12)\*(Stoneville Synthetic\*Leoti Derivative Low Bloom))-30-3-5-2]-23-1-1-2. Inbred 18 of 19 (Group 2). Sudangrass line with recessive brown midrib gene bmr-6 or bmr-17, which are allelic. Plant color tan, epicarp white, testa absent, panicle open, exsertion approx. 15 cm. Seed weight 1.68 gm. 100 seed-1. In June plantings at

Plainview, TX and Starkville, MS, days to 50% anthesis 72 and 70, and plant height 213 and 216 cm. respectively.

**PI 599730. *Sorghum bicolor* (L.) Moench**

Breeding. Pureline. MP 64; (BMR Sudan 4)-23-1-1-3. Pedigree - [(Piper BMR 6\*(MN 752\*BMR 12)\*(Stoneville Synthetic\*Leoti Derivative Low Bloom))-30-3-5-2]-23-1-1-3. Inbred 19 of 19 (Group 2). Sudangrass line with recessive brown midrib gene bmr-6 or bmr-17, which are allelic. Plant color tan, epicarp white, testa absent, panicle semi-open, exsertion approx. 8 cm. Seed weight 1.25 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 72 and 69, and plant height 198 and 226 cm. respectively.

**PI 599731. *Sorghum bicolor* (L.) Moench**

Breeding. Pureline. MP 65; (SUDBMR1\*IS7173C)-1-2-1-1. Pedigree - [(MN 752\*BMR 12)\*(Stoneville Synthetic\*Leoti Derivative Low Bloom))-16-3-1-2\*IS7173C]-1-2-1-1. Inbred 1 of 20 (Group 3) with acid-soil tolerance. Sudangrass line with recessive brown midrib gene bmr-12 or bmr-18, which are allelic. Plant color tan, epicarp white, testa absent, panicle open, exsertion approx. 15 cm. Seed weight 2.30 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 70 and 64, and plant height 155 and 229 cm. respectively.

**PI 599732. *Sorghum bicolor* (L.) Moench**

Breeding. Pureline. MP 66; (SUDBMR1\*IS7173C)-2-1-2-2. Pedigree - [(MN 752\*BMR 12)\*(Stoneville Synthetic\*Leoti Derivative Low Bloom))-16-3-1-2\*IS7173C]-2-1-2-2. Inbred 2 of 20 (Group 3) with acid-soil tolerance. Sudangrass line with recessive brown midrib gene bmr-12 or bmr-18, which are allelic. Plant color tan, epicarp white, testa absent, panicle open, exsertion approx. 25 cm. Seed weight 2.55 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 68 and 71, and plant height 180 and 207 cm. respectively.

**PI 599733. *Sorghum bicolor* (L.) Moench**

Breeding. Pureline. MP 67; (SUDBMR1\*IS7173C)-3-1-1-1. Pedigree - [(MN 752\*BMR 12)\*(Stoneville Synthetic\*Leoti Derivative Low Bloom))-16-3-1-2\*IS7173C]-3-1-1-1. Inbred 3 of 20 (Group 3) with acid-soil tolerance. Sudangrass line with recessive brown midrib gene bmr-12 or bmr-18, which are allelic. Plant color tan, epicarp white, testa absent, panicle semi-compact, exsertion approx. 20 cm. Seed weight 2.27 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 67 and 64, and plant height 162 and 204 cm. respectively.

**PI 599734. *Sorghum bicolor* (L.) Moench**

Breeding. Pureline. MP 68; (SUDBMR1\*IS7173C)-4-1-1-1. Pedigree - [(MN 752\*BMR 12)\*(Stoneville Synthetic\*Leoti Derivative Low Bloom))-16-3-1-2\*IS7173C]-4-1-1-1. Inbred 4 of 20 (Group 3) with acid-soil tolerance. Sudangrass line with recessive brown midrib gene bmr-12 or bmr-18, which are allelic. Plant color tan, epicarp white, testa absent, panicle open, exsertion approx. 30 cm. Seed weight 2.49 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 67 and 70, and plant height 177 and 216 cm.

respectively.

**PI 599735. Sorghum bicolor (L.) Moench**

Breeding. Pureline. MP 69; (SUDBMR1\*IS7173C)-4-1-2-1. Pedigree - [(MN 752\*BMR 12)\*(Stoneville Synthetic\*Leoti Derivative Low Bloom))-16-3-1-2\*IS7173C]-4-1-2-1. Inbred 5 of 20 (Group 3) with acid-soil tolerance. Sudangrass line with recessive brown midrib gene bmr-12 or bmr-18, which are allelic. Plant color tan, epicarp white, testa absent, panicle open, exertion approx. 25 cm. Seed weight 2.37 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 68 and 70, and plant height 177 and 219 cm. respectively.

**PI 599736. Sorghum bicolor (L.) Moench**

Breeding. Pureline. MP 70; (SUDBMR1\*IS7173C)-4-2-1-1. Pedigree - [(MN 752\*BMR 12)\*(Stoneville Synthetic\*Leoti Derivative Low Blom))-16-3-1-2\*IS7173C]-4-2-1-1. Inbred 6 of 20 (Group 3) with acid-soil tolerance. Sudangrass line with recessive brown midrib gene bmr-12 or bmr-18, which are allelic. Plant color tan, epicarp white, testa absent, panicle open, exertion approx. 25 cm. Seed weight 2.43 gm. 100 seed-1. In June plantings at Plainveiw, TX and Starkville, MS, days to 50% anthesis 67 and 63, and plant height 186 and 210 cm. respectively.

**PI 599737. Sorghum bicolor (L.) Moench**

Breeding. Pureline. MP 71; (SUDBMR1\*IS7173C)-4-2-3-1. Pedigree - [(MN 752\*BMR 12)\*(Stoneville Synthetic\*Leoti Derivative Low Bloom))-16-3-1-2\*IS7173C]-4-2-3-1. Inbred 7 of 20 (Group 3) with acid-soil tolerance. Sudangrass line with recessive brown midrib gene bmr-12 or bmr-18, which are allelic. Plant color tan, epicarp white, testa absent, panicle open, exertion approx. 30 cm. Seed weight 2.49 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 72 and 69, and plant height 213 and 247 cm. respectively.

**PI 599738. Sorghum bicolor (L.) Moench**

Breeding. Pureline. MP 72; (SUDBMR1\*IS7173C)-4-3-1-1. Pedigree - [(MN 752\*BMR 12)\*(Stoneville Synthetic\*Leoti Derivative Low Bloom))-16-3-1-2\*IS7173C]-4-3-1-1. Inbred 8 of 20 (Group 3) with acid-soil tolerance. Sudangrass line with recessive brown midrib gene bmr-12 or bmr-18, which are allelic. Plant color tan, epicarp white, testa absent, panicle open, exertion approx. 25 cm. Seed weight 2.10 gm. 100 seed-1. In June plantings at Plainveiw, TX and Starkville, MS, days to 50% anthesis 72 and 60, and plant height 152 and 174 cm, respectively.

**PI 599739. Sorghum bicolor (L.) Moench**

Breeding. Pureline. MP 73; (SUDBMR1\*IS7173C)-9-1-3-1. Pedigree - [(MN 752\*BMR 12)\*(Stoneville Synthetic\*Leoti Derivative Low Bloom))-16-3-1-2\*IS7173C]-9-1-3-1. Inbred 9 of 20 (Group 3) with acid-soil tolerance. Sudangrass line with recessive brown midrib gene bmr-12 or bmr-18, which are allelic. Plant color tan, epicarp white, testa absent, panicle semi-open, exertion approx. 10 cm. Seed weight 2.20 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 67 and 63, and plant height 131 and 155 cm.



respectively.

**PI 599740. Sorghum bicolor (L.) Moench**

Breeding. Pureline. MP 74; (SUDBMR1\*IS7173C)-29-1-1-1. Pedigree - [(MN 752\*BMR 12)\*(Stoneville Synthetic\*Leoti Derivative Low Bloom))-16-3-1-2\*IS7173C]-29-1-1-1. Inbred 10 of 20 (Group 3) with acid-soil tolerance. Sudangrass line with recessive brown midrib gene bmr-12 or bmr-18, which are allelic. Plant color tan, epicarp white, testa absent, panicle semi-compact, exertion approx. 25 cm. Seed weight 2.40 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 71 and 73, and plant height 165 and 283 cm. respectively.

**PI 599741. Sorghum bicolor (L.) Moench**

Breeding. Pureline. MP 75; (SUDBMR1\*IS7173C)-43-1-2-1. Pedigree - [(MN 752\*BMR 12)\*(Stoneville Synthetic\*Leoti Derivative Low Bloom))-16-3-1-2\*IS7173C]-43-1-2-1. Inbred 11 of 20 (Group 3) with acid-soil tolerance. Sudangrass line with recessive brown midrib gene bmr-12 or bmr-18, which are allelic. Plant color tan, epicarp white, testa absent, panicle semi-open, exertion approx. 25 cm. Seed weight 1.99 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 74 and 74, and plant height 201 and 207 cm. respectively.

**PI 599742. Sorghum bicolor (L.) Moench**

Breeding. Pureline. MP 76; (SUDBMR2\*IS7173C)-1-1-1-1. Pedigree - [(MN 752\*BMR 12)\*(Stoneville Synthetic\*Leoti Derivative Low Bloom))-24-4-1\*IS7173C]-1-1-1-1. Inbred 12 of 20 (Group 3) with acid-soil tolerance. Sudangrass line with recessive brown midrib gene bmr-12 or bmr-18, which are allelic. Plant color tan, epicarp white, testa absent, panicle open, exertion approx. 20 cm. Seed weight 2.27 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 72 and 69, and plant height 162 and 210 cm. respectively.

**PI 599743. Sorghum bicolor (L.) Moench**

Breeding. Pureline. MP 77; (SUDBMR2\*IS7173C)-1-1-3-1. Pedigree - [(MN 752\*BMR 12)\*(Stoneville Synthetic\*Leoti Derivative Low Bloom))-24-4-1\*IS7173C]-1-1-3-1. Inbred 13 of 20 (Group 3) with acid-soil tolerance. Sudangrass line with recessive brown midrib gene bmr-12 or bmr-18, which are allelic. Plant color tan, epicarp white, testa absent, panicle open, exertion approx. 20 cm. Seed weight 2.45 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 71 and 69, and plant height 180 and 171 cm. respectively.

**PI 599744. Sorghum bicolor (L.) Moench**

Breeding. Pureline. MP 78; (SUDBMR3\*IS7173C)-1-1-1-1. Pedigree - [(MN 752\*BMR 12)\*(Stoneville Synthetic\*Leoti Derivative Low Bloom))-24-4-2-2\*IS7173C]-1-1-1-1. Inbred 14 of 20 (Group 3) with acid-soil tolerance. Sudangrass line with recessive brown midrib gene bmr-12 or bmr-18, which are allelic. Plant color tan, epicarp white, testa absent, panicle open, exertion approx. 20 cm. Seed weight 2.51 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 78 and 76, and plant height 204 and 189 cm.

respectively.

**PI 599745. *Sorghum bicolor* (L.) Moench**

Breeding. Pureline. MP 79; (SUDBMR3\*IS7173C)-1-1-2-1. Pedigree - [(MN 752\*BMR 12)\*(Stoneville Synthetic\*Leoti Derivative Low Bloom))-24-4-2-2\*IS7173C]-1-1-2-1. Inbred 15 of 20 (Group 3) with acid-soil tolerance. Sudangrass line with recessive brown midrib gene bmr-12 or bmr-18, which are allelic. Plant color tan, epicarp white, testa absent, panicle open, exsertion approx. 15 cm. Seed weight 1.98 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 78 and 78, and plant height 201 and 229 cm. respectively.

**PI 599746. *Sorghum bicolor* (L.) Moench**

Breeding. Pureline. MP 80; (SUDBMR3\*IS7173C)-22-1-1-1. Pedigree - [(MN 752\*BMR 12)\*(Stoneville Synthetic\*Leoti Derivative Low Bloom))-24-4-2-2\*IS7173C]-22-1-1-1. Inbred 16 of 20 (Group 3) with acid-soil tolerance. Sudangrass line with recessive brown midrib gene bmr-12 or bmr-18, which are allelic. Plant color tan, epicarp white, testa absent, panicle open, exsertion approx. 15 cm. Seed weight 2.40 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 68 and 63, and plant height 152 and 173 cm. respectively.

**PI 599747. *Sorghum bicolor* (L.) Moench**

Breeding. Pureline. MP 81; (SUDBMR4\*IS7173C)-2-1-1-1. Pedigree - [(MN 752\*BMR 12)\*(Stoneville Synthetic\*Leoti Derivative Low Bloom))-24-2-4\*IS7173C]-2-1-1-1. Inbred 17 of 20 (Group 3) with acid-soil tolerance. Sudangrass line with recessive brown midrib gene bmr-12 or bmr-18, which are allelic. Plant color tan, epicarp white, testa absent, panicle open, exsertion approx. 15 cm. Seed weight 2.05 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 71 and 71, and plant height 168 and 183 cm. respectively.

**PI 599748. *Sorghum bicolor* (L.) Moench**

Breeding. Pureline. MP 82; (SUDBMR4\*IS7173C)-18-1-1-1. Pedigree - [(MN 752\*BMR 12)\*(Stoneville Synthetic\*Leoti Derivative Low Bloom))-24-2-4\*IS7173C]-18-1-1-1. Inbred 18 of 20 (Group 3) with acid-soil tolerance. Sudangrass line with recessive brown midrib gene bmr-12 or bmr-18, which are allelic. Plant color tan, epicarp white, testa absent, panicle semi-open, exsertion approx. 20 cm. Seed weight 2.11 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 72 and 74, and plant height 183 and 162 cm. respectively.

**PI 599749. *Sorghum bicolor* (L.) Moench**

Breeding. Pureline. MP 83; (SUDBMR5\*IS7173C)-1-1-2-1. Pedigree - [(MN 752\*BMR 12)\*(Stoneville Synthetic\*Leoti Derivative Low Bloom))-30-3-5-1\*IS7173C]-1-1-2-1. Inbred 19 of 20 (Group 3) with acid-soil tolerance. Sudangrass line with recessive brown midrib gene bmr-12 or bmr-18, which are allelic. Plant color tan, epicarp white, testa absent, panicle semi-open, exsertion approx. 30 cm. Seed weight 2.09 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 73 and 67, and plant height 183 and 223 cm.

respectively.

**PI 599750. Sorghum bicolor (L.) Moench**

Breeding. Pureline. MP 84; (SUDBMR5\*IS7173C)-1-2-1-1. Pedigree - [(MN 752\*BMR 12)\*(Stoneville Synthetic\*Leoti Derivative Low Bloom))-30-3-5-1\*IS7173C]-1-2-1-1. Inbred 20 of 20 (Group 3) with acid-soil tolerance. Sudangrass line with recessive brown midrib gene bmr-12 or bmr-18, which are allelic. Plant color tan, epicarp brown, testa present, panicle open, exertion approx. 20 cm. Seed weight 1.75 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 70 and 65, and plant height 201 and 229 cm. respectively.

The following were donated by Texas A&M University, Texas Agricultural Exp. Station, College Station, Texas 77841, United States. Received 1962.

**PI 599751. Ricinus communis L.**

Cultivar. "LYNN". CV-4. Pedigree - RA 11-15-4 x Cimarron (designated cross T53222). Produced higher yields than other varieties in 1961 regional trials at Plainview, TX, Altus and Goodwell, OK, and Lincoln, NE. Plants dwarf-internode, stems green with waxy bloom. Inflorescence normal monoecious, capsules spined, indehiscent, and hull easily when dry. Stigma green. Seeds medium large, heavy and plump, oval, brown mottled with brownish-gray background. Mature plant height .91 to 1.22 m. Stems slender. Branches produce many racemes of medium to small size. Seed quality excellent, oil content 52 to 54%. Resistant to Verticillium wilt, bacterial and Alternaria leafspot. Susceptible to capsule mold. Adapted to castor growing areas of TX, NM, KS, and NE.

The following were donated by USDA, ARS, Texas Agric. Exp. Station, College Station, Texas, United States. Received 1974.

**PI 599752. Ricinus communis L.**

CNES-1.

The following were donated by W. W. Roath, U.S. Department of Agriculture, North Dakota State University, Waldron Hall, Fargo, North Dakota, United States. Received 01/21/1985.

**PI 599753. Helianthus annuus L.**

Breeding. 780622-625; Ames 3220; HA 154.

The following were donated by Gerald Seiler, USDA-ARS, Conservation & Production Research Lab., P.O. Drawer 10, Bushland, Texas 79012, United States. Received 03/07/1985.

**PI 599754. Helianthus annuus L.**

Breeding. Inbred. RHA 265; Ames 4034. Developed in United States. High oil. Rust resistant restorer.

**PI 599755. Helianthus annuus L.**

Breeding. Inbred. RHA 266; Ames 4035. Developed in United States. High oil. Rust resistant restorer.

**PI 599756. Helianthus annuus L.**

Breeding. Inbred. RHA 269; Ames 4036. Developed in United States. Rust resistant restorer.

**PI 599757. Helianthus annuus L.**

Breeding. Inbred. RHA 270; Ames 4037. Developed in United States. Rust resistant restorer.

The following were developed by M. L. Kinman, USDA, ARS, Texas Agricultural Experiment Station, College Station, Texas, United States; G. N. Fick, USDA, ARS, North Dakota Agric. Exp. Sta., Fargo, North Dakota 58102, United States; D.E. Zimmer, USDA, ARS, North Dakota Agric. Exp. Sta., Fargo, North Dakota 58102, United States. Donated by Gerald Seiler, USDA-ARS, Conservation & Production Research Lab., P.O. Drawer 10, Bushland, Texas 79012, United States. Received 03/07/1985.

**PI 599758. Helianthus annuus L.**

Breeding. Inbred. RHA 273; Ames 4040. PL-7. Pedigree - PI343765/HA 119//HA 62-4-5. Recessive branching restorer with rust resistance.

**PI 599759. Helianthus annuus L.**

Breeding. Inbred. RHA 274; Ames 4041. PL-8. Pedigree - PI343765/HA 119//HA 62-4-5. Recessive branching restorer with rust resistance.

The following were donated by Gerald Seiler, USDA-ARS, Conservation & Production Research Lab., P.O. Drawer 10, Bushland, Texas 79012, United States. Received 03/07/1985.

**PI 599760. Helianthus annuus L.**

Breeding. Inbred. RHA 275; Ames 4042. Developed in United States. Recessive branching restorer with rust resistance.

**PI 599761. Helianthus annuus L.**

Breeding. Inbred. RHA 276; Ames 4043. Developed in United States. Recessive branching restorer with rust resistance.

**PI 599762. Helianthus annuus L.**

Breeding. Inbred. RHA 278; Ames 4044. Developed in United States. Recessive branching restorer with rust resistance.

**PI 599763. Helianthus annuus L.**

Breeding. Inbred. RHA 279; Ames 4045. Developed in United States. Recessive branching restorer with rust resistance.

The following were developed by G. N. Fick, USDA, ARS, North Dakota Agric. Exp. Sta., Fargo, North Dakota 58102, United States; D.E. Zimmer, USDA, ARS, North Dakota Agric. Exp. Sta., Fargo, North Dakota 58102, United States. Donated by Gerald Seiler, USDA-ARS, Conservation & Production Research Lab., P.O. Drawer 10, Bushland, Texas 79012, United States. Received 03/07/1985.

**PI 599764. Helianthus annuus L.**

Breeding. Inbred. RHA 294; Ames 4046; Ames 4102. PL-15. Pedigree - multiple crosses cmsPI 343763, Bonita Giant Manchurian, HA 61, Mennonite RR, and cmsMenn RR-18-1\*3/T66006-2. Nonoil restorer line.

The following were developed by G. N. Fick, USDA, ARS, North Dakota Agric. Exp. Sta., Fargo, North Dakota 58102, United States; D.E. Zimmer, USDA, ARS, North Dakota Agric. Exp. Sta., Fargo, North Dakota 58102, United States; D.C. Zimmerman, USDA, ARS, North Dakota Agric. Exp. Sta., Fargo, North Dakota 58102, United States. Donated by Gerald Seiler, USDA-ARS, Conservation & Production Research Lab., P.O. Drawer 10, Bushland, Texas 79012, United States. Received 03/07/1985.

**PI 599765. Helianthus annuus L.**

Breeding. Inbred. RHA 297; Ames 4048. PL-23. Pedigree - Reselected from one of four F5 lines that were bulked to form RHA 274, a widely used restorer line released in 1973. Oilseed restorer line.

**PI 599766. Helianthus annuus L.**

Breeding. Inbred. RHA 298; Ames 4049. PL-24. Pedigree - cmsHA 89/RHA 273 and RHA 299. Oilseed restorer line.

**PI 599767. Helianthus annuus L.**

Breeding. Inbred. RHA 299; Ames 4050. PL-25. Pedigree - From a composite of seed of an F6 line tracing to an individual F5 plant. Oilseed restorer line.

The following were developed by W. W. Roath, U.S. Department of Agriculture, North Dakota State University, Waldron Hall, Fargo, North Dakota, United States; Thomas Gulya, USDA, ARS, North Dakota State University, Northern Crops Research Laboratory, Fargo, North Dakota 58105, United States; Jerry F. Miller, USDA, ARS, Northern Crops Research Laboratory, P.O. Box 5677, Fargo, North Dakota 58105, United States. Donated by Gerald Seiler, USDA-ARS, Conservation & Production Research Lab., P.O. Drawer 10, Bushland, Texas 79012, United States. Received 03/07/1985.

**PI 599768. Helianthus annuus L.**

Breeding. Inbred. RHA 801; Ames 4051. GP-5. Pedigree - S3 line selected from a R-line population after one cycle of recurrent selection for improved yield. Parents of the population include RHA 271, RHA 273, RHA 274, R 344, and R 494. Oilseed restorer line.

The following were developed by M. L. Kinman, USDA, ARS, Texas Agricultural Experiment Station, College Station, Texas, United States. Donated by Jerry F. Miller, USDA, ARS, Northern Crops Research Laboratory, P.O. Box 5677, Fargo, North Dakota 58105, United States. Received 02/25/1985.

**PI 599769. Helianthus annuus L.**

HA 8; Ames 4052.

The following were donated by Jerry F. Miller, USDA, ARS, Northern Crops Research Laboratory, P.O. Box 5677, Fargo, North Dakota 58105, United States. Received 02/25/1985.

- PI 599770. Helianthus annuus L.**  
Breeding. Inbred. HA 60; Ames 3954; Ames 4053. Developed in United States. High oil. Rust resistant.
- PI 599771. Helianthus annuus L.**  
Breeding. Inbred. TAM-CRD HA 61; HA 61; Ames 3956; NSL 72171; Ames 4054. Developed in United States. Recessive branching.
- PI 599772. Helianthus annuus L.**  
Breeding. Inbred. HA 64; Ames 3958; Ames 4055. Developed in United States. Genetic male sterile; recessive gene.
- PI 599773. Helianthus annuus L.**  
Breeding. Inbred. HA 89; Ames 3964; Ames 4056. Developed in United States. High oil. Rust resistant.
- PI 599774. Helianthus annuus L.**  
Breeding. Inbred. HA 99; Ames 3966; Ames 4057. Developed in United States. High oil. Rust resistant.
- PI 599775. Helianthus annuus L.**  
Breeding. Inbred. HA 124; Ames 3976; Ames 4059. Developed in United States. High oil. Rust resistant.
- PI 599776. Helianthus annuus L.**  
Breeding. Inbred. HA 224; Ames 3990; Ames 4060. Developed in United States. High oil. Disease resistant.
- PI 599777. Helianthus annuus L.**  
Breeding. Inbred. HA 232; Ames 3994; Ames 4061. Developed in United States. High oil. Rust resistant.
- PI 599778. Helianthus annuus L.**  
Breeding. Inbred. HA 234; Ames 3996; Ames 4062. Developed in United States. High oil. Rust resistant.
- PI 599779. Helianthus annuus L.**  
Breeding. Inbred. HA 277; Ames 4013; Ames 4063. Developed in United States. High oil. Disease resistant.

The following were developed by M. L. Kinman, USDA, ARS, Texas Agricultural Experiment Station, College Station, Texas, United States; G. N. Fick, USDA, ARS, North Dakota Agric. Exp. Sta., Fargo, North Dakota 58102, United States; D.E. Zimmer, USDA, ARS, North Dakota Agric. Exp. Sta., Fargo, North Dakota 58102, United States. Donated by Jerry F. Miller, USDA, ARS, Northern Crops Research Laboratory, P.O. Box 5677, Fargo, North Dakota 58105, United States. Received 02/25/1985.

- PI 599780. Helianthus annuus L.**  
Breeding. HA 285; Ames 4064. PL-1. Pedigree - Reselected from Menn

RR-18-1. Nonoil. Rust resistant.

The following were donated by Jerry F. Miller, USDA, ARS, Northern Crops Research Laboratory, P.O. Box 5677, Fargo, North Dakota 58105, United States. Received 02/25/1985.

**PI 599781. *Helianthus annuus* L.**

Breeding. Inbred. HA 289; Ames 4019; Ames 4068. Developed in United States. High oil. Disease resistant.

The following were developed by G. N. Fick, USDA, ARS, North Dakota Agric. Exp. Sta., Fargo, North Dakota 58102, United States; D.E. Zimmer, USDA, ARS, North Dakota Agric. Exp. Sta., Fargo, North Dakota 58102, United States. Donated by Jerry F. Miller, USDA, ARS, Northern Crops Research Laboratory, P.O. Box 5677, Fargo, North Dakota 58105, United States. Received 02/25/1985.

**PI 599782. *Helianthus annuus* L.**

Breeding. HA 304; Ames 4076. PL-12. Pedigree - Selected from an individual BC3F2 plant of Commander\*3/Mennonite RR. It is from composites of seed from four BC3F7 lines. Nonoil. Rust resistant.

The following were developed by Thomas Gulya, USDA, ARS, North Dakota State University, Northern Crops Research Laboratory, Fargo, North Dakota 58105, United States; Jerry F. Miller, USDA, ARS, Northern Crops Research Laboratory, P.O. Box 5677, Fargo, North Dakota 58105, United States. Donated by Jerry F. Miller, USDA, ARS, Northern Crops Research Laboratory, P.O. Box 5677, Fargo, North Dakota 58105, United States. Received 02/25/1985.

**PI 599783. *Helianthus annuus* L.**

Breeding. HA 314; Ames 4083. GP-19. Pedigree - HA 89/HA 288//HA 292. Nonoil. Disease resistant.

**PI 599784. *Helianthus annuus* L.**

Breeding. HA 315; Ames 4084. GP-20. Pedigree - HA 89/HA 288//HA 292. Nonoil. Disease resistant.

The following were developed by W. W. Roath, U.S. Department of Agriculture, North Dakota State University, Waldron Hall, Fargo, North Dakota, United States; Thomas Gulya, USDA, ARS, North Dakota State University, Northern Crops Research Laboratory, Fargo, North Dakota 58105, United States; Jerry F. Miller, USDA, ARS, Northern Crops Research Laboratory, P.O. Box 5677, Fargo, North Dakota 58105, United States. Donated by Jerry F. Miller, USDA, ARS, Northern Crops Research Laboratory, P.O. Box 5677, Fargo, North Dakota 58105, United States. Received 02/25/1985.

**PI 599785. *Helianthus annuus* L.**

Breeding. HA 822; Ames 4086. PL-42. Pedigree - Composite of seed of four S4 plants derived by selfing a single plant selected from the line CM 400. Oilseed type germplasm.

The following were donated by Jerry F. Miller, USDA, ARS, Northern Crops Research Laboratory, P.O. Box 5677, Fargo, North Dakota 58105, United States. Received 02/25/1985.

**PI 599786. *Helianthus annuus* L.**

Breeding. Inbred. RHA 271; Ames 4038; Ames 4091. Developed in United States. Recessive branching restorer.

**PI 599787. *Helianthus annuus* L.**

RHA 272; Ames 4039; Ames 4092. Developed in United States. Recessive branching restorer with rust resistance.

The following were developed by G. N. Fick, USDA, ARS, North Dakota Agric. Exp. Sta., Fargo, North Dakota 58102, United States; D.E. Zimmer, USDA, ARS, North Dakota Agric. Exp. Sta., Fargo, North Dakota 58102, United States. Donated by Jerry F. Miller, USDA, ARS, Northern Crops Research Laboratory, P.O. Box 5677, Fargo, North Dakota 58105, United States. Received 02/25/1985.

**PI 599788. *Helianthus annuus* L.**

Breeding. RHA 293; Ames 4101. PL-14. Pedigree - Selected from the cross cmsHA 155/HIR 34/2/RHA 282. Nonoil restorer line.

The following were developed by W. W. Roath, U.S. Department of Agriculture, North Dakota State University, Waldron Hall, Fargo, North Dakota, United States; Thomas Gulya, USDA, ARS, North Dakota State University, Northern Crops Research Laboratory, Fargo, North Dakota 58105, United States; Jerry F. Miller, USDA, ARS, Northern Crops Research Laboratory, P.O. Box 5677, Fargo, North Dakota 58105, United States. Donated by Jerry F. Miller, USDA, ARS, Northern Crops Research Laboratory, P.O. Box 5677, Fargo, North Dakota 58105, United States. Received 02/25/1985.

**PI 599789. *Helianthus annuus* L.**

Breeding. RHA 311; Ames 4110. GP-13. Pedigree - S4 single plant selection derived from the parental line RHA 294. Nonoil restorer line with recessive branching.

The following were collected by Philip L. Forsline, USDA, ARS, Cornell University, Plant Genetic Resources Unit, Geneva, New York 14456-0462, United States; James Luby, University of Minnesota, Department of Horticultural Science, 342 Alderman Hall, St. Paul, Minnesota 55108, United States; Elizabeth E. Dickson, The University of Calgary, Herbarium, Dept. of Biological Sciences, 2500 University Drive NW, Calgary, Alberta T2N 1N4, Canada. Donated by Philip L. Forsline, USDA, ARS, Cornell University, Plant Genetic Resources Unit, Geneva, New York 14456-0462, United States. Received 09/21/1995.

**PI 599790. *Malus sieversii* (Ledeb.) M. Roem.**

Wild. Kaz 95 01-01P-1; GMAL 3700. Collected 08/26/1995 in Kazakhstan. Latitude 43 deg. 6' 58'' N. Longitude 76 deg. 47' 46'' E. Elevation 1400 m. Zielisky Alatau Province. Almaty village. 17 km South to Southwest of Almaty Center. Aksay river West side of Zielisky Apple Belt. Land form - valley near river. Gravely loam soil, some stoniness. Good drainage.



Slope incline flat. Dominant tree sp: *M. sieversii*; Assoc.-Apricot, *Crataegus*. Dom. shrub sp: *Berberis*, *Hippophae*; Assoc.-*Rubus*, *Rosa*. Dominant herbaceous: *Hops*; Assoc.-*Geranium*, *Fragaria*. Pedigree - Bulk sample of GMAL 3700 - 3729. Sampled 5 fruits from 1 tree.

**PI 599791. *Malus sieversii* (Ledeb.) M. Roem.**

Wild. Kaz 95 04-01P-1; GMAL 3730. Collected 08/27/1995 in Kazakhstan. Latitude 43 deg. 19' 45'' N. Longitude 77 deg. 35' 55'' E. Elevation 1360 m. Zielisky Alatau Province. Turgen Forest region - 120 hectares. Central part of Zielisky. Along stream next to North slope. Near Composer's house (site 32 in 1993) - from 1360-1200 m. Dominant tree sp.: Apricot; Associated-*Padus*. Dominant shrub sp.: *Berberis*; Assoc.-*Ribes*. Dominant herbaceous: Grasses; Assoc.-*Geranium*, *Epilobium*, *Achillea*. Pedigree - Bulk sample of GMAL 3730 - 3759. Sampled 5 fruits from 1 tree. Cultivated apple close by.

**PI 599792. *Malus sieversii* (Ledeb.) M. Roem.**

Wild. Kaz 95 05-01P-1; GMAL 3760. Collected 08/29/1995 in Kazakhstan. Latitude 47 deg. 14' 39'' N. Longitude 81 deg. 34' 14'' E. Elevation 870 m. Semipalitinsk Region (Tarbagatai Mountain Range). Village of Alekseyevka. 4 km. Northeast of Alekseyevka, 20 km. North of Urdzhar. Flat area near stream. Collected in South end of West Valley. Coordinated in Urdzhar: 47-05-01, 81-37-49. Temp: max. +41, min. -40. Stoney gravely loam soil. Good drainage. 400mm rainfall. Dominant tree sp.: *Populus*. Dominant shrub sp.: *Crataegus*, *Rosa*; Associated-*Viburnum*. Random pop. as close as 20 m. to stream. Many new small trees growing. Pedigree - Bulk sample of GMAL 3760 - 3789. Sampled 5 fruits from 1 tree. Fruit is firm.

**PI 599793. *Malus sieversii* (Ledeb.) M. Roem.**

Wild. Kaz 95 07-01P-1; GMAL 3790. Collected 08/30/1995 in Kazakhstan. Latitude 47 deg. 16' 14'' N. Longitude 81 deg. 34' 45'' E. Elevation 960 m. Semipalitinsk Region (Tarbagatai Mountain Range). 20 km. North of Urdzhar, 6 km. NE of Alekseyevka. Slopes of East-West Valley. Collected on north slope of North Valley. Between & East of sites 05 & 06 (GMAL's 3604-3615, GMAL's 3760-3789). Slope incline: 5-20 degrees. Aspect: South and North. Rainfall: 400 mm. Dominant tree sp.: *M. sieversii*; Assoc.-*Crataegus*. Dominant shrub sp.: *Rosa*; Associated-*Amygdalus*. Dominant herbaceous: *Aster*. Pedigree - Bulk sample of GMAL 3790 - 3819. Sampled 5 fruits from 1 tree. Fruit is firm.

**PI 599794. *Malus sieversii* (Ledeb.) M. Roem.**

Wild. Kaz 95 09-01P-1; GMAL 3820. Collected 08/31/1995 in Kazakhstan. Latitude 47 deg. 16' 41'' N. Longitude 81 deg. 35' 59'' E. Elevation 1120 m. Semipalitinsk Region (Tarbagatai Mountain Range). 20 km. North of Urdzhar, 6 km. East-Northeast of Alekseyevka, on separate jeep trail. East Valley collection site. Collected on north end on flat by East River. Aspect: Mainly East. Landform: flat valley and East slope. Dominant tree sp.: *M. sieversii*. Dominant shrub sp.: *Rosa*; Associated-*Lonicera*, *Rubus*. Dominant herbaceous: *Malva*; Assoc.-*Fragaria*. Pedigree - Bulk sample of GMAL 3820 - 3849. Sampled 5 fruits from 1 tree. Fruit is firm with aromatic flesh flavor.

**PI 599795. *Malus sieversii* (Ledeb.) M. Roem.**

Wild. Kaz 95 11-01P-1; GMAL 3850. Collected 09/03/1995 in Kazakhstan.

Latitude 45 deg. 23' 21'' N. Longitude 80 deg. 24' 51'' E. Elevation 1690 m. Topolevka village. 15 km. East of Topolevka - Djungarsky Range. 3 km. Southeast of Topolevka Forestry Camp. Aspect: West. Dominant tree sp.: *M. sieversii*; Associated-Betula, Crataegus, Padus, Sorbus. Dominant shrub sp.: Berberis; Assoc.-Cotoneaster, Rubus. Dominant herbaceous: Fragaria; Assoc.-Dianthus. Pedigree - Bulk sample of GMAL 3850 - 3879. Sampled 8 fruits from 1 tree. Light to moderate scab. Collected at 1700 m.

**PI 599796. *Malus sieversii* (Ledeb.) M. Roem.**

Wild. Kaz 95 12-01P-1; GMAL 3880. Collected 09/03/1995 in Kazakhstan. Latitude 45 deg. 23' 46'' N. Longitude 80 deg. 24' 28'' E. Elevation 1220 m. Topolevka village. 15 km. East of Topolevka - Djungarsky Mountain Range. 1.5 km. Southeast of Topolevka Forestry Camp. Elevation: 1220-1450 m. Aspect: Northwest. Dominant tree sp.: *M. sieversii*; Associated-Acer, Quercus, Tilia, Populus, Rhamnus. Dominant shrub sp.: Lonicera; Assoc.-Berberis, Cotoneaster, Rubus. Dominant herbaceous: Grasses; Assoc.-Fragaria, Chelidonium, Urtica. Pedigree - Bulk sample of GMAL 3880 - 3909. Sampled 8 fruits from 1 tree. Collected at 1450 m.

**PI 599797. *Malus sieversii* (Ledeb.) M. Roem.**

Wild. Kaz 95 14-01P-1; GMAL 3910. Collected 09/05/1995 in Kazakhstan. Latitude 45 deg. 31' 14'' N. Longitude 80 deg. 43' 55'' E. Elevation 1190 m. Lepsinsk village. 9 km. Southeast of Lepsinsk. 2 km. Southeast of Lepsinsk Forestry Camp. Elevation: 1190-1360 m. Excellent drainage. Aspect: Mostly N-NE. Temp: min -40c, max +45c. Rainfall: 700 mm. Dom. tree sp: *M. sieversii*; Assoc-Populus, Padus. Dom. shrub sp: Rubus; Assoc-Lonicera. Dom. herb: Urtica; Assoc-Cirsium, Geranium, Aster, Malva, Rumex. Pedigree - Bulk sample of GMAL 3910 - 3939. Sampled 5 fruits from 1 tree. Collected at 1360 m.

**PI 599798. *Malus sieversii* (Ledeb.) M. Roem.**

Wild. Kaz 95 17-02P-1; GMAL 3940. Collected 09/09/1995 in Kazakhstan. Latitude 42 deg. 52' 27'' N. Longitude 69 deg. 53' 25'' E. Elevation 620 m. Karatau Province. Boraldy River Forest area. 2 km. South of Boraldy Forest Camp which is 80 km. North of Chimkent. Stream bed area. Rocky soil, dry. Slope incline: Flat. Dominant tree sp: Crataegus; Associated-M. sieversii, Prunus, Morus, Rhamnus. Dominant shrub sp: Clematis; Assoc-Rubus. Dominant herbaceous: Grasses. Pedigree - Bulk sample of GMAL 3940 - 3969. Sampled 8 fruits from 1 tree. Flesh flavor is aromatic.

**PI 599799. *Malus sieversii* (Ledeb.) M. Roem.**

Wild. Kaz 95 18-02P-1; GMAL 3970. Collected 09/10/1995 in Kazakhstan. Latitude 42 deg. 53' 18'' N. Longitude 69 deg. 52' 52'' E. Elevation 910 m. Karatau Province. Boraldy River Forest area. 5 km. North of Boraldy Forest Camp which is 80 km. North of Chimkent. Landform: slightly inclined plateau. Xerophytic. Very stony soil, dry. Slope incline: 10 degrees, N-NW. Rainfall: less than 300 mm. Dominant tree sp: Crataegus; Associated-M. Sieversii. Dominant shrub sp: Amygdalus; Assoc-Cerasus. Associated herbaceous: Rheum, Tulipa. Pedigree - Bulk sample of GMAL 3970 - 4003. Sampled 8 fruits from 1 tree. Fruit is firm with aromatic flesh flavor, bruise free. Over color is 90% red, mostly spur-type. Very tenacious-late season type. Drought tolerant.

The following were collected by Philip L. Forsline, USDA, ARS, Cornell University, Plant Genetic Resources Unit, Geneva, New York 14456-0462, United States. Received 09/19/1996.

**PI 599800. *Malus sieversii* (Ledeb.) M. Roem.**

Wild. KAZ 96 01-01P-1; GMAL 4057. Collected 08/28/1996 in Kazakhstan. Latitude 43 deg. 17' 30'' N. Longitude 79 deg. 30' 50'' E. Elevation 1660 m. Ketmen Mts., Kirghiz sai. Southwest of Bol'shoye Aksu village. Heavily grazed area, no undergrowth. Elevation 1600-1660 meters. Soil: Gravely loam. Incline 10-20%, north, open-grazed. Rainfall 600-650mm. Dominant tree sp: Apricot, *Crataegus*; Assoc-*Populus* & *Betula* above 1660m. Dominant shrub sp: *Sorbus*, *Berberis*; Assoc-*Lonicera*. Pedigree - Bulk sample of GMAL 4057 - 4076.

**PI 599801. *Malus sieversii* (Ledeb.) M. Roem.**

Wild. KAZ 96 02-01P-1; GMAL 4077. Collected 08/30/1996 in Kazakhstan. Latitude 43 deg. 7' 9'' N. Longitude 76 deg. 47' 54'' E. Elevation 1260 m. Zielisky Alatau. 17 km SSW of Almaty center-Aksay river. West side of Zieliesky Apple Belt. Landform: Valley near river. Soil: Gravely loam, good drainage, some stone. Incline flat + 15%, NW. Rainfall 700mm. Dominant tree sp: *Malus sieversii*; Assoc-Apricot, *Crataegus*. Dominant shrub sp: *Berberis*, *Hippophae*; Assoc-*Rubus*, *Rosa*. Dom. herb-Hops; Assoc-*Geranium*. Pedigree - Bulk sample of GMAL 4077 - 4096.

**PI 599802. *Malus sieversii* (Ledeb.) M. Roem.**

Wild. KAZ 96 03-01P-1; GMAL 4097. Collected 09/01/1996 in Kazakhstan. Latitude 47 deg. 16' 4'' N. Longitude 81 deg. 34' 57'' E. Elevation 820 m. Semipalitinsk Region. 4 km northeast of Alekseyevka, 20 km north of Urdzhar. Elevation between 820-860. Soil: Silt loam, little rock, good drainage. Incline variable, open light. Ridges on valleys, rainfall 400mm. Dominant tree sp: *Malus sieversii*. Dominant shrub sp: *Crataegus*, *rosa*; Assoc-*Viburnum*. Pedigree - Bulk sample of GMAL 4097 - 4156.

**PI 599803. *Malus sieversii* (Ledeb.) M. Roem.**

Wild. KAZ 96 04-01P-1; GMAL 4157. Collected 09/05/1996 in Kazakhstan. Latitude 45 deg. 37' 36'' N. Longitude 80 deg. 55' 25'' E. Elevation 1260 m. Andreyevka District, Djungarsky Mt. range. Southeast of village of Konstantinova (2mi). 45 km from Andreyevka. Soil: Silt loam, drainage good. Incline 5-15%, southwest, open. On ridge, rainfall 700-900mm. Dominant tree sp: *Malus*; Assoc.-*Populus*. Pedigree - Bulk sample of GMAL 4157 - 4166.

**PI 599804. *Malus sieversii* (Ledeb.) M. Roem.**

Wild. KAZ 96 05-01P-1; GMAL 4167. Collected 09/05/1996 in Kazakhstan. Latitude 45 deg. 41' 1'' N. Longitude 80 deg. 51' 45'' E. Elevation 1260 m. Andreyevka District, Djungarsky Mt. range. 5 miles NW of Konstantinova. Collected in a line on a ridge northwest facing from 1260-1230m, about a mile long. Drainage good. Incline 10-40%, northwest, very open. Cultivation to SE-forested ridge on NW. Rainfall 700mm. Dominant tree sp: *Malus*, *Betula*, *Populus*. Dominant shrub sp: *Rosa*. Pedigree - Bulk sample of GMAL 4167 - 4183.

**PI 599805. *Malus sieversii* (Ledeb.) M. Roem.**

Wild. KAZ 96 06-01P-1; GMAL 4184. Collected 09/06/1996 in Kazakhstan.

Latitude 43 deg. 31' 2'' N. Longitude 80 deg. 43' 40'' E. Elevation 1220 m. 9km south east of Lepsinsk, 2km southeast of Lepsinsk Forestry Camp. Collected in site 14 area of 1995. Excellent drainage, mostly N-NE. Rainfall 700mm. Dominant tree sp: *Malus sieversii*; Assoc-*Populus*, *Padus*. Dominant shrub sp: *Rubus*; Assoc-*Lonicera*. Dominant herbaceous: *Urtica*; Assoc-*Cirsium*, *Geranium*, *Aster*, *Malva*, *Rumex*. Pedigree - Bulk sample of GMAL 4184 - 4213.

**PI 599806. *Malus sieversii* (Ledeb.) M. Roem.**

Wild. KAZ 96 07-01P-1; GMAL 4214. Collected 09/07/1996 in Kazakhstan. Latitude 45 deg. 24' 30'' N. Longitude 80 deg. 25' 48'' E. Elevation 1250 m. 15 km southeast of Topelevka-Djungarski Range. 3km of Topelevka Forestry Camp. Collected east of camp. Dominant tree sp: *M. sieversii*; Assoc-*Betula*, *Crataegus*, *Acer*, *Quercus*, *Tilia*, *Populus*, *Rhamnus*. Dom. shrub sp: *Berberis*, *Lonicera*; Assoc-*Cotoneaster*, *Rubus*, *Ribes*. Dom. herb: *Fragaria*, Grasses, *Humulus*; Assoc-*Dianthus*, *Fragaria*, *Chelidonium*. Pedigree - Bulk sample of GMAL 4214 - 4267.

**PI 599807. *Malus sieversii* (Ledeb.) M. Roem.**

Wild. KAZ 96 08-01P-1; GMAL 4268. Collected 09/12/1996 in Kazakhstan. Latitude 42 deg. 40' 4'' N. Longitude 70 deg. 15' 21'' E. Elevation 780 m. Karatau, Kok Bulak (Black Spring) Forestry Camp. 35km southeast of Boraldy camp visited in 1995. Collected along river east of camp. Aspect-variable, open light. Stream bed and hillsides. Rainfall 275mm. Dominant tree sp: *Crataegus*; Assoc-*Malus*, *Vitis*, *Morus* *Rhamnus*. Dominant shrub sp: *Amygdalus*, *Pyrus*, *Rosa*. Dominant herbaceous: Grasses. Pedigree - Bulk sample of GMAL 4268 - 4307.

**PI 599808. *Malus sieversii* (Ledeb.) M. Roem.**

Wild. KAZ 96 09-01P-1; GMAL 4308. Collected 09/15/1996 in Kazakhstan. Pedigree - Bulk sample of GMAL 4308 - 4317.

The following were developed by Int. Center for Agricultural Research in the Dry Areas, P.O. Box 5466, Aleppo, Syria. Received 12/16/1997.

**PI 599809. *Lens culinaris* Medik.**

Cultivar. "Bourimansur-2".

**PI 599810. *Lens culinaris* Medik.**

Cultivar. "Bourimansur-4".

The following were developed by James R. Wilcox, USDA, ARS, Purdue University, Department of Agronomy, West Lafayette, Indiana 47907-1150, United States; Greg Rebetzke, CSIRO, PO Box 1600, Canberra, Austr. Capital Terr. 2601, Australia; W.P. Novitzky, USDA, ARS, North Carolina State Univ., Dept. of Crop Sci., Raleigh, North Carolina 27695-7631, United States; Richard Wilson, USDA, ARS, North Carolina State Univ., 4114 Williams Hall, Raleigh, North Carolina 27695-7620, United States. Received 12/11/1997.

**PI 599811. *Glycine max* (L.) Merr.**

Breeding. Pureline. "C1943". GP-262. Pedigree - N79-2077-12 X C1726. Late maturity group III (3.9). Flowers purple, tawny pubescence, and tan pods at maturity containing dull yellow seeds with brown hila. Oil

content averaged 3.9% 16:0 compared to Macon that averaged 10.2% 16:0. Maturity same as Macon, yielded 2630 kg/ha compared to 3190 kg/ha for Macon, and similar to Macon in mature plant height and lodging resistance.

The following were developed by Lynn M. Gourley, Mississippi State University, Box 9555, Mississippi State, Mississippi 39762, United States. Received 12/15/1997.

**PI 599812. *Sorghum bicolor* (L.) Moench**

Breeding. Pureline. MP 85; (B-Yel PI\*(SEPON79-46\*B1750)-7-1-1-1. Pedigree - [B-Yellow PI\*((2219B\*CS-3541)-3-1)\*B1750]-7-1-1-1. Inbred 1 of 8 (Group 4). Food grain quality. Grain sorghum maintainer or B-line. Plant color tan, epicarp white, testa absent, panicle semi-open, exsertion approx. 8 cm., and seed weight 2.63 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 70 and 67, and plant height 110 and 122 cm. respectively.

**PI 599813. *Sorghum bicolor* (L.) Moench**

Breeding. Pureline. MP 86; (B1399\*(WTL D DER\*SEPON79-52)-1-2-1-1. Pedigree - [B1399\*(Wheatland Derivative\*(SC-108-4-8\*2219B)-32-1)]-1-2-1-1. Inbred 2 of 8 (Group 4). Food grain quality. Grain sorghum maintainer or B-line. Plant color tan, epicarp white, testa absent, panicle semi-open, exsertion approx. 15 cm., and seed weight 2.24 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 64 and 63, and plant height 125 and 122 cm. respectively.

**PI 599814. *Sorghum bicolor* (L.) Moench**

Breeding. Pureline. MP 87; (B1399\*(WTL D DER\*SEPON79-52)-1-2-2-1. Pedigree - [B1399\*(Wheatland Derivative\*(SC-108-4-8\*2219B)-32-1)]-1-2-2-1. Inbred 3 of 8 (Group 4). Food grain quality. Grain sorghum maintainer or B-line. Plant color tan, epicarp white, testa absent, panicle semi-open, exsertion approx. 20 cm., and seed weight 2.30 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 70 and 72, and plant height 152 and 149 cm. respectively.

**PI 599815. *Sorghum bicolor* (L.) Moench**

Breeding. Pureline. MP 88; (B1399\*(WTL D DER\*SEPON79-52)-10-1-1-1. Pedigree - [B1399\*(Wheatland Derivative\*(SC-108-4-8\*2219B)-32-1)]-10-1-1-1. Inbred 4 of 8 (Group 4). Food grain quality. Grain sorghum maintainer or B-line. Plant color tan, epicarp white, testa absent, panicle semi-compact, exsertion approx. 25 cm., and seed weight 2.19 gm. 100 seed-1. In June plantings at Plainveiw, TX and Starkville, MS, days to 50% anthesis 72 and 70, and plant height 110 and 98 cm. respectively.

**PI 599816. *Sorghum bicolor* (L.) Moench**

Breeding. Pureline. MP 89; (B1399\*(WTL D DER\*SEPON79-52)-10-1-2-1. Pedigree - [B1399\*(Wheatland Derivative\*(SC-108-4-8\*2219B)-32-1)]-10-1-2-1. Inbred 5 of 8 (Group 4). Food grain quality. Grain sorghum maintainer or B-line. Plant color tan, epicarp white, testa absent, panicle semi-compact, exsertion approx. 20

cm., and seed weight 2.24 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 71 and 67, and plant height 119 and 113 cm. respectively.

- PI 599817. Sorghum bicolor (L.) Moench**  
Breeding. Pureline. MP 90; (B1399\*(WTL D DER\*SEPON79-52))-11-1-1-1.  
Pedigree - [B1399\*(Wheatland  
Derivative\*(SC-108-4-8\*2219B)-32-1)]-11-1-1-1. Inbred 6 of 8 (Group 4).  
Food grain quality. Grain sorghum maintainer or B-line. Plant color tan,  
epicarp white, testa absent, panicle semi-compact, exertion approx. 15  
cm., and seed weight 2.27 gm. 100 seed-1. In June plantings at  
Plainview, TX and Starkville, MS, days to 50% anthesis 63 and 67, and  
plant height 98 and 113 cm. respectively.
- PI 599818. Sorghum bicolor (L.) Moench**  
Breeding. Pureline. MP 91; (B1399\*(WTL D DER\*SEPON79-52))-11-1-2-1.  
Pedigree - [B1399\*(Wheatland  
Derivative\*(SC-108-4-8\*2219B)-32-1)]-11-1-2-1. Inbred 7 of 8 (Group 4).  
Food grain quality. Grain sorghum maintainer or B-line. Plant color tan,  
epicarp white, testa absent, panicle semi-compact, exertion approx. 15  
cm., and seed weight 2.11 gm. 100 seed-1. In June plantings at  
Plainview, TX and Starkville, MS, days to 50% anthesis 65 and 67, and  
plant height 107 and 131 cm. respectively.
- PI 599819. Sorghum bicolor (L.) Moench**  
Breeding. Pureline. MP 92; (B1750\*(WTL D DER\*SEPON79-52))-1-1-1-1.  
Pedigree - [B1750\*(Wheatland  
Derivative\*(SC-108-4-8\*2219B)-32-1)]-1-1-1-1. Inbred 8 of 8 (Group 4).  
Food grain quality. Grain sorghum maintainer or B-line. Plant color tan,  
epicarp white, testa absent, panicle semi-compact, exertion approx. 10  
cm., and seed weight 2.53 gm. 100 seed-1. In June plantings at  
Plainview, TX and Starkville, MS, days to 50% anthesis 65 and 67, and  
plant height 149 and 107 cm. respectively.
- PI 599820. Sorghum bicolor (L.) Moench**  
Breeding. Pureline. MP 93; (TX2536\*E35-1)-1-2-1-1-1. Pedigree -  
(TX2536\*E35-1)-1-2-1-1-1. Inbred 1 of 73 (Group 5). Food grain quality.  
Grain sorghum fertility restorer or R-line. Plant color tan, epicarp  
white, testa absent, panicle semi-compact, exertion approx. 12 cm., and  
seed weight 2.51 gm. 100 seed-1. In June plantings at Plainview, TX and  
Starkville, MS, days to 50% anthesis 67 and 69, and plant height 104 and  
113 cm. respectively.
- PI 599821. Sorghum bicolor (L.) Moench**  
Breeding. Pureline. MP 94; (YEL AFR PI\*E35-1)-7-1-1-1-1. Pedigree -  
(Yellow African PI\*E35-1)-7-1-1-1-1. Inbred 2 of 73 (Group 5). Food  
grain quality. Grain sorghum fertility restorer or R-line. Plant color  
tan, epicarp white, testa absent, panicle semi-open, exertion approx.  
10 cm., and seed weight 2.51 gm. 100 seed-1. In June plantings at  
Plainview, TX and Starkville, MS, days to 50% anthesis 78 and 76, and  
plant height 113 and 128 cm. respectively.
- PI 599822. Sorghum bicolor (L.) Moench**  
Breeding. Pureline. MP 95; (YEL AFR PI\*E35-1)-7-1-1-2-1. Pedigree -  
(Yellow African PI\*E35-1)-7-1-1-2-1. Inbred 3 of 73 (Group 5). Food

grain quality. Grain sorghum fertility restorer or R-line. Plant color tan, epicarp white, testa absent, panicle semi-open, exsertion approx. 10 cm., and seed weight 2.95 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 72 and 76, and plant height 113 and 119 cm. respectively.

**PI 599823. Sorghum bicolor (L.) Moench**

Breeding. Pureline. MP 96; (KORGI DER\*E35-1)-4-1-1-2-1. Pedigree - (Korgi Derivative\*E35-1)-4-1-1-2-1. Inbred 4 of 73 (Group 5). Food grain quality. Grain sorghum fertility restorer or R-line. Plant color tan, epicarp white, testa absent, panicle semi-open, exsertion approx. 5 cm., and seed weight 2.81 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 69 and 69, and plant height 122 and 113 cm. respectively.

**PI 599824. Sorghum bicolor (L.) Moench**

Breeding. Pureline. MP 97; (SEPON79-2\*SC719-11E)-17-1-1-1-1. Pedigree - [(SC-108-3\*CS-3541)\*E15-5]-15\*SC719-11E]-17-1-1-1-1. Inbred 5 of 73 (Group 5). Food grain quality. Grain sorghum fertility restorer or R-line. Plant color tan, epicarp white, testa absent, panicle semi-compact, exsertion approx. 25 cm., and seed weight 3.03 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 63 and 65, and plant height 143 and 162 cm. respectively.

**PI 599825. Sorghum bicolor (L.) Moench**

Breeding. Pureline. MP 98; (SEPON79-2\*SC719-11E)-17-2-1-1-1. Pedigree - [(SC-108-3\*CS-3541)\*E15-5]-15\*SC719-11E]-17-2-1-1-1. Inbred 6 of 73 (Group 5). Food grain quality. Grain sorghum fertility restorer or R-line. Plant color tan, epicarp white, testa absent, panicle semi-compact, exsertion approx. 20 cm., and seed weight 2.75 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 68 and 69, and plant height 146 and 168 cm. respectively.

**PI 599826. Sorghum bicolor (L.) Moench**

Breeding. Pureline. MP 99; (YEL AFR PI\*SEPON79-47)-18-1-2-1-2. Pedigree - [Yellow African PI\*(SC-108-3\*CS-3541)-9-1]-18-1-2-1-2. Inbred 7 of 73 (Group 5). Food grain quality. Grain sorghum fertility restorer or R-line. Plant color tan, epicarp yellow, testa absent, panicle semi-compact, exsertion approx. 25 cm., and seed weight 2.42 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 68 and 58, and plant height 143 and 158 cm. respectively.

**PI 599827. Sorghum bicolor (L.) Moench**

Breeding. Pureline. MP 100; (YEL AFR PI\*SEPON79-47)-73-2-1-1-1. Pedigree - [Yellow African PI\*(SC-108-3\*CS-3541)-9-1]-73-2-1-1-1. Inbred 8 of 73 (Group 5). Food grain quality. Grain sorghum fertility restorer or R-line. Plant color tan, epicarp white, testa absent, panicle semi-compact, exsertion approx. 8 cm., and seed weight 2.90 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 67 and 67, and plant height 134 and 168 cm. respectively.

**PI 599828. Sorghum bicolor (L.) Moench**

Breeding. Pureline. MP 101; (YEL AFR PI\*SEPON79-47)-73-2-1-1-2. Pedigree - [Yellow African PI\*(SC-108-3\*CS-3541)-9-1]-73-2-1-1-2. Inbred 9 of 73 (Group 5). Food grain quality. Grain sorghum fertility restorer or

R-line. Plant color tan, epicarp white, testa absent, panicle semi-compact, exsertion approx. 12 cm., and seed weight 2.67 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 67 and 66, and plant height 131 and 174 cm. respectively.

**PI 599829. Sorghum bicolor (L.) Moench**

Breeding. Pureline. MP 102; (YEL AFR PI\*SEPON79-47)-73-3-2-1-1. Pedigree - [Yellow African PI\*(SC-108-3\*CS-3541)-9-1]-73-3-2-1-1. Inbred 10 of 73 (Group 5). Food grain quality. Grain sorghum fertility restorer or R-line. Plant color tan, epicarp white, testa absent, panicle semi-compact, exsertion approx. 15 cm., and seed weight 2.50 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 67 and 62, and plant height 149 and 226 cm. respectively.

**PI 599830. Sorghum bicolor (L.) Moench**

Breeding. Pureline. MP 103; (YEL AFR PI\*SEPON79-47)-73-3-2-2-1. Pedigree - [Yellow African PI\*(SC-108-3\*CS-3541)-9-1]-73-3-2-2-1. Inbred 11 of 73 (Group 5). Food grain quality. Grain sorghum fertility restorer or R-line. Plant color tan, epicarp white, testa absent, panicle semi-compact, exsertion approx. 8 cm., and seed weight 2.49 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 67 and 65, and plant height 137 and 226 cm. respectively.

**PI 599831. Sorghum bicolor (L.) Moench**

Breeding. Pureline. MP 104; (YEL AFR PI\*SEPON79-47)-117-3-1-2-1. Pedigree - [Yellow African PI\*(SC-108-3\*CS-3541)-9-1]-117-3-1-2-1. Inbred 12 of 73 (Group 5). Food grain quality. Grain sorghum fertility restorer or R-line. Plant color tan, epicarp white, testa absent, panicle semi-compact, exsertion approx. 2 cm., and seed weight 2.28 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 68 and 65, and plant height 137 and 168 cm. respectively.

**PI 599832. Sorghum bicolor (L.) Moench**

Breeding. Pureline. MP 105; (YEL AFR PI\*SEPON79-47)-168-2-1-1-1. Pedigree - [Yellow African PI\*(SC-108-3\*CS-3541)-9-1]-168-2-1-1-1. Inbred 13 of 73 (Group 5). Food grain quality. Grain sorghum fertility restorer or R-line. Plant color tan, epicarp white, testa absent, panicle semi-compact, exsertion approx. 10 cm., and seed weight 2.21 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 69 and 62, and plant height 140 and 192 cm. respectively.

**PI 599833. Sorghum bicolor (L.) Moench**

Breeding. Pureline. MP 106; (YEL AFR PI\*SEPON79-47)-168-2-1-1-2. Pedigree - [Yellow African PI\*(SC-108-3\*CS-3541)-9-1]-168-2-1-1-2. Inbred 14 of 73 (Group 5). Food grain quality. Grain sorghum fertility restorer or R-line. Plant color tan, epicarp white, testa absent, panicle semi-compact, exsertion approx. 15 cm., and seed weight 2.14 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 69 and 58, and plant height 140 and 180 cm. respectively.

**PI 599834. Sorghum bicolor (L.) Moench**

Breeding. Pureline. MP 107; (YEL AFR PI\*SEPON79-47)-168-2-1-2-1.



- Pedigree - [Yellow African PI\*(SC-108-3\*CS-3541)-9-1]-168-2-1-2-1.  
 Inbred 15 of 73 (Group 5). Food grain quality. Grain sorghum fertility restorer or R-line. Plant color tan, epicarp white, testa absent, panicle semi-compact, exsertion approx. 8 cm., and seed weight 1.92 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 68 and 64, and plant height 134 and 158 cm. respectively.
- PI 599835. *Sorghum bicolor* (L.) Moench**  
 Breeding. Pureline. MP 108; (YEL AFR PI\*SEPON79-47)-168-2-1-2-2.  
 Pedigree - [Yellow African PI\*(SC-108-3\*CS-3541)-9-1]-168-2-1-2-2.  
 Inbred 16 of 73 (Group 5). Food grain quality. Grain sorghum fertility restorer or R-line. Plant color tan, epicarp white, testa absent, panicle semi-compact, exsertion approx. 2 cm., and seed weight 2.61 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 65 and 67, and plant height 116 and 155 cm. respectively.
- PI 599836. *Sorghum bicolor* (L.) Moench**  
 Breeding. Pureline. MP 109; (YEL AFR PI\*SEPON79-47)-168-2-1-2-3.  
 Pedigree - [Yellow African PI\*(SC-108-3\*CS-3541)-9-1]-168-2-1-2-3.  
 Inbred 17 of 73 (Group 5). Food grain quality. Grain sorghum fertility restorer or R-line. Plant color tan, epicarp white, testa absent, panicle semi-compact, exsertion approx. 10 cm., and seed weight 2.40 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 65 and 67, and plant height 134 and 158 cm. respectively.
- PI 599837. *Sorghum bicolor* (L.) Moench**  
 Breeding. Pureline. MP 110; (YEL AFR PI\*SEPON79-54)-187-2-1-2-1.  
 Pedigree - [Yellow African PI\*(SC-108-4-8\*CS-3541)-88]-187-2-1-2-1.  
 Inbred 18 of 73 (Group 5). Food grain quality. Grain sorghum fertility restorer or R-line. Plant color tan, epicarp white, testa absent, panicle semi-open, exsertion approx. 10 cm., and seed weight 2.40 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 71 and 69, and plant height 137 and 155 cm. respectively.
- PI 599838. *Sorghum bicolor* (L.) Moench**  
 Breeding. Pureline. MP 111; (YEL AFR PI\*SEPON79-54)-187-2-1-2-2.  
 Pedigree - [Yellow African PI\*(SC-108-4-8\*CS-3541)-88]-187-2-1-2-2.  
 Inbred 19 of 73 (Group 5). Food grain quality. Grain sorghum fertility restorer or R-line. Plant color tan, epicarp white, testa absent, panicle semi-open, exsertion approx. 12 cm., and seed weight 3.20 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 70 and 69, and plant height 131 and 165 cm. respectively.
- PI 599839. *Sorghum bicolor* (L.) Moench**  
 Breeding. Pureline. MP 112; (YEL AFR PI\*SEPON79-54)-187-2-1-2-3.  
 Pedigree - [Yellow African PI\*(SC-108-4-8\*CS-3541)-88]-187-2-1-2-3.  
 Inbred 20 of 73 (Group 5). Food grain quality. Grain sorghum fertility restorer or R-line. Plant color tan, epicarp white, testa absent, panicle semi-open, exsertion approx. 15 cm., and seed weight 3.49 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days

to 50% anthesis 69 and 66, and plant height 116 and 143 cm. respectively.

- PI 599840. *Sorghum bicolor* (L.) Moench**  
Breeding. Pureline. MP 113; (YEL AFR PI\*SEPON79-55)-80-1-1-1-1. Pedigree - [Yellow African PI\*(SC-108-3\*E35-1)-29-2]-80-1-1-1-1. Inbred 21 of 73 (Group 5). Food grain quality. Grain sorghum fertility restorer or R-line. Plant color tan, epicarp white, testa absent, panicle semi-open, exsertion approx. 10 cm., and seed weight 3.12 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 72 and 71, and plant height 116 and 122 cm. respectively.
- PI 599841. *Sorghum bicolor* (L.) Moench**  
Breeding. Pureline. MP 114; (YEL AFR PI\*SEPON79-55)-80-1-1-1-3. Pedigree - [Yellow African PI\*(SC-108-3\*E35-1)-29-2]-80-1-1-1-3. Inbred 22 of 73 (Group 5). Food grain quality. Grain sorghum fertility restorer or R-line. Plant color tan, epicarp white, testa absent, panicle semi-open, exsertion approx. 10 cm., and seed weight 2.84 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 73 and 70, and plant height 113 and 128 cm. respectively.
- PI 599842. *Sorghum bicolor* (L.) Moench**  
Breeding. Pureline. MP 115; (KORGI DER\*SEPON79-47)-1-1-1-2-1. Pedigree - [Korgi Derivative\*(SC-108-3\*CS-3541)-9-1]-1-1-1-2-1. Inbred 23 of 73 (Group 5). Food grain quality. Grain sorghum fertility restorer or R-line. Plant color tan, epicarp white, testa absent, panicle semi-open, exsertion approx 10 cm., and seed weight 1.94 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 69 and 66, and plant height 122 and 104 cm. respectively.
- PI 599843. *Sorghum bicolor* (L.) Moench**  
Breeding. Pureline. MP 116; (MS101\*SEPON79-40)-6-1-1-1-1. Pedigree - [(NB 9040\*TX2536)-12-1-1]\*(IS 2217\*IS 9530)-11-1]-6-1-1-1-1. Inbred 24 of 73 (Group 5). Food grain quality. Grain sorghum fertility restorer or R-line. Plant color tan, epicarp white, testa absent, panicle semi-compact, exsertion approx. 5 cm., and seed weight 1.80 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 65 and 70, and plant height 101 and 116 cm. respectively.
- PI 599844. *Sorghum bicolor* (L.) Moench**  
Breeding. Pureline. MP 117; (MS101\*SEPON79-40)-35-1-1-1-1. Pedigree - [(NB 9040\*TX2536)-12-1-1]\*(IS 2217\*IS 9530)-11-1]-35-1-1-1-1. Inbred 25 of 73 (Group 5). Food grain quality. Grain sorghum fertility restorer or R-line. Plant color tan, epicarp white, testa absent, panicle open, exsertion approx. 5 cm., and seed weight 1.80 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 63 and 61, and plant height 119 and 116 cm. respectively.
- PI 599845. *Sorghum bicolor* (L.) Moench**  
Breeding. Pureline. MP 118; (MS101\*SEPON79-40)-35-1-1-2-1. Pedigree - [(NB 9040\*TX2536)-12-1-1]\*(IS 2217\*IS 9530)-11-1]-35-1-1-2-1. Inbred 26 of 73 (Group 5). Food grain quality. Grain sorghum fertility restorer or R-line. Plant color tan, epicarp white, testa absent, panicle open, exsertion approx. 5 cm., and seed weight 2.15 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 65

and 60, and plant height 98 and 98 cm. respectively.

**PI 599846. *Sorghum bicolor* (L.) Moench**

Breeding. Pureline. MP 119; (MS101\*SEPON79-40)-35-1-1-3-1. Pedigree - [(NB 9040\*TX2536)-12-1-1]\*(IS 2217\*IS 9530)-11-1]-35-1-1-3-1. Inbred 27 of 73 (Group 5). Food grain quality. Grain sorghum fertility restorer or R-line. Plant color tan, epicarp white, testa absent, panicle semi-open, exsertion approx. 2 cm., and seed weight 2.16 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 67 and 62, and plant height 94 and 113 cm. respectively.

**PI 599847. *Sorghum bicolor* (L.) Moench**

Breeding. Pureline. MP 120; (MS101\*SEPON79-45)-37-1-1-1-1. Pedigree - [(NB 9040\*TX2536)-12-1-1]\*(SC-108-3\*UCh V2)-15-1]-37-1-1-1-1. Inbred 28 of 73 (Group 5). Food grain quality. Grain sorghum fertility restorer or R-line. Plant color tan, epicarp white, testa absent, panicle semi-open, exsertion approx. 2 cm., and seed weight 1.71 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 69 and 65, and plant height 113 and 168 cm. respectively.

**PI 599848. *Sorghum bicolor* (L.) Moench**

Breeding. Pureline. MP 121; (MS101\*SEPON79-47)-5-1-1-2-1. Pedigree - [(NB 9040\*TX2536)-12-1-1]\*(SC-108-3\*CS-3541)-9-1]-5-1-1-2-1. Inbred 29 of 73 (Group 5). Food grain quality. Grain sorghum fertility restorer or R-line. Plant color tan, epicarp white, testa absent, panicle semi-open, exsertion approx. 8 cm., and seed weight 2.45 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 67 and 71, and plant height 98 and 101 cm. respectively.

**PI 599849. *Sorghum bicolor* (L.) Moench**

Breeding. Pureline. MP 122; (MS101\*SEPON79-47)-15-1-1-1-1. Pedigree - [(NB 9040\*TX2536)-12-1-1]\*(SC-108-3\*CS-3541)-9-1]-15-1-1-1-1. Inbred 30 of 73 (Group 5). Food grain quality. Grain sorghum fertility restorer or R-line. Plant color tan, epicarp white, testa absent, panicle semi-open, exsertion approx. 10 cm. and seed weight 2.63 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 67 and 62, and plant height 131 and 152 cm. respectively.

**PI 599850. *Sorghum bicolor* (L.) Moench**

Breeding. Pureline. MP 123; (MS101\*SEPON79-47)-15-1-1-2-1. Pedigree - [(NB 9040\*TX2536)-12-1-1]\*(SC-108-3\*CS-3541)-9-1]-15-1-1-2-1. Inbred 31 of 73 (Group 5). Food grain quality. Grain sorghum fertility restorer or R-line. Plant color tan, epicarp white, testa absent, panicle semi-open, exsertion approx. 10 cm., and seed weight 2.60 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 69 and 65, and plant height 128 and 134 cm. respectively.

**PI 599851. *Sorghum bicolor* (L.) Moench**

Breeding. Pureline. MP 124; (MS101\*SEPON79-47)-15-1-1-3-1. Pedigree - [(NB 9040\*TX2536)-12-1-1]\*(SC-108-3\*CS-3541)-9-1]-15-1-1-3-1. Inbred 32 of 73 (Group 5). Food grain quality. Grain sorghum fertility restorer or R-line. Plant color tan, epicarp white, testa absent, panicle semi-open, exsertion approx. 5 cm., and seed weight 3.0 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 67 and 66, and plant height 122 and 140 cm. respectively.

- PI 599852. *Sorghum bicolor* (L.) Moench**  
 Breeding. Pureline. MP 125; (MS101\*SEPON79-47)-18-1-1-1-1. Pedigree -  
 [((NB 9040\*TX2536)-12-1-1)\*(SC-108-3\*CS-3541)-9-1]-18-1-1-1-1. Inbred 33  
 of 73 (Group 5). Food grain quality. Grain sorghum fertility restorer or  
 R-line. Plant color tan, epicarp white, testa absent, panicle semi-open,  
 exsertion approx. 10 cm., and seed weight 2.62 gm. 100 seed-1. In June  
 plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 69  
 and 65, and plant height 107 and 113 cm. respectively.
- PI 599853. *Sorghum bicolor* (L.) Moench**  
 Breeding. Pureline. MP 126; (MS102\*SEPON79-2)-4-2-1-1-1. Pedigree -  
 [((NB 9040\*TX2536)-12-1-2)\*((SC-108-3\*CS-3541)\*E15-5)-15]-4-2-1-1-1.  
 Inbred 34 of 73 (Group 5). Food grain quality. Grain sorghum fertility  
 restorer or R-line. Plant color tan, epicarp white, testa absent,  
 panicle semi-open, exsertion approx 5 cm., and seed weight 2.44 gm. 100  
 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to  
 50% anthesis 68 and 68, and plant height 101 and 128 cm. respectively.
- PI 599854. *Sorghum bicolor* (L.) Moench**  
 Breeding. Pureline. MP 127; (MS102\*SEPON79-2)-4-2-1-2-1. Pedigree -  
 [((NB 9040\*TX2536)-12-1-2)\*((SC-108-3\*CS-3541)\*E15-5)-15]-4-2-1-2-1.  
 Inbred 35 of 73 (Group 5). Food grain quality. Grain sorghum fertility  
 restorer or R-line. Plant color tan, epicarp white, testa absent,  
 panicle semi-open, exsertion approx. 5 cm., and seed weight 2.44 gm. 100  
 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to  
 50% anthesis 68 and 68, and plant height 107 and 137 cm. respectively.
- PI 599855. *Sorghum bicolor* (L.) Moench**  
 Breeding. Pureline. MP 128; (MS102\*SEPON79-2)-4-2-1-3-1. Pedigree -  
 [((NB 9040\*TX2536)-12-1-2)\*((SC-108-3\*CS-3541)\*E15-5)-15]-4-2-1-3-1.  
 Inbred 36 of 73 (Group 5). Food grain quality. Grain sorghum fertility  
 restorer or R-line. Plant color tan, epicarp white, testa absent,  
 panicle semi-open, exsertion approx. 10 cm., and seed weight 2.04 gm.  
 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days  
 to 50% anthesis 69 and 69, and plant height 107 and 128 cm.  
 respectively.
- PI 599856. *Sorghum bicolor* (L.) Moench**  
 Breeding. Pureline. MP 129; (MS102\*SEPON79-2)-22-2-1-1-1. Pedigree -  
 [((NB 9040\*TX2536)-12-1-2)\*((SC-108-3\*CS-3541)\*E15-5)-15]-22-2-1-1-1.  
 Inbred 37 of 73 (Group 5). Food grain quality. Grain sorghum fertility  
 restorer or R-line. Plant color tan, epicarp white, testa absent,  
 panicle semi-compact, exsertion approx. 12 cm., and seed weight 2.34 gm.  
 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days  
 to 50% anthesis 70 and 70, and plant height 110 and 119 cm.  
 respectively.
- PI 599857. *Sorghum bicolor* (L.) Moench**  
 Breeding. Pureline. MP 130; (MS102\*SEPON79-2)-22-2-1-2-1. Pedigree -  
 [((NB 9040\*TX2536)-12-1-2)\*((SC-108-3\*CS-3541)\*E15-5)-15]-22-2-1-2-1.  
 Inbred 38 of 73 (Group 5). Food grain quality. Grain sorghum fertility  
 restorer or R-line. Plant color tan, epicarp white, testa absent,  
 panicle semi-open, exsertion approx 15 cm., and seed weight 2.83 gm. 100  
 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to

50% anthesis 71 and 66, and plant height 110 and 122 cm. respectively.

**PI 599858. *Sorghum bicolor* (L.) Moench**

Breeding. Pureline. MP 131; (MS102\*SEPON79-40)-31-1-1-1-1. Pedigree - [(NB 9040\*TX2536)-12-1-2]\*(IS-2217\*IS-9530)-11-1]-31-1-1-1-1. Inbred 39 of 73 (Group 5). Food grain quality. Grain sorghum fertility restorer or R-line. Plant color tan, epicarp white, testa absent, panicle semi-open, exertion approx. 10 cm., and seed weight 2.50 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 67 and 66, and plant height 101 and 104 cm. respectively.

**PI 599859. *Sorghum bicolor* (L.) Moench**

Breeding. Pureline. MP 132; (MS102\*SEPON79-40)-31-1-1-3-1. Pedigree - [(NB 9040\*TX2536)-12-1-2]\*(IS-2217\*IS-9530)-11-1]-31-1-1-3-1. Inbred 40 of 73 (Group 5). Food grain quality. Grain sorghum fertility restorer or R-line. Plant color tan, epicarp white, testa absent, panicle semi-open, exertion approx 12 cm., and seed weight 2.83 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 67 and 67, and plant height 119 and 123 cm. respectively.

**PI 599860. *Sorghum bicolor* (L.) Moench**

Breeding. Pureline. MP 133; (MS102\*SEPON79-49)-156-2-1-1-1. Pedigree - [(NB 9040\*TX2536)-12-1-2]\*(SC-108-3\*CS-3541)-21-1-1]-156-2-1-1-1. Inbred 41 of 73 (Group 5). Food grain quality. Grain sorghum fertility restorer or R-line. Plant color tan, epicarp white, testa absent, panicle semi-open, exertion approx. 5 cm., and seed weight 2.73 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 65 and 58, and plant height 113 and 122 cm. respectively.

**PI 599861. *Sorghum bicolor* (L.) Moench**

Breeding. Pureline. MP 134; (MS102\*SEPON79-49)-156-2-1-1-2. Pedigree - [(NB 9040\*TX2536)-12-1-2]\*(SC-108-3\*CS-3541)-21-1-1]-156-2-1-1-2. Inbred 42 of 73 (Group 5). Food grain quality. Grain sorghum fertility restorer or R-line. Plant color tan, epicarp white, testa absent, panicle semi-open, exertion approx. 0 cm., and seed weight 2.67 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 65 and 67, and plant height 104 and 131 cm. respectively.

**PI 599862. *Sorghum bicolor* (L.) Moench**

Breeding. Pureline. MP 135; (MS102\*SEPON79-49)-156-2-1-1-3. Pedigree - [(NB 9040\*TX2536)-12-1-2]\*(SC-108-3\*CS-3541)-21-1-1]-156-2-1-1-3. Inbred 43 of 73 (Group 5). Food grain quality. Grain sorghum fertility restorer or R-line. Plant color tan, epicarp white, testa absent, panicle semi-open, exertion approx. 0 cm., and seed weight 2.62 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 63 and 57, and plant height 110 and 143 cm. respectively.

**PI 599863. *Sorghum bicolor* (L.) Moench**

Breeding. Pureline. MP 136; (MS102\*SEPON79-49)-156-2-2-1-1. Pedigree - [(NB 9040\*TX2536)-12-1-2]\*(SC-108-3\*CS-3541)-21-1-1]-156-2-2-1-1. Inbred 44 of 73 (Group 5). Food grain quality. Grain sorghum fertility restorer or R-line. Plant color tan, epicarp white, testa absent, panicle semi-open, exertion approx. 8 cm., and seed weight 2.98 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 69 and 66, and plant height 110 and 134 cm. respectively.

- PI 599864. *Sorghum bicolor* (L.) Moench**  
 Breeding. Pureline. MP 137; (MS102\*SEPON79-49)-156-2-2-1-2. Pedigree -  
 [((NB 9040\*TX2536)-12-1-2)\*(SC-108-3\*CS-3541)-21-1-1]-156-2-2-1-2.  
 Inbred 45 of 73 (Group 5). Food grain quality. Grain sorghum fertility  
 restorer or R-line. Plant color tan, epicarp white, testa absent,  
 panicle semi-open, exsertion approx. 10 cm., and seed weight 2.94 gm.  
 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days  
 to 50% anthesis 68 and 63, and plant height 113 and 131 cm.  
 respectively.
- PI 599865. *Sorghum bicolor* (L.) Moench**  
 Breeding. Pureline. MP 138; (MS102\*SEPON79-49)-156-2-2-1-3. Pedigree -  
 [((NB 9040\*TX2536)-12-1-2)\*(SC-108-3\*CS-3541)-21-1-1]-156-2-2-1-3.  
 Inbred 46 of 73 (Group 5). Food grain quality. Grain sorghum fertility  
 restorer or R-line. Plant color tan, epicarp white, testa absent,  
 panicle semi-open, exsertion approx. 10 cm., and seed weight 2.34 gm.  
 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days  
 to 50% anthesis 67 and 67, and plant height 119 and 110 cm.  
 respectively.
- PI 599866. *Sorghum bicolor* (L.) Moench**  
 Breeding. Pureline. MP 139; (MS102\*SEPON79-51)-6-2-1-1-2. Pedigree -  
 [((NB 9040\*TX2536)-12-1-2)\*(SC-108-3\*GPR-148)-20-2]-6-2-1-1-2. Inbred 47  
 of 73 (Group 5). Food grain quality. Grain sorghum fertility restorer or  
 R-line. Plant color tan, epicarp white, testa absent, panicle semi-open,  
 exsertion approx. 15 cm., and seed weight 3.95 gm. 100 seed-1. In June  
 plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 67  
 and 65, and plant height 107 and 110 cm. respectively.
- PI 599867. *Sorghum bicolor* (L.) Moench**  
 Breeding. Pureline. MP 140; (MS102\*SEPON79-51)-40-1-1-1-2. Pedigree -  
 [((NB 9040\*TX2536)-12-1-2)\*(SC-108-3\*GPR-148)-20-2]-40-1-1-1-2. Inbred  
 48 of 73 (Group 5). Food grain quality. Grain sorghum fertility restorer  
 or R-line. Plant color tan, epicarp white, testa absent, panicle  
 semi-compact, exsertion approx. 10 cm., and seed weight 2.51 gm. 100  
 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to  
 50% anthesis 65 and 65, and plant height 110 and 165 cm. respectively.
- PI 599868. *Sorghum bicolor* (L.) Moench**  
 Breeding. Pureline. MP 141; (MS102\*SEPON79-51)-170-1-1-1-1. Pedigree -  
 [((NB 9040\*TX2536)-12-1-2)\*(SC-108-3\*GPR-148)-20-2]-170-1-1-1-1. Inbred  
 49 of 73 (Group 5). Food grain quality. Grain sorghum fertility restorer  
 or R-line. Plant color tan, epicarp white, testa absent, panicle  
 semi-open, exsertion approx. 8 cm., and seed weight 2.38 gm. 100 seed-1.  
 In June plantings at Plainview, TX and Starkville, MS, days to 50%  
 anthesis 73 and 70, and plant height 122 and 165 cm. respectively.
- PI 599869. *Sorghum bicolor* (L.) Moench**  
 Breeding. Pureline. MP 142; (MS102\*SEPON79-51)-170-1-1-1-2. Pedigree -  
 [((NB 9040\*TX2536)-12-1-2)\*(SC-108-3\*GPR-148)-20-2]-170-1-1-1-2. Inbred  
 50 of 73 (Group 5). Food grain quality. Grain sorghum fertility restorer  
 or R-line. Plant color tan, epicarp white, testa absent, panicle  
 semi-open, exsertion approx. 5 cm., and seed weight 2.57 gm. 100 seed-1.  
 In June plantings at Plainview, TX and Starkville, MS, days to 50%

anthesis 75 and 78, and plant height 125 and 149 cm. respectively.

**PI 599870. *Sorghum bicolor* (L.) Moench**

Breeding. Pureline. MP 143; (MS103\*IS 2261)-6-1-1-1-1. Pedigree - [(NB 9040\*TX2536)-13-2-1]\*IS 2261]-6-1-1-1-1. Inbred 51 of 73 (Group 5). Food grain quality. Grain sorghum fertility restorer or R-line. Plant color tan, epicarp white, testa absent, panicle semi-open, exertion approx. 10 cm., and seed weight 3.01 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 65 and 71, and plant height 116 and 158 cm. respectively.

**PI 599871. *Sorghum bicolor* (L.) Moench**

Breeding. Pureline. MP 144; (MS103\*IS 2261)-6-1-1-2-1. Pedigree - [(NB 9040\*TX2536)-13-2-1]\*IS 2261]-6-1-1-2-1. Inbred 52 of 73 (Group 5). Food grain quality. Grain sorghum fertility restorer or R-line. Plant color tan, epicarp white, testa absent, panicle semi-open, exertion approx. 10 cm., and seed weight 2.38 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 63 and 65, and plant height 122 and 162 cm. respectively.

**PI 599872. *Sorghum bicolor* (L.) Moench**

Breeding. Pureline. MP 145; (MS103\*IS 2261)-6-1-2-1-1. Pedigree - [(NB 9040\*TX2536)-13-2-1]\*IS 2261]-6-1-2-1-1. Inbred 53 of 73 (Group 5). Food grain quality. Grain sorghum fertility restorer or R-line. Plant color tan, epicarp white, testa absent, panicle semi-open, exertion approx. 2 cm., and seed weight 2.87 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 65 and 66, and plant height 107 and 152 cm. respectively.

**PI 599873. *Sorghum bicolor* (L.) Moench**

Breeding. Pureline. MP 146; (MS103\*IS 2261)-6-1-2-2-1. Pedigree - [(NB 9040\*TX2536)-13-2-1]\*IS 2261]-6-1-2-2-1. Inbred 54 of 73 (Group 5). Food grain quality. Grain sorghum fertility restorer or R-line. Plant color tan, epicarp white, testa absent, panicle semi-open, exertion approx. 8 cm., and seed weight 2.55 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 67 and 65, and plant height 110 and 158 cm. respectively.

**PI 599874. *Sorghum bicolor* (L.) Moench**

Breeding. Pureline. MP 147; (MS103\*SEPON79-47)-67-3-1-1-2. Pedigree - [(NB 9040\*TX2536)-13-2-1]\*(SC-108-3\*CS-3541)-9-1]-67-3-1-1-2. Inbred 55 of 73 (Group 5). Food grain quality. Grain sorghum fertility restorer or R-line. Plant color tan, epicarp white, testa absent, panicle semi-open, exertion approx. 5 cm., and seed weight 2.64 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 68 and 65, and plant height 91 and 107 cm. respectively.

**PI 599875. *Sorghum bicolor* (L.) Moench**

Breeding. Pureline. MP 148; (MS103\*SEPON79-47)-80-1-1-1-1. Pedigree - [(NB 9040\*TX2536)-13-2-1]\*(SC-108-3\*CS-3541)-9-1]-80-1-1-1-1. Inbred 56 of 73 (Group 5). Food grain quality. Grain sorghum fertility restorer or R-line. Plant color tan, epicarp white, testa absent, panicle semi-open, exertion approx. 2 cm., and seed weight 2.79 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 69 and 65, and plant height 113 and 165 cm. respectively.

- PI 599876. *Sorghum bicolor* (L.) Moench**  
Breeding. Pureline. MP 149; (MS103\*SEPON79-47)-80-1-1-1-2. Pedigree - [(NB 9040\*TX2536)-13-2-1]\*(SC-108-3\*CS-3541)-9-1]-80-1-1-1-2. Inbred 57 of 73 (Group 5). Food grain quality. Grain sorghum fertility restorer or R-line. Plant color tan, epicarp white, testa absent, panicle semi-open, exsertion approx. 2 cm., and seed weight 2.45 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 66 and 66, and plant height 104 and 149 cm. respectively.
- PI 599877. *Sorghum bicolor* (L.) Moench**  
Breeding. Pureline. MP 150; (MS103\*SEPON79-47)-80-1-1-1-3. Pedigree - [(NB 9040\*TX2536)-13-2-1]\*(SC-108-3\*CS-3541)-9-1]-80-1-1-1-3. Inbred 58 of 73 (Group 5). Food grain quality. Grain sorghum fertility restorer or R-line. Plant color tan, epicarp white, testa absent, panicle semi-open, exsertion approx. 5 cm., and seed weight 2.47 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 69 and 67, and plant height 110 and 143 cm. respectively.
- PI 599878. *Sorghum bicolor* (L.) Moench**  
Breeding. Pureline. MP 151; (MS103\*SEPON79-51)-31-2-1-1-1. Pedigree - [(NB 9040\*TX2536)-13-2-1]\*(SC-108-3\*GPR-148)-20-2]-31-2-1-1-1. Inbred 59 of 73 (Group 5). Food grain quality. Grain sorghum fertility restorer or R-line. Plant color tan, epicarp white, testa absent, panicle open, exsertion approx. 5 cm., and seed weight 2.69 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 65 and 71, and plant height 107 and 116 cm. respectively.
- PI 599879. *Sorghum bicolor* (L.) Moench**  
Breeding. Pureline. MP 152; (MS103\*SEPON79-51)-57-2-1-2-1. Pedigree - [(NB 9040\*TX2536)-13-2-1]\*(SC-108-3\*GPR-148)-20-2]-57-2-1-2-1. Inbred 60 of 73 (Group 5). Food grain quality. Grain sorghum fertility restorer or R-line. Plant color tan, epicarp white, testa absent, panicle open, exsertion approx. 5 cm., and seed weight 3.09 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 70 and 69, and plant height 104 and 119 cm. respectively.
- PI 599880. *Sorghum bicolor* (L.) Moench**  
Breeding. Pureline. MP 153; (MS103\*SEPON79-51)-57-2-1-4-1. Pedigree - [(NB 9040\*TX2536)-13-2-1]\*(SC-108-3\*GPR-148)-20-2]-57-2-1-4-1. Inbred 61 of 73 (Group 5). Food grain quality. Grain sorghum fertility restorer or R-line. Plant color tan, epicarp white, testa absent, panicle open, exsertion approx. 10 cm., and seed weight 3.03 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 70 and 69, and plant height 107 and 134 cm. respectively.
- PI 599881. *Sorghum bicolor* (L.) Moench**  
Breeding. Pureline. MP 154; (MS103\*SEPON79-51)-59-1-1-1-1. Pedigree - [(NB 9040\*TX2536)-13-2-1]\*(SC-108-3\*GPR-148)-20-2]-59-1-1-1-1. Inbred 62 of 73 (Group 5). Food grain quality. Grain sorghum fertility restorer or R-line. Plant color tan, epicarp white, testa absent, panicle open, exsertion approx. 10 cm., and seed weight 3.03 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 63 and 64, and plant height 110 and 146 cm. respectively.



- PI 599882. *Sorghum bicolor* (L.) Moench**  
Breeding. Pureline. MP 155; (MS103\*SEPON79-51)-59-1-1-2-1. Pedigree - [(NB 9040\*TX2536)-13-2-1]\*(SC-108-3\*GPR-148)-20-2]-59-1-1-2-1. Inbred 63 of 73 (Group 5). Food grain quality. Grain sorghum fertility restorer or R-line. Plant color tan, epicarp white, testa absent, panicle open, exsertion approx. 2 cm., and seed weight 2.55 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 63 and 61, and plant height 110 and 143 cm. respectively.
- PI 599883. *Sorghum bicolor* (L.) Moench**  
Breeding. Pureline. MP 156; (MS103\*SEPON79-51)-59-1-1-3-1. Pedigree - [(NB 9040\*TX2536)-13-2-1]\*(SC-108-3\*GPR-148)-20-2]-59-1-1-3-1. Inbred 64 of 73 (Group 5). Food grain quality. Grain sorghum fertility restorer or R-line. Plant color tan, epicarp white, testa absent, panicle open, exsertion approx. 5 cm., and seed weight 3.26 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 65 and 62, and plant height 119 and 146 cm. respectively.
- PI 599884. *Sorghum bicolor* (L.) Moench**  
Breeding. Pureline. MP 157; (MS104\*SEPON79-40)-21-1-1-1-1. Pedigree - [(NB 9040\*TX2536)-13-2-2]\*(IS-2217\*IS-9530)-11-1]-21-1-1-1-1. Inbred 65 of 73 (Group 5). Food grain quality. Grain sorghum fertility restorer or R-line. Plant color tan, epicarp white, testa absent, panicle semi-open, exsertion approx. 5 cm., and seed weight 2.90 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 63 and 61, and plant height 101 and 146 cm. respectively.
- PI 599885. *Sorghum bicolor* (L.) Moench**  
Breeding. Pureline. MP 158; (MS104\*SEPON79-55)-180-2-1-1-2. Pedigree - [(NB 9040\*TX2536)-13-2-2]\*(SC-108-3\*E35-1)-29-2]-180-2-1-1-2. Inbred 66 of 73 (Group 5). Food grain quality. Grain sorghum fertility restorer or R-line. Plant color tan, epicarp white, testa absent, panicle semi-open, exsertion approx. 5 cm., and seed weight 2.82 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 69 and 66, and plant height 107 and 143 cm. respectively.
- PI 599886. *Sorghum bicolor* (L.) Moench**  
Breeding. Pureline. MP 159; (MS102\*SEPON79-49)\*TX2782)-9-3-1-1-1. Pedigree - [(NB 9040\*TX2536)-12-1-2]\*((SC-108-3\*CS-3541)-21-1-1)\*TX2782]-9-3-1-1-1. Inbred 67 of 73 (Group 5). Food grain quality. Grain sorghum restorer or R-line. Plant color tan, epicarp white, testa absent, panicle open, exsertion approx. 8 cm., and seed weight 2.67 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 73 and 64, and plant height 131 and 162 cm. respectively.
- PI 599887. *Sorghum bicolor* (L.) Moench**  
Breeding. Pureline. MP 160; (MS102\*SEPON79-49)\*TX2782)-9-3-1-2-1. Pedigree - [(NB 9040\*TX2536)-12-1-2]\*((SC-108-3\*CS-3541)-21-1-1)\*TX2782]-9-3-1-2-1. Inbred 68 of 73 (Group 5). Food grain quality. Grain sorghum fertility restorer or R-line. Plant color tan, epicarp white, testa absent, panicle open, exsertion approx. 2 cm., and seed weight 2.80 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 75 and 69, and plant height 140 and 158 cm. respectively.

- PI 599888. *Sorghum bicolor* (L.) Moench**  
 Breeding. Pureline. MP 161; (MS102\*SEPON79-49)\*IR-1)-3-1-2-1-1. Pedigree - [((NB 9040\*TX2536)-12-1-2)\*((SC-108-3\*CS-3541)-21-1-1)\*IR-1]-3-1-2-1-1 . Inbred 69 of 73 (Group 5). Food grain quality. Grain sorghum fertility restorer or R-line. Plant color tan, epicarp white, testa absent, panicle open, exsertion approx. 15 cm., and seed weight 2.05 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 73 and 73, and plant height 183 and 168 cm. respectively.
- PI 599889. *Sorghum bicolor* (L.) Moench**  
 Breeding. Pureline. MP 162; (MS102\*SEPON79-49)\*IR-1)-3-1-2-2-1. Pedigree - [((NB 9040\*TX2536)-12-1-2)\*((SC-108-3\*CS-3541)-21-1-1)\*IR-1]-3-1-2-2-1 . Inbred 70 of 73 (Group 5). Food grain quality. Grain sorghum fertility restorer or R-line. Plant color tan, epicarp white, testa absent, panicle semi-open, exsertion approx. 20 cm., and seed weight 1.71 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 68 and 74, and plant height 119 and 177 cm. respectively.
- PI 599890. *Sorghum bicolor* (L.) Moench**  
 Breeding. Pureline. MP 163; (SC326-6\*(MS102\*SEPON79-49)-12-1-1-1-1. Pedigree - [SC326-6\*((SC-108-3\*CS-3541)-21-1-1)]-12-1-1-1-1. Inbred 71 of 73 (Group 5). Food grain quality. Grain sorghum fertility restorer or R-line. Plant color tan, epicarp white, testa absent, panicle semi-open, exsertion approx. 12 cm., and seed weight 1.80 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 68 and 78, and plant height 110 and 110 cm. respectively.
- PI 599891. *Sorghum bicolor* (L.) Moench**  
 Breeding. Pureline. MP 164; (SC326-6\*(MS102\*SEPON79-49)-12-1-1-2-1. Pedigree - [SC326-6\*((SC-108-3\*CS-3541)-21-1-1)]-12-1-1-2-1. Inbred 72 of 73 (Group 5). Food grain quality. Grain sorghum fertility restorer or R-line. Plant color tan, epicarp white, testa absent, panicle semi-open, exsertion approx. 15 cm., and seed weight 1.83 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 72 and 71, and plant height 116 and 104 cm. respectively.
- PI 599892. *Sorghum bicolor* (L.) Moench**  
 Breeding. Pureline. MP 165; (MS103\*SEPON79-47)\*TX2782)-14-1-1-1-1. Pedigree - [((NB 9040\*TX2536)-13-2-1)\*((SC-108-3\*CS-3541)-9-1)\*TX2782]-14-1-1-1-1. Inbred 73 of 73 (Group 5). Food grain quality. Grain sorghum fertility restorer or R-line. Plant color tan, epicarp white, testa absent, panicle semi-open, exsertion approx. 15 cm., and seed weight 2.41 gm. 100 seed-1. In June plantings at Plainveiw, TX and Starkville, MS, days to 50% anthesis 70 and 72, and plant height 104 and 125 cm. respectively.
- PI 599893. *Sorghum bicolor* (L.) Moench**  
 Breeding. Pureline. MP 166; (1821CM\*SEPON79-28)-1-1-1-2-1. Pedigree - [1821CM\*(SPV-101\*IS-9533)-22]-1-1-1-2-1. Inbred 1 of 82 (Group 6). Food grain quality and weathering tolerance. Grain sorghum line with unconfirmed fertility restoration. Plant color tan, epicarp white, testa absent, panicle semi-open, exsertion approx. 15 cm., and seed weight 3.32 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville,

MS, days to 50% anthesis 68 and 65, and plant height 130 and 175 cm. respectively.

**PI 599894. Sorghum bicolor (L.) Moench**

Breeding. Pureline. MP 167; (1821CM\*SEPON79-28)-1-1-2-2-1. Pedigree - [1821CM\*(SPV-101\*IS-9533)-22]-1-1-2-2-1. Inbred 2 of 82 (Group 6). Food grain quality and weathering tolerance. Grain sorghum line with unconfirmed fertility restoration. Plant color tan, epicarp white, testa absent, panicle semi-open, exsertion approx. 10 cm., and seed weight 3.07 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 66 and 64, and plant height 126 and 180 cm. respectively.

**PI 599895. Sorghum bicolor (L.) Moench**

Breeding. Pureline. MP 168; (1821CM\*SEPON79-28)-1-2-1-2-1. Pedigree - [1821CM\*(SPV-101\*IS-9533)-22]-1-2-1-2-1. Inbred 3 of 82 (Group 6). Food grain quality and weathering tolerance. Grain sorghum line with unconfirmed fertility restoration. Plant color tan, epicarp white, testa absent, panicle semi-compact, exsertion approx. 10 cm., and seed weight 2.97 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 70 and 74, and plant height 122 and 172 cm. respectively.

**PI 599896. Sorghum bicolor (L.) Moench**

Breeding. Pureline. MP 169; (1821CM\*SEPON79-28)-1-2-2-2-1. Pedigree - [1821CM\*(SPV-101\*IS-9533)-22]-1-2-2-2-1. Inbred 4 of 82 (Group 6). Food grain quality and weathering tolerance. Grain sorghum line with unconfirmed fertility restoration. Plant color tan, epicarp white, testa absent, panicle semi-compact, exsertion approx. 8 cm., and seed weight 3.04 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 68 and 69, and plant height 120 and 180 cm. respectively.

**PI 599897. Sorghum bicolor (L.) Moench**

Breeding. Pureline. MP 170; (SEPON79-29\*1821CM)-1-1-1-2-1. Pedigree - [(SPV-104\*IS-9327)-4\*1821CM]-1-1-1-2-1. Inbred 5 of 82 (Group 6). Food grain quality and weathering tolerance. Grain sorghum line with unconfirmed fertility restoration. Plant color tan, epicarp white, testa absent, panicle open, exsertion approx. 5 cm., and seed weight 3.51 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 68 and 70, and plant height 139 and 212 cm. respectively.

**PI 599898. Sorghum bicolor (L.) Moench**

Breeding. Pureline. MP 171; (SEPON79-29\*1821CM)-1-1-2-2-1. Pedigree - [(SPV-104\*IS-9327)-4\*1821CM]-1-1-2-2-1. Inbred 6 of 82 (Group 6). Food grain quality and weathering tolerance. Grain sorghum line with unconfirmed fertility restoration. Plant color tan, epicarp white, testa absent, panicle semi-open, exsertion approx. 5 cm., and seed weight 3.25 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 68 and 69, and plant height 152 and 216 cm. respectively.

**PI 599899. Sorghum bicolor (L.) Moench**

Breeding. Pureline. MP 172; (SEPON79-29\*1821CM)-1-2-1-2-1. Pedigree -

[(SPV-104\*IS-9327)-4\*1821CM]-1-2-1-2-1. Inbred 7 of 82 (Group 6). Food grain quality and weathering tolerance. Grain sorghum line with unconfirmed fertility restoration. Plant color tan, epicarp white, testa absent, panicle semi-open, exsertion approx. 5 cm., and seed weight 2.71 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 73 and 75, and plant height 134 and 192 cm. respectively.

**PI 599900. Sorghum bicolor (L.) Moench**

Breeding. Pureline. MP 173; (SEPON79-29\*1821CM)-1-2-2-2-1. Pedigree - [(SPV-104\*IS-9327)-4\*1821CM]-1-2-2-2-1. Inbred 8 of 82 (Group 6). Food grain quality and weathering tolerance. Grain sorghum line with unconfirmed fertility restoration. Plant color tan, epicarp white, testa absent, panicle semi-open, exsertion approx. 8 cm., and seed weight 2.77 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 70 and 68, and plant height 133 and 223 cm. respectively.

**PI 599901. Sorghum bicolor (L.) Moench**

Breeding. Pureline. MP 174; (SEPON79-29\*1821CM)-3-1-1-2-1. Pedigree - [(SPV-104\*IS-9327)-4\*1821CM]-3-1-1-2-1. Inbred 9 of 82 (Group 6). Food grain quality and weathering tolerance. Grain sorghum line with unconfirmed fertility restoration. Plant color tan, epicarp white, testa absent, panicle semi-open, exsertion approx. 10 cm., and seed weight 2.84 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 69 and 67, and plant height 131 and 195 cm. respectively.

**PI 599902. Sorghum bicolor (L.) Moench**

Breeding. Pureline. MP 175; (SEPON79-29\*1821CM)-3-2-1-3-1. Pedigree - [(SPV-104\*IS-9327)-4\*1821CM]-3-2-1-3-1. Inbred 10 of 82 (Group 6). Food grain quality and weathering tolerance. Grain sorghum line with unconfirmed fertility restoration. Plant color tan, epicarp white, testa absent, panicle semi-compact, exsertion approx. 20 cm., and seed weight 3.28 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 71 and 61, and plant height 140 and 158 cm. respectively.

**PI 599903. Sorghum bicolor (L.) Moench**

Breeding. Pureline. MP 176; (SEPON79-29\*1821CM)-3-3-1-2-1. Pedigree - [(SPV-104\*IS-9327)-4\*1821CM]-3-3-1-2-1. Inbred 11 of 82 (Group 6). Food grain quality and weathering tolerance. Grain sorghum line with unconfirmed fertility restoration. Plant color tan, epicarp white, testa absent, panicle semi-open, exsertion approx. 10 cm., and seed weight 3.18 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 73 and 72, and plant height 128 and 162 cm. respectively.

**PI 599904. Sorghum bicolor (L.) Moench**

Breeding. Pureline. MP 177; (SEPON79-29\*1821CM)-3-3-2-2-1. Pedigree - [(SPV-104\*IS-9327)-4\*1821CM]-3-3-2-2-1. Inbred 12 of 82 (Group 6). Food grain quality and weathering tolerance. Grain sorghum line with unconfirmed fertility restoration. Plant color tan, epicarp white, testa absent, panicle semi-open, exsertion approx. 15 cm., and seed weight 3.43 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville,

MS, days to 50% anthesis 68 and 74, and plant height 134 and 158 cm. respectively.

**PI 599905. Sorghum bicolor (L.) Moench**

Breeding. Pureline. MP 178; (SEPON79-29\*1821CM)-6-1-1-3-1. Pedigree - [(SPV-104\*IS-9327)-4\*1821CM]-6-1-1-3-1. Inbred 13 of 82 (Group 6). Food grain quality and weathering tolerance. Grain sorghum line with unconfirmed fertility restoration. Plant color tan, epicarp white, testa absent, panicle semi-open, exsertion approx. 15 cm., and seed weight 2.86 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 68 and 60, and plant height 151 and 149 cm. respectively.

**PI 599906. Sorghum bicolor (L.) Moench**

Breeding. Pureline. MP 179; (SEPON79-29\*1821CM)-6-1-2-2-1. Pedigree - [(SPV-104\*IS-9327)-4\*1821CM]-6-1-2-2-1. Inbred 14 of 82 (Group 6). Food grain quality and weathering tolerance. Grain sorghum line with unconfirmed fertility restoration. Plant color tan, epicarp white, testa absent, panicle semi-open, exsertion approx. 10 cm., and seed weight 2.85 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 69 and 58, and plant height 155 and 122 cm. respectively.

**PI 599907. Sorghum bicolor (L.) Moench**

Breeding. Pureline. MP 180; (SEPON79-29\*1821CM)-6-1-2-3-1. Pedigree - [(SPV-104\*IS-9327)-4\*1821CM]-6-1-2-3-1. Inbred 15 of 82 (Group 6). Food grain quality and weathering tolerance. Grain sorghum line with unconfirmed fertility restoration. Plant color tan, epicarp white, testa absent, panicle semi-open, exsertion approx. 10 cm., and seed weight 2.74 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 65 and 66, and plant height 137 and 158 cm. respectively.

**PI 599908. Sorghum bicolor (L.) Moench**

Breeding. Pureline. MP 181; (SEPON79-29\*1821CM)-7-1-1-1-1. Pedigree - [(SPV-104\*IS-9327)-4\*1821CM]-7-1-1-1-1. Inbred 16 of 82 (Group 6). Food grain quality and weathering tolerance. Grain sorghum line with unconfirmed fertility restoration. Plant color tan, epicarp white, testa absent, panicle semi-compact, exsertion approx. 15 cm., and seed weight 3.34 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 65 and 57, and plant height 162 and 195 cm. respectively.

**PI 599909. Sorghum bicolor (L.) Moench**

Breeding. Pureline. MP 182; (SEPON79-29\*1821CM)-7-1-2-2-1. Pedigree - [(SPV-104\*IS-9327)-4\*1821CM]-7-1-2-2-1. Inbred 17 of 82 (Group 6). Food grain quality and weathering tolerance. Grain sorghum line with unconfirmed fertility restoration. Plant color tan, epicarp white, testa absent, panicle semi-compact, exsertion approx. 15 cm., and seed weight 2.94 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 64 and 61, and plant height 145 and 163 cm. respectively.

**PI 599910. Sorghum bicolor (L.) Moench**

Breeding. Pureline. MP 183; (SEPON79-28\*79-20)-1-1-1-1-1. Pedigree -

[(SPV-101\*IS-9533)-22\*((IS-12645C\*CS-3541)\*E35-1)-4-1]-1-1-1-1-1. Inbred 18 of 82 (Group 6). Food grain quality and weathering tolerance. Grain sorghum line with unconfirmed fertility restoration. Plant color tan, epicarp white, testa absent, panicle semi-compact, exertion approx. 10 cm., and seed weight 2.92 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 68 and 66, and plant height 155 and 210 cm. respectively.

**PI 599911. Sorghum bicolor (L.) Moench**

Breeding. Pureline. MP 184; (SEPON79-28\*79-20)-1-2-1-2-1. Pedigree - [(SPV-101\*IS-9533)-22\*((IS-12645C\*CS-3541)\*E35-1)-4-1]-1-2-1-2-1. Inbred 19 of 82 (Group 6). Food grain quality and weathering tolerance. Grain sorghum line with unconfirmed fertility restoration. Plant color tan, epicarp white, testa absent, panicle semi-open, exertion approx. 20 cm., and seed weight 3.12 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 68 and 64, and plant height 155 and 206 cm. respectively.

**PI 599912. Sorghum bicolor (L.) Moench**

Breeding. Pureline. MP 185; (SEPON79-28\*79-20)-1-2-2-1-1. Pedigree - [(SPV-101\*IS-9533)-22\*((IS-12645C\*CS-3541)\*E35-1)-4-1]-1-2-2-1-1. Inbred 20 of 82 (Group 6). Food grain quality and weathering tolerance. Grain sorghum line with unconfirmed fertility restoration. Plant color tan, epicarp white, testa absent, panicle semi-compact, exertion approx. 10 cm., and seed weight 3.35 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 69 and 71, and plant height 158 and 186 cm. respectively.

**PI 599913. Sorghum bicolor (L.) Moench**

Breeding. Pureline. MP 186; (SEPON79-28\*79-20)-2-1-2-3-1. Pedigree - [(SPV-101\*IS-9533)-22\*((IS-12645C\*CS-3541)\*E35-1)-4-1]-2-1-2-3-1. Inbred 21 of 82 (Group 6). Food grain quality and weathering tolerance. Grain sorghum line with unconfirmed fertility restoration. Plant color tan, epicarp white, testa absent, panicle semi-compact, exertion approx. 2 cm., and seed weight 3.05 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 70 and 68, and plant height 120 and 151 cm. respectively.

**PI 599914. Sorghum bicolor (L.) Moench**

Breeding. Pureline. MP 187; (SEPON79-28\*79-20)-2-1-3-2-1. Pedigree - [(SPV-101\*IS-9533)-22\*((IS-12645C\*CS-3541)\*E35-1)-4-1]-2-1-3-2-1. Inbred 22 of 82 (Group 6). Food grain quality and weathering tolerance. Grain sorghum line with unconfirmed fertility restoration. Plant color tan, epicarp white, testa absent, panicle semi-compact, exertion approx. 2 cm., and seed weight 3.36 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 69 and 69, and plant height 137 and 162 cm. respectively.

**PI 599915. Sorghum bicolor (L.) Moench**

Breeding. Pureline. MP 188; (SEPON79-28\*79-20)-2-1-4-2-1. Pedigree - [(SPV-101\*IS-9533)-22\*((IS-12645C\*CS-3541)\*E35-1)-4-1]-2-1-4-2-1. Inbred 23 of 82 (Group 6). Food grain quality and weathering tolerance. Grain sorghum line with unconfirmed fertility restoration. Plant color tan, epicarp white, testa absent, panicle semi-compact, exertion approx. 0 cm., and seed weight 2.98 gm. 100 seed-1. In June plantings at

Plainview, TX and Starkville, MS, days to 50% anthesis 69 and 71, and plant height 120 and 166 cm. respectively.

**PI 599916. *Sorghum bicolor* (L.) Moench**

Breeding. Pureline. MP 189; (SEPON79-28\*79-20)-2-1-4-3-1. Pedigree - [(SPV-101\*IS-9533)-22\*((IS-12645C\*CS-3541)\*E35-1)-4-1]-2-1-4-3-1. Inbred 24 of 82 (Group 6). Food grain quality and weathering tolerance. Grain sorghum line with unconfirmed fertility restoration. Plant color tan, epicarp white, testa absent, panicle semi-open, exsertion approx. 5 cm., and seed weight 3.47 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 70 and 71, and plant height 134 and 168 cm. respectively.

**PI 599917. *Sorghum bicolor* (L.) Moench**

Breeding. Pureline. MP 190; (SEPON79-28\*79-20)-3-2-1-3-1. Pedigree - [(SPV-101\*IS-9533)-22\*((IS-12645C\*CS-3541)\*E35-1)-4-1]-3-2-1-3-1. Inbred 25 of 82 (Group 6). Food grain quality and weathering tolerance. Grain sorghum line with unconfirmed fertility restoration. Plant color tan, epicarp white, testa absent, panicle semi-open, exsertion approx. 2 cm., and seed weight 3.38 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 69 and 71, and plant height 131 and 162 cm. respectively.

**PI 599918. *Sorghum bicolor* (L.) Moench**

Breeding. Pureline. MP 191; (SEPON79-28\*79-20)-3-2-2-2-1. Pedigree - [(SPV-101\*IS-9533)-22\*((IS-12645C\*CS-3541)\*E35-1)-4-1]-3-2-2-2-1. Inbred 26 of 82 (Group 6). Food grain quality and weathering tolerance. Grain sorghum line with unconfirmed fertility restoration. Plant color tan, epicarp white, testa absent, panicle semi-open, exsertion approx. 0 cm., and seed weight 2.96 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 73 and 74, and plant height 123 and 166 cm. respectively.

**PI 599919. *Sorghum bicolor* (L.) Moench**

Breeding. Pureline. MP 192; (SEPON79-28\*79-20)-4-2-1-3-1. Pedigree - [(SPV-101\*IS-9533)-22\*((IS-12645C\*CS-3541)\*E35-1)-4-1]-4-2-1-3-1. Inbred 27 of 82 (Group 6). Food grain quality and weathering tolerance. Grain sorghum line with unconfirmed fertility restoration. Plant color tan, epicarp white, testa absent, panicle semi-compact, exsertion approx. 15 cm., and seed weight 3.50 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 68 and 63, and plant height 143 and 151 cm. respectively.

**PI 599920. *Sorghum bicolor* (L.) Moench**

Breeding. Pureline. MP 193; (SEPON79-28\*79-20)-4-2-2-3-1. Pedigree - [(SPV-101\*IS-9533)-22\*((IS-12645C\*CS-3541)\*E35-1)-4-1]-4-2-2-3-1. Inbred 28 of 82 (Group 6). Food grain quality and weathering tolerance. Grain sorghum line with unconfirmed fertility restoration. Plant color tan, epicarp white, testa absent, panicle semi-open, exsertion approx. 10 cm., and seed weight 3.70 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 70 and 66, and plant height 157 and 178 cm. respectively.

**PI 599921. *Sorghum bicolor* (L.) Moench**

Breeding. Pureline. MP 194; (SEPON79-28\*79-20)-4-2-3-1-1. Pedigree -

[(SPV-101\*IS-9533)-22\*((IS-12645C\*CS-3541)\*E35-1)-4-1]-4-2-3-1-1. Inbred 29 of 82 (Group 6). Food grain quality and weathering tolerance. Grain sorghum line with unconfirmed fertility restoration. Plant color tan, epicarp white, testa absent, panicle semi-compact, exsertion approx. 5 cm., and seed weight 3.69 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 70 and 66, and plant height 149 and 177 cm. respectively.

**PI 599922. Sorghum bicolor (L.) Moench**

Breeding. Pureline. MP 195; (SEPON79-28\*79-20)-5-1-1-3-1. Pedigree - [(SPV-101\*IS-9533)-22\*((IS-12645C\*CS-3541)\*E35-1)-4-1]-5-1-1-3-1. Inbred 30 of 82 (Group 6). Food grain quality and weathering tolerance. Grain sorghum line with unconfirmed fertility restoration. Plant color tan, epicarp white, testa absent, panicle semi-open, exsertion approx. 15 cm., and seed weight 3.86 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 67 and 72, and plant height 155 and 209 cm. respectively.

**PI 599923. Sorghum bicolor (L.) Moench**

Breeding. Pureline. MP 196; (SEPON79-28\*79-20)-5-1-3-2-1. Pedigree - [(SPV-101\*IS-9533)-22\*((IS-12645C\*CS-3541)\*E35-1)-4-1]-5-1-3-2-1. Inbred 31 of 82 (Group 6). Food grain quality and weathering tolerance. Grain sorghum line with unconfirmed fertility restoration. Plant color tan, epicarp white, testa absent, panicle semi-open, exsertion approx. 18 cm., and seed weight 2.89 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 73 and 74, and plant height 140 and 165 cm. respectively.

**PI 599924. Sorghum bicolor (L.) Moench**

Breeding. Pureline. MP 197; (SEPON79-28\*79-20)-5-1-4-1-1. Pedigree - [(SPV-101\*IS-9533)-22\*((IS-12645C\*CS-3541)\*E35-1)-4-1]-5-1-4-1-1. Inbred 32 of 82 (Group 6). Food grain quality and weathering tolerance. Grain sorghum line with unconfirmed fertility restoration. Plant color tan, epicarp white, testa absent, panicle semi-open, exsertion approx. 20 cm., and seed weight 3.52 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 70 and 75, and plant height 134 and 189 cm. respectively.

**PI 599925. Sorghum bicolor (L.) Moench**

Breeding. Pureline. MP 198; (SEPON79-28\*79-20)-5-2-1-2-1. Pedigree - [(SPV-101\*IS-9533)-22\*((IS-12645C\*CS-3541)\*E35-1)-4-1]-5-2-1-2-1. Inbred 33 of 82 (Group 6). Food grain quality and weathering tolerance. Grain sorghum line with unconfirmed fertility restoration. Plant color tan, epicarp white, testa absent, panicle semi-open, exsertion approx. 0 cm., and seed weight 2.80 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 67 and 65, and plant height 128 and 198 cm. respectively.

**PI 599926. Sorghum bicolor (L.) Moench**

Breeding. Pureline. MP 199; (SEPON79-28\*79-20)-5-2-2-2-1. Pedigree - [(SPV-101\*IS-9533)-22\*((IS-12645C\*CS-3541)\*E35-1)-4-1]-5-2-2-2-1. Inbred 34 of 82 (Group 6). Food grain quality and weathering tolerance. Grain sorghum line with unconfirmed fertility restoration. Plant color tan, epicarp white, testa absent, panicle semi-open, exsertion approx. 10 cm., and seed weight 3.51 gm. 100 seed-1. In June plantings at



Plainview, TX and Starkville, MS, days to 50% anthesis 68 and 66, and plant height 140 and 178 cm. respectively.

**PI 599927. Sorghum bicolor (L.) Moench**

Breeding. Pureline. MP 200; (SEPON79-28\*79-20)-5-2-3-2-1. Pedigree - [(SPV-101\*IS-9533)-22\*((IS-12645C\*CS-3541)\*E35-1)-4-1]-5-2-3-2-1. Inbred 35 of 82 (Group 6). Food grain quality and weathering tolerance. Grain sorghum line with unconfirmed fertility restoration. Plant color tan, epicarp white, testa absent, panicle semi-compact, exsertion approx. 0 cm., and seed weight 3.43 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 66 and 65, and plant height 136 and 165 cm. respectively.

**PI 599928. Sorghum bicolor (L.) Moench**

Breeding. Pureline. MP 201; (SEPON79-28\*79-20)-6-1-1-1-1. Pedigree - [(SPV-101\*IS-9533)-22\*((IS-12645C\*CS-3541)\*E35-1)-4-1]-6-1-1-1-1. Inbred 36 of 82 (Group 6). Food grain quality and weathering tolerance. Grain sorghum line with unconfirmed fertility restoration. Plant color tan, epicarp white, testa absent, panicle semi-compact, exsertion approx. 10 cm., and seed weight 2.93 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 66 and 65, and plant height 140 and 192 cm. respectively.

**PI 599929. Sorghum bicolor (L.) Moench**

Breeding. Pureline. MP 202; (SEPON79-28\*79-20)-6-1-1-3-1. Pedigree - [(SPV-101\*IS-9533)-22\*((IS-12645C\*CS-3541)\*E35-1)-4-1]-6-1-1-3-1. Inbred 37 of 82 (Group 6). Food grain quality and weathering tolerance. Grain sorghum line with unconfirmed fertility restoration. Plant color tan, epicarp white, testa absent, panicle semi-compact, exsertion approx 0 cm., and seed weight 2.93 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 66 and 68, and plant height 130 and 163 cm. respectively.

**PI 599930. Sorghum bicolor (L.) Moench**

Breeding. Pureline. MP 203; (SEPON79-28\*79-20)-6-1-2-3-1. Pedigree - [(SPV-101\*IS-9533)-22\*((IS-12645C\*CS-3541)\*E35-1)-4-1]-6-1-2-3-1. Inbred 38 of 82 (Group 6). Food grain quality and weathering tolerance. Grain sroghum line with unconfirmed fertility restoration. Plant color tan, epicarp white, testa absent, panicle semi-compact, exsertion approx. 15 cm., and seed weight 3.23 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 72 and 68, and plant height 134 and 166 cm. respectively.

**PI 599931. Sorghum bicolor (L.) Moench**

Breeding. Pureline. MP 204; (SEPON79-28\*79-20)-6-1-3-3-1. Pedigree - [(SPV-101\*IS-9533)-22\*((IS-12645C\*CS-3541)\*E35-1)-4-1]-6-1-3-3-1. Inbred 39 of 82 (Group 6). Food grain quality and weathering tolerance. Grain sorghum line with unconfirmed fertility restoration. Plant color tan, epicarp white, testa absent, panicle semi-compact, exsertion approx. 8 cm., and seed weight 2.93 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 70 and 68, and plant height 137 and 160 cm. respectively.

**PI 599932. Sorghum bicolor (L.) Moench**

Breeding. Pureline. MP 205; (SEPON79-28\*79-20)-6-2-1-2-1. Pedigree -

- [(SPV-101\*IS-9533)-22\*((IS-12645C\*CS-3541)\*E35-1)-4-1]-6-2-1-2-1. Inbred 40 of 82 (Group 6). Food grain quality and weathering tolerance. Grain sorghum line with unconfirmed fertility restoration. Plant color tan, epicarp white, testa absent, panicle semi-open, exsertion approx. 10 cm., and seed weight 3.42 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 70 and 68, and plant height 145 and 184 cm. respectively.
- PI 599933. Sorghum bicolor (L.) Moench**  
Breeding. Pureline. MP 206; (SEPON79-28\*79-20)-6-2-2-3-1. Pedigree - [(SPV-101\*IS-9533)-22\*((IS-12645C\*CS-3541)\*E35-1)-4-1]-6-2-2-3-1. Inbred 41 of 82 (Group 6). Food grain quality and weathering tolerance. Grain sorghum line with unconfirmed fertility restoration. Plant color tan, epicarp white, testa absent, panicle semi-compact, exsertion approx. 5 cm., and seed weight 3.04 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 68 and 65, and plant height 151 and 189 cm. respectively.
- PI 599934. Sorghum bicolor (L.) Moench**  
Breeding. Pureline. MP 207; (SEPON79-28\*79-20)-6-2-3-3-1. Pedigree - [(SPV-101\*IS-9533)-22\*((IS-12645C\*CS-3541)\*E35-1)-4-1]-6-2-3-3-1. Inbred 42 of 82 (Group 6). Food grain quality and weathering tolerance. Grain sorghum line with unconfirmed fertility restoration. Plant color tan, epicarp white, testa absent, panicle semi-compact, exsertion approx. 8 cm., and seed weight 2.99 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 68 and 67, and plant height 163 and 192 cm. respectively.
- PI 599935. Sorghum bicolor (L.) Moench**  
Breeding. Pureline. MP 208; (SEPON79-28\*79-20)-6-2-4-3-1. Pedigree - [(SPV-101\*IS-9533)-22\*((IS-12645C\*CS-3541)\*E35-1)-4-1]-6-2-4-3-1. Inbred 43 of 82 (Group 6). Food grain quality and weathering tolerance. Grain sorghum line with unconfirmed fertility restoration. Plant color tan, epicarp white, testa absent, panicle semi-compact, exsertion approx 0 cm., and seed weight 3.09 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 68 and 64, and plant height 145 and 183 cm. respectively.
- PI 599936. Sorghum bicolor (L.) Moench**  
Breeding. Pureline. MP 209; (SEPON79-20\*79-29)-1-1-1-2-1. Pedigree - [(IS-12645C\*CS-3541)\*E35-1)-4-1\*(SPV-104\*IS-9327)-4]-1-1-1-2-1. Inbred 44 of 82 (Group 6). Food grain quality and weathering tolerance. Grain sorghum line with unconfirmed fertility restoration. Plant color tan, epicarp white, testa absent, panicle semi-open, exsertion approx. 15 cm., and seed weight 2.15 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 68 and 72, and plant height 146 and 204 cm. respectively.
- PI 599937. Sorghum bicolor (L.) Moench**  
Breeding. Pureline. MP 210; (SEPON79-20\*79-29)-3-2-1-2-1. Pedigree - [(IS-12645C\*CS-3541)\*E35-1)-4-1\*(SPV-104\*IS-9327)-4]-3-2-1-2-1. Inbred 45 of 82 (Group 6). Food grain quality and weathering tolerance. Grain sorghum line with unconfirmed fertility restoration. Plant color tan, epicarp white, testa absent, panicle semi-compact, exsertion approx. 5 cm., and seed weight 3.12 gm. 100 seed-1. In June plantings at

Plainview, TX and Starkville, MS, days to 50% anthesis 68 and 67, and plant height 130 and 184 cm. respectively.

**PI 599938. *Sorghum bicolor* (L.) Moench**

Breeding. Pureline. MP 211; (SEPON79-20\*79-29)-4-1-1-3-1. Pedigree - [(IS-12645C\*CS-3541)\*E35-1]-4-1\*(SPV-104\*IS-9327)-4]-4-1-1-3-1. Inbred 46 of 82 (Group 6). Food grain quality and weathering tolerance. Grain sorghum line with unconfirmed fertility restoration. Plant color tan, epicarp white, testa absent, panicle semi-compact, exsertion approx. 0 cm., and seed weight 3.13 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 72 and 70, and plant height 142 and 207 cm. respectively.

**PI 599939. *Sorghum bicolor* (L.) Moench**

Breeding. Pureline. MP 212; (SEPON79-28\*79-29)-2-1-1-1-1. Pedigree - [(SPV-101\*IS-9533)-22\*(SPV-104\*IS-9327)-4]-2-1-1-1-1. Inbred 47 of 82 (Group 6). Food grain quality and weathering tolerance. Grain sorghum line with unconfirmed fertility restoration. Plant color tan, epicarp white, testa absent, panicle semi-open, exsertion approx. 5 cm., and seed weight 3.24 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 68 and 69, and plant height 119 and 173 cm. respectively.

**PI 599940. *Sorghum bicolor* (L.) Moench**

Breeding. Pureline. MP 213; (SEPON79-28\*79-29)-2-1-1-3-1. Pedigree - [(SPV-101\*IS-9533)-22\*(SPV-104\*IS-9327)-4]-2-1-1-3-1. Inbred 48 of 82 (Group 6). Food grain quality and weathering tolerance. Grain sorghum line with unconfirmed fertility restoration. Plant color tan, epicarp white, testa absent, panicle semi-open, exsertion approx. 8 cm., and seed weight 3.13 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 68 and 75, and plant height 140 and 189 cm. respectively.

**PI 599941. *Sorghum bicolor* (L.) Moench**

Breeding. Pureline. MP 214; (SEPON79-28\*79-29)-2-1-2-3-1. Pedigree - [(SPV-101\*IS-9533)-22\*(SPV-104\*IS-9327)-4]-2-1-2-3-1. Inbred 49 of 82 (Group 6). Food grain quality and weathering tolerance. Grain sorghum line with unconfirmed fertility restoration. Plant color tan, epicarp white, testa absent, panicle semi-compact, exsertion approx. 20 cm., and seed weight 2.58 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 70 and 73, and plant height 155 and 221 cm. respectively.

**PI 599942. *Sorghum bicolor* (L.) Moench**

Breeding. Pureline. MP 215; (SEPON79-28\*79-29)-2-1-3-2-1. Pedigree - [(SPV-101\*IS-9533)-22\*(SPV-104\*IS-9327)-4]-2-1-3-2-1. Inbred 50 of 82 (Group 6). Food grain quality and weathering tolerance. Grain sorghum line with unconfirmed fertility restoration. Plant color tan, epicarp white, testa absent, panicle semi-compact, exsertion approx. 0 cm., and seed weight 2.84 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 69 and 72, and plant height 137 and 201 cm. respectively.

**PI 599943. *Sorghum bicolor* (L.) Moench**

Breeding. Pureline. MP 216; (SEPON79-28\*79-29)-3-1-1-2-1. Pedigree -

[(SPV-101\*IS-9533)-22\*(SPV-104\*IS-9327)-4]-3-1-1-2-1. Inbred 51 of 82 (Group 6). Food grain quality and weathering tolerance. Grain sorghum line with unconfirmed fertility restoration. Plant color tan, epicarp white, testa absent, panicle semi-open, exsertion approx. 10 cm., and seed weight 2.18 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 70 and 66, and plant height 145 and 212 cm. respectively.

**PI 599944. Sorghum bicolor (L.) Moench**

Breeding. Pureline. MP 217; (SEPON79-28\*79-29)-3-1-2-2-1. Pedigree - [(SPV-101\*IS-9533)-22\*(SPV-104\*IS-9327)-4]-3-1-2-2-1. Inbred 52 of 82 (Group 6). Food grain quality and weathering tolerance. Grain sorghum line with unconfirmed fertility restoration. Plant color tan, epicarp white, testa absent, panicle semi-open, exsertion approx. 10 cm., and seed weight 2.30 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 68 and 63, and plant height 140 and 169 cm. respectively.

**PI 599945. Sorghum bicolor (L.) Moench**

Breeding. Pureline. MP 218; (SEPON79-28\*79-29)-3-2-1-3-1. Pedigree - [(SPV-101\*IS-9533)-22\*(SPV-104\*IS-9327)-4]-3-2-1-3-1. Inbred 53 of 82 (Group 6). Food grain quality and weathering tolerance. Grain sorghum line with unconfirmed fertility restoration. Plant color tan, epicarp white, testa absent, panicle semi-open, exsertion approx. 12 cm., and seed weight 2.27 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 69 and 65, and plant height 152 and 210 cm. respectively.

**PI 599946. Sorghum bicolor (L.) Moench**

Breeding. Pureline. MP 219; (SEPON79-28\*79-29)-3-2-2-3-1. Pedigree - [(SPV-101\*IS-9533)-22\*(SPV-104\*IS-9327)-4]-3-2-2-3-1. Inbred 54 of 82 (Group 6). Food grain quality and weathering tolerance. Grain sorghum line with unconfirmed fertility restoration. Plant color tan, epicarp white, testa absent, panicle semi-open, exsertion approx. 10 cm., and seed weight 2.69 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 71 and 68, and plant height 163 and 177 cm. respectively.

**PI 599947. Sorghum bicolor (L.) Moench**

Breeding. Pureline. MP 220; (SEPON79-28\*79-29)-4-1-1-2-1. Pedigree - [(SPV-101\*IS-9533)-22\*(SPV-104\*IS-9327)-4]-4-1-1-2-1. Inbred 55 of 82 (Group 6). Food grain quality and weathering tolerance. Grain sorghum line with unconfirmed fertility restoration. Plant color tan, epicarp white, testa absent, panicle semi-open, exsertion approx. 10 cm., and seed weight 2.67 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 77 and 72, and plant height 151 and 178 cm. respectively.

**PI 599948. Sorghum bicolor (L.) Moench**

Breeding. Pureline. MP 221; (SEPON79-28\*79-29)-4-1-2-3-1. Pedigree - [(SPV-101\*IS-9533)-22\*(SPV-104\*IS-9327)-4]-4-1-2-3-1. Inbred 56 of 82 (Group 6). Food grain quality and weathering tolerance. Grain sorghum line with unconfirmed fertility restoration. Plant color tan, epicarp white, testa absent, panicle semi-compact, exsertion approx. 8 cm., and seed weight 2.0 gm. 100 seed-1. In June plantings at Plainview, TX and

Starkville, MS, days to 50% anthesis 78 and 75, and plant height 152 and 160 cm. respectively.

**PI 599949. *Sorghum bicolor* (L.) Moench**

Breeding. Pureline. MP 222; (SEPON79-28\*79-29)-4-2-1-1-1. Pedigree - [(SPV-101\*IS-9533)-22\*(SPV-104\*IS-9327)-4]-4-2-1-1-1. Inbred 57 of 82 (Group 6). Food grain quality and weathering tolerance. Grain sorghum line with unconfirmed fertility restoration. Plant color tan, epicarp white, testa absent, panicle semi-compact, exsertion approx. 0 cm., and seed weight 2.30 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 76 and 73, and plant height 158 and 168 cm. respectively.

**PI 599950. *Sorghum bicolor* (L.) Moench**

Breeding. Pureline. MP 223; (SEPON79-28\*79-29)-4-2-2-3-1. Pedigree - [(SPV-101\*IS-9533)-22\*(SPV-104\*IS-9327)-4]-4-2-2-3-1. Inbred 58 of 82 (Group 6). Food grain quality and weathering tolerance. Grain sorghum line with unconfirmed fertility restoration. Plant color tan, epicarp white, testa absent, panicle semi-compact, exsertion approx. 8 cm., and seed weight 2.56 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 76 and 73, and plant height 165 and 194 cm. respectively.

**PI 599951. *Sorghum bicolor* (L.) Moench**

Breeding. Pureline. MP 224; (SEPON79-28\*79-29)-4-2-3-3-1. Pedigree - [(SPV-101\*IS-9533)-22\*(SPV-104\*IS-9327)-4]-4-2-3-3-1. Inbred 59 of 82 (Group 6). Food grain quality and weathering tolerance. Grain sorghum line with unconfirmed fertility restoration. Plant color tan, epicarp white, testa absent, panicle semi-compact, exsertion approx. 0 cm., and seed weight 2.31 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 77 and 72, and plant height 174 and 198 cm. respectively.

**PI 599952. *Sorghum bicolor* (L.) Moench**

Breeding. Pureline. MP 225; (SEPON79-28\*79-29)-4-2-4-2-1. Pedigree - [(SPV-101\*IS-9533)-22\*(SPV-104\*IS-9327)-4]-4-2-4-2-1. Inbred 60 of 82 (Group 6). Food grain quality and weathering tolerance. Grain sorghum line with unconfirmed fertility restoration. Plant color tan, epicarp white, testa absent, panicle semi-compact, exsertion approx. 8 cm., and seed weight 2.49 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 77 and 72, and plant height 163 and 189 cm. respectively.

**PI 599953. *Sorghum bicolor* (L.) Moench**

Breeding. Pureline. MP 226; (SEPON79-28\*79-29)-5-1-1-2-1. Pedigree - [(SPV-101\*IS-9533)-22\*(SPV-104\*IS-9327)-4]-5-1-1-2-1. Inbred 61 of 82 (Group 6). Food grain quality and weathering tolerance. Grain sorghum line with unconfirmed fertility restoration. Plant color tan, epicarp white, testa absent, panicle semi-compact, exsertion approx. 5 cm., and seed weight 2.72 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 70 and 66, and plant height 113 and 171 cm. respectively.

**PI 599954. *Sorghum bicolor* (L.) Moench**

Breeding. Pureline. MP 227; (SEPON79-28\*79-29)-5-1-2-3-1. Pedigree -

[(SPV-101\*IS-9533)-22\*(SPV-104\*IS-9327)-4]-5-1-2-3-1. Inbred 62 of 82 (Group 6). Food grain quality and weathering tolerance. Grain sorghum line with unconfirmed fertility restoration. Plant color tan, epicarp white, testa absent, panicle semi-open, exsertion approx. 2 cm., and seed weight 2.76 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 70 and 70, and plant height 116 and 181 cm. respectively.

**PI 599955. *Sorghum bicolor* (L.) Moench**

Breeding. Pureline. MP 228; (SEPON79-28\*79-29)-6-1-1-2-1. Pedigree - [(SPV-101\*IS-9533)-22\*(SPV-104\*IS-9327)-4]-6-1-1-2-1. Inbred 63 of 82 (Group 6). Food grain quality and weathering tolerance. Grain sorghum line with unconfirmed fertility restoration. Plant color tan, epicarp white, testa absent, panicle semi-open, exsertion approx. 10 cm., and seed weight 2.40 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 68 and 68, and plant height 143 and 244 cm. respectively.

**PI 599956. *Sorghum bicolor* (L.) Moench**

Breeding. Pureline. MP 229; (SEPON79-28\*79-29)-6-1-2-2-1. Pedigree - [(SPV-101\*IS-9533)-22\*(SPV-104\*IS-9327)-4]-6-1-2-2-1. Inbred 64 of 82 (Group 6). Food grain quality and weathering tolerance. Grain sorghum line with unconfirmed fertility restoration. Plant color tan, epicarp white, testa absent, panicle semi-compact, exsertion approx. 10 cm., and seed weight 2.40 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 68 and 67, and plant height 163 and 236 cm. respectively.

**PI 599957. *Sorghum bicolor* (L.) Moench**

Breeding. Pureline. MP 230; (SEPON79-28\*79-29)-7-1-1-2-1. Pedigree - [(SPV-101\*IS-9533)-22\*(SPV-104\*IS-9327)-4]-7-1-1-2-1. Inbred 65 of 82 (Group 6). Food grain quality and weathering tolerance. Grain sorghum line with unconfirmed fertility restoration. Plant color tan, epicarp white, testa absent, panicle semi-compact, exsertion approx. 10 cm., and seed weight 2.27 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 70 and 68, and plant height 123 and 224 cm. respectively.

**PI 599958. *Sorghum bicolor* (L.) Moench**

Breeding. Pureline. MP 231; (SEPON79-28\*79-29)-7-1-1-3-1. Pedigree - [(SPV-101\*IS-9533)-22\*(SPV-104\*IS-9327)-4]-7-1-1-3-1. Inbred 66 of 82 (Group 6). Food grain quality and weathering tolerance. Grain sorghum line with unconfirmed fertility restoration. Plant color tan, epicarp white, testa absent, panicle semi-compact, exsertion approx. 15 cm., and seed weight 2.04 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 70 and 69, and plant height 140 and 219 cm. respectively.

**PI 599959. *Sorghum bicolor* (L.) Moench**

Breeding. Pureline. MP 232; (SEPON79-28\*79-29)-7-1-2-2-1. Pedigree - [(SPV-101\*IS-9533)-22\*(SPV-104\*IS-9327)-4]-7-1-2-2-1. Inbred 67 of 82 (Group 6). Food grain quality and weathering tolerance. Grain sorghum line with unconfirmed fertility restoration. Plant color tan, epicarp white, testa absent, panicle semi-compact, exsertion approx. 5 cm., and seed weight 2.28 gm. 100 seed-1. In June plantings at Plainview, TX and

Starkville, MS, days to 50% anthesis 68 and 65, and plant height 119 and 184 cm. respectively.

**PI 599960. Sorghum bicolor (L.) Moench**

Breeding. Pureline. MP 233; (SEPON79-28\*79-29)-7-1-3-3-1. Pedigree - [(SPV-101\*IS-9533)-22\*(SPV-104\*IS-9327)-4]-7-1-3-3-1. Inbred 68 of 82 (Group 6). Food grain quality and weathering tolerance. Grain sorghum line with unconfirmed fertility restoration. Plant color tan, epicarp white, testa absent, panicle semi-compact, exsertion approx. 15 cm., and seed weight 2.07 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 72 and 70, and plant height 136 and 213 cm. respectively.

**PI 599961. Sorghum bicolor (L.) Moench**

Breeding. Pureline. MP 234; (SEPON79-28\*79-29)-7-2-1-2-1. Pedigree - [(SPV-101\*IS-9533)-22\*(SPV-104\*IS-9327)-4]-7-2-1-2-1. Inbred 69 of 82 (Group 6). Food grain quality and weathering tolerance. Grain sorghum line with unconfirmed fertility restoration. Plant color tan, epicarp white, testa absent, panicle semi-compact, exsertion approx. 10 cm., and seed weight 2.21 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 71 and 72, and plant height 139 and 216 cm. respectively.

**PI 599962. Sorghum bicolor (L.) Moench**

Breeding. Pureline. MP 235; (SEPON79-28\*79-29)-7-2-2-3-1. Pedigree - [(SPV-101\*IS-9533)-22\*(SPV-104\*IS-9327)-4]-7-2-2-3-1. Inbred 70 of 82 (Group 6). Food grain quality and weathering tolerance. Grain sorghum line with unconfirmed fertility restoration. Plant color tan, epicarp white, testa absent, panicle semi-compact, exsertion approx. 10 cm., and seed weight 2.28 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 68 and 74, and plant height 146 and 226 cm. respectively.

**PI 599963. Sorghum bicolor (L.) Moench**

Breeding. Pureline. MP 236; (SEPON79-28\*79-29)-7-2-3-2-1. Pedigree - [(SPV-101\*IS-9533)-22\*(SPV-104\*IS-9327)-4]-7-2-3-2-1. Inbred 71 of 82 (Group 6). Food grain quality and weathering tolerance. Grain sorghum line with unconfirmed fertility restoration. Plant color tan, epicarp white, testa absent, panicle semi-open, exsertion approx. 15 cm., and seed weight 2.42 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 72 and 73, and plant height 142 and 215 cm. respectively.

**PI 599964. Sorghum bicolor (L.) Moench**

Breeding. Pureline. MP 237; (SEPON79-28\*79-29)-7-2-4-2-1. Pedigree - [(SPV-101\*IS-9533)-22\*(SPV-104\*IS-9327)-4]-7-2-4-2-1. Inbred 72 of 82 (Group 6). Food grain quality and weathering tolerance. Grain sorghum line with unconfirmed fertility restoration. Plant color tan, epicarp white, testa absent, panicle semi-open, exsertion approx. 0 cm., and seed weight 2.0 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 69 and 70, and plant height 114 and 206 cm. respectively.

**PI 599965. Sorghum bicolor (L.) Moench**

Breeding. Pureline. MP 238; (SEPON79-28\*79-29)-8-1-1-3-1. Pedigree -

[(SPV-101\*IS-9533)-22\*(SPV-104\*IS-9327)-4]-8-1-1-3-1. Inbred 73 of 82 (Group 6). Food grain quality and weathering tolerance. Grain sorghum line with unconfirmed fertility restoration. Plant color tan, epicarp white, testa absent, panicle semi-open, exsertion approx. 5 cm., and seed weight 2.72 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 73 and 71, and plant height 137 and 204 cm. respectively.

**PI 599966. *Sorghum bicolor* (L.) Moench**

Breeding. Pureline. MP 239; (SEPON79-28\*79-29)-8-1-2-2-1. Pedigree - [(SPV-101\*IS-9533)-22\*(SPV-104\*IS-9327)-4]-8-1-2-2-1. Inbred 74 of 82 (Group 6). Food grain quality and weathering tolerance. Grain sorghum line with unconfirmed fertility restoration. Plant color tan, epicarp white, testa absent, panicle semi-compact, exsertion approx. 10 cm., and seed weight 2.96 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 72 and 64, and plant height 143 and 224 cm. respectively.

**PI 599967. *Sorghum bicolor* (L.) Moench**

Breeding. Pureline. MP 240; (SEPON79-28\*79-29)-8-1-3-1-1. Pedigree - [(SPV-101\*IS-9533)-22\*(SPV-104\*IS-9327)-4]-8-1-3-1-1. Inbred 75 of 82 (Group 6). Food grain quality and weathering tolerance. Grain sorghum line with unconfirmed fertility restoration. Plant color tan, epicarp white, testa absent, panicle semi-compact, exsertion approx. 5 cm., and seed weight 2.90 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 69 and 69, and plant height 134 and 226 cm. respectively.

**PI 599968. *Sorghum bicolor* (L.) Moench**

Breeding. Pureline. MP 241; (SEPON79-28\*79-29)-8-2-1-2-1. Pedigree - [(SPV-101\*IS-9533)-22\*(SPV-104\*IS-9327)-4]-8-2-1-2-1. Inbred 76 of 82 (Group 6). Food grain quality and weathering tolerance. Grain sorghum line with unconfirmed fertility restoration. Plant color tan, epicarp white, testa absent, panicle semi-compact, exsertion approx. 2 cm., and seed weight 2.79 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 70 and 68, and plant height 122 and 210 cm. respectively.

**PI 599969. *Sorghum bicolor* (L.) Moench**

Breeding. Pureline. MP 242; (SEPON79-28\*79-29)-8-2-2-2-1. Pedigree - [(SPV-101\*IS-9533)-22\*(SPV-104\*IS-9327)-4]-8-2-2-2-1. Inbred 77 of 82 (Group 6). Food grain quality and weathering tolerance. Grain sorghum line with unconfirmed fertility restoration. Plant color tan, epicarp white, testa absent, panicle semi-compact, exsertion approx. 0 cm., and seed weight 3.12 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 70 and 64, and plant height 126 and 186 cm. respectively.

**PI 599970. *Sorghum bicolor* (L.) Moench**

Breeding. Pureline. MP 243; (SEPON79-28\*79-29)-8-2-3-2-1. Pedigree - [(SPV-101\*IS-9533)-22\*(SPV-104\*IS-9327)-4]-8-2-3-2-1. Inbred 78 of 82 (Group 6). Food grain quality and weathering tolerance. Grain sorghum line with unconfirmed fertility restoration. Plant color tan, epicarp white, testa absent, panicle semi-compact, exsertion approx. 0 cm., and seed weight 3.01 gm. 100 seed-1. In June plantings at Plainview, TX and



Starkville, MS, days to 50% anthesis 67 and 65, and plant height 137 and 175 cm. respectively.

**PI 599971. *Sorghum bicolor* (L.) Moench**

Breeding. Pureline. MP 244; (SEPON79-28\*79-29)-10-1-1-1-1. Pedigree - [(SPV-101\*IS-9533)-22\*(SPV-104\*IS-9327)-4]-10-1-1-1-1. Inbred 79 of 82 (Group 6). Food grain quality and weathering tolerance. Grain sorghum line with unconfirmed fertility restoration. Plant color tan, epicarp white, testa absent, panicle semi-compact, exsertion approx. 20 cm., and seed weight 3.47 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 67 and 67, and plant height 140 and 177 cm. respectively.

**PI 599972. *Sorghum bicolor* (L.) Moench**

Breeding. Pureline. MP 245; (SEPON79-28\*79-29)-10-1-2-2-1. Pedigree - [(SPV-101\*IS-9533)-22\*(SPV-104\*IS-9327)-4]-10-1-2-2-1. Inbred 80 of 82 (Group 6). Food grain quality and weathering tolerance. Grain sorghum line with unconfirmed fertility restoration. Plant color tan, epicarp white, testa absent, panicle semi-compact, exsertion approx. 20 cm., and seed weight 2.99 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 70 and 71, and plant height 152 and 186 cm. respectively.

**PI 599973. *Sorghum bicolor* (L.) Moench**

Breeding. Pureline. MP 246; (SEPON79-28\*79-29)-10-2-2-2-1. Pedigree - [(SPV-101\*IS-9533)-22\*(SPV-104\*IS-9327)-4]-10-2-2-2-1. Inbred 81 of 82 (Group 6). Food grain quality and weathering tolerance. Grain sorghum line with unconfirmed fertility restoration. Plant color tan, epicarp white, testa absent, panicle semi-compact, exsertion approx. 15 cm., and seed weight 2.95 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 68 and 67, and plant height 158 and 219 cm. respectively.

**PI 599974. *Sorghum bicolor* (L.) Moench**

Breeding. Pureline. MP 247; (SEPON79-28\*79-29)-11-2-1-2-1. Pedigree - [(SPV-101\*IS-9533)-22\*(SPV-104\*IS-9327)-4]-11-2-1-2-1. Inbred 82 of 82 (Group 6). Food grain quality and weathering tolerance. Grain sorghum line with unconfirmed fertility restoration. Plant color tan, epicarp white, testa absent, panicle open, exsertion approx. 10 cm., and seed weight 2.87 gm. 100 seed-1. In June plantings at Plainview, TX and Starkville, MS, days to 50% anthesis 72 and 69, and plant height 152 and 210 cm. respectively.

The following were developed by A.G.S. Reddy, Int. Crops Res. Inst. for the Semi-Arid Tropics, Asia Center, Patancheru, Andhra Pradesh 502324, India. Received 12/23/1997.

**PI 599975. *Arachis hypogaea* L.**

Breeding. ALR 2.

The following were developed by W. W. Roath, U.S. Department of Agriculture, North Dakota State University, Waldron Hall, Fargo, North Dakota, United States; Jerry F. Miller, USDA, ARS, Northern Crops Research Laboratory, P.O.

Box 5677, Fargo, North Dakota 58105, United States; G. N. Fick, USDA, ARS, North Dakota Agric. Exp. Sta., Fargo, North Dakota 58102, United States; D.E. Zimmer, USDA, ARS, North Dakota Agric. Exp. Sta., Fargo, North Dakota 58102, United States. Donated by Jerry F. Miller, USDA, ARS, Northern Crops Research Laboratory, P.O. Box 5677, Fargo, North Dakota 58105, United States. Received 12/1980.

**PI 599976. Helianthus annuus L.**

Breeding. HA 306; Ames 4078. PL-26. Nonoil, rust resistant.

**PI 599977. Helianthus annuus L.**

Breeding. HA 307; Ames 4079. PL-27. Nonoil, rust resistant.

**PI 599978. Helianthus annuus L.**

Breeding. HA 308; Ames 4080. PL-28. Nonoil, rust resistant.

The following were developed by T. E. Thompson, USDA Southwestern Great Plains Research, Center, Bushland, Texas, United States; R.E. Stafford, Cropping Systems Res. Lab., USDA-ARS, Route 3, Box 215, Lubbock, Texas 79401, United States. Donated by R. Stafford, USDA, ARS, P.O. Box 1658, Vernon, Texas 76384, United States. Received 07/1982.

**PI 599979. Helianthus annuus L.**

Breeding. HA 207; T 63009-5-3-3-10-4-1-2; Ames 3984. PL-31. Resistant to charcoal rot & rust. Mid-season mature, single-headed, average height 97 cm, black hulled seed. Potential value in breeding programs and in production of charcoal rot resistant F1 hybrids.

The following were developed by W. W. Roath, U.S. Department of Agriculture, North Dakota State University, Waldron Hall, Fargo, North Dakota, United States; Thomas Gulya, USDA, ARS, North Dakota State University, Northern Crops Research Laboratory, Fargo, North Dakota 58105, United States; Jerry F. Miller, USDA, ARS, Northern Crops Research Laboratory, P.O. Box 5677, Fargo, North Dakota 58105, United States. Donated by Jerry F. Miller, USDA, ARS, Northern Crops Research Laboratory, P.O. Box 5677, Fargo, North Dakota 58105, United States. Received 11/1982.

**PI 599980. Helianthus annuus L.**

Breeding. RHA 309; Ames 4108. GP-11. Line with fertility restorer genes and released for use as male parents in nonoilseed hybrids. Uniform hull color (black with white stripes). Recessive branching. Resistant to race 2 of d.

**PI 599981. Helianthus annuus L.**

Breeding. RHA 310; Ames 4109. GP-12. Line with fertility restorer genes and released for use as male parents in nonoilseed hybrids. Uniform hull color (black with white stripes). Recessive branching. Resistant to race 2 of downey mildew, moderately resistant to rust.

The following were developed by Thomas Gulya, USDA, ARS, North Dakota State University, Northern Crops Research Laboratory, Fargo, North Dakota 58105, United States; Jerry F. Miller, USDA, ARS, Northern Crops Research

Laboratory, P.O. Box 5677, Fargo, North Dakota 58105, United States. Donated by Jerry F. Miller, USDA, ARS, Northern Crops Research Laboratory, P.O. Box 5677, Fargo, North Dakota 58105, United States. Received 01/1985.

**PI 599982. *Helianthus annuus* L.**

Breeding. HA 312; Ames 4081. GP-17. Mid-season mature, nonoilseed variety. Excellent seed size and nutmeat percentage. Resistant to rust & Verticillium wilt.

**PI 599983. *Helianthus annuus* L.**

Breeding. HA 313; Ames 4082. GP-18. Mid-season mature, nonoilseed variety. Excellent seed size and nutmeat percentage. Resistant to rust and Verticillium wilt.

The following were developed by W. W. Roath, U.S. Department of Agriculture, North Dakota State University, Waldron Hall, Fargo, North Dakota, United States; Thomas Gulya, USDA, ARS, North Dakota State University, Northern Crops Research Laboratory, Fargo, North Dakota 58105, United States; Jerry F. Miller, USDA, ARS, Northern Crops Research Laboratory, P.O. Box 5677, Fargo, North Dakota 58105, United States. Donated by Jerry F. Miller, USDA, ARS, Northern Crops Research Laboratory, P.O. Box 5677, Fargo, North Dakota 58105, United States. Received 03/1985.

**PI 599984. *Helianthus annuus* L.**

Breeding. HA 821; Ames 4085. PL-41. Oilseed type germplasm, mid-season maturity. Moderate resistance to Verticillium wilt and moderate susceptibility to rust and downey mildew.

The following were developed by Western Plant Breeders, Phoenix, Arizona, United States. Received 1980.

**PI 599985. *Triticum durum* Desf.**

Cultivar. "WESTBRED 1000D". PVP 7900004.

The following were developed by Petoseed Company, Inc., Saticoy, California 93004, United States. Received 1980.

**PI 599986. *Cucurbita maxima* Duchesne ex Lam.**

Cultivar. "BIG MOON". PVP 7800067.

The following were developed by Seed Research of Oregon, Inc., Corvallis, Oregon, United States. Received 1980.

**PI 599987. *Triticum aestivum* L., nom. cons.**

Cultivar. "4578". PVP 7800006.

The following were developed by Douglass W. King Co., 4627 Emil Road, San Antonio, Texas 78220-0320, United States. Received 1980.

**PI 599988. *Triticum aestivum* L., nom. cons.**

Cultivar. "DK-22S". PVP 7800002.

The following were developed by Western Plant Breeders, Phoenix, Arizona, United States. Received 1980.

**PI 599989. *Triticum aestivum* L., nom. cons.**  
Cultivar. "WESTBRED AIM". PVP 7900005.

The following were developed by R.P. Murphy, Cornell University, Dept. of Plant Breeding and Biometry, Ithaca, New York 14853, United States; C.C. Lowe, Cornell University, Dept. of Plant Breeding and Biometry, Ithaca, New York 14853, United States. Donated by Cornell University, New York Agr. Exp. Sta., Ithaca, New York, United States. Received 1980.

**PI 599990. *Medicago sativa* L.**  
Cultivar. "HONEYOYE". PVP 7400065; CV-115. Pedigree - Developed by 3 cycles of selection from Saranac. Adapted to areas for forage use similar to Saranac. Overall similar to Saranac except that about 75% of plants have variegated flower color and a slightly darker foliage color. Slightly lower in resistance to bacterial wilt and similar in susceptibility to anthracnose and *Phytophthora* root rot as Saranac.

The following were developed by James B. Moutray, ABI Alfalfa, 2316 259th Street, Ames, Iowa 50011, United States. Received 1980.

**PI 599991. *Medicago sativa* L. ssp. *sativa***  
Cultivar. "APOLLO"; W6 7210. CV-108; FVP 7500100. Pedigree - 1148-clone cultivar with parentage tracing to: 75% northern hardy types Titan, Vernal, Weevlchek; 25% Flemish and central types Anchor, Tempo, Tempo, Saranac, Dawson, Cody, Kanza; and USDA release MnPB1. Adapted to northern, central, and southeastern U.S. for hay, dehydration and greenchop production. Fall dormancy similar to Ranger. Resistant to bacterial wilt, *Phytophthora* root rot and *Fusarium* wilt. Moderate field resistance to anthracnose.

The following were developed by Moran Seeds, Inc., United States. Donated by Moran Seeds, Inc.. Received 1980.

**PI 599992. *Brassica oleracea* var. *botrytis* L.**  
Cultivar. "SNOWBALL 123". PVP 7900066.

The following were developed by Pure Line Seeds, Inc., P.O. Box 8866, Moscow, Idaho 83843, United States. Received 1980.

**PI 599993. *Pisum sativum* L.**  
Cultivar. "TAHOE". PVP 7900099.

The following were developed by Musser Seed Company, Inc., California, United States. Received 1980.

**PI 599994. Cucurbita pepo L.**  
Cultivar. "BLACK MAGIC". PVP 7800066.

The following were developed by Victor Heintzberger, Bruce Church Company, 1020 Merrill Street, Salinas, California 93912, United States. Received 1980.

**PI 599995. Lactuca sativa L.**  
Cultivar. "VIVA". PVP 7900095.

The following were developed by National Seed Development Organization, The Granaries, White House Lane, Cambridge, England, United Kingdom. Received 1980.

**PI 599996. Lolium hybrid**  
Cultivar. "AUGUSTA". PVP 7700092. Pedigree - PERENNE X MULTIFLOR.

The following were developed by A.G. Gustafson, United States. Received 1980.

**PI 599997. Pisum sativum L.**  
Cultivar. "CHARO". PVP 7900116.

The following were developed by Coker's Pedigreed Seed Co., P.O. Box 340, Hartsville, South Carolina 29550, United States. Received 1980.

**PI 599998. Gossypium hirsutum L.**  
Cultivar. "COKER 420". PVP 7900087.

The following were developed by Royal Sluis, Koninklijke, Zaaizaadbedrijven, Gebroeders Sluis, B.V., Netherlands. Received 1980.

**PI 599999. Brassica oleracea var. botrytis L.**  
Cultivar. "Nimba Meda". PVP 7800080.

The following were developed by Jerry F. Miller, USDA, ARS, Northern Crops Research Laboratory, P.O. Box 5677, Fargo, North Dakota 58105, United States. Received 12/29/1997.

**PI 600000. Helianthus annuus L.**  
Cultivar. "Sunburst". Pedigree - RHA 801/YU NS-RF Pop 3-6. Plant height 91cm. Small main head (8cm) which flowers 62 days after planting with profuse flowers on branches flowering for an additional 10-15 days. Relatively short, ideal for planting in gardens or in beds for flower shows. Seed color pattern primarily black with very slight gray stripe on side of seed. Percent single head 0%. Branching 100%.

The following were donated by USDA-ARS, National Germplasm Repository, 33447 Peoria Road, Corvallis, Oregon 97333-2521, United States. Received

08/29/1984.

- PI 600001. *Malus doumeri* (Bois) A. Chev.  
GMAL 271. Collected in Taiwan.
- PI 600002. *Malus micromalus* Makino  
GMAL 273.
- PI 600003. *Malus angustifolia* (Aiton) Michx.  
GMAL 274.
- PI 600004. *Malus micromalus* Makino  
GMAL 275.
- PI 600005. *Malus micromalus* Makino  
GMAL 276.
- PI 600006. *Malus micromalus* Makino  
GMAL 277.
- PI 600007. *Malus micromalus* Makino  
GMAL 278.
- PI 600008. *Malus fusca* (Raf.) C. K. Schneid.  
GMAL 1460.

The following were donated by USDA, ARS, U.S. National Arboretum, National Germplasm Repository, Washington, District of Columbia 20002, United States. Received 01/16/1986.

- PI 600009. *Malus orientalis* Uglitzk.  
Wild. GMAL 1461. Collected 1985 in Former Soviet Union. Unknown.  
Pedigree - Wild.

The following were donated by USDA-ARS, National Germplasm Repository, 33447 Peoria Road, Corvallis, Oregon 97333-2521, United States. Received 03/07/1986.

- PI 600010. *Malus prunifolia* (Willd.) Borkh.  
GMAL 1480.
- PI 600011. *Malus asiatica* Nakai  
GMAL 1487. Collected in Korea.
- PI 600012. *Malus micromalus* Makino  
GMAL 1497.
- PI 600013. *Malus fusca* (Raf.) C. K. Schneid.  
GMAL 1502; No. 2.
- PI 600014. *Malus ioensis* (A. W. Wood) Britton  
GMAL 1504.

PI 600015. *Malus coronaria* (L.) Mill.  
GMAL 1527.

The following were collected by Calvin R. Sperling, USDA, ARS, Natl. Germplasm Resources Laboratory, Room 402, Building 003, BARC-West, Beltsville, Maryland 20705-2350, United States; H.H. Gecit, Ankara University, Ankara, Ankara, Turkey; D. Eser, Ankara University, Ankara, Ankara, Turkey. Donated by USDA, ARS, U.S. National Arboretum, National Germplasm Repository, Washington, District of Columbia 20002, United States. Received 10/15/1986.

PI 600016. *Malus orientalis* Uglitzk.  
GMAL 1885. Collected 07/18/1985 in Turkey. Latitude 37 deg. 34' N. Longitude 43 deg. 37' E. Elevation 1760 m. Hakkari Province, Village of Durankaya, 21 km. from Hakkari on road to Beytussebap. Pedigree - Wild. Small tree, extensively cultivated along fields and roads in village. Said to be taken from wild trees and planted. Wild trees occur commonly in area. Fruit green (few reddish) when mature. Good eating, but wormy.

The following were donated by Bruce J. Parlman, USDA-ARS Fruit Laboratory, Plant Germplasm Quarantine Office, Building 465, BARC-East, Beltsville, Maryland 20705-2350, United States; Hortus Botanicus Fominianus, Universitatis Kioviensis, Rue De Komintern, Kiev, Kiev 252032, Ukraine. Received 07/11/1986.

PI 600017. *Malus prunifolia* (Willd.) Borkh.  
GMAL 1890.

The following were donated by T. Sanada, Fruit Tree Research Station, Ministry of Agric., Forestry and Fishing, Division of Fruit Breeding, Yatabe, Tsukuba, Ibaraki 305, Japan. Received 04/08/1987.

PI 600018. *Malus prunifolia* (Willd.) Borkh.  
GMAL 2174; Ringo Asami.

PI 600019. *Malus prunifolia* (Willd.) Borkh.  
GMAL 2175; Inuringo.

The following were donated by V.L. Vitkovskij, N.I. Vavilov Research Institute of Plant Industry, 44 Bolshaya Morskaya Street, St. Petersburg, Russian Federation. Received 05/01/1987.

PI 600020. *Malus prunifolia* (Willd.) Borkh.  
GMAL 2249.

PI 600021. *Malus sieversii* (Ledeb.) M. Roem.  
GMAL 2250.

PI 600022. *Malus sieversii* var. *turkmenorum* (Juz. & Popov) Ponomar.  
GMAL 2251.

PI 600023. *Malus orientalis* Uglitzk.  
GMAL 2269.

PI 600024. *Malus sieversii* (Ledeb.) M. Roem.  
GMAL 2289.

The following were donated by USDA-ARS, National Germplasm Repository, 33447 Peoria Road, Corvallis, Oregon 97333-2521, United States. Received 10/01/1987.

PI 600025. *Malus baccata* (L.) Borkh.  
GMAL 2481; Mandshurica. Collected in Korea.

PI 600026. *Malus sieboldii* (Regel) Rehder  
GMAL 2482. Collected in Japan.

PI 600027. *Malus sieboldii* (Regel) Rehder  
GMAL 2483. Collected in Japan.

PI 600028. *Malus sieboldii* (Regel) Rehder  
GMAL 2484. Collected in Japan.

PI 600029. *Malus sieboldii* (Regel) Rehder  
GMAL 2485. Collected in Japan.

PI 600030. *Malus sieboldii* (Regel) Rehder  
GMAL 2486. Collected in Japan.

PI 600031. *Malus sieboldii* (Regel) Rehder  
GMAL 2487. Collected in Japan.

PI 600032. *Malus sieboldii* (Regel) Rehder  
GMAL 2488. Collected in Japan.

PI 600033. *Malus sieboldii* (Regel) Rehder  
GMAL 2489. Collected in Japan.

PI 600034. *Malus sieboldii* (Regel) Rehder  
GMAL 2490. Collected in Japan.

PI 600035. *Malus sieboldii* (Regel) Rehder  
GMAL 2491. Collected in Japan.

PI 600036. *Malus sieboldii* (Regel) Rehder  
GMAL 2492. Collected in Japan.

PI 600037. *Malus sieboldii* (Regel) Rehder  
GMAL 2493. Collected in Japan.

PI 600038. *Malus sieboldii* (Regel) Rehder  
GMAL 2494. Collected in Japan.

PI 600039. *Malus sieboldii* (Regel) Rehder  
GMAL 2495. Collected in Japan.



- PI 600040. *Malus sieboldii* (Regel) Rehder  
GMAL 2496. Collected in Japan.
- PI 600041. *Malus sieboldii* (Regel) Rehder  
GMAL 2497. Collected in Japan.
- PI 600042. *Malus sieboldii* (Regel) Rehder  
GMAL 2498. Collected in Japan.
- PI 600043. *Malus sieboldii* (Regel) Rehder  
GMAL 2499. Collected in Japan.
- PI 600044. *Malus sieboldii* (Regel) Rehder  
GMAL 2500. Collected in Japan.
- PI 600045. *Malus sieboldii* (Regel) Rehder  
GMAL 2501. Collected in Japan.
- PI 600046. *Malus sieboldii* (Regel) Rehder  
GMAL 2503. Collected in Japan.
- PI 600047. *Malus hupehensis* (Pamp.) Rehder  
GMAL 2505. Collected in Japan.
- PI 600048. *Malus sieboldii* (Regel) Rehder  
GMAL 2506. Collected in Japan.
- PI 600049. *Malus sieboldii* (Regel) Rehder  
GMAL 2507. Collected in Korea.
- PI 600050. *Malus fusca* (Raf.) C. K. Schneid.  
GMAL 2508.
- PI 600051. *Malus fusca* (Raf.) C. K. Schneid.  
GMAL 2509.
- PI 600052. *Malus fusca* (Raf.) C. K. Schneid.  
GMAL 2510.
- PI 600053. *Malus fusca* (Raf.) C. K. Schneid.  
GMAL 2511.
- PI 600054. *Malus fusca* (Raf.) C. K. Schneid.  
GMAL 2512.
- PI 600055. *Malus fusca* (Raf.) C. K. Schneid.  
GMAL 2513.
- PI 600056. *Malus fusca* (Raf.) C. K. Schneid.  
GMAL 2514.
- PI 600057. *Malus fusca* (Raf.) C. K. Schneid.  
GMAL 2515.

- PI 600058. *Malus fusca* (Raf.) C. K. Schneid.  
GMAL 2516.
- PI 600059. *Malus fusca* (Raf.) C. K. Schneid.  
GMAL 2517.
- PI 600060. *Malus hupehensis* (Pamp.) Rehder  
GMAL 2530.
- PI 600061. *Malus ioensis* (A. W. Wood) Britton  
GMAL 2531.
- PI 600062. *Malus sargentii* Rehder  
GMAL 2533.
- PI 600063. *Malus* sp.  
GMAL 2534; *M. chotta*.
- PI 600064. *Malus prunifolia* (Willd.) Borkh.  
GMAL 2535.
- PI 600065. *Malus prunifolia* (Willd.) Borkh.  
GMAL 2536.
- PI 600066. *Malus prunifolia* (Willd.) Borkh.  
GMAL 2537.
- PI 600067. *Malus floribunda* Siebold ex Van Houtte  
GMAL 2538.
- PI 600068. *Malus prunifolia* (Willd.) Borkh.  
GMAL 2539.
- PI 600069. *Malus hupehensis* (Pamp.) Rehder  
GMAL 2540.
- PI 600070. *Malus sieboldii* (Regel) Rehder  
GMAL 2541.
- PI 600071. *Malus baccata* (L.) Borkh.  
GMAL 2542.
- PI 600072. *Malus baccata* (L.) Borkh.  
GMAL 2543; *Mandshurica*.
- PI 600073. *Malus sargentii* Rehder  
GMAL 2544.

The following were collected by Elizabeth Dickson, NYS Agricultural Experiment Station, Horticultural Sciences, Hedrick Hall, Geneva, New York 14456-0462, United States. Donated by Norman F. Weeden, Cornell University, New York State Agric. Exp. Station, Department of Horticultural Sciences, Geneva, New York 14456-0462, United States. Received 11/01/1987.

- PI 600074. *Malus angustifolia* (Aiton) Michx.**  
Wild. GMAL 2546. Collected 08/26/1987 in North Carolina, United States. Macon Co. 5 ft. from stream, old river terrace above stream near stream opposite to entrance to Van Hook Glad campground (National Nantahalia Forest). Population of 8 trees, one very large and recently fallen (20 cm diam.). Pedigree - Wild. Tree 25 ft. tall, many fruits.
- PI 600075. *Malus angustifolia* (Aiton) Michx.**  
Wild. GMAL 2547. Collected 08/26/1987 in North Carolina, United States. Transylvania Co. Pasture 0.2 mi. from Hwy 64 on Co. Rd. 1392 (Cherryville Rd.), old Hwy 64. Two trees in pasture and about 25 in between pasture and Hwy 64. Pedigree - Wild. Tree 12 ft. tall, many fruits. Lower half of tree with climbing vines.
- PI 600076. *Malus angustifolia* (Aiton) Michx.**  
Wild. GMAL 2548. Collected 08/26/1987 in North Carolina, United States. Madison Co. Same as Dickson 583. Pedigree - Wild. Tree 25 ft. tall, 18 cm. diam., many fruits.
- PI 600077. *Malus coronaria* (L.) Mill.**  
Wild. GMAL 2549. Collected 08/18/1987 in Virginia, United States. Surry Co. Approx. 1.5 mi. S. of Spring Grove on Hwy 40. Roadside edge of pine and oak forest. Soil dry, stuck together. Pedigree - Wild. Lone M. *coronaria* 20 ft. tall, 3 inch DBH, 1 fruit on tree, 2 on ground.
- PI 600078. *Malus angustifolia* (Aiton) Michx.**  
Wild. GMAL 2550. Collected 08/27/1987 in South Carolina, United States. Berkeley Co. Near Holly Hill, 0.7 mi. S.E. of Berkeley-Orangeburg Co. line on Rt 176. West side of road. Edge of forest, many seedlings. Forest canopy: *Pinus Taeda*, *Quercus Phellos*, *Q. maxima*, *Q. nigra*, Liquid amber forest, *Carya*. Understory: *Myrica*, *Alnus*, *Carpinus*. Pedigree - Wild. Tree 15 ft. tall, 3 cm trunk diameter. Largest tree in population of about 35.
- PI 600079. *Malus angustifolia* (Aiton) Michx.**  
Wild. GMAL 2551. Collected 08/20/1987 in North Carolina, United States. Franklin Co. Same general site as Dickson 523 but about 15 yds. away and across a small stream. Pedigree - Wild. Tree 15-20 ft. tall, 6 cm DBH.
- PI 600080. *Malus angustifolia* (Aiton) Michx.**  
Wild. GMAL 2552. Collected 08/21/1987 in North Carolina, United States. Bladen Co. Same general site as Dickson 527. Population of approx. 15 trees. Between forest edge and dry depressed area (old pond). Pedigree - Wild. Vigorous tree about 15 ft. tall. Leaves very large and serrated on vigorous shoots.
- PI 600081. *Malus angustifolia* (Aiton) Michx.**  
Wild. GMAL 2553. Collected 08/21/1987 in North Carolina, United States. Bladen Co., 3.5 mi. S. on Hwy 701 from junction with Hwy 87 at Elizabethtown W. of road. Sandy soil. Edge of forest. Pine-oak, liquid amber forest. Pedigree - Wild. Tree 10 ft. tall, fruit. Scions 2350 N/A.
- PI 600082. *Malus angustifolia* (Aiton) Michx.**  
Wild. GMAL 2554. Collected 08/23/1987 in Florida, United States. Wakulla Co., same site as E. Dickson 543. In woods among many smaller (3-8 ft.)

*M. angustifolia*. Forest with palms (sabal palmetto *S. minor*), oaks (*Quercus laevis*, *Q. laurifolia*, *Q. nigra*, *Q. virginiana*, *Q. stellato*) and pines. Pedigree - Wild. Tree 20 ft tall, 6 cm. in diam. Scions 2351-N/A.

**PI 600083. *Malus angustifolia* (Aiton) Michx.**

Wild. GMAL 2555. Collected 08/20/1987 in North Carolina, United States. Franklin Co. NNE of Bunn, 0.5 mi. N. from bridge over Tar River on County Rd 1001. Woods E. of road, shelf above floodplain. Sandy soil covered with pine needles. 30+ small *M. angustifolia* trees in surrounding area. Small *Pinus taeda*, forest open with shrubs and trees entering. Pedigree - Wild. Tree approx. 30 ft. tall, thorny, open branching. Fruit green and glaucous.

**PI 600084. *Malus angustifolia* (Aiton) Michx.**

Wild. GMAL 2556. Collected 08/23/1987 in Florida, United States. Wakulla ca. 3 mi. W. of junction at the Fla. Rt. 363 on U.S. Rt. 98 N. side of road. Member of huge population of *M. angustifolia* 100(+). Soil white sand, open forest. Pedigree - Wild. Tree 25 ft. tall, 4 cm diam.

**PI 600085. *Malus angustifolia* (Aiton) Michx.**

Wild. GMAL 2557. Collected 08/22/1987 in South Carolina, United States. Berkeley Co. Same site as 531. Pedigree - Wild. Tree 3 cm diameter.

**PI 600086. *Malus angustifolia* (Aiton) Michx.**

Wild. GMAL 2558. Collected 08/24/1987 in Florida, United States. Leon Co. Same site as E. Dickson 554. 20 ft. from forest edge. Forest with Loblolly pine, turkey oak, live oak, *Quercus laurifolia*. Pedigree - Wild. Tree vigorous, thin (2 cm. diam), 20 ft. tall. No fruit. Scions 2358-N/A.

**PI 600087. *Malus angustifolia* (Aiton) Michx.**

Wild. GMAL 2559. Collected 08/25/1987 in Georgia, United States. Haverstram Co. 0.1 mi. from Stephens Co. line on Hwy 17 toward Hwy 441. Very near or within someone's yard. Open area, some pines in old field. Pedigree - Wild. Single tree, 30 ft tall, 9 cm diam., many fruits. Scions 2360-N/A.

**PI 600088. *Malus angustifolia* (Aiton) Michx.**

Wild. GMAL 2560. Collected 08/24/1987 in Florida, United States. Leon Co., between Bloxham and Tallahassee on State Hwy 20. 14.2 mi. W. of Hwy 263. Vigorous population (50+) in young pine stand. Mainly slash pine, some Loblolly and long leaf pine. Pedigree - Wild. Tree 7 cm diameter, younger shoot becoming the header. Scions 2361-N/A.

**PI 600089. *Malus angustifolia* (Aiton) Michx.**

Wild. GMAL 2561. Collected 08/24/1987 in Florida, United States. Leon Co. 1.4 mi. S of Oak Ridge Rd. (Co. Rt. 2204) on Hwy 369 W. side of Rd. Soil white, sandy, covered 4 mi. with leaf debris. At forest edge. Pine-oak forest population of 25 trees, several 15+ ft. high. Pedigree - Wild. Tree 5-6 cm diameter, 15 ft. tall. Scions 2362-N/A.

**PI 600090. *Malus angustifolia* (Aiton) Michx.**

Wild. GMAL 2562. Collected 08/25/1987 in Georgia, United States. Jones Co. 6 mi. N of Jones Co. line on Hwy 129, E side of Rd., just N of Rock

Creek Rd. Forest edge. 5 very large trees at forest edge, 50+ smaller ones inside forest. Pedigree - Wild. Tree 40 ft. tall, 18-20 cm. diameter. Scions 2363-N/A.

- PI 600091. *Malus angustifolia* (Aiton) Michx.**  
Wild. GMAL 2563. Collected 08/26/1987 in North Carolina, United States. Madison Co., ca. 0.8 mi. E from Petersburg on Hwy 213, S side of road. Large population scattered among cultivated apples. Pedigree - Wild. Tree 25 ft. tall, broad, 22 cm. diameter, Many fruit, very robust.
- PI 600092. *Malus coronaria* (L.) Mill.**  
Wild. GMAL 2564. Collected 08/26/1987 in North Carolina, United States. Clay Co. 0.7 mi. S.E. from Hwy 64 on U.S. Forest Service Rd. 71. Roadside in open grassy area. Pedigree - Wild. Tree 25 ft. tall, 5 cm. diameter. 4 trunks from same root system 3 quite large, many fruit.
- PI 600093. *Malus angustifolia* (Aiton) Michx.**  
Wild. GMAL 2565. Collected 08/27/1987 in Virginia, United States. Polaski Co. on Va. Rt. 100, 0.3 mi. N. of Co. Rd. 733 in median strip. Old hedgerow by old fence line. *Crataegus* sp., flowering dogwood, red oak, red maple, associated with *Pinus virginiana*. Pedigree - Wild. Tree 12 ft. tall, 5 cm. diam. apples.
- PI 600094. *Malus angustifolia* (Aiton) Michx.**  
Wild. GMAL 2566. Collected 08/26/1987 in North Carolina, United States. Transylvania Co. In pasture 0.2 mi. from Hwy 64 on Co. Rd. 1392 (Cherryfield Rd. or Old Hwy 64). In full sunlight in pasture. Pedigree - Wild. Tree 25 ft. tall, open canopy. Scions 2372-N/A.
- PI 600095. *Malus angustifolia* (Aiton) Michx.**  
Wild. GMAL 2567. Collected 08/21/1987 in North Carolina, United States. Bladen Co., near Elizabethtown 3.5 mi. S. on Hwy 7-1 from Hwy 87/701 junction, W. road-side. Oak-pine forest. Pedigree - Wild. 15 ft. tall, 6 cm. DBH, spiny; fruit collection.
- PI 600096. *Malus angustifolia* (Aiton) Michx.**  
Wild. GMAL 2568. Collected 08/21/1987 in North Carolina, United States. Bladen Co., same site as E. Dickson 527. 10 ft. inside forest from forest edge. Pedigree - Wild. Small tree, 8 ft. tall; fruit.
- PI 600097. *Malus angustifolia* (Aiton) Michx.**  
Wild. GMAL 2569. Collected 08/22/1987 in South Carolina, United States. Berkeley Co., near Holly Hill 0.7 mi. S.E. of Berkeley-Orangeburg Co. line on U.S. Rt. 76. Pedigree - Wild. 2-3 cm. DBH; fruit collected.
- PI 600098. *Malus angustifolia* (Aiton) Michx.**  
Wild. GMAL 2570. Collected 08/22/1987 in South Carolina, United States. Jasper Co., 2.7 mi. S. from Rt. 321 on Co. Rd. 34, W. side of road. Population of 14 trees. Pedigree - Wild. 18 ft. tall, 8 cm. DBH before branching; fruit collection.
- PI 600099. *Malus angustifolia* (Aiton) Michx.**  
Wild. GMAL 2571. Collected 08/22/1987 in South Carolina, United States. Jasper Co., 3.6 mi. from Rt. 321 on Co. Rd. 34, E. side of road. In full sun. Pedigree - Wild. 12 ft. tall, 3-4 cm. DBH, very spiny; fruit

collected.

- PI 600100. *Malus angustifolia* (Aiton) Michx.**  
Wild. GMAL 2572. Collected 08/23/1987 in Florida, United States. Wakulla Co., 3 mi. W. of junction with Florida Rt. 363 on U.S. Rt. 98, N. side of road. Huge population (100+) in open pine forest, oaks and palms. Pedigree - Wild. Fruit collected.
- PI 600101. *Malus angustifolia* (Aiton) Michx.**  
Wild. GMAL 2573. Collected 08/23/1987 in Florida, United States. Wakulla Co., same site as E. Dickson 547. Pedigree - Wild. 548 - 15 ft. tall; 552 - 30 ft. tall, 8-10 cm. diameter.
- PI 600102. *Malus angustifolia* (Aiton) Michx.**  
Wild. GMAL 2574. Collected 08/23/1987 in Florida, United States. Wakulla Co., same site as E. Dickson 547. Pedigree - Wild. 548-15 ft. tall; 552 - 30 ft. tall, 8-10 cm. in diameter.
- PI 600103. *Malus angustifolia* (Aiton) Michx.**  
Wild. GMAL 2575. Collected 08/23/1987 in Florida, United States. Wakulla Co., same site as E. Dickson 547. Pedigree - Wild. 548- 15 ft. tall; 552 - 30 ft. tall, 8-10 cm. in diameter.
- PI 600104. *Malus angustifolia* (Aiton) Michx.**  
Wild. GMAL 2576. Collected 08/23/1987 in Florida, United States. Wakulla Co., same site as E. Dickson 547. Pedigree - Wild. 548 - 15 ft. tall; 552 - 30 ft. tall, 8-10 cm. in diameter.
- PI 600105. *Malus angustifolia* (Aiton) Michx.**  
Wild. GMAL 2577. Collected 08/23/1987 in Florida, United States. Wakulla Co., same site as E. Dickson 547. Pedigree - Wild. 548 - 15 ft. tall, 552 - 30 ft. tall, 8-10 cm. in diameter.
- PI 600106. *Malus angustifolia* (Aiton) Michx.**  
Wild. GMAL 2578. Collected 08/23/1987 in Florida, United States. Leon Co., on Hwy 369, 1.4 mi. S. of Oak Ridge (Co. Rd. 2204) intersection, W. side of road. Population of 25 trees. Pedigree - Wild. 35 ft. tall, 10 cm. diameter, many spiny branches.
- PI 600107. *Malus angustifolia* (Aiton) Michx.**  
Wild. GMAL 2579. Collected 08/25/1987 in Georgia, United States. Jones Co., 6.0 mi. N. of Jones Co. line on Hwy 129, E. side of road, just N. of Rock Creek Road. In open woods. Pedigree - Wild. 30 ft. tall, 8 cm. diameter; fruit collected.
- PI 600108. *Malus angustifolia* (Aiton) Michx.**  
Wild. GMAL 2580. Collected 08/25/1987 in Georgia, United States. Jones Co., 6.0 mi. N. of Jones Co. line on Hwy 129 E. side of road, just N. of Rock Creek Rd. Pedigree - Wild. Tree, 30 ft. tall, 8-9 cm. in diameter; fruit.
- PI 600109. *Malus angustifolia* (Aiton) Michx.**  
Wild. GMAL 2581. Collected 08/26/1987 in North Carolina, United States. Macon Co., near stream opposite the entrance to Van Hook Glade Campground, Nantahola National Forest. 8+ trees, on edge of stream bank.

Pedigree - Wild. 20 ft. tall, 7 cm. diameter; fruit collected, becoming greasy as of 15 Oct. 1987.

**PI 600110. *Malus angustifolia* (Aiton) Michx.**

Wild. GMAL 2582. Collected 08/26/1987 in North Carolina, United States. Macon Co., same site as E. Dickson 574. 20 ft. from stream in open area. Pedigree - Wild. 15 ft. tall, 5 cm. diameter; fruit.

**PI 600111. *Malus angustifolia* (Aiton) Michx.**

Wild. GMAL 2583. Collected 08/27/1987 in Virginia, United States. Pulaski Co., on Va. Rt. 100, 0.3 mi. N. of Co. Rd. 733 in median strip. Old hedge row by old fence line. Pedigree - Wild. 15 ft. tall, 5 cm. diameter apples.

**PI 600112. *Malus angustifolia* (Aiton) Michx.**

Wild. GMAL 2584. Collected 08/27/1987 in Virginia, United States. Shenandoah Co., 5.4 mi. S.E. of junction of U.S. 11 and Co. Rd. 675 on Co. Rd. 675. Roadside; limestone area. Pedigree - Wild. 6 large and 20 small trees, 20 ft., 8 cm. (Dickson 590); 5 cm. diameter (Dickson 591); apples.

**PI 600113. *Malus angustifolia* (Aiton) Michx.**

Wild. GMAL 2585. Collected 08/27/1987 in Virginia, United States. Shenandoah Co., 5.4 mi. S.E. of junction of U.S. 11 and Co. Rd. 675 on Co. Rd. 675. Roadside; limestone area. Pedigree - Wild. 6 large and 20 small trees, 20 ft., 8 cm. (Dickson 590) 5 cm. diameter (Dickson 591).

**PI 600114. *Malus angustifolia* (Aiton) Michx.**

Wild. GMAL 2586. Collected 08/27/1987 in Virginia, United States. Shenandoah Co., 5.4 mi. S.E. of U.S. 11/Co. Rd. 675 junction on Co. Rd. 675. Roadside; limestone area. Pedigree - Wild. 7 cm. diameter; fruit.

**PI 600115. *Malus coronaria* (L.) Mill.**

Wild. GMAL 2587. Collected 10/10/1987 in New York, United States. Tompkins Co., on Turkey Hill Rd., just N. of intersection with Stevenson Rd. On slope, 40 ft. from roadside. Pedigree - Wild. About 6 ft. tall; fruit.

**PI 600116. *Malus coronaria* (L.) Mill.**

Wild. GMAL 2588. Collected 10/10/1987 in New York, United States. Tompkins Co., on Turkey Hill Rd., just N. of intersection with Stevenson Rd. On slope, 40 ft. from roadside. Pedigree - Wild. About 6 ft. tall; fruit.

The following were donated by Norman F. Weeden, Cornell University, New York State Agric. Exp. Station, Department of Horticultural Sciences, Geneva, New York 14456-0462, United States. Received 11/01/1987.

**PI 600117. *Malus coronaria* (L.) Mill.**

GMAL 2589.

The following were collected by Elizabeth Dickson, NYS Agricultural Experiment Station, Horticultural Sciences, Hedrick Hall, Geneva, New York

14456-0462, United States. Donated by Norman F. Weeden, Cornell University, New York State Agric. Exp. Station, Department of Horticultural Sciences, Geneva, New York 14456-0462, United States. Received 11/01/1987.

**PI 600118. *Malus coronaria* (L.) Mill.**

Wild. GMAL 2590. Collected 10/10/1987 in New York, United States. Tompkins Co., across from Early Bird Farm on Rt. 13, S. of Ithaca, E. side of road, 100 ft. from roadside. Pedigree - Wild. 15 ft. tall; fruit greasy.

The following were collected by Kim Hummer, USDA, ARS, National Germplasm Repository, 33447 Peoria Road, Corvallis, Oregon 97333-2521, United States. Donated by Norman F. Weeden, Cornell University, New York State Agric. Exp. Station, Department of Horticultural Sciences, Geneva, New York 14456-0462, United States. Received 11/01/1987.

**PI 600119. *Malus fusca* (Raf.) C. K. Schneid.**

Wild. GMAL 2591. Collected 09/23/1987 in Oregon, United States. Ona Beach State Park, Rt. 101 CIR 10 km S. of Newport, Lincoln Co. Pedigree - Wild. Multistem trees to 20 ft. tall; open pollinated fruit collected from four multistemmed trees; fruit (yellow) ripe to (brown) rotting, persistent <2 cm. long.

The following were collected by Michael Medalen, Box 1547, Petersburg, Arkansas 99833, United States. Received 03/04/1988.

**PI 600120. *Malus fusca* (Raf.) C. K. Schneid.**

Wild. GMAL 2805. Collected in United States. Petersburg, Alaska, along the shore. Pedigree - Wild.

The following were donated by T. Sanada, Fruit Tree Research Station, Ministry of Agric., Forestry and Fishing, Division of Fruit Breeding, Yatabe, Tsukuba, Ibaraki 305, Japan; Ministry of Agriculture and Forestry, Morioka Branch Horticulture Res. Station, Shimokuriyagawa, Morioka, Iwate, Japan. Received 04/18/1988.

**PI 600121. *Malus sieboldii* (Regel) Rehder**

GMAL 2830; Sanashi 61.

**PI 600122. *Malus micromalus* Makino**

GMAL 2831; Nagasaki Zumi.

The following were donated by Research Institute of Pomology, Xian, Shaanxi, China. Received 06/10/1988.

**PI 600123. *Malus sieversii* (Ledeb.) M. Roem.**

GMAL 2834.

The following were collected by Norman F. Weeden, Cornell University, New York State Agric. Exp. Station, Department of Horticultural Sciences, Geneva,



New York 14456-0462, United States. Received 07/14/1988.

**PI 600124. *Malus fusca* (Raf.) C. K. Schneid.**

Wild. GMAL 2842. Collected 07/10/1988 in Oregon, United States. South Beach State Park, Lincoln Co., along old road to clearing off service road. In salal, Alnus, pine. Pedigree - Wild. Tree ca. 20 ft. high - old fruit from previous year; 3 seeds collected.

**PI 600125. *Malus fusca* (Raf.) C. K. Schneid.**

Wild. GMAL 2850. Collected 07/11/1988 in California, United States. About 10 m. from 88114. Trailhead on state park land on Kellogg Rd., about 200 m. from beach, south of mouth of Smith River, Del Norte, Co. Many other individuals nearby; younger plants present. Pedigree - Wild. Seed from previous year's fruit collected.

The following were donated by Norman F. Weeden, Cornell University, New York State Agric. Exp. Station, Department of Horticultural Sciences, Geneva, New York 14456-0462, United States. Received 11/01/1988.

**PI 600126. *Malus coronaria* (L.) Mill.**

GMAL 2951.

The following were collected by Elizabeth Dickson, NYS Agricultural Experiment Station, Horticultural Sciences, Hedrick Hall, Geneva, New York 14456-0462, United States. Donated by Norman F. Weeden, Cornell University, New York State Agric. Exp. Station, Department of Horticultural Sciences, Geneva, New York 14456-0462, United States. Received 11/01/1988.

**PI 600127. *Malus coronaria* (L.) Mill.**

Wild. GMAL 2952. Collected 08/26/1988 in Ontario, Canada. Middlesex Co., 0.5 mi. W. of junction with Hwy 73 on Concession 11, the first road S. of Hwy 401, Middlesex Co. Forest. Two trees at forest edge, Aspen, pine, fir, Crataegus. Pedigree - Wild. 8 ft. high, 2 inch diam. at base, 5 fruit.

The following were donated by Norman F. Weeden, Cornell University, New York State Agric. Exp. Station, Department of Horticultural Sciences, Geneva, New York 14456-0462, United States. Received 11/01/1988.

**PI 600128. *Malus coronaria* (L.) Mill.**

GMAL 2953. Collected in Ontario, Canada.

The following were collected by Elizabeth Dickson, NYS Agricultural Experiment Station, Horticultural Sciences, Hedrick Hall, Geneva, New York 14456-0462, United States. Donated by Norman F. Weeden, Cornell University, New York State Agric. Exp. Station, Department of Horticultural Sciences, Geneva, New York 14456-0462, United States. Received 11/01/1988.

**PI 600129. *Malus coronaria* (L.) Mill.**

Wild. GMAL 2954. Collected 08/26/1988 in Ontario, Canada. Elgin Co., 0.1 mi. W. from Hwy 35 on Co. Rd. 56, Concession VII just past Orville

Cemetery, N. roadside. Disturbed area. Odd assortment of escaped *Malus domestica*, *Crataegus*, *Rhus*, milkweed. Pedigree - Wild. Tree 8 ft tall, 12 ft. wide; 2 inches diam. trunk.

- PI 600130. *Malus coronaria* (L.) Mill.**  
Wild. GMAL 2955. Collected 08/26/1988 in Ontario, Canada. Elgin Co., 0.1 mi. W. from Hwy 35 on Co. Rd. 56, Concession VII just past Orville Cemetery N. road-side. Disturbed area, 25 ft. E. of 637. Odd assortment of escaped *Malus domestica*. *Crataegus*, *Rhus*, milkweed. Pedigree - Wild. Tree 15 ft. high; 2 1/2 inches diam., scion and fruit.
- PI 600131. *Malus coronaria* (L.) Mill.**  
Wild. GMAL 2956. Collected 08/27/1988 in Ontario, Canada. Norfolk Co., Woodhouse TP. S. roadside, 0.5 mi. E. of junction with Hwy 6 on Lynn Valley Rd. Hardwood forest opposite side of road. Spreading hedgerow with *Crataegus*, ash, goldenrod. Pedigree - Wild. Tree 15 ft. high, 2 inches diam. at base. Fruit and scion.
- PI 600132. *Malus coronaria* (L.) Mill.**  
Wild. GMAL 2957. Collected 08/27/1988 in Ontario, Canada. Brant Co., Tu Scanar Tp., 3.05 mi. E. of Co. Rd. 4 on River Rd., between the road and Grand River. *Ribes*, *Prunus*, *Salix*. Pedigree - Wild. Tree 12 ft. tall, 1 1/2 inch diam., scion, fruit.
- PI 600133. *Malus coronaria* (L.) Mill.**  
Wild. GMAL 2958. Collected 08/28/1988 in Ontario, Canada. Kent Co., 1.4 mi. from Hwy 21 on Conc. 1. S. of Thames River, E. of Howard TP Dump, N. roadside. Reddish, sandy soil. Beech, *Crataegus*, oak. Pedigree - Wild. Tree 8 ft. tall, 10 ft. broad, 1 1/2 inch diam. Scion and fruit.
- PI 600134. *Malus coronaria* (L.) Mill.**  
Wild. GMAL 2959. Collected 08/28/1988 in Ontario, Canada. Essex Co., 0.7 mi. E. of R3 W. Gosfield S. form Co. Rd. 23 going toward Jack Miner. Dry woods - about 0.1 mi. W. of this site, 10+ smaller fruitless trees. Pedigree - Wild. Tree 20 ft. high, fruit.
- PI 600135. *Malus coronaria* (L.) Mill.**  
Wild. GMAL 2960. Collected 08/28/1988 in Ontario, Canada. Essex Co., 0.7 mi. E on R3 W. Gosfield S. from Co. Rd. 23, going toward Jack Miner. Dry woods - about 0.1 mi. W of this site, 10+ smaller fruitless trees. Pedigree - Wild. Tree 15 ft. high, fruit.
- PI 600136. *Malus coronaria* (L.) Mill.**  
Wild. GMAL 2961. Collected 08/28/1988 in Ontario, Canada. Essex Co., 0.7 mi. E. on R3 W. Gosfield, south from Co. Rd. 23 going toward Jack Miner. Dry woods - about 0.1 mi. W. of this site, 10+ smaller fruitless trees. Pedigree - Wild. Tree 15 ft. high, fruit.
- PI 600137. *Malus coronaria* (L.) Mill.**  
Wild. GMAL 2962. Collected 08/29/1988 in Michigan, United States. Livingston Co., about 0.1 from intersection of Oak Grove Rd., and Hwy 59, heading N. on Oak Grove Rd. Fence row, W. roadside. Population of about 8 trees E. of cornfield. Pedigree - Wild. Tree 8 ft. high, 4 inch diam., 12 ft. broad; fruit and scion. Spray damage?.

- PI 600138. *Malus coronaria* (L.) Mill.**  
 Wild. GMAL 2963. Collected 08/29/1988 in Michigan, United States. Livingston Co., about 0.1 mi. from intersection of Oak Grove Rd., and Hwy 59, heading N. on Oak Grove Rd. Fence row, W. roadside. Population of about 8 trees, E. of cornfield. Pedigree - Wild. Tree 10 ft. high, 4 inch diam., fruit and scion.
- PI 600139. *Malus coronaria* (L.) Mill.**  
 Wild. GMAL 2964. Collected 08/29/1988 in Michigan, United States. Livingston Co., about 0.1 mi. from intersection of Oak Grove Rd. and Hwy 49, heading N. on Oak Grove Rd., Fence row, W. roadside. Population of about 8 trees E. of cornfield. Pedigree - Wild. Tree 8 ft. high, 3 inch diam., spray damage?.
- PI 600140. *Malus coronaria* (L.) Mill.**  
 Wild. GMAL 2965. Collected 09/09/1988 in Indiana, United States. Marion Co., North roadside on Hwy 74, W. of Indianapolis. Large population 100+ at fence row, south slope, steep. Pedigree - Wild. Tree 15 ft. high, 4 inch diam., scion and fruit.
- PI 600141. *Malus coronaria* (L.) Mill.**  
 Wild. GMAL 2966. Collected 09/09/1988 in Indiana, United States. Marion Co., north roadside on Hwy 74 W. of Indianapolis. Large population 100+ at fence row, south slope, steep. Pedigree - Wild. Tree 15 ft. high, 3 inch diam. fruit and scion.
- PI 600142. *Malus ioensis* (A. W. Wood) Britton**  
 Wild. GMAL 2967. Collected 09/10/1988 in Illinois, United States. Champaign Co., on state Rt 150, 1.5 mi. E. of I30, near Urbana. Grove of 100+ trees between railroad tracks and south roadside. Pedigree - Wild. Tree 10 ft. high, 3 inch diam. 10 ft. broad, scion and fruit.
- PI 600143. *Malus ioensis* (A. W. Wood) Britton**  
 Wild. GMAL 2968. Collected 09/10/1988 in Illinois, United States. Champaign Co., on state Rt 150, 1.5 mi. E. I30, near Urbana. Grove of 100+ trees between railroad tracks and south roadside. Pedigree - Wild. Tree 15 ft. high.
- PI 600144. *Malus ioensis* (A. W. Wood) Britton**  
 Wild. GMAL 2969. Collected 09/13/1988 in Iowa, United States. Webster Co., 50 ft. in front of N. entrance to Dolliver Memorial State Park, south roadside. Pedigree - Wild. Lone tree, 30 ft. high, 8 inch diam.
- PI 600145. *Malus ioensis* (A. W. Wood) Britton**  
 Wild. GMAL 2970. Collected 09/15/1988 in Nebraska, United States. Richardson Co., S. of Rulo, about 0.7 mi. from intersection with bridge over Missouri River on road to Iowa Indian Reservation, west roadside. Pedigree - Wild. Lone *Malus*, 10 ft. high, 15 ft. broad, 6 inch diam. fruit; hedgerow with *Cornus* sp.
- PI 600146. *Malus ioensis* (A. W. Wood) Britton**  
 Wild. GMAL 2971. Collected 09/15/1988 in Missouri, United States. Buchanan Co., Missouri Western State College campus, Biology study area. 100+ individuals scattered throughout secondary woods; *Gleditsia*, *Alnus*, *Rubra*. Pedigree - Wild. Tree 12 ft. high, 5 inch diam., fruit and

scion.

- PI 600147. *Malus ioensis* (A. W. Wood) Britton**  
Wild. GMAL 2972. Collected 09/15/1988 in Missouri, United States.  
Buchanan Co., Missouri Western State College campus, Biology study area.  
100+ individuals scattered throughout secondary woods; *Gleditsia*, *Alnus*,  
*rubra*. Pedigree - Wild. Tree 10 ft. high, 3 inch diam., fruit sparse.
- PI 600148. *Malus ioensis* (A. W. Wood) Britton**  
Wild. GMAL 2973. Collected 09/16/1988 in Missouri, United States.  
Randolph Co., Claude Shores Memorial Roadside Rest just N. of Hwy 22 on  
Hwy 63 E. roadside. Fence row with 20+ trees. Pedigree - Wild. Tree 7  
ft. high, 1 1/2 inch diam.
- PI 600149. *Malus ioensis* (A. W. Wood) Britton**  
Wild. GMAL 2974. Collected 09/16/1988 in Missouri, United States.  
Randolph Co., Claude Shores Memorial Roadside Rest just N. of Hwy 22 on  
Hwy 63 E. roadside. Fence row with 20+ trees. Pedigree - Wild. Tree 15  
ft. high, 3 inch diam.
- PI 600150. *Malus ioensis* (A. W. Wood) Britton**  
Wild. GMAL 2975. Collected 09/18/1988 in Illinois, United States. Pope  
Co., 8.7 mi. W. of Hwy 45 on Mossac Co. 400 N. 1.4 mi. W. of Southland  
Locks and Dam, Ohio River turnoff. At edge of forest beyond recent  
clearing; felled *Coronaria* with many new upright shoots. Pedigree -  
Wild. Tree 50 ft. high, 6 inch diam., fruit from ground.
- PI 600151. *Malus coronaria* (L.) Mill.**  
Wild. GMAL 2976. Collected 09/18/1988 in Illinois, United States. Pope  
Co., 8.7 mi. W. of Hwy 45 on Mossac Co. 400 N. 1.4 mi. W. of Smithland  
Locks and Dam, Ohio River turnoff. At edge of forest, beyond recent  
clearing; felled *Coronaria* with many new upright shoots. Pedigree -  
Wild. Tree 30 ft. high, 7 inch diam., fruit, scion.
- PI 600152. *Malus coronaria* (L.) Mill.**  
Wild. GMAL 2977. Collected 09/19/1988 in Kentucky, United States.  
Montgomery Co., on Hwy 213 E. roadside, 0.8 mi. S. from Spruce First  
Church of God. 4.9 mi. S. of Hwy 460 junction at Jeffersonville.  
Population of 20+ at creek bed. Pedigree - Wild. Tree 20 ft. high, 6  
inch diam.
- PI 600153. *Malus coronaria* (L.) Mill.**  
Wild. GMAL 2978. Collected 09/19/1988 in Kentucky, United States. Rowan  
Co., 7.8 mi. N. from junction with Hwy 799 on Hwy 377, E. roadside, W.  
of creek. 6+ trees. Pedigree - Wild. Tree 30 ft. high, 10 inch diam.  
fruit.

The following were collected by Norman F. Weeden, Cornell University, New  
York State Agric. Exp. Station, Department of Horticultural Sciences, Geneva,  
New York 14456-0462, United States. Received 11/01/1988.

- PI 600154. *Malus fusca* (Raf.) C. K. Schneid.**  
Wild. GMAL 2979. Collected 07/10/1988 in Oregon, United States. South  
Beach State Park, Lincoln Co., end of service road near dump. Sandy,

moist soil; in dense brush at edge of cleared area. Pedigree - Wild.  
Tree ca. 8 cm DBH, 25 ft. tall.

**PI 600155. *Malus fusca* (Raf.) C. K. Schneid.**

Wild. GMAL 2980. Collected 07/10/1988 in Oregon, United States. Off Hwy 101 at turnoff to South Beach State Park, Lincoln Co. In swamp, with *Alnus*, pine, himalaya berry, *Crataegus*, *Rhododendron*; many other trees/bushes of *M. fusca* present. Pedigree - Wild. Small bent tree ca. 20 ft. high.

**PI 600156. *Malus fusca* (Raf.) C. K. Schneid.**

Wild. GMAL 2981. Collected 07/11/1988 in California, United States. Adjacent to sand dune off dirt road leading to ocean beach (south of mouth of Smith River), Del Norte Co. Pedigree - Wild. Shrubby tree with one main trunk, but branching profusely above. Few fruit observable; nearby plant had fruit.

**PI 600157. *Malus fusca* (Raf.) C. K. Schneid.**

Wild. GMAL 2982. Collected 07/11/1988 in California, United States. Adjacent to sand dunes off dirt road leading to ocean beach (south of mouth of Smith River), Del Norte Co. Pedigree - Wild. Shrubby tree with one main trunk, but branching profusely above. Few fruit observable; nearby plant had fruit.

**PI 600158. *Malus fusca* (Raf.) C. K. Schneid.**

Wild. GMAL 2983. Collected 07/11/1988 in California, United States. Adjacent to Kellogg road to beach ca. 100 m from beach. With *Lonicera*, *Salix*, marsh grass; ground dry but probably moist to wet much of the year. Pedigree - Wild. Several low bushy trees ca. 4 m high; sufficient fruit on several individuals to warrant returning in fall.

**PI 600159. *Malus fusca* (Raf.) C. K. Schneid.**

Wild. GMAL 2984. Collected 07/11/1988 in California, United States. Adjacent to Kellogg road to beach ca. 100 m from beach with *Lonicera*, *Salix*, marsh grass; ground dry but probably moist to wet much of the year. Pedigree - Wild. Several low bushy trees ca. 4 m high. Sufficient fruit on several individuals to warrant returning in fall.

**PI 600160. *Malus fusca* (Raf.) C. K. Schneid.**

Wild. GMAL 2985. Collected 07/11/1988 in California, United States. Trailhead on state park land on Kellogg Rd., about 200 m from beach, south of mouth of Smith River, Del Norte. Marshy habitat low drainage ditch for immediate area, ground presently firm, but probably muddy most of the year. Pedigree - Wild. Large round tree ca. 30 ft. high; largest plant seen to date, plenty of fruit.

The following were donated by Norman F. Weeden, Cornell University, New York State Agric. Exp. Station, Department of Horticultural Sciences, Geneva, New York 14456-0462, United States. Received 11/01/1988.

**PI 600161. *Malus fusca* (Raf.) C. K. Schneid.**

GMAL 2986.

**PI 600162. *Malus fusca* (Raf.) C. K. Schneid.**

GMAL 2987.

The following were collected by Norman F. Weeden, Cornell University, New York State Agric. Exp. Station, Department of Horticultural Sciences, Geneva, New York 14456-0462, United States. Received 11/01/1988.

**PI 600163. *Malus fusca* (Raf.) C. K. Schneid.**  
Wild. GMAL 2988. Collected 07/12/1988 in California, United States. Road entering Lanphere Dunes ca. 100 ft. from entrance on west side.  
Pedigree - Wild. Tree ca. 15 ft. tall; fruit present.

**PI 600164. *Malus fusca* (Raf.) C. K. Schneid.**  
Wild. GMAL 2989. Collected 07/12/1988 in California, United States. Road entering Lanphere Dunes ca. 100 ft. from entrance on west side.  
Pedigree - Wild. Tree ca. 15 ft. high; fruit present.

**PI 600165. *Malus fusca* (Raf.) C. K. Schneid.**  
Wild. GMAL 2990. Collected 07/12/1988 in California, United States. On Table Bluff Rd., 0.25 mi. west of Indian Res. Rd. Meadow, somewhat dry habitat. Pedigree - Wild. Tree 20 ft tall with many branches forming a compact crown fruit present, slightly larger than normal.

**PI 600166. *Malus fusca* (Raf.) C. K. Schneid.**  
Wild. GMAL 2991. Collected 07/12/1988 in California, United States. On Table Bluff Rd., 0.25 mi. west of Indian Res. Rd. Meadow, somewhat dry habitat. Pedigree - Wild. Tree 20 ft. tall with many branches forming a compact crown, fruit present, slightly larger than normal.

The following were donated by Norman F. Weeden, Cornell University, New York State Agric. Exp. Station, Department of Horticultural Sciences, Geneva, New York 14456-0462, United States. Received 11/01/1988.

**PI 600167. *Malus fusca* (Raf.) C. K. Schneid.**  
Wild. GMAL 2992.

The following were collected by Norman F. Weeden, Cornell University, New York State Agric. Exp. Station, Department of Horticultural Sciences, Geneva, New York 14456-0462, United States. Received 11/01/1988.

**PI 600168. *Malus fusca* (Raf.) C. K. Schneid.**  
Wild. GMAL 2993. Collected 07/12/1988 in California, United States. 100 ft S. on Indian Res. Rd., west side. Pedigree - Wild. Large trees (compact) ca. 30 ft tall; several trees in area, lots of fruit; fruit normal size for fusca.

**PI 600169. *Malus fusca* (Raf.) C. K. Schneid.**  
Wild. GMAL 2994. Collected 07/12/1988 in California, United States. 100 ft. S. on Indian Res. Rd., west side. Pedigree - Wild. Large trees (compact) ca. 30 ft. tall; several trees in area lots of fruit; fruit normal size for fusca.

**PI 600170. *Malus fusca* (Raf.) C. K. Schneid.**

- Wild. GMAL 2995. Collected 10/11/1988 in Oregon, United States. Alongside west side dirt road, ca. 2 mi. from Valsetz (site). Bracken and sword fern, douglas fir. Dense forest ca 1 mi. from the open meadow. This area heavily logged except near stream and boggy area. Pedigree - Wild. Large trees with several trunks ca., 1 dm dbh. (photo from road).
- PI 600171. *Malus fusca* (Raf.) C. K. Schneid.**  
Wild. GMAL 2996. Collected 10/11/1988 in Oregon, United States. Along west ? (right-hand side driving from Falls City) of road, deep inside forest under canopy. Pedigree - Wild. Medium tree bent over. (photo #2).
- PI 600172. *Malus fusca* (Raf.) C. K. Schneid.**  
Wild. GMAL 2997. Collected 10/11/1988 in Oregon, United States. On right hand side of road and about 100 ft. into forest approx 13 mi from Falls City just before Valsetz (site). Pedigree - Wild. Medium large tree.
- PI 600173. *Malus fusca* (Raf.) C. K. Schneid.**  
Wild. GMAL 2998. Collected 10/11/1988 in Oregon, United States. On right side of road and about 100 ft. into forest approx. 13 mil from Falls City just before Valsetz (site). Pedigree - Wild. Small tree in slight clearing - photo.
- PI 600174. *Malus fusca* (Raf.) C. K. Schneid.**  
Wild. GMAL 2999. Collected 10/11/1988 in Oregon, United States. On right side of road and about 100 ft. into forest approx. 13 mi. from Falls City just before Valsetz (site). Pedigree - Wild. Large many stemmed tree; probably one of the older trees; seeds good, photo of stem.
- PI 600175. *Malus fusca* (Raf.) C. K. Schneid.**  
Wild. GMAL 3000. Collected 10/11/1988 in Oregon, United States. Large meadow at Valsetz side. Area open with fern bracken and (sword 7). *Alnus*, few other trees. *Malus fusca* one of the dominant sp. here. Pedigree - Wild. Small tree with 3 cm. dbh trunks. May have cut leaves like hawthorn as well as elliptic not lobed.
- PI 600176. *Malus fusca* (Raf.) C. K. Schneid.**  
Wild. GMAL 3001. Collected 10/11/1988 in California, United States. Large meadow at Valsetz site. Area open with fern bracken and (sword 7). *Alnus*, few other trees. *Malus fusca* one of the dominant sp. here. Pedigree - Wild. Small tree with stems ca. 2-3 cm. dbh. May have cut leaves like hawthorn as well as elliptic not lobed.
- PI 600177. *Malus fusca* (Raf.) C. K. Schneid.**  
Wild. GMAL 3002. Collected 10/11/1988 in California, United States. Left side of dirt road, ca. 1/4 mi. from open meadow of Valsetz site. Pedigree - Wild. Older tree with many trunks.
- PI 600178. *Malus fusca* (Raf.) C. K. Schneid.**  
Wild. GMAL 3003. Collected 10/11/1988 in California, United States. Left side of dirt road ca. 1/4 mi. from open meadow of Valsetz site. Pedigree - Wild. Medium tree with 1-2 trunks 10 cm. dbh; fruit was larger (ca. 1 cm. across) and yellow.
- PI 600179. *Malus fusca* (Raf.) C. K. Schneid.**

- Wild. GMAL 3004. Collected 10/11/1988 in Oregon, United States. Left side of dirt road ca. 1/4 mi. from open meadow of Valsetz site. Pedigree - Wild. Medium tree ca. 25 ft. high; few fruit.
- PI 600180. *Malus fusca* (Raf.) C. K. Schneid.**  
Wild. GMAL 3005. Collected 10/12/1988 in California, United States. At north side of Hwy 199 at Hiouchi (mile post; DN 543). Bracken fern, Rhamnus, Purshiana, Rubus, Cystine. Flat clearing with deep soil. Cultivated (*Malus domestica*) probably grown in local area. Pedigree - Wild. Small tree (3 cm dbh) with several stems. Seeds few per fruit (1, 2, or zero).
- PI 600181. *Malus fusca* (Raf.) C. K. Schneid.**  
Wild. GMAL 3007. Collected 10/12/1988 in California, United States. At north side of Hwy 199 at Hiouchi (mile post; DN 543). Bracken fern, Rhamnus, Purshiana, Rubus, Cystine. Flat clearing with deep soil. Cultivated (*M. domestica*) probably grown in local area. Pedigree - Wild. Small tree, 3-4 cm dbh; out of about 20 small to medium fruits, there were only 2 seeds.
- PI 600182. *Malus fusca* (Raf.) C. K. Schneid.**  
Wild. GMAL 3008. Collected 10/12/1988 in California, United States. At north side of Hwy 199 at Hiouchi (mile post; DN 543). Bracken fern, Rhamnus, Purshiana, Rubus, Cystine. Flat clearing with deep soil. Cultivated (*M. domestica*) probably grown in local area. Pedigree - Wild. Small tree at rear of cluster (away from road) dbh ca. 2-3 cm., several stems to 3 m high. Seed present in large fruit which were connate. Plant badly infested with codling moth.
- PI 600183. *Malus fusca* (Raf.) C. K. Schneid.**  
Wild. GMAL 3009. Collected 10/12/1988 in California, United States. At north side of Hwy 199 at Hiouchi (mile post; DN 543). Bracken fern, Rhamnus, Purshiana, Rubus, Cystine. Flat clearing with deep soil. Cultivated (*M. domestica*) probably grown in local area. Pedigree - Wild. Very small tree (1-2 cm dbh) at rear of cluster (away from road). Fruit slightly larger than normal, yellow; seeds often rotten.
- PI 600184. *Malus fusca* (Raf.) C. K. Schneid.**  
Wild. GMAL 3010. Collected 10/12/1988 in California, United States. At edge of meadow behind motel on S. edge of Crescent City on east side of Hwy 101. Cypress/Carya in meadow. Many other plants in area. Pedigree - Wild. Small plant (maybe 2 plants) ca. 10 m high.
- PI 600185. *Malus fusca* (Raf.) C. K. Schneid.**  
Wild. GMAL 3011. Collected 10/12/1988 in California, United States. At edge of meadow behind motel on S. edge of Crescent City on east side of Hwy 101. Cypress/Carya in meadow. Many other plants in area. Pedigree - Wild. Large tree with 1 main trunk ca. 12 cm dbh.
- PI 600186. *Malus fusca* (Raf.) C. K. Schneid.**  
Wild. GMAL 3012. Collected 10/12/1988 in California, United States. At edge of meadow behind motel on S. edge of Crescent City on east side of Hwy 101. Cypress/Carya in meadow. Many other plants in area. Pedigree - Wild. Medium tree with 1 main trunk ca. 6-8 cm. dbh; had elongated fruit ca. 1.5 cm L x 0.8 cm W; good seed set.



- PI 600187. *Malus fusca* (Raf.) C. K. Schneid.**  
Wild. GMAL 3013. Collected 10/12/1988 in California, United States. In sphagnum bog (east side edge) just south of Big Lagoon, Humboldt Co. Pedigree - Wild. Medium tree (ca. 7 cm dbh), 25 ft. tall. Codling moth present, had eaten seeds from many fruit of plant 88126d; fruit somewhat large (ca. 2 cm), roundish, green-brown.
- PI 600188. *Malus fusca* (Raf.) C. K. Schneid.**  
Wild. GMAL 3014. Collected 10/12/1988 in California, United States. In sphagnum bog (east side edge) just south of Big Lagoon, Humboldt Co. Pedigree - Wild. Small trees (3 cm. dbh) next to and south of 88126A; codling moth present, had eaten seeds from many fruit of 88126d. Fruit somewhat large (ca 2 cm.), roundish, green-brown.
- PI 600189. *Malus fusca* (Raf.) C. K. Schneid.**  
Wild. GMAL 3015. Collected 10/12/1988 in California, United States. In sphagnum bog (east side edge) just south of Big Lagoon, Humboldt Co. Pedigree - Wild. Small trees (3 cm dbh) next to and south of 88126A; codling moth present, had eaten seeds from many fruit of 88126d. Fruit somewhat large (ca.2 cm.), roundish, green-brown.
- PI 600190. *Malus fusca* (Raf.) C. K. Schneid.**  
Wild. GMAL 3016. Collected 10/12/1988 in California, United States. In sphagnum bog (east side edge) just south of Big Lagoon, Humboldt Co. Pedigree - Wild. Small trees (3 cm dbh) next to and south of 88126A; codling moth present, had eaten seeds from many fruit of this plant. Fruit somewhat large (ca. 2 cm.), roundish, green-brown.
- PI 600191. *Malus fusca* (Raf.) C. K. Schneid.**  
Wild. GMAL 3018. Collected 10/13/1988 in Oregon, United States. Road to Heceta Beach, ca. 1/4 mi. from Hwy 101 on N. side of road; Lane Co. With Rhododendron, Beech, Pine, Salal, Cystus. Pedigree - Wild. Medium tree ca. 5 m tall, 2 trunks; fruit +- large (1.5 cm. diam.) yellow, seed use good, many per fruit.
- PI 600192. *Malus fusca* (Raf.) C. K. Schneid.**  
Wild. GMAL 3019. Collected 10/13/1988 in Oregon, United States. Road to Heceta Beach, ca. 1/4 mi. from Hwy 101 on N. side of road. Lane Co. With Rhododendron, Beech, Pine, Salal, Cystus. Pedigree - Wild. Large tree 10 m tall, 1 main trunk ca. 10 cm. dbh. Fruit small to medium, yellow.
- PI 600193. *Malus fusca* (Raf.) C. K. Schneid.**  
Wild. GMAL 3020. Collected 10/13/1988 in Oregon, United States. Gov. Patterson Memorial State Park; to N. of entrance near picnic area; adjacent to mowed grass meadow. Pedigree - Wild. Bush with thick lobed leaves. No fruit.
- PI 600194. *Malus fusca* (Raf.) C. K. Schneid.**  
Wild. GMAL 3021. Collected 10/12/1988 in Oregon, United States. Ona Beach State Park, Lincoln Co., at edge of parking area on N. side of park - same (approx) as 88110. Pedigree - Wild. Large tree with several stems, ca. 7 m tall and 7-10 cm. dbh much fruit, yellow-brown, average size.

- PI 600195. *Malus fusca* (Raf.) C. K. Schneid.**  
Wild. GMAL 3022. Collected 10/13/1988 in Oregon, United States. Ona Beach State Park, Lincoln Co., at edge of parking area on N. side of park, same (approx.) as 88110. Pedigree - Wild. Medium tree, many stems, fruit orange, average size.
- PI 600196. *Malus fusca* (Raf.) C. K. Schneid.**  
Wild. GMAL 3023. Collected 10/13/1988 in Oregon, United States. Service road to dump at South Beach State park, Lincoln Co., at west edge of main service road. Population of 100+ *M. fusca* in this area 88131a; many immature. Pedigree - Wild. Medium tree ca. 5 m tall.
- PI 600197. *Malus fusca* (Raf.) C. K. Schneid.**  
Wild. GMAL 3024. Collected 10/13/1988 in Oregon, United States. Service road to dump at South Beach State Park, Lincoln Co.; 88131b at "T" in road. Population of 100+ *M. fusca* in this area, many immature. Pedigree - Wild. Medium tree at ca. 5 m tall, had good seeds.
- PI 600198. *Malus fusca* (Raf.) C. K. Schneid.**  
Wild. GMAL 3025. Collected 10/13/1988 in Oregon, United States. Service road to dump at South Beach State Park, Lincoln Co., Oregon; same location as 88107. Population of 100+ *M. fusca* at this location; many immature. Pedigree - Wild. Fruit from several trees.
- PI 600199. *Malus fusca* (Raf.) C. K. Schneid.**  
Wild. GMAL 3026. Collected 10/13/1988 in Oregon, United States. In swamp off Hwy 101 at turnoff to South Beach State Park, Lincoln Co. Wet, swampy habitat (ground now dry), with *Alnus*, pine, himalaya berry, *Crataegus*, *Rhododendron*; many other trees/bushes of *M. fusca* present. Pedigree - Wild. Population sample. 4-5 trees.
- PI 600200. *Malus fusca* (Raf.) C. K. Schneid.**  
Wild. GMAL 3027. Collected 10/13/1988 in Oregon, United States. Ellmaker State Park, Lincoln Co., on Hwy 20 near edge of lawn. With *Prunus*, *Crataegus*; dry habitat. Pedigree - Wild. May be same plant as 88103 or 88104. Tree ca. 5 cm. dbh, generally 1 seed per fruit. Fruit was picked from N. side of tree-south side had no fruit.
- PI 600201. *Malus fusca* (Raf.) C. K. Schneid.**  
Wild. GMAL 3028. Collected 10/13/1988 in Oregon, United States. Ellmaker State Park, Lincoln Co., on Hwy 20 near edge of grass at top of bank above creek. With *Prunus*, *Crataegus*. Pedigree - Wild. May be same tree as 88103 or 88104. Tree ca. 5 cm. dbh, down slope and about 3 m N.W. of 88133, lots of fruit, seeds plentiful.
- PI 600202. *Malus fusca* (Raf.) C. K. Schneid.**  
Wild. GMAL 3029. Collected 10/13/1988 in Oregon, United States. Ellmaker State Park, Lincoln Co., on Hwy 20 near edge of grass at top of bank above creek. Slightly downslope and 4 m N.E. of 88133. With *Prunus*, *Crataegus*. Pedigree - Wild. May be same as 88103 or 88104. Tree ca. 5 cm. dbh, several of the fruits had been crushed and the pulp and seeds removed.
- PI 600203. *Malus fusca* (Raf.) C. K. Schneid.**  
Wild. GMAL 3030. Collected 10/13/1988 in Oregon, United States. Ellmaker

State Park, Lincoln Co., on Hwy 20 near edge of grass at top of bank above creek. With *Prunus*, *Crataegus*. Many other *M. fusca* plants on this slope. Pedigree - Wild. Small tree ca. 2 cm. dbh; probably one of those samples for 88105.

**PI 600204. *Malus fusca* (Raf.) C. K. Schneid.**

Wild. GMAL 3031. Collected 10/13/1988 in Oregon, United States. Devils Lake State Park, Lincoln Co., RV Campground on S. side of lake just after leaving Lincoln City. Pedigree - Wild. Population sample; many fruits from 2 trees, several fruits from several other trees. Trees all about same age to 10 m tall, many trees here; fruit elongate, seeds plentiful.

**PI 600205. *Malus fusca* (Raf.) C. K. Schneid.**

Wild. GMAL 3032. Collected 10/14/1988 in Oregon, United States. On both sides of entrance road to Manhattan Beach Wayside, just N. of Rockaway, Tillamook Co. Open habitat, with *Alnus*, Bayberry?, Sitka, Spruce, Salil. Pedigree - Wild. Large tree on west side of road.

**PI 600206. *Malus fusca* (Raf.) C. K. Schneid.**

Wild. GMAL 3033. Collected 10/14/1988 in Oregon, United States. East side of entrance road to Manhattan Beach Wayside just N. of Rockaway, Tillamook Co. With *Alnus*, Bayberry?, Sitka, Spruce, Salil. Pedigree - Wild. Shrub ca. 7 m across and 3 m tall. Many have been more than one plant, the vegetation was too thick to see the stems.

**PI 600207. *Malus fusca* (Raf.) C. K. Schneid.**

Wild. GMAL 3034. Collected 10/14/1988 in Oregon, United States. East side of entrance road to Manhattan Beach Wayside just N of Rockaway Tillamook Co.,. With *Alnus*, Bayberry?, Sitka, Spruce, Salil. Pedigree - Wild. Shrub - ca. 7 m across and 3 m tall. May have been more than one plant, the vegetation was too thick to see the stems.

**PI 600208. *Malus fusca* (Raf.) C. K. Schneid.**

Wild. GMAL 3035. Collected 10/14/1988 in Oregon, United States. East side of entrance road to Manhattan Beach Wayside just N of Rockaway, Tillamook Co. With *Alnus*, Bayberry?, Sitka, Spruce, Salil; about 5 mi. away; several additional specimens in the vicinity. Pedigree - Wild. Medium tree ca. 5 m tall.

**PI 600209. *Malus fusca* (Raf.) C. K. Schneid.**

Wild. GMAL 3036. Collected 10/14/1988 in Oregon, United States. South side of road to Nehalem Bay (ca. 0.2 mi. from cemetery) State Park, Tillamook Co. California huckleberry, *Spiraea*, Salil, *M. fusca* dominant! Largest population of *M. fusca* seen. Pedigree - Wild. Large population - open thicket of young and old trees; few fruits available, collected from several plants.

**PI 600210. *Malus fusca* (Raf.) C. K. Schneid.**

Wild. GMAL 3037. Collected 10/14/1988 in Oregon, United States. On road (5th St.) to Ecola State Park (near Antler Ave.) on N. side of road; Clatsop Co. Pedigree - Wild. Large trees (10 cm dbh) 10 m tall; lots of fruit.

**PI 600211. *Malus fusca* (Raf.) C. K. Schneid.**

- Wild. GMAL 3038. Collected 10/14/1988 in Oregon, United States. Along stream where the road to Ecola State Park branches from 5th St., Clatsop Co. Pedigree - Wild. Tree with 4-5 cm dbh but may be part of a much larger trunk system; fruit ripe.
- PI 600212. *Malus fusca* (Raf.) C. K. Schneid.**  
Wild. GMAL 3039. Collected 10/14/1988 in Washington, United States. On north side of Hwy 101 between Astoria Bridge and Ft. Columbia State Park, Pacific Co. With *Alnus*, *Rubus*, sword fern; probably many other *M. fusca* in area. Pedigree - Wild. Large tree, few fruit, 1 trunk.
- PI 600213. *Malus fusca* (Raf.) C. K. Schneid.**  
Wild. GMAL 3040. Collected 10/14/1988 in Washington, United States. On north side of Hwy 101 between Astoria Bridge and Ft. Columbia State Park, Pacific Co. With *Alnus*, *Rubus*, sword fern; probably many other *M. fusca* in area. Pedigree - Wild. Medium tree, many fruits, 1 trunk.
- PI 600214. *Malus fusca* (Raf.) C. K. Schneid.**  
Wild. GMAL 3041. Collected 10/14/1988 in Washington, United States. On north side of Hwy 101 between Astoria Bridge and Ft. Columbia State Park, Pacific Co. With *Alnus*, *Rubus*, sword fern; probably many other *M. fusca* in area. Pedigree - Wild. Medium tree, many fruits, 1 trunk.
- PI 600215. *Malus fusca* (Raf.) C. K. Schneid.**  
Wild. GMAL 3042. Collected 10/14/1988 in Washington, United States. On north side of Hwy 101 between Astoria Bridge and Ft. Columbia State Park, Pacific Co. With *Alnus*, *Rubus*, sword fern; probably many other *M. fusca* in area. Pedigree - Wild. Small tree, few fruits, several trunks.
- PI 600216. *Malus fusca* (Raf.) C. K. Schneid.**  
Wild. GMAL 3043. Collected 10/14/1988 in Washington, United States. On north side of Hwy 101 between Astoria Bridge and Ft. Columbia State Park, Pacific Co. With *Alnus*, *Rubus*, sword fern; probably many other *M. fusca* in area. Pedigree - Wild. Large tree, 1 trunk.
- PI 600217. *Malus fusca* (Raf.) C. K. Schneid.**  
Wild. GMAL 3044. Collected 10/14/1988 in Washington, United States. S. side Hwy 101 about 200 m west of Seaview, Pacific Co. Pedigree - Wild. Large population, some trees 1 meter dbh and 10-20 m tall. Largest trees observed so far. The plant from which fruit was collected was ca. 7 m tall. Fruit was scarce on these plants.
- PI 600218. *Malus fusca* (Raf.) C. K. Schneid.**  
Wild. GMAL 3045. Collected 10/14/1988 in Washington, United States. East side Naselle River on Hwy 101 about 1 mi from bridge, Pacific Co. Pedigree - Wild. Tree with 1 main trunk ca. 8 cm. dbh; the tree was leafy green with few fruit.
- PI 600219. *Malus fusca* (Raf.) C. K. Schneid.**  
Wild. GMAL 3046. Collected 10/14/1988 in Washington, United States. East side Naselle River on Hwy 101 about 1 mi. from bridge, Pacific Co. Pedigree - Wild. Tree with many trunks. Most of the leaves had fallen off - trunks and branches mossy.
- PI 600220. *Malus fusca* (Raf.) C. K. Schneid.**

Wild. GMAL 3047. Collected 10/14/1988 in Washington, United States. East side Hwy 101 N. of Raymond (ca. 1/4 mi. S. of Smith Cr) Pacific Co., (Smith Cr is at milepost 64). Boggy habitat. Pedigree - Wild. Shrubby tree about 3 m tall; few other trees (*fusca*) present but fruit looked like true *fusca*.

**PI 600221. *Malus fusca* (Raf.) C. K. Schneid.**

Wild. GMAL 3048. Collected 08/02/1988 in California, United States. 3 m elevation, Crescent City, Del Norte Co. Marshy location. Pedigree - Wild. Received by N. Weeden from U. of California Botanical Garden sent to Beth Dickson, 8/2/1988.

The following were collected by Elizabeth Dickson, NYS Agricultural Experiment Station, Horticultural Sciences, Hedrick Hall, Geneva, New York 14456-0462, United States. Donated by Norman F. Weeden, Cornell University, New York State Agric. Exp. Station, Department of Horticultural Sciences, Geneva, New York 14456-0462, United States. Received 11/01/1988.

**PI 600222. *Malus coronaria* (L.) Mill.**

Wild. GMAL 3049. Collected 09/09/1988 in Indiana, United States. Marion Co., north roadside on Hwy 74, W. of Indianapolis, at fence row. Large population (100+). South slope, steep. Pedigree - Wild. Tree 15 ft. high, 3 inch diam., fruit.

**PI 600223. *Malus ioensis* (A. W. Wood) Britton**

Wild. GMAL 3050. Collected 09/10/1988 in Illinois, United States. Champaign Co., on State Rt 150, 1.5 mi. E. of I30, near Urbana. Grove of 100+ trees, between railroad tracks and south roadside. Pedigree - Wild. 10 ft. high, 3 inch diam. 10 ft. broad, scion and fruit.

**PI 600224. *Malus coronaria* (L.) Mill.**

Wild. GMAL 3051. Collected 09/10/1988 in Illinois, United States. Piatt Co., Monticello, near street in park; close to the Courthouse. Pedigree - Wild. Tree 40 ft. high, 5-6 inch diam., 3-4 trunks at base.

**PI 600225. *Malus ioensis* (A. W. Wood) Britton**

Wild. GMAL 3052. Collected 09/10/1988 in Illinois, United States. Piatt Co., Allerton Park, S.E. of Monticello on walking path that originates near the S.E. entrance. Secondary growth, upland forest; Hackberry, Ash, Linden. Pedigree - Wild. Tree 15 ft. high; 3 inch diam., scion and fruit.

**PI 600226. *Malus ioensis* (A. W. Wood) Britton**

Wild. GMAL 3053. Collected 09/10/1988 in Illinois, United States. Piatt Co., Allerton Park, S.E. of Monticello on walking path that originates near the S.E. entrance. Pedigree - Wild. Tree 15 ft. high; 3 inch diam., scion and fruit.

**PI 600227. *Malus ioensis* (A. W. Wood) Britton**

Wild. GMAL 3054. Collected 09/10/1988 in Illinois, United States. Logan Co., Sheridan Twp., 1.8 mi. E. of New Holland. Powerline between soybean and corn fields, 0.1 mi S. of Hwy 10 on Co 275, then E. on first dirt road. *Crataegus*, *Rubus*, *Rosa*, *Euphorbia*. Pedigree - Wild. Tree 15 ft. high, 5 inch diam., scion and fruit.

- PI 600228. *Malus ioensis* (A. W. Wood) Britton**  
 Wild. GMAL 3055. Collected 09/10/1988 in Illinois, United States. Logan Co., Sheridan Twp, 1.8 mi. E. of New Holland. Powerline between soybean and corn fields, 0.1 mi. S. of Hwy 10 on Co 275, then E. on first dirt road. Crataegus, Rubus, Rosa, Euphorbia. Pedigree - Wild. Tree 6 ft. high; 2 inch diam.
- PI 600229. *Malus coronaria* (L.) Mill.**  
 Wild. GMAL 3056. Collected 08/26/1988 in Ontario, Canada. Elgin Co., 0.1 mile W. from Hwy 35 on Co. Rd. 56, Conc VII just past Orville Cemetery N. roadside. Disturbed area with odd assortment of escaped *Malus domestica*, Crataegus, Rhus, milkweed. Pedigree - Wild. Tree 15 ft. E. of 637. 8 ft tall; 2 inches diam. of trunk.
- PI 600230. *Malus coronaria* (L.) Mill.**  
 Wild. GMAL 3057. Collected 08/30/1988 in Michigan, United States. Berrien Co., 0.1 mi W. of Creek Rd. on Stafford Rd 4 trees at fence row, S. roadside. Poison ivy, Rubus, Juglans. Pedigree - Wild. Tree 12 ft. tall, 3 inch diam., fruit.
- PI 600231. *Malus coronaria* (L.) Mill.**  
 Wild. GMAL 3058. Collected 08/30/1988 in Michigan, United States. Berrien Co., 0.1 mi. W. of Creek Rd., on Stafford Rd., 4 trees at fence row; S. roadside. Poison ivy, Rubus, Juglans. Pedigree - Wild. Tree 5 ft. tall, 1 1/2 inch diam., fruit.
- PI 600232. *Malus ioensis* (A. W. Wood) Britton**  
 Wild. GMAL 3059. Collected 09/11/1988 in Iowa, United States. Johnson Co., 1.0 mi. S. from Rustic Rd., on 1st Ave., near Coralville exit on Hwy 80. 6+ trees. Very dusty roadside. Pedigree - Wild. Tree 8 ft. high, 4 inch diam. fruit and scion.
- PI 600233. *Malus ioensis* (A. W. Wood) Britton**  
 Wild. GMAL 3060. Collected 09/13/1988 in Iowa, United States. Story Co., West Peterson park, Story County Conservation Board, N. roadside across from cornfield. Prunus, Gleditsia, Alnus, Rhus. Pedigree - Wild. Tree 8 ft. high, 2 1/2 inch diam., fruit and scion.
- PI 600234. *Malus ioensis* (A. W. Wood) Britton**  
 Wild. GMAL 3061. Collected 09/13/1988 in Iowa, United States. Monono Co., Whiting Woods, Monono County Conservation Board, west roadside; Asian crab nearby 0.5 mi. N. from Timber Ridge Ranch entrance. Pedigree - Wild. Tree 25 ft. high, 8 inch diam. scion, fruit.
- PI 600235. *Malus coronaria* (L.) Mill.**  
 Wild. GMAL 3062. Collected 08/26/1988 in Ontario, Canada. Elgin Co., 0.3 mi. W. from Hwy 35 on Co. Rd 56, Conc. VII, N. roadside; at forest opening with trail leading in. Thicket with Crataegus, Aspen, maple, apple. Pedigree - Wild. Tree 25 ft. tall at roadside.
- PI 600236. *Malus coronaria* (L.) Mill.**  
 Wild. GMAL 3063. Collected 08/27/1988 in Ontario, Canada. Haldimand-Norfolk Co., 100 ft. S. of entrance to Selkirk Prov. Park on Wheeler Rd., W. roadside. Pedigree - Wild. Tree 10 ft. high, 6 ft.

inside forest, fruit.

- PI 600237. *Malus coronaria* (L.) Mill.**  
Wild. GMAL 3064. Collected 08/27/1988 in Ontario, Canada. Brant Co., Tuscanar Tp., 3.5 mi. E. of Co. Rd. 4 on River Rd. between the road and Grand River. Rubus, Prunus, Salix. Pedigree - Wild. Tree 20 ft. tall, 4 inch diam.
- PI 600238. *Malus coronaria* (L.) Mill.**  
Wild. GMAL 3065. Collected 08/29/1988 in Michigan, United States. Livingston Co., N. of Oak Grove, 0.5 mi from junction with Fisher on Jones Rd., roadside. Population 50+, with Daucas, Euphorbia. Pedigree - Wild. Tree 8 ft. tall, 2 inch diam., scion, fruit.
- PI 600239. *Malus coronaria* (L.) Mill.**  
Wild. GMAL 3066. Collected 08/29/1988 in Michigan, United States. Livingston Co. N. of Oak Grove, 0.5 mi. from junction with Fisher on Jones Rd., roadside. Population 50+. Pedigree - Wild. Tree 10 ft. tall, 2 inch diam., scion and fruit.
- PI 600240. *Malus coronaria* (L.) Mill.**  
Wild. GMAL 3067. Collected 08/29/1988 in Michigan, United States. Livingston Co., N. of Oak Grove, 0.5 mi. from junction with Fisher on Jones Rd., roadside. Population 50+, with Daucas, Euphorbia. Pedigree - Wild. Tree 18 ft. tall, 2 1/2 inch diam., scion, fruit.
- PI 600241. *Malus coronaria* (L.) Mill.**  
Wild. GMAL 3068. Collected 08/29/1988 in Michigan, United States. Livingston Co., N. of Oak Grove, 0.5 mi. from junction with Fisher on Jones Rd., roadside. Population 50+, with Daucas, Euphorbia. Pedigree - Wild. Tree 18 ft. tall, 2 inch diam., fruit, scion.
- PI 600242. *Malus coronaria* (L.) Mill.**  
Wild. GMAL 3069. Collected 08/30/1988 in Michigan, United States. Berrien Co., 0.1 mi. W. of Creek Rd. on Stafford Rd., 4 trees at fence row; S. roadside. Poison ivy, Rubus, Juglans. Pedigree - Wild. Tree 8 ft. tall, 3 inch diam., scion and fruit.
- PI 600243. *Malus coronaria* (L.) Mill.**  
Wild. GMAL 3070. Collected 08/30/1988 in Michigan, United States. Berrien Co., Warren Woods Natural Area. In open area with Rhus, Crataegus; climax forest, Beech, Maple. Pedigree - Wild. Tree 30 ft. tall, 4 inch diam., very slender; fruit and scion.
- PI 600244. *Malus coronaria* (L.) Mill.**  
Wild. GMAL 3071. Collected 08/30/1988 in Michigan, United States. Newago Co., 0.1 mi. N. on Cottonwood Rd. from Hwy 82. Oak, pine, Euphorbia. Pedigree - Wild. Tree 12 ft. high, 4 inch diam.
- PI 600245. *Malus coronaria* (L.) Mill.**  
Wild. GMAL 3072. Collected 08/30/1988 in Michigan, United States. Newago; 1.0 mi. E. of intersection of road to Croton on Elm St., E. roadside. Oak, sassafras, birch. Pedigree - Wild. Tree 20 ft. tall, 3 inch diam., fruit.

- PI 600246. *Malus coronaria* (L.) Mill.**  
Wild. GMAL 3073. Collected 08/30/1988 in Michigan, United States.  
Newago; 1.0 mi. E. of intersection of road to Croton on Elm St., E.  
roadside. Oak, sassafras, birch. Pedigree - Wild. Tree 20 ft. tall, 3  
inch diam. fruit.
- PI 600247. *Malus coronaria* (L.) Mill.**  
Wild. GMAL 3074. Collected 08/31/1988 in Michigan, United States.  
Midland Co., 0.9 mi. N. on 9 Mile Rd., from Olson Rd., E. roadside in  
powerline clearing. Sandy soil; willow, fern, Spiraea. Pedigree - Wild.  
Tree 6 ft. tall, 1 inch diam., fruit, scion.
- PI 600248. *Malus coronaria* (L.) Mill.**  
Wild. GMAL 3075. Collected 08/31/1988 in Michigan, United States.  
Midland Co., 0.9 mi. N. on 9 Mile Rd. from Olsen Rd., E. roadside in  
powerline clearing. Sandy soil; willow, fern, Spiraea. Pedigree - Wild.  
Tree 4 ft. tall, 1 inch diam., fruit, scion.
- PI 600249. *Malus coronaria* (L.) Mill.**  
Wild. GMAL 3076. Collected 08/31/1988 in Michigan, United States. Lapeer  
Co., on 5 Lakes Rd., 0.2 mi. N. from Daley Rd. W. roadside. Pedigree -  
Wild. Tree 10 ft. tall, 1 inch diam., fruit and scion.
- PI 600250. *Malus coronaria* (L.) Mill.**  
Wild. GMAL 3077. Collected 08/31/1988 in Michigan, United States. Lapeer  
Co., on 5 Lakes Rd., 0.2 mi. N. from Daley Rd., W. roadside. Pedigree -  
Wild. Tree 8 ft. tall, 1 inch diam., fruit and scion.
- PI 600251. *Malus coronaria* (L.) Mill.**  
Wild. GMAL 3078. Collected 08/31/1988 in Michigan, United States. Lapeer  
Co., on 5 Lakes Rd., 0.2 mi. N. from Daley Rd., W. roadside. Pedigree -  
Wild. Tree 12 ft. tall, 1 inch diam., few fruit.
- PI 600252. *Malus ioensis* (A. W. Wood) Britton**  
Wild. GMAL 3079. Collected 09/11/1988 in Illinois, United States. Peoria  
Co., 0.4 mi. S. of Hwy 8 intersection on Maher Rd., E. roadside. Lone  
tree at fence row, cornfield. Pedigree - Wild. Tree 10 ft. high, 6 inch  
diam. 15 ft. broad.

The following were donated by Elroy Gourley, Rt. 5, Box 5005, Boerne, Texas  
78006, United States. Received 11/08/1988.

- PI 600253. *Malus ioensis* (A. W. Wood) Britton**  
GMAL 3080.

The following were collected by Norman F. Weeden, Cornell University, New  
York State Agric. Exp. Station, Department of Horticultural Sciences, Geneva,  
New York 14456-0462, United States. Received 11/01/1988.

- PI 600254. *Malus fusca* (Raf.) C. K. Schneid.**  
Wild. GMAL 3081. Collected 11/20/1988 in Washington, United States.  
Along Hwy 109, 2.2 mi. S. of Chansis Creek, at bridge over creek, Gray  
Harbor Co. At edge of water. Pedigree - Wild. Medium-size tree,



moss-covered. Much of the fruit had been partly eaten by birds/  
mammals, some fruit infested with maggot.

**PI 600255. *Malus fusca* (Raf.) C. K. Schneid.**

Wild. GMAL 3082. Collected 11/20/1988 in Washington, United States.  
Along Hwy 109, 2.2 mi. S. of Chansis Creek, at bridge over creek. Gray  
Harbor Co. At edge of water. Pedigree - Wild. Medium-size tree,  
moss-covered. Much of the fruit had been partly eaten by birds/mammals,  
some fruit infested with maggot.

**PI 600256. *Malus fusca* (Raf.) C. K. Schneid.**

Wild. GMAL 3083. Collected 11/20/1988 in Washington, United States.  
Along Hwy 109, 2.2 mi. S. of Chansis Creek, at bridge over creek. Gray  
Harbor Co. At edge of water. Pedigree - Wild. Medium-size tree,  
moss-covered. Much of the fruit had been partly eaten by birds/  
mammals, some fruit infested with maggot.

**PI 600257. *Malus fusca* (Raf.) C. K. Schneid.**

Wild. GMAL 3084. Collected 11/20/1988 in Washington, United States.  
Along Hwy 109, 2.2 mi. S. of Chansis Creek, at bridge over creek. Gray  
Harbor Co. At edge of water. Pedigree - Wild. Medium-size tree,  
moss-covered. Much of the fruit had been partly eaten by birds/  
mammals, some fruit infested with maggot.

**PI 600258. *Malus fusca* (Raf.) C. K. Schneid.**

Wild. GMAL 3085. Collected 11/20/1988 in Washington, United States.  
Along Hwy 109, 2.2 mi. S. of Chansis Creek, at bridge over creek. Gray  
Harbor Co. Pedigree - Wild. Several young plants (dbh ca. 2 cm.).

**PI 600259. *Malus fusca* (Raf.) C. K. Schneid.**

Wild. GMAL 3086. Collected 11/20/1988 in Washington, United States.  
Along Hwy 109, 2.2 mi. S. of Chansis Creek, at bridge over creek. Gray  
Harbor Co. Pedigree - Wild. Young plant with many short spur branches.

**PI 600260. *Malus fusca* (Raf.) C. K. Schneid.**

Wild. GMAL 3087. Collected 11/20/1988 in Washington, United States.  
Along Hwy 109, 2.2 mi. S. of Chansis Creek, at bridge over creek, Gray  
Harbor Co.; along edge of meadow on S.W. side of road just N. of bridge.  
Pedigree - Wild. Old trees (dbh - 10 cm. many trunks).

**PI 600261. *Malus fusca* (Raf.) C. K. Schneid.**

Wild. GMAL 3088. Collected 11/20/1988 in Washington, United States.  
Along Hwy 109, 2.2 mi. S. of Chansis Creek, at bridge over creek, Gray  
Harbor Co.; along edge of meadow on S.W. side of road just N. of bridge.  
Pedigree - Wild. Old trees (dbh - 10 cm. many trunks).

**PI 600262. *Malus fusca* (Raf.) C. K. Schneid.**

Wild. GMAL 3089. Collected 11/20/1988 in Washington, United States. Hwy  
109 at milepost 7 (heading southeast), Gray Harbor Co., 0.5 mi. N. of  
88148 (3087). In groves in swampy ground on both sides of the road.  
Pedigree - Wild. Large trees ca. 200 cm. dbh. Trees very large, almost  
look like they were planted. Fruit reddish, elongate, common plant in  
this area.

**PI 600263. *Malus fusca* (Raf.) C. K. Schneid.**

- Wild. GMAL 3090. Collected 11/20/1988 in Washington, United States. Hwy 109 at milepost 7 (heading southeast), Gray Harbor Co., 0.5 mi. N. of 88148 (3087). In groves in swampy ground on both sides of road. Pedigree - Wild. Large trees ca. 200 cm. dbh. Trees very large, almost look like they were planted. Fruit reddish, elongate, common plant in this area.
- PI 600264. *Malus fusca* (Raf.) C. K. Schneid.**  
Wild. GMAL 3091. Collected 11/20/1988 in Washington, United States. Hwy 109 at Chansis Creek. Pedigree - Wild. Medium 1 trunk tree ca. 10 cm. dbh.
- PI 600265. *Malus fusca* (Raf.) C. K. Schneid.**  
Wild. GMAL 3092. Collected 11/20/1988 in Washington, United States. Near entrance to Ocean City State Park, Gray Harbor Co. In swampy ground along road. Many plants in this area. Pedigree - Wild. Large trees ca. 10 cm. dbh.
- PI 600266. *Malus fusca* (Raf.) C. K. Schneid.**  
Wild. GMAL 3093. Collected 11/20/1988 in Washington, United States. Near entrance to Ocean City State Park, Gray Harbor Co. In swampy ground along road. Many plants in this area. Pedigree - Wild. Large trees ca. 10 cm. dbh.
- PI 600267. *Malus fusca* (Raf.) C. K. Schneid.**  
Wild. GMAL 3094. Collected 11/20/1988 in Washington, United States. Road between Humptulips and Copalis Crossing ca. 0.1 mi. southwest of Bunker Rd. Several trees in vicinity, all with few or no fruit. Pedigree - Wild. Large tree ca. 10 m. tall; few fruit.
- PI 600268. *Malus fusca* (Raf.) C. K. Schneid.**  
Wild. GMAL 3095. Collected 11/20/1988 in Washington, United States. 0.4 m. W. of 101 North on road to Copalis Crossing; along road at edge of meadow (just W. of Humptulips); closest to 88153b, ca. 30 yds. Pedigree - Wild. Medium tree, ca. 4 cm. dbh, many stems.
- PI 600269. *Malus fusca* (Raf.) C. K. Schneid.**  
Wild. GMAL 3096. Collected 11/20/1988 in Washington, United States. 0.4 m W. of 101 North on road to Copalis Crossing; along road at edge of meadow (just W. of Humptulips). *Malus x domestica* (1 tree) nearby; closest to 88153b, ca. 30 yds. Pedigree - Wild. Small tree, ca. 2 cm dbh, few fruit.
- PI 600270. *Malus fusca* (Raf.) C. K. Schneid.**  
Wild. GMAL 3097. Collected 11/20/1988 in Washington, United States. 0.4 m W. of 101 North on road to Copalis Crossing; along road at edge of meadow (just W. of Humptulips). *Malus x domestica* (1 tree) nearby; closest to 88153b, ca. 30 yds. Pedigree - Wild. Very small tree, ca. 1 cm. dbh, loaded with fruit.
- PI 600271. *Malus fusca* (Raf.) C. K. Schneid.**  
Wild. GMAL 3099. Collected 11/20/1988 in Washington, United States. 0.4 m W. of 101 North on road to Copalis Crossing; along road at edge of meadow (just W. of Humptulips). *Malus x domestica* (1 tree) nearby; closest to 81153b, ca. 30 yds. Pedigree - Wild. Low many branched tree,

ca. 4 cm dbh; alone as far as could be determined; many fruit had developed without seeds; fruit yellow and only one seed per fruit.

- PI 600272. *Malus fusca* (Raf.) C. K. Schneid.**  
Wild. GMAL 3100. Collected 11/20/1988 in Washington, United States. About 50 m west of Hwy 101 N. on old logging road (between hwy and clear cut area), 0.4 mi. south of Olympic National Park, Jefferson Co. Pedigree - Wild. All small trees to ca. 3 cm. dbh; few fruit per trees, fruit yellow.
- PI 600273. *Malus fusca* (Raf.) C. K. Schneid.**  
Wild. GMAL 3105. Collected 11/20/1988 in Washington, United States. Near south end of Olympic National Park along secondary road. Moist area, along edge of road. Pedigree - Wild. Medium trees ca. 8 cm dbh.
- PI 600274. *Malus fusca* (Raf.) C. K. Schneid.**  
Wild. GMAL 3106. Collected 11/20/1988 in Washington, United States. Near south end of Olympic National Park along secondary road. In moist area, along edge of road. Pedigree - Wild. Medium trees ca. 8 cm. dbh.

The following were collected by Elizabeth Dickson, NYS Agricultural Experiment Station, Horticultural Sciences, Hedrick Hall, Geneva, New York 14456-0462, United States. Donated by Norman F. Weeden, Cornell University, New York State Agric. Exp. Station, Department of Horticultural Sciences, Geneva, New York 14456-0462, United States. Received 11/01/1988.

- PI 600275. *Malus ioensis* (A. W. Wood) Britton**  
Wild. GMAL 3107. Collected 09/11/1988 in Illinois, United States. Knox Co.; 0.8 mi. W. of Hwy 250E (Co. 25) on Co. 26 just W. of where road crosses Lake Bracken. Population of 50+ along telephone line clearing; disturbed area; sandy dry soil. Pedigree - Wild. Tree 5 ft. high, 2 inch diam; not vigorous fruit.
- PI 600276. *Malus ioensis* (A. W. Wood) Britton**  
Wild. GMAL 3108. Collected 09/11/1988 in Illinois, United States. Knox Co., 0.8 mi. W. of Hwy 250E (Co. 25) on Co. 26 just W. of where road crosses Lake Bracken. Population of 50+ along telephone line clearing; disturbed area; sandy dry soil. Pedigree - Wild. Tree 9 ft. high; 2" diam., fruit and scion.
- PI 600277. *Malus ioensis* (A. W. Wood) Britton**  
Wild. GMAL 3109. Collected 09/11/1988 in Illinois, United States. Knox Co., 0.8 mi. W. of Hwy 250E (Co. 25) on Co. 26 just W. of where road crosses Lake Bracken. Population of 50+ along telephone line clearing; disturbed area; sandy dry soil. Pedigree - Wild. Tree 6 ft. high, 2 inch diam.; fruit.
- PI 600278. *Malus ioensis* (A. W. Wood) Britton**  
Wild. GMAL 3110. Collected 09/11/1988 in Illinois, United States. Rock Island Co., 0.3 mi. E. of Rt 67 on 154 Ave., N. roadside at fence of pasture; two trees. Pedigree - Wild. Tree 6 ft. 2 inch diam., fruit and scion.
- PI 600279. *Malus ioensis* (A. W. Wood) Britton**

Wild. GMAL 3111. Collected 09/11/1988 in Iowa, United States. Johnson Co., 1.0 mi. S. from Rustic Rd. on 1st Ave., near Coralville exit on Hwy 80. 6+ trees. Very dusty roadside. Pedigree - Wild. Tree 6 ft. high, 1 1/2 inch diam, fruit and scion.

**PI 600280. *Malus ioensis* (A. W. Wood) Britton**

Wild. GMAL 3112. Collected 09/13/1988 in Iowa, United States. Story Co., West Peterson Park, Story County Conservation Board, N. roadside, across from cornfield. Prunus, Gleditsia, Alnus, Rhus. Pedigree - Wild. Tree 6 ft. high, 3 inch diam., fruit and scion.

**PI 600281. *Malus ioensis* (A. W. Wood) Britton**

Wild. GMAL 3113. Collected 09/13/1988 in Iowa, United States. Monono Co., Whiting Woods, Monono County Conservation Board, west roadside. Asian crab nearby. 0.5 mi. N. from Timber Ridge Ranch entrance. Pedigree - Wild. Tree 25 ft. high, 9 inch diam.

The following were donated by Herb S. Aldwinckle, Cornell University, New York State Agric. Exp. Station, Department of Plant Pathology, Geneva, New York 14456-0462, United States. Received 12/15/1988.

**PI 600282. *Malus asiatica* Nakai**  
GMAL 3122. Collected in China.

**PI 600283. *Malus ombrophila* Hand.-Mazz.**  
GMAL 3123. Collected in China.

**PI 600284. *Malus ombrophila* Hand.-Mazz.**  
GMAL 3125. Collected in China.

The following were donated by Loy Shreve, Texas A & M Research & Extension Center, Drawer 1849, Uvalde, Texas 78801, United States. Received 12/15/1988.

**PI 600285. *Malus ioensis* (A. W. Wood) Britton**  
GMAL 3127; Texana.

The following were donated by Herb S. Aldwinckle, Cornell University, New York State Agric. Exp. Station, Department of Plant Pathology, Geneva, New York 14456-0462, United States. Received 03/02/1989.

**PI 600286. *Malus sieboldii* (Regel) Rehder**  
GMAL 3134.

The following were donated by Zhen Long Yan, Beijing Botanical Garden, Institute of Botany, Academia Sinica, Beijing, Beijing, China. Received 10/02/1989.

**PI 600287. *Malus asiatica* Nakai**  
GMAL 3224.

**PI 600288. *Malus asiatica* Nakai**

- GMAL 3226.
- PI 600289. *Malus prunifolia* (Willd.) Borkh.  
GMAL 3227.
- PI 600290. *Malus spectabilis* (Aiton) Borkh.  
GMAL 3228.
- PI 600291. *Malus kansuensis* (Batalin) C. K. Schneid.  
GMAL 3229.
- PI 600292. *Malus prunifolia* (Willd.) Borkh.  
GMAL 3231.
- PI 600293. *Malus prunifolia* (Willd.) Borkh.  
GMAL 3232.
- PI 600294. *Malus prunifolia* (Willd.) Borkh.  
GMAL 3233.
- PI 600295. *Malus hupehensis* (Pamp.) Rehder  
GMAL 3234.
- PI 600296. *Malus baccata* (L.) Borkh.  
GMAL 3235.
- PI 600297. *Malus prunifolia* (Willd.) Borkh.  
GMAL 3236.
- PI 600298. *Malus hupehensis* (Pamp.) Rehder  
GMAL 3237.
- PI 600299. *Malus sieboldii* (Regel) Rehder  
GMAL 3239.
- PI 600300. *Malus hupehensis* (Pamp.) Rehder  
GMAL 3240.
- PI 600301. *Malus prunifolia* (Willd.) Borkh.  
GMAL 3241.

The following were collected by Elizabeth Dickson, Cornell Univ., L.H. Bailey Hortorium, Ithaca, New York 14853, United States; Herb S. Aldwinckle, Cornell University, New York State Agric. Exp. Station, Department of Plant Pathology, Geneva, New York 14456-0462, United States; Calvin R. Sperling, USDA, ARS, Natl. Germplasm Resources Laboratory, Room 402, Building 003, BARC-West, Beltsville, Maryland 20705-2350, United States. Received 10/10/1989.

- PI 600302. *Malus sieversii* (Ledeb.) M. Roem.  
Wild. USSR-89-06-01; GMAL 3242. Collected 08/31/1989 in Tajikistan. Elevation 1490 m. 35 km north of Dushanbe. Village of Gazni in Gazni valley. Oktjabski district. Steep ravine at edge of stream. Fine clay soil. Growing with *Juglans regia*.

- PI 600303. *Malus sieversii* (Ledeb.) M. Roem.**  
Wild. USSR-89-06-02; GMAL 3243. Collected 08/31/1989 in Tajikistan. Elevation 1490 m. 35 km north of Dushanbe. Village of Gazni in Gazni valley. Oktjabski district. Steep ravine at edge of stream. Fine clay soil. Growing with *Juglans regia*.
- PI 600304. *Malus sieversii* (Ledeb.) M. Roem.**  
Wild. USSR-89-06-03; Sperling 6987, Herb. no.; GMAL 3244. Collected 08/31/1989 in Tajikistan. Elevation 1490 m. 35 km north of Dushanbe. Village of Gazni in Gazni valley. Oktjabski district. Steep ravine at edge of stream. Fine clay soil. Growing with *Juglans regia*.
- PI 600305. *Malus sieversii* (Ledeb.) M. Roem.**  
Wild. USSR-89-06-04; GMAL 3245. Collected 08/31/1989 in Tajikistan. Elevation 1490 m. 35 km north of Dushanbe. Village of Gazni in Gazni valley. Oktjabski district. Steep ravine at edge of stream. Fine clay soil. Growing with *Juglans regia*.
- PI 600306. *Malus sieversii* (Ledeb.) M. Roem.**  
Wild. USSR-89-06-05; GMAL 3246. Collected 08/31/1989 in Tajikistan. Elevation 1490 m. 35 km north of Dushanbe. Village of Gazni in Gazni valley. Oktjabski district. Steep ravine at edge of stream. Fine clay soil. Growing with *Juglans regia*.
- PI 600307. *Malus sieversii* (Ledeb.) M. Roem.**  
Wild. USSR-89-07-01; GMAL 3247. Collected 08/31/1989 in Tajikistan. 35 km north of Dushanbe. Village of Gazni in Gazni valley. Oktjabski district. Steep slope at edge of ravine along stream. Trees growing in fine clay soil with metamorphic gravel on surface. Trees 8-10 m tall.
- PI 600308. *Malus sieversii* (Ledeb.) M. Roem.**  
Wild. USSR-89-07-02; GMAL 3248. Collected 08/31/1989 in Tajikistan. 35 km north of Dushanbe. Village of Gazni in Gazni valley. Oktjabski district. Steep slope at edge of ravine along stream. Trees growing in fine clay soil with metamorphic gravel on surface. Trees 8-10 m tall.
- PI 600309. *Malus sieversii* (Ledeb.) M. Roem.**  
Wild. USSR-89-07-03; Sperling 6988, Herb. no.; GMAL 3249. Collected 08/31/1989 in Tajikistan. 35 km north of Dushanbe. Village of Gazni in Gazni valley. Oktjabski district. Steep slope at edge of ravine along stream. Trees growing in fine clay soil with metamorphic gravel on surface. Trees 8-10 m tall. Fruits reddish.
- PI 600310. *Malus sieversii* (Ledeb.) M. Roem.**  
Wild. USSR-89-07-04; GMAL 3250. Collected 08/31/1989 in Tajikistan. 35 km north of Dushanbe. Village of Gazni in Gazni valley. Oktjabski district. Steep slope at edge of ravine along stream. Trees growing in fine clay soil with metamorphic gravel on surface. Trees 8-10 m tall.
- PI 600311. *Malus sieversii* (Ledeb.) M. Roem.**  
Wild. USSR-89-07-05; GMAL 3251. Collected 08/31/1989 in Tajikistan. 35 km north of Dushanbe. Village of Gazni in Gazni valley. Oktjabski district. Steep slope at edge of ravine along stream. Trees growing in fine clay soil with metamorphic gravel on surface. Trees 8-10 m tall.

- PI 600312. *Malus sieversii* (Ledeb.) M. Roem.**  
Wild. USSR-89-07-06; GMAL 3252. Collected 08/31/1989 in Tajikistan. 35 km north of Dushanbe. Village of Gazni in Gazni valley. Oktjabski district. Steep slope at edge of ravine along stream. Trees growing in fine clay soil with metamorphic gravel on surface. Trees 8-10 m tall.
- PI 600313. *Malus sieversii* (Ledeb.) M. Roem.**  
Wild. USSR-89-07-07; GMAL 3253. Collected 08/31/1989 in Tajikistan. 35 km north of Dushanbe. Village of Gazni in Gazni valley. Oktjabski district. Steep slope at edge of ravine along stream. Trees growing in fine clay soil with metamorphic gravel on surface. Trees 8-10 m tall.
- PI 600314. *Malus sieversii* (Ledeb.) M. Roem.**  
Wild. USSR-89-08-01; Sperling 6989, Herb. no.; GMAL 3254. Collected 08/31/1989 in Tajikistan. Elevation 1860 m. 35 km north of Dushanbe. Village of Gazni in Gazni valley. Oktjabski district. Slopes at edge of ridge and meadow at head of valley.
- PI 600315. *Malus sieversii* (Ledeb.) M. Roem.**  
Wild. USSR-89-08-02; GMAL 3255. Collected 08/31/1989 in Tajikistan. Elevation 1860 m. 35 km north of Dushanbe. Village of Gazni in Gazni valley. Oktjabski district. Slopes at edge of ridge and meadow at head of valley.
- PI 600316. *Malus sieversii* (Ledeb.) M. Roem.**  
Wild. USSR-89-08-03; GMAL 3256. Collected 08/31/1989 in Tajikistan. Elevation 1860 m. 35 km north of Dushanbe. Village of Gazni in Gazni valley. Oktjabski district. Slopes at edge of ridge and meadow at head of valley.
- PI 600317. *Malus sieversii* (Ledeb.) M. Roem.**  
Wild. USSR-89-08-04; GMAL 3257. Collected 08/31/1989 in Tajikistan. Elevation 1860 m. 35 km north of Dushanbe. Village of Gazni in Gazni valley. Oktjabski district. Slopes at edge of ridge and meadow at head of valley.
- PI 600318. *Malus sieversii* (Ledeb.) M. Roem.**  
Wild. USSR-89-08-05; GMAL 3258. Collected 08/31/1989 in Tajikistan. Elevation 1860 m. 35 km north of Dushanbe. Village of Gazni in Gazni valley. Oktjabski district. Slopes at edge of ridge and meadow at head of valley.
- PI 600319. *Malus sieversii* (Ledeb.) M. Roem.**  
Wild. USSR-89-14-04; Sperling 7001, Herb. no.; GMAL 3259. Collected 09/02/1989 in Tajikistan. Elevation 1250 m. 1 km west of Kondara botanical station in gorge. Riverbank. Vegetation includes *Jugland regia*, *Salix* sp., *Populus turkestanica*. Possibly planted. Tree to 7.0 - 8.0 m tall. DBH 15 cm. Fruits yellow, good tasting.
- PI 600320. *Malus sieversii* (Ledeb.) M. Roem.**  
Wild. USSR-89-14-06; Sperling 7004, Herb. no.; GMAL 3260. Collected 09/02/1989 in Tajikistan. Elevation 1250 m. 1 km west of Kondara botanical station in gorge. Arching over stream. Vegetation includes *Juglans regia*, *Salix* sp., *Populus turkestanica*. Tree to 4 m tall. DBH

15 cm.

- PI 600321. *Malus sieversii* (Ledeb.) M. Roem.**  
Wild. USSR-89-22-05; Sperling 7010, Herb. no.; GMAL 3261. Collected 09/05/1989 in Uzbekistan. Elevation 1590 m. Steep slope in ravine. Stony soil. Associated with *Crataegus*, *Juniperus*, *Amygdalus*. Tree 8-9 m tall, 20 cm DBH.
- PI 600322. *Malus sieversii* (Ledeb.) M. Roem.**  
Wild. USSR-89-22-06; Sperling 7011, Herb. no.; GMAL 3262. Collected 09/05/1989 in Uzbekistan. Elevation 1590 m. Steep slope in ravine. Stony soil. Associated with *Crataegus*, *Juniperus*, *Amygdalus*. Tree 4.5 m tall.
- PI 600323. *Malus sieversii* (Ledeb.) M. Roem.**  
Wild. USSR-89-22-08; GMAL 3263. Collected 09/05/1989 in Uzbekistan. Elevation 1590 m. Steep slope in ravine. Stony soil. Associated with *Crataegus*, *Juniperus*, *Amygdalus*. Tree to 5 m tall.
- PI 600324. *Malus sieversii* (Ledeb.) M. Roem.**  
Wild. USSR-89-23-01; Sperling 7014, Herb. no.; GMAL 3264. Collected 09/05/1989 in Uzbekistan. Elevation 1630 m. Loose white rocky soil. Calcareous. Open scrub and herbaceous vegetation. Tree to 4.0 m.
- PI 600325. *Malus sieversii* (Ledeb.) M. Roem.**  
Wild. USSR-89-23-02; GMAL 3265. Collected 09/05/1989 in Uzbekistan. Elevation 1630 m. Loose white rocky soil. Calcareous. Open scrub and herbaceous vegetation. Tree to 5.0 m.
- PI 600326. *Malus sieversii* (Ledeb.) M. Roem.**  
Wild. USSR-89-24-01; GMAL 3267. Collected 09/05/1989 in Uzbekistan. Elevation 1460 m. Steep slopes in ravine along stream. Igneous rocks. Scrubby vegetation of *Crataegus*, *Acer*, *Amygdalus*, and *Microcerasus*. Not cultivated. Tree to 6-7 m tall. Fruit oblong, green with red blush.
- PI 600327. *Malus sieversii* (Ledeb.) M. Roem.**  
Wild. USSR-89-24-02; GMAL 3268. Collected 09/05/1989 in Uzbekistan. Elevation 1460 m. Steep slopes in ravine along stream. Igneous rocks. Scrubby vegetation of *Crataegus*, *Acer*, *Amygdalus*, and *Microcerasus*. Tree to 8.0 m tall, 12 cm DBH. Heavy with fruit.
- PI 600328. *Malus sieversii* (Ledeb.) M. Roem.**  
Wild. USSR-89-24-03; GMAL 3269. Collected 09/05/1989 in Uzbekistan. Elevation 1460 m. Steep slopes in ravine along stream. Igneous rocks. Scrubby vegetation of *Crataegus*, *Acer*, *Amygdalus*, and *Microcerasus*. Not cultivated. Tree to 6.0 m tall, 10 cm DBH.
- PI 600329. *Malus sieversii* (Ledeb.) M. Roem.**  
Wild. USSR-89-24-04; Sperling 7013, Herb. no.; GMAL 3270. Collected 09/05/1989 in Uzbekistan. Elevation 1460 m. Steep slopes in ravine along stream. Igneous rocks. Scrubby vegetation of *Crataegus*, *Acer*, *Amygdalus*, and *Microcerasus*. Not cultivated. Tree to 8.0 m tall, 10 cm DBH.
- PI 600330. *Malus sieversii* (Ledeb.) M. Roem.**  
Wild. USSR-89-24-05; GMAL 3271. Collected 09/05/1989 in Uzbekistan. Elevation 1460 m. Steep slopes in ravine along stream. Igneous rocks.



Scrubby vegetation of *Crataegus*, *Acer*, *Amygdalus*, and *Microcerasus*. Steep slopes in ravine along stream. Igneous rocks. Scrubby vegetation of *Crataegus*, *Acer*, *Amygdalus*, and *Microcerasus*. Not cultivated. Tree to 7 m tall, 9 cm DBH.

- PI 600331. *Malus sieversii* (Ledeb.) M. Roem.**  
Wild. USSR-89-24-06; GMAL 3272. Collected 09/05/1989 in Uzbekistan. Elevation 1460 m. Steep slopes in ravine along stream. Igneous rocks. Scrubby vegetation of *Crataegus*, *Acer*, *Amygdalus*, and *Microcerasus*. Growing at an old disturbed site. Not cultivated. Steep slopes in ravine along stream. Igneous rocks. Scrubby vegetation of *Crataegus*, *Acer*, *Amygdalus*, and *Microcerasus*. Tree to 4 m tall, 10 cm DBH. Fruit pinkish, excellent flavor.
- PI 600332. *Malus sieversii* (Ledeb.) M. Roem.**  
Wild. USSR-89-24-07; GMAL 3273. Collected 09/05/1989 in Uzbekistan. Elevation 1460 m. Fine soil. Not cultivated. Steep slopes in ravine along stream. Igneous rocks. Scrubby vegetation of *Crataegus*, *Acer*, *Amygdalus*, and *Microcerasus*. Tree to 4 m tall, 20 cm DBH. Fruits yellow with some red blush.
- PI 600333. *Malus sieversii* (Ledeb.) M. Roem.**  
Wild. USSR-89-24-08; GMAL 3274. Collected 09/05/1989 in Uzbekistan. Elevation 1460 m. Fine soil. Not cultivated. Steep slopes in ravine along stream. Igneous rocks. Scrubby vegetation of *Crataegus*, *Acer*, *Amygdalus*, and *Microcerasus*. Tree to 5 m tall, 20 cm DBH. Fruits green with red blush. Heavy with fruit.
- PI 600334. *Malus sieversii* (Ledeb.) M. Roem.**  
Wild. USSR-89-24-09; GMAL 3275. Collected 09/05/1989 in Uzbekistan. Elevation 1460 m. Steep slopes in ravine along stream. Igneous rocks. Scrubby vegetation of *Crataegus*, *Acer*, *Amygdalus*, and *Microcerasus*. Not cultivated. Tree to 4.0 m tall, 12 cm DBH.
- PI 600335. *Malus sieversii* (Ledeb.) M. Roem.**  
Wild. USSR-89-24-10; GMAL 3276. Collected 09/05/1989 in Uzbekistan. Elevation 1460 m. Steep slopes in ravine along stream. Igneous rocks. Scrubby vegetation of *Crataegus*, *Acer*, *Amygdalus*, and *Microcerasus*. Steep slopes in raving along stream. Igneous rocks. Scrubby vegetation of *Crataegus*, *Acer*, *Amygdalus*, and *Microcerasus*. Tree to 4 m tall, 15 cm DBH.
- PI 600336. *Malus sieversii* (Ledeb.) M. Roem.**  
Wild. USSR-89-24-11; GMAL 3277. Collected 09/05/1989 in Uzbekistan. Elevation 1460 m. Fine soils. Steep slopes in raving along stream. Igneous rocks. Scrubby vegetation of *Crataegus*, *Acer*, *Amygdalus*, and *Microcerasus*. Tree to 4.0 m tall, 7 cm DBH.
- PI 600337. *Malus sieversii* (Ledeb.) M. Roem.**  
Wild. USSR-89-24-12; GMAL 3278. Collected 09/05/1989 in Uzbekistan. Elevation 1460 m. Steep slopes in ravine along stream. Igneous rocks. Scrubby vegetation of *Crataegus*, *Acer*, *Amygdalus*, and *Microcerasus*. Fine soil. Fine soil. Steep slopes in ravine along stream. Igneous rocks. Scrubby vegetation of *Crataegus*, *Acer*, *Amygdalus*, and *Microcerasus*. Not cultivated. Tree to 3.0 m tall, 5 cm DBH.

- PI 600338. *Malus sieversii* (Ledeb.) M. Roem.**  
Cultivated. USSR-89-25-01; Sperling 7016, Herb. no.; GMAL 3279.  
Collected 09/06/1989 in Uzbekistan. Elevation 1100 m. NW of lake. Many  
diverse cultivars present, some apparently escaping.
- PI 600339. *Malus sieversii* (Ledeb.) M. Roem.**  
Cultivated. USSR-89-25-03; GMAL 3281. Collected 09/06/1989 in Uzbekistan  
. Elevation 1100 m. NW of lake. Many diverse cultivars present, some  
apparently escaping.
- PI 600340. *Malus sieversii* (Ledeb.) M. Roem.**  
Cultivated. USSR-89-25-04; GMAL 3282. Collected 09/06/1989 in Uzbekistan  
. Elevation 1100 m. NW of lake. Many diverse cultivars present, some  
apparently escaping.
- PI 600341. *Malus sieversii* (Ledeb.) M. Roem.**  
Cultivated. USSR-89-25-05; GMAL 3283. Collected 09/06/1989 in Uzbekistan  
. Elevation 1100 m. NW of lake. Many diverse cultivars present, some  
apparently escaping.
- PI 600342. *Malus sieversii* (Ledeb.) M. Roem.**  
Cultivated. USSR-89-25-06; GMAL 3284. Collected 09/06/1989 in Uzbekistan  
. Elevation 1100 m. NW of lake. Many diverse cultivars present, some  
apparently escaping.
- PI 600343. *Malus sieversii* (Ledeb.) M. Roem.**  
Cultivated. USSR-89-25-07; Sperling 7017, Herb. no.; GMAL 3285.  
Collected 09/06/1989 in Uzbekistan. Elevation 1100 m. NW of lake. Many  
diverse cultivars present, some apparently escaping. Spur type.
- PI 600344. *Malus sieversii* (Ledeb.) M. Roem.**  
Wild. USSR-89-27-01; Sperling 7019, Herb. no.; GMAL 3287. Collected  
09/07/1989 in Uzbekistan. Elevation 1490 m. Reached from Tashkent by ski  
lift. North slope and ravines dominated by *Juniperus*, *Rosa*, *Acer*  
*siminovii*, *Malus* spp., *Amygdalus petunnikowii*, and *Prunus divaricata*.  
Grazed by cattle. Tree to 4 m tall, 8 cm DBH.
- PI 600345. *Malus sieversii* (Ledeb.) M. Roem.**  
Wild. USSR-89-27-02; GMAL 3288. Collected 09/07/1989 in Uzbekistan.  
Elevation 1490 m. Reached from Tashkent by ski lift. North slope and  
ravines dominated by *Juniperus*, *Rosa*, *Acer siminovii*, *Malus* spp.,  
*Amygdalus petunnikowii*, and *Prunus divaricata*. Grazed by cattle. Tree 6  
m tall, 10 cm DBH.
- PI 600346. *Malus sieversii* (Ledeb.) M. Roem.**  
Wild. USSR-89-27-03; GMAL 3289. Collected 09/07/1989 in Uzbekistan.  
Elevation 1490 m. Reached from Tashkent by ski lift. North slope and  
ravines dominated by *Juniperus*, *Rosa*, *Acer siminovii*, *Malus* spp.  
*Amygdalus petunnikowii*, and *Prunus divaricata*. Grazed by cattle. Tree 7  
m tall, 8 cm DBH.
- PI 600347. *Malus sieversii* (Ledeb.) M. Roem.**  
Wild. USSR-89-27-04; GMAL 3290. Collected 09/07/1989 in Uzbekistan.  
Elevation 1490 m. Reached from Tashkent by ski lift. North slope and

ravines dominated by *Juniperus*, *Rosa*, *Acer siminovii*, *Malus* spp., *Amygdalus petunnikowii*, and *Prunus divaricata*. Grazed by cattle.

- PI 600348. *Malus sieversii* (Ledeb.) M. Roem.**  
Wild. USSR-89-27-05; GMAL 3291. Collected 09/07/1989 in Uzbekistan. Elevation 1490 m. Reached from Tashkent by ski lift. North slope and ravines dominated by *Juniperus*, *Rosa*, *Acer siminovii*, *Malus* spp., *Amygdalus petunnikowii*, and *Prunus divaricata*. Grazed by cattle.
- PI 600349. *Malus sieversii* (Ledeb.) M. Roem.**  
Wild. USSR-89-28-01; Sperling 7021, Herb. no.; GMAL 3292. Collected 09/07/1989 in Uzbekistan. Elevation 1590 m. Reached from Tashkent by ski lift. North slope and ravines dominated by *Juniperus*, *Rosa*, *Acer siminovii*, *Malus* spp., *Amygdalus petunnikowii*, and *Prunus divaricata*. Grazed by cattle. Tree 3 m tall, 4 cm DBH.
- PI 600350. *Malus sieversii* (Ledeb.) M. Roem.**  
Wild. USSR-89-28-02; GMAL 3293. Collected 09/07/1989 in Uzbekistan. Elevation 1590 m. Reached from Tashkent by ski lift. North slope and ravines dominated by *Juniperus*, *Rosa*, *Acer siminovii*, *Malus* spp., *Amygdalus petunnikowii*, and *Prunus divaricata*. Grazed by cattle. Tree to 4 m tall, 3 cm DBH. Fruits red.
- PI 600351. *Malus sieversii* (Ledeb.) M. Roem.**  
Wild. USSR-89-28-03; GMAL 3294. Collected 09/07/1989 in Uzbekistan. Elevation 1590 m. Reached from Tashkent by ski lift. North slope and ravines dominated by *Juniperus*, *Rosa*, *Acer siminovii*, *Malus* spp., *Amygdalus petunnikowii*, and *Prunus divaricata*. Grazed by cattle. Tree 5 m tall, 8 cm DBH. Fruits red.
- PI 600352. *Malus sieversii* (Ledeb.) M. Roem.**  
Wild. USSR-89-28-04; GMAL 3295. Collected 09/07/1989 in Uzbekistan. Elevation 1590 m. Reached from Tashkent by ski lift. North slope and ravines dominated by *Juniperus*, *Rosa*, *Acer siminovii*, *Malus* spp., *Amygdalus petunnikowii*, and *Prunus divaricata*. Grazed by cattle. Tree to 4 m tall, 4 cm DBH. Fruits yellow.
- PI 600353. *Malus sieversii* (Ledeb.) M. Roem.**  
Wild. USSR-89-28-05; GMAL 3296. Collected 09/07/1989 in Uzbekistan. Elevation 1590 m. Reached from Tashkent by ski lift. North slope and ravines dominated by *Juniperus*, *Rosa*, *Acer siminovii*, *Malus* spp., *Amygdalus petunnikowii*, and *Prunus divaricata*. Grazed by cattle. Tree to 5 m tall, 6 cm DBH.
- PI 600354. *Malus sieversii* (Ledeb.) M. Roem.**  
Wild. USSR-89-29-01; Sperling 7022, Herb. no.; GMAL 3297. Collected 09/07/1989 in Uzbekistan. Elevation 1590 m. Reached from Tashkent by ski lift. North slope and ravines dominated by *Juniperus*, *Rosa*, *Acer siminovii*, *Malus* spp., *Amygdalus petunnikowii*, *Prunus divaricata*, and *Lonicera*. Grazed by cattle. Tree to 8 m tall, 27 cm DBH.
- PI 600355. *Malus sieversii* (Ledeb.) M. Roem.**  
Wild. USSR-89-29-02; GMAL 3298. Collected 09/07/1989 in Uzbekistan. Elevation 1590 m. Reached from Tashkent by ski lift. North slope and ravines dominated by *Juniperus*, *Rosa*, *Acer siminovii*, *Malus* spp.,

*Amygdalus petunnikowii*, *Prunus divaricata*, and *Lonicera*. Grazed by cattle. Tree to 5 m tall, 7 cm DBH. Perhaps a young seedling.

- PI 600356. *Malus sieversii* (Ledeb.) M. Roem.**  
Wild. USSR-89-29-03; GMAL 3299. Collected 09/07/1989 in Uzbekistan. Elevation 1590 m. Reached from Tashkent by ski lift. North slope and ravines dominated by *Juniperus*, *Rosa*, *Acer siminovii*, *Malus* spp., *Amygdalus petunnikowii*, *Prunus divaricata*, and *Lonicera*. Grazed by cattle. Tree to 10 m tall, 30 cm DBH. Very large old tree.
- PI 600357. *Malus sieversii* (Ledeb.) M. Roem.**  
Wild. USSR-89-29-05; GMAL 3301. Collected 09/07/1989 in Uzbekistan. Elevation 1590 m. Reached from Tashkent by ski lift. Grove of old mature apple trees. North slope and ravines dominated by *Juniperus*, *Rosa*, *Acer siminovii*, *Malus* spp., *Amygdalus petunnikowii*, *Prunus divaricata*, and *Lonicera*. Grazed by cattle. Tree to 7 m tall, 15 cm DBH. Aged fruit rotting on tree.
- PI 600358. *Malus sieversii* (Ledeb.) M. Roem.**  
Wild. USSR-89-30-01; GMAL 3302. Collected 09/07/1989 in Uzbekistan. Elevation 1580 m. Reached from Tashkent by ski lift. Grove of old mature apple trees. North slope and ravines dominated by *Juniperus*, *Rosa*, *Acer siminovii*, *Malus* spp., *Amygdalus petunnikowii*, *Prunus divaricata*, and *Lonicera*. Grazed by cattle. Tree 10 m tall, 30 cm DBH.
- PI 600359. *Malus sieversii* (Ledeb.) M. Roem.**  
Wild. USSR-89-30-02; GMAL 3303. Collected 09/07/1989 in Uzbekistan. Elevation 1580 m. Reached from Tashkent by ski lift. Grove of old mature apple trees. North slope and ravines dominated by *Juniperus*, *Rosa*, *Acer siminovii*, *Malus* spp., *Amygdalus petunnikowii*, *Prunus divaricata*, and *Lonicera*. Grazed by cattle. Tree 11 m tall, 3 trunks.
- PI 600360. *Malus sieversii* (Ledeb.) M. Roem.**  
Wild. USSR-89-31-01; Sperling 7024, Herb. no.; GMAL 3307. Collected 09/09/1989 in Kazakhstan. Elevation 1550 m. NE slope (ca. 30 %). Forest of mature apple trees with mostly closed canopy. Tree 10 m tall, 22 cm DBH.
- PI 600361. *Malus sieversii* (Ledeb.) M. Roem.**  
Wild. USSR-89-31-03; GMAL 3309. Collected 09/09/1989 in Kazakhstan. Elevation 1550 m. NE slope (ca. 30 %). Forest of mature apple trees with mostly closed canopy. Tree to 9 m tall, 3 trunks, 18 cm DBH.
- PI 600362. *Malus sieversii* (Ledeb.) M. Roem.**  
Wild. USSR-89-31-04; GMAL 3310. Collected 09/09/1989 in Kazakhstan. Elevation 1550 m. NE slope (ca. 30 %). Forest of mature apple trees with mostly closed canopy. Tree to 10 m tall, 18 cm DBH.
- PI 600363. *Malus sieversii* (Ledeb.) M. Roem.**  
Wild. USSR-89-31-05; GMAL 3311. Collected 09/09/1989 in Kazakhstan. Elevation 1550 m. NE slope (ca. 30 %). Forest of mature apple trees with mostly closed canopy. Tree to 9 m tall, 18 cm DBH.
- PI 600364. *Malus sieversii* (Ledeb.) M. Roem.**  
Wild. USSR-89-31-06; Sperling 7025, Herb. no.; GMAL 3312. Collected

09/09/1989 in Kazakhstan. Elevation 1550 m. NE slope (ca. 30 %). Forest of mature apple trees with mostly closed canopy. Tree 2.5 m tall, 6 cm DBH, in full sun. Fruits red-skinned with red veins in flesh and red around papery endocarp.

**PI 600365. *Malus sieversii* (Ledeb.) M. Roem.**

Wild. USSR-89-31-07; Sperling 7026, Herb. no.; GMAL 3313. Collected 09/09/1989 in Kazakhstan. Elevation 1550 m. NE slope (ca. 30 %). Forest of mature apple trees with mostly closed canopy. Tree to 5.0 m tall, 14 cm DBH. Fruits yellow, excellent eating quality, like Yellow Delicious.

**PI 600366. *Malus sieversii* (Ledeb.) M. Roem.**

Wild. USSR-89-31-08; GMAL 3314. Collected 09/09/1989 in Kazakhstan. Elevation 1550 m. NE slope (ca. 30 %). Forest of mature apple trees with mostly closed canopy. Tree to 9 m tall, 4 trunks, 20 cm DBH. Fruits reddish.

**PI 600367. *Malus sieversii* (Ledeb.) M. Roem.**

Wild. USSR-89-31-09; GMAL 3315. Collected 09/09/1989 in Kazakhstan. Elevation 1550 m. NE slope (ca. 30 %). Forest of mature apple trees with mostly closed canopy. Tree to 7.0 m tall, 20 cm DBH. Leaves attenuate, petioles long. Fruits green.

**PI 600368. *Malus sieversii* (Ledeb.) M. Roem.**

Wild. USSR-89-31-11; GMAL 3317. Collected 09/09/1989 in Kazakhstan. Elevation 1550 m. NE slope (ca. 30 %). Forest of mature apple trees with mostly closed canopy. Tree to 8 m tall, 8 cm DBH, growing in full sun. Branches semi-spur type. Fruit red.

**PI 600369. *Malus sieversii* (Ledeb.) M. Roem.**

Wild. USSR-89-32-02; Sperling 7028, Herb. no.; GMAL 3318. Collected 09/10/1989 in Kazakhstan.

**PI 600370. *Malus sieversii* (Ledeb.) M. Roem.**

Wild. USSR-89-32-03; GMAL 3319. Collected 09/10/1989 in Kazakhstan.

The following were donated by Herb S. Aldwinckle, Cornell University, New York State Agric. Exp. Station, Department of Plant Pathology, Geneva, New York 14456-0462, United States. Received 10/10/1989.

**PI 600371. *Malus sieversii* (Ledeb.) M. Roem.**

GMAL 3321. Collected in Kazakhstan.

The following were collected by Elizabeth Dickson, Cornell Univ., L.H. Bailey Hortorium, Ithaca, New York 14853, United States; Herb S. Aldwinckle, Cornell University, New York State Agric. Exp. Station, Department of Plant Pathology, Geneva, New York 14456-0462, United States; Calvin R. Sperling, USDA, ARS, Natl. Germplasm Resources Laboratory, Room 402, Building 003, BARC-West, Beltsville, Maryland 20705-2350, United States. Received 10/10/1989.

**PI 600372. *Malus sieversii* (Ledeb.) M. Roem.**

Wild. USSR-89-32-05; GMAL 3322. Collected 09/10/1989 in Kazakhstan.

- PI 600373. *Malus sieversii* (Ledeb.) M. Roem.  
Wild. USSR-89-32-06; GMAL 3323. Collected 09/10/1989 in Kazakhstan.
- PI 600374. *Malus sieversii* (Ledeb.) M. Roem.  
Wild. USSR-89-32-07; GMAL 3324. Collected 09/10/1989 in Kazakhstan.
- PI 600375. *Malus sieversii* (Ledeb.) M. Roem.  
Wild. USSR-89-32-09; GMAL 3325. Collected 09/10/1989 in Kazakhstan.
- PI 600376. *Malus sieversii* (Ledeb.) M. Roem.  
Wild. USSR-89-32-10; GMAL 3326. Collected 09/10/1989 in Kazakhstan.
- PI 600377. *Malus sieversii* (Ledeb.) M. Roem.  
Wild. USSR-89-32-11; GMAL 3327. Collected 09/10/1989 in Kazakhstan.
- PI 600378. *Malus sieversii* (Ledeb.) M. Roem.  
Wild. USSR-89-32-12; GMAL 3328. Collected 09/10/1989 in Kazakhstan.
- PI 600379. *Malus sieversii* (Ledeb.) M. Roem.  
Wild. USSR-89-32-13; GMAL 3329. Collected 09/10/1989 in Kazakhstan.
- PI 600380. *Malus sieversii* (Ledeb.) M. Roem.  
Wild. USSR-89-32-14; Sperling 7030, Herb. no.; GMAL 3330. Collected  
09/10/1989 in Kazakhstan.
- PI 600381. *Malus sieversii* (Ledeb.) M. Roem.  
Wild. USSR-89-32-16; GMAL 3331. Collected 09/10/1989 in Kazakhstan.
- PI 600382. *Malus sieversii* (Ledeb.) M. Roem.  
Wild. USSR-89-32-17; GMAL 3332. Collected 09/10/1989 in Kazakhstan.
- PI 600383. *Malus sieversii* (Ledeb.) M. Roem.  
Wild. USSR-89-32-18; GMAL 3333. Collected 09/10/1989 in Kazakhstan.
- PI 600384. *Malus sieversii* (Ledeb.) M. Roem.  
Wild. USSR-89-32-19; GMAL 3334. Collected 09/10/1989 in Kazakhstan.
- PI 600385. *Malus sieversii* (Ledeb.) M. Roem.  
Wild. USSR-89-32-20; GMAL 3335. Collected 09/10/1989 in Kazakhstan.
- PI 600386. *Malus sieversii* (Ledeb.) M. Roem.  
Wild. USSR-89-32-21; GMAL 3336. Collected 09/10/1989 in Kazakhstan.
- PI 600387. *Malus sieversii* (Ledeb.) M. Roem.  
Wild. USSR-89-32-22; GMAL 3337. Collected 09/10/1989 in Kazakhstan.
- PI 600388. *Malus sieversii* (Ledeb.) M. Roem.  
Wild. USSR-89-32-23; GMAL 3338. Collected 09/10/1989 in Kazakhstan.
- PI 600389. *Malus sieversii* (Ledeb.) M. Roem.  
Wild. USSR-89-32-25; GMAL 3339. Collected 09/10/1989 in Kazakhstan.
- PI 600390. *Malus sieversii* (Ledeb.) M. Roem.  
Wild. USSR-89-32-26; Sperling 7033, Herb. no.; GMAL 3340. Collected

09/10/1989 in Kazakhstan.

- PI 600391. *Malus sieversii* (Ledeb.) M. Roem.  
Wild. USSR-89-32-27; GMAL 3341. Collected 09/10/1989 in Kazakhstan.
- PI 600392. *Malus sieversii* (Ledeb.) M. Roem.  
Wild. USSR-89-32-29; GMAL 3343. Collected 09/10/1989 in Kazakhstan.
- PI 600393. *Malus sieversii* (Ledeb.) M. Roem.  
Wild. USSR-89-32-30; GMAL 3344. Collected 09/10/1989 in Kazakhstan.
- PI 600394. *Malus sieversii* (Ledeb.) M. Roem.  
Wild. USSR-89-32-31; GMAL 3345. Collected 09/10/1989 in Kazakhstan.
- PI 600395. *Malus sieversii* (Ledeb.) M. Roem.  
Wild. USSR-89-33-01; GMAL 3346. Collected 09/10/1989 in Kazakhstan.
- PI 600396. *Malus sieversii* (Ledeb.) M. Roem.  
Wild. USSR-89-33-02; GMAL 3347. Collected 09/10/1989 in Kazakhstan.
- PI 600397. *Malus sieversii* (Ledeb.) M. Roem.  
Wild. USSR-89-33-03; Sperling 7036, Herb. no.; GMAL 3348. Collected  
09/10/1989 in Uzbekistan.
- PI 600398. *Malus sieversii* (Ledeb.) M. Roem.  
Wild. USSR-89-34-01; GMAL 3349. Collected 09/12/1989 in Kazakhstan.  
Elevation 1550 m. Soldatsky area. Steep SW facing slope (45% slope).  
Dominated by wild *Malus* and *Crataegus* spp.
- PI 600399. *Malus sieversii* (Ledeb.) M. Roem.  
Wild. USSR-89-34-02; Sperling 7037, Herb. no.; GMAL 3350. Collected  
09/12/1989 in Kazakhstan. Elevation 1550 m. Soldatsky area. Steep SW  
facing slope (45% slope). Dominated by wild *Malus* and *Crataegus* spp.
- PI 600400. *Malus sieversii* (Ledeb.) M. Roem.  
Wild. USSR-89-34-03; GMAL 3351. Collected 09/12/1989 in Kazakhstan.  
Elevation 1550 m. Soldatsky area. Steep SW facing slope (45% slope).  
Dominated by wild *Malus* and *Crataegus* spp.
- PI 600401. *Malus sieversii* (Ledeb.) M. Roem.  
Wild. USSR-89-34-04; GMAL 3352. Collected 09/12/1989 in Kazakhstan.  
Elevation 1550 m. Soldatsky area. Steep SW facing slope (45% slope).  
Dominated by wild *Malus* and *Crataegus* spp.
- PI 600402. *Malus sieversii* (Ledeb.) M. Roem.  
Wild. USSR-89-34-05; GMAL 3353. Collected 09/12/1989 in Kazakhstan.  
Elevation 1550 m. Soldatsky area. Steep SW facing slope (45% slope).  
Dominated by wild *Malus* and *Crataegus* spp.
- PI 600403. *Malus sieversii* (Ledeb.) M. Roem.  
Wild. USSR-89-34-07; GMAL 3354. Collected 09/12/1989 in Kazakhstan.  
Elevation 1550 m. Soldatsky area. Steep SW facing slope (45% slope).  
Dominated by wild *Malus* and *Crataegus* spp.

The following were donated by Herb S. Aldwinckle, Cornell University, New York State Agric. Exp. Station, Department of Plant Pathology, Geneva, New York 14456-0462, United States. Received 10/10/1989.

PI 600404. *Malus sieversii* (Ledeb.) M. Roem.  
USSR-89-37-01; GMAL 3355. Collected in Kazakhstan.

PI 600405. *Malus sieversii* (Ledeb.) M. Roem.  
USSR-89-37-02; GMAL 3356. Collected in Kazakhstan.

PI 600406. *Malus sieversii* (Ledeb.) M. Roem.  
USSR-89-37-03; GMAL 3357. Collected in Kazakhstan.

PI 600407. *Malus sieversii* (Ledeb.) M. Roem.  
USSR-89-37-04; GMAL 3358. Collected in Kazakhstan.

PI 600408. *Malus sieversii* (Ledeb.) M. Roem.  
USSR-89-37-05; GMAL 3359. Collected in Kazakhstan.

PI 600409. *Malus sieversii* (Ledeb.) M. Roem.  
USSR-89-35-01; GMAL 3360. Collected in Kazakhstan.

The following were donated by Lon J. Rombough, 13113 Ehlen Road, Aurora, Oregon 97002, United States. Received 01/16/1990.

PI 600410. *Malus fusca* (Raf.) C. K. Schneid.  
GMAL 3402.

The following were donated by Xulan Hu, Yunnan Provincial Department of Agriculture, Yunnan Agricultural Extension Center, Yunnan Gesang Flower Company, Kunming, Yunnan 650032, China. Received 02/05/1990.

PI 600411. *Malus micromalus* Makino  
GMAL 3434.

PI 600412. *Malus* sp.  
GMAL 3437.

The following were donated by George A. White, USDA-ARS, Beltsville Agricultural Research Ctr., Bldg. 001, 3rd Floor, Barc-West, Beltsville, Maryland 20705, United States. Received 05/29/1990.

PI 600413. *Malus baccata* (L.) Borkh.  
GMAL 3451. Collected in Former Soviet Union.

The following were donated by Shi Yin Ping, Shandong Inst. of Pomology, Tainan, Shandong 271000, China. Received 02/07/1991.

PI 600414. *Malus hupehensis* (Pamp.) Rehder  
GMAL 3453.



PI 600415. *Malus hupehensis* (Pamp.) Rehder  
GMAL 3454.

The following were donated by Xulan Hu, Yunnan Provincial Department of Agriculture, Yunnan Agricultural Extension Center, Yunnan Gesang Flower Company, Kunming, Yunnan 650032, China. Received 04/18/1991.

PI 600416. *Malus komarovii* (Sarg.) Rehder  
GMAL 3455.

PI 600417. *Malus hupehensis* (Pamp.) Rehder  
GMAL 3456.

PI 600418. *Malus* sp.  
GMAL 3457; *M. rockii*.

PI 600419. *Malus micromalus* Makino  
GMAL 3458.

The following were donated by Elizabeth Dickson, NYS Agricultural Experiment Station, Horticultural Sciences, Hedrick Hall, Geneva, New York 14456-0462, United States. Received 09/13/1991.

PI 600420. *Malus ioensis* (A. W. Wood) Britton  
GMAL 3460.

PI 600421. *Malus ioensis* (A. W. Wood) Britton  
GMAL 3461.

The following were donated by Elizabeth Dickson, Cornell Univ., L.H. Bailey Hortorium, Ithaca, New York 14853, United States. Received 03/27/1992.

PI 600422. *Malus ioensis* (A. W. Wood) Britton  
GMAL 3488.

The following were collected by Philip L. Forsline, USDA, ARS, Cornell University, Plant Genetic Resources Unit, Geneva, New York 14456-0462, United States. Donated by Aimak Dj. Djangaliev, Academy of Sciences Rep. of Kazakhstan, Main Botanical Garden, 187 Tulebaev st., apt. 11, Almaty, Alma-Ata 480091, Kazakhstan; Philip L. Forsline, USDA, ARS, Cornell University, Plant Genetic Resources Unit, Geneva, New York 14456-0462, United States; Gaylord Mink, Washington State University, Irrigated Agricultural Res. & Ext. Ctr., Route 2, Box 2953-A, Prosser, Washington 99350, United States. Received 11/01/1993.

PI 600423. *Malus sieversii* (Ledeb.) M. Roem.  
Wild. GMAL 3526. Collected 09/10/1993 in Kazakhstan. Latitude 45 deg. 24' N. Longitude 80 deg. 24' E. Elevation 1295 m. Sarkand, Village of Topolevka, Forestry Camp #16 Topolevka Forestry Area, Taldy-Kurgan region, Soldier's Gorge, Dzhungarksy Alatau, 200 m SW of campsite. Soil humus. Slope 45%. Rainfall 750-800 mm. Surrounding plants: *Malus*

sieversii, Berberis sphaericarua, Rosa, Rhamnus, Crataegus jungalica, Humulus lupulus, Lonicera altmoni, Padus racemosa, Ribes meyeri. Pedigree - Wild. Fruit pale green to yellow, no blush, waxy. Flavor astringent. Disease: some fruit have canker. Leaf: scab. Insects: few scattered leaf spots. Tree 12 m, spreading.

**PI 600424. Malus sieversii (Ledeb.) M. Roem.**

Wild. GMAL 3527. Collected 09/10/1993 in Kazakhstan. Latitude 45 deg. 24' N. Longitude 80 deg. 24' E. Kazakhstan, Sarkand, Village of Topolevka, Forestry Camp #16 Topolevka Forestry Area, Taldy-Kurgan region, Soldier's Gorge, Dzhungarksy Alatau, near area of Bees. Soil humus. Slope 45%, Rainfall 750-800 mm. Surrounding plants: Crataegus jungalica. Pedigree - Wild. Fruit oblong, yellow, no bloom, waxy. Flavor good, sweet; hard texture. No scab. Insect: red spider mite, no aphids. Leaf shape long. Tree 6-8 m; compact habit; spur short, productive.

The following were collected by Philip L. Forsline, USDA, ARS, Cornell University, Plant Genetic Resources Unit, Geneva, New York 14456-0462, United States. Developed by Institute of Botany, Kazakh Academy of Sciences, Almaty, Alma-Ata, Kazakhstan. Donated by Aimak Dj. Djangaliev, Academy of Sciences Rep. of Kazkhstan, Main Botanical Garden, 187 Tulebaev st., apt. 11, Almaty, Alma-Ata 480091, Kazakhstan; Philip L. Forsline, USDA, ARS, Cornell University, Plant Genetic Resources Unit, Geneva, New York 14456-0462, United States; Gaylord Mink, Washington State University, Irrigated Agricultural Res. & Ext. Ctr., Route 2, Box 2953-A, Prosser, Washington 99350, United States. Received 11/01/1993.

**PI 600425. Malus sieversii (Ledeb.) M. Roem.**

Wild. GMAL 3528. Collected 09/10/1993 in Kazakhstan. Latitude 45 deg. 24' N. Longitude 80 deg. 24' E. Elevation 1255 m. Kazakhstan, Sarkand, Village of Topolevka, Forestry Camp #16 Topolevka Forestry Area, Taldy-Kurgan region, Soldier's Gorge, Dzhungarksy Alatau, near area of Bees. Soil humus. Rainfall 750-800 mm. Surrounding plants: Crataegus. Pedigree - Propagated in Alma Ata Botanical Garden. Fruit small, cherry-like, round, very long pedicel, persist ant calyx, pale green or yellow. Flavor acid. Fruit disease scab ++. Tree height 10 m, drooping habit. oldest tree in forest, 100 years. TP -25 form 10.

The following were collected by Philip L. Forsline, USDA, ARS, Cornell University, Plant Genetic Resources Unit, Geneva, New York 14456-0462, United States. Donated by Aimak Dj. Djangaliev, Academy of Sciences Rep. of Kazkhstan, Main Botanical Garden, 187 Tulebaev st., apt. 11, Almaty, Alma-Ata 480091, Kazakhstan; Philip L. Forsline, USDA, ARS, Cornell University, Plant Genetic Resources Unit, Geneva, New York 14456-0462, United States; Gaylord Mink, Washington State University, Irrigated Agricultural Res. & Ext. Ctr., Route 2, Box 2953-A, Prosser, Washington 99350, United States. Received 11/01/1993.

**PI 600426. Malus sieversii (Ledeb.) M. Roem.**

Wild. GMAL 3529. Collected 09/10/1993 in Kazakhstan. Latitude 45 deg. 25' N. Longitude 80 deg. 24' E. Elevation 1255 m. Kazakhstan, Sarkand, Village of Topolevka, Forestry Camp #16 Topolevka Forestry Area,

Taldy-Kurgan region, Soldier's Gorge, Dzhungarksy Alatau. Soil humus. Slope 30%. Rainfall 750-800 mm. Surrounding plants: Humulus. Pedigree - Wild. Fruit medium size, greenish-yellow, early ripening. Flavor very astringent. Fruit disease: scab. Insect: red mites. Leaf shape round. Tree height 12 m; long thin branches. Golden Delicious type spur.

**PI 600427. *Malus sieversii* (Ledeb.) M. Roem.**

Wild. GMAL 3530. Collected 09/10/1993 in Kazakhstan. Latitude 45 deg. 25' N. Longitude 80 deg. 24' E. Elevation 1255 m. Kazakhstan, Sarkand, Village of Topolevka, Forestry Camp #16 Topolevka Forestry Area, Taldy-Kurgan region, Soldier's Gorge, Dzhungarksy Alatau. Soil humus. Slope 30%. Rainfall 750-800 mm. Surrounding plants: Rubus. Pedigree - Wild. Fruit flat top, persistent calyx, yellowish, very waxy. Flavor very acid, over mature. Fruit disease: scab. Leaf shape long, petiole 1.5 cm. Tree 12 m; short habit, spreading.

**PI 600428. *Malus sieversii* (Ledeb.) M. Roem.**

Wild. GMAL 3531. Collected 09/10/1993 in Kazakhstan. Latitude 45 deg. 24' N. Longitude 80 deg. 24' E. Elevation 1260 m. Kazakhstan, Sarkand, Village of Topolevka, Forestry Camp #16 Topolevka Forestry Area, Taldy-Kurgan region, Soldier's Gorge, Dzhungarksy Alatau. Soil humus. Slope slight. Rainfall 750-800 mm. Surrounding plants: Humulus. Pedigree - Wild. Fruit small, 3-4 cm pedicel, calyx persistent, red stripe on yellow background. Flavor bland, very ripe. Disease: scab ++. Leaf shape: small, elongated normal type. Tree height 12 m; spreading habit.

**PI 600429. *Malus sieversii* (Ledeb.) M. Roem.**

Wild. GMAL 3532. Collected 09/10/1993 in Kazakhstan. Latitude 45 deg. 24' N. Longitude 80 deg. 24' E. Elevation 1240 m. Kazakhstan, Sarkand, Village of Topolevka, Forestry Camp #16 Topolevka Forestry Area, Taldy-Kurgan region, Soldier's Gorge, Dzhungarksy Alatau. Soil humus. Slope slight. Rainfall 750-800 mm. Surrounding plants: Urtica (nettles). Pedigree - Wild. Fruit Yellow-white. Flavor acidic, astringent. Tree height 12 m, spreading habit. Short production spur. Fruit disease: scab. Leaf shape: long. Leaf disease: scab +.

**PI 600430. *Malus sieversii* (Ledeb.) M. Roem.**

Wild. GMAL 3533. Collected 09/10/1993 in Kazakhstan. Latitude 45 deg. 24' N. Longitude 80 deg. 24' E. Elevation 1230 m. Kazakhstan, Sarkand, Village of Topolevka, Forestry Camp #16 Topolevka Forestry Area, Taldy-Kurgan region, Soldier's Gorge, Dzhungarksy Alatau. Soil humus, PH neutral. Slope on top of small ridge. Rainfall 750-800 mm. Surrounding plants: Crataegus. Pedigree - Wild. Fruit Yellow white. Flavor acidic. Disease scab +. Leaf shape short petiole. Tree height 15 m; spreading habit. Long production spur.

**PI 600431. *Malus baccata* (L.) Borkh.**

Wild. GMAL 3534. Collected 09/10/1993 in Kazakhstan. Latitude 45 deg. 24' N. Longitude 80 deg. 24' E. Elevation 1225 m. Kazakhstan, Sarkand, Village of Topolevka, Forestry Camp #16 Topolevka Forestry Area, Taldy-Kurgan region, Soldier's Gorge, Dzhungarksy Alatau. Soil humus. Slope slight. Rainfall 750-800 mm. Pedigree - Wild. Fruit 1.0 cm; red. Tree height 2m.

- PI 600432. *Malus sieversii* (Ledeb.) M. Roem.**  
Wild. GMAL 3535. Collected 09/11/1993 in Kazakhstan. Latitude 45 deg. 24' N. Longitude 80 deg. 25' E. Elevation 1400 m. Kazakhstan, Sarkand, Village of Topolevka, Forestry Camp #16 Topolevka Forestry Area, Taldy-Kurgan region, Soldier's Gorge, Dzhungarksy Alatau. Plateau before going over ridge, possibly good air drainage. Slope west facing. Rainfall 750-800 mm. Surrounding plants *Padus racemosa*, *Crataegus altaica*, *Ribes meyeri*, *Lonicera altmoni*, *Berberis sphaerocarpa*. Pedigree - Wild. Fruit 5.0 x 5.5 cm, red, strip, whitish yellow background, red veins; low density, high tannin. Disease: scab. Leaf shape elongated, normal. Tree height 9 m; spreading habit. Short production spur.
- PI 600433. *Malus sieversii* (Ledeb.) M. Roem.**  
Wild. GMAL 3536. Collected 09/11/1993 in Kazakhstan. Latitude 45 deg. 24' N. Longitude 80 deg. 25' E. Elevation 1400 m. Kazakhstan, Sarkand, Village of Topolevka, Forestry Camp #16 Topolevka Forestry Area, Taldy-Kurgan region, Soldier's Gorge, Dzhungarksy Alatau. Plateau before going over ridge, possibly good air drainage. Slope west facing. Rainfall 750-800 mm. Surrounding plants *Padus racemosa*, *Crataegus altaica*, *Ribes meyeri*, *Lonicera altmoni*, *Berberis sphaerocarpa*. Pedigree - Wild. Fruit large, 5.2 x 6.0 cm; like White Transparent, Russian Yellow. Flavor aromatic, acid; low density. TA - 28 31/17. Fruit disease: clean. Leaf shape round, soft, thin. Leaf disease: scab, some fungal leaf spot. Tree height 9 m; spreading habit.
- PI 600434. *Malus sieversii* (Ledeb.) M. Roem.**  
Wild. GMAL 3537. Collected 09/11/1993 in Kazakhstan. Latitude 45 deg. 24' N. Longitude 80 deg. 25' E. Elevation 1400 m. Kazakhstan, Sarkand, Village of Topolevka, Forestry Camp #16 Topolevka Forestry Area, Taldy-Kurgan region, Soldier's Gorge, Dzhungarksy Alatau. Plateau before going over ridge, possibly good air drainage. Slope west facing. Rainfall 750-800 mm. Surrounding plants *Padus racemosa*, *Crataegus altaica*, *Ribes meyeri*, *Lonicera altmoni*, *Berberis sphaerocarpa*. Pedigree - Wild. Fruit 4.3 x 3.4 cm; greenish yellow. Flavor bitter, somewhat aromatic, mealy; high phenol content. Fruit disease: scab++. Leaf shape elongated, long petiole. Leaf disease: scab++. Insect: none. Tree height 8 m; spreading habit; spur type.
- PI 600435. *Malus sieversii* (Ledeb.) M. Roem.**  
Wild. GMAL 3538. Collected 09/11/1993 in Kazakhstan. Latitude 45 deg. 24' N. Longitude 80 deg. 25' E. Elevation 1390 m. Kazakhstan, Sarkand, Village of Topolevka, Forestry Camp #16 Topolevka Forestry Area, Taldy-Kurgan region, Soldier's Gorge, Dzhungarksy Alatau. Slope west facing. Rainfall 750-800 mm. Pedigree - Wild. Fruit Small, 3.0 x 2.8 cm; green yellow, red blush. Flavor sour, astringent. TS - 15 form 1S, 31/16. Fruit disease: scab +. Leaf shape roundish. Leaf disease: leaf spot. Tree height 8-10 m; spreading habit.
- PI 600436. *Malus sieversii* (Ledeb.) M. Roem.**  
Wild. GMAL 3539. Collected 09/11/1993 in Kazakhstan. Latitude 45 deg. 24' N. Longitude 80 deg. 25' E. Elevation 1395 m. Sarkand, Village of Topolevka, Forestry Camp #16 Topolevka Forestry Area, Taldy-Kurgan region, Soldier's Gorge, Dzhungarksy Alatau. Near bottom of valley, old thicket. Slope southwest facing. Rainfall 750-800 mm. Pedigree - Wild.

Fruit medium, 3.6 x 4.2 cm; round, faint stripe on green yellow background. Flavor sour, mealy, overripe. Fruit disease: scab. Leaf shape normal. Tree old, spreading habit, short spur production.

**PI 600437. *Malus sieversii* (Ledeb.) M. Roem.**

Wild. GMAL 3540. Collected 09/11/1993 in Kazakhstan. Latitude 45 deg. 24' N. Longitude 80 deg. 25' E. Elevation 1365 m. Kazakhstan, Sarkand, Village of Topolevka, Forestry Camp #16 Topolevka Forestry Area, Taldy-Kurgan region, Soldier's Gorge, Dzhungarksy Alatau. Bottom of valley. Soil humus. Slope south facing. Rainfall 750-800 mm. Pedigree - Wild. Fruit medium large, 4.0 x 4.0 cm, elongated, yellow green, red blush. Flavor balance between acidity and sweetness; not green; breeding potential, TS -17 form 4 S, 31/15. Leaf disease: rust?. Tree height 8-10 m; spreading habit.

**PI 600438. *Malus sieversii* (Ledeb.) M. Roem.**

Wild. GMAL 3541. Collected 09/11/1993 in Kazakhstan. Latitude 45 deg. 24' N. Longitude 80 deg. 25' E. Elevation 1365 m. Kazakhstan, Sarkand, Village of Topolevka, Forestry Camp #16 Topolevka Forestry Area, Taldy-Kurgan region, Soldier's Gorge, Dzhungarksy Alatau. Bottom of valley. Soil humus. Slope south facing. Rainfall 750-800 mm. Pedigree - Wild. Fruit small, 2.6 x 2.2 cm; round, bright carmine, nearly all over, yellow flesh. Flavor bad, very gritty. Fruit disease: scab. Leaf disease: scab. Breeding potential. Iron deficiency or early senescence. Tree height 8 m.

**PI 600439. *Malus sieversii* (Ledeb.) M. Roem.**

Wild. GMAL 3542. Collected 09/11/1993 in Kazakhstan. Latitude 45 deg. 24' N. Longitude 80 deg. 25' E. Elevation 1365 m. Kazakhstan, Sarkand, Village of Topolevka, Forestry Camp #16 Topolevka Forestry Area, Taldy-Kurgan region, Soldier's Gorge, Dzhungarksy Alatau. Bottom of valley. Soil humus. Slope south facing. Rainfall 750-800 mm. Pedigree - Wild. Fruit 4.0 x 3.8 cm, elongated, yellow white. Flavor sweet, astringent. Fruit disease: water core, occ. scab. Leaf disease: no scab; non-vigorous, covered with hops. Tree height 8 m; upright habit; spur type.

**PI 600440. *Malus sieversii* (Ledeb.) M. Roem.**

Wild. GMAL 3543. Collected 09/11/1993 in Kazakhstan. Latitude 45 deg. 24' N. Longitude 80 deg. 25' E. Elevation 1360 m. Kazakhstan, Sarkand, Village of Topolevka, Forestry Camp #16 Topolevka Forestry Area, Taldy-Kurgan region, Soldier's Gorge, Dzhungarksy Alatau. Bottom of valley. Soil humus. Slope south facing. Rainfall 750-800 mm. Pedigree - Wild. Fruit medium large, 4.3 x 4.2 cm, round, flat, green yellow with red blush. Flavor astringent, acidic, unripe. Fruit disease: scab; healthy overall. Tree height 10 m; upward spreading habit.

**PI 600441. *Malus sieversii* (Ledeb.) M. Roem.**

Wild. GMAL 3544. Collected 09/11/1993 in Kazakhstan. Latitude 45 deg. 24' N. Longitude 80 deg. 25' E. Elevation 1385 m. Kazakhstan, Sarkand, Village of Topolevka, Forestry Camp #16 Topolevka Forestry Area, Taldy-Kurgan region, Soldier's Gorge, Dzhungarksy Alatau. Steep to S and N. Slope west facing ridge. Rainfall 750-800 mm. Surrounding plants *Populus tramuloides*. Pedigree - Wild. Fruit small, 3.1 x 3.2 cm, round, yellow. Flavor very sweet, very bitter, dry flesh. Fruit disease:

scab++, Leaf shape long. Tree height 8-10 m; spreading habit.

**PI 600442. *Malus kirghisorum* Al. Fed. & Fed.**

Wild. GMAL 3545. Collected 09/12/1993 in Kazakhstan. Latitude 45 deg. 24' N. Longitude 80 deg. 24' E. Elevation 1320 m. Kazakhstan, Sarkand, Village of Topolevka, Forestry Camp #16 Topolevka Forestry Area, Taldy-Kurgan region, Soldier's Gorge, Dzhungarksy Alatau; 1 km. N of campsite. Near streambed. Soil humus. Slope north facing. Rainfall 750-800 mm. Pedigree - Wild. Fruit small, 2.7 x 2.6 cm, green, hard, flavor bitter. Fruit disease: scab++. Lower leaves dead. leaf disease: scab++, no leaf curl. Tree height 11 m; spreading habit; spur on longer shoots; heavily fruiting, 150 years old, indistinguishable from *Malus sieversii*.

**PI 600443. *Malus sieversii* (Ledeb.) M. Roem.**

Wild. GMAL 3546. Collected 09/12/1993 in Kazakhstan. Latitude 45 deg. 24' N. Longitude 80 deg. 24' E. Elevation 1320 m. Kazakhstan, Sarkand, Village of Topolevka, Forestry Camp #16 Topolevka Forestry Area, Taldy-Kurgan region, Soldier's Gorge, Dzhungarksy Alatau; 150 m N of campsite. Soil humus. Slope south facing. Rainfall 750-800 m. Surrounding plants *Lonicera*, *Rhamnus*. Pedigree - Wild. Fruit 4.0 x 3.7 cm, roundish, yellow green, oxidizes rapidly. Flavor acidic, somewhat aromatic. Fruit disease: scab++. Leaf disease: scab, red fungal leaf spot. Tree height 11 m.

**PI 600444. *Malus sieversii* (Ledeb.) M. Roem.**

Wild. GMAL 3547. Collected 09/12/1993 in Kazakhstan. Latitude 45 deg. 24' N. Longitude 80 deg. 24' E. Elevation 1335 m. Kazakhstan, Sarkand, Village of Topolevka, Forestry Camp #16 Topolevka Forestry Area, Taldy-Kurgan region, Soldier's Gorge, Dzhungarksy Alatau; on plateau, up hill from campsite. Soil humus. Slope west facing. Rainfall 750-800 mm. Surrounding plants: many *malus*. Pedigree - Wild. Fruit small, 3.2 x 3.0 cm, green, Flavor acidic. Fruit disease: scab++. Leaf disease: scab; round, brown, necrotic spots w fruit bodies; isolated, looks like *M. kirghisorum*, oxidizes rapidly, hops. Tree height 11 m; spreading habit; modified spur bearing.

**PI 600445. *Malus sieversii* (Ledeb.) M. Roem.**

Wild. GMAL 3548. Collected 09/12/1993 in Kazakhstan. Latitude 45 deg. 24' N. Longitude 80 deg. 24' E. Elevation 1350 m. Kazakhstan, Sarkand, Village of Topolevka, Forestry Camp #16 Topolevka Forestry Area, Taldy-Kurgan region, Soldier's Gorge, Dzhungarksy Alatau. Last tree before the meadow. Soil humus. Slope northwest facing. Rainfall 750-800 mm. Population 100+. Sunny area. Pedigree - Wild. Fruit 3.5 x 3.2 cm, yellow, green at calyx Flavor bland, slightly acidic, slightly aromatic. Fruit disease: scab. Leaf shape round. Leaf disease: scab, some reddish leaf spot. Tree height 9 m; spreading habit.

**PI 600446. *Malus sieversii* (Ledeb.) M. Roem.**

Wild. GMAL 3549. Collected 09/12/1993 in Kazakhstan. Latitude 45 deg. 24' N. Longitude 80 deg. 24' E. Elevation 1375 m. Kazakhstan, Sarkand, Village of Topolevka, Forestry Camp #16 Topolevka Forestry Area, Taldy-Kurgan region, Soldier's Gorge, Dzhungarksy Alatau. Uphill, 50 m down from conifers at draw where stream runs S. Soil humus. Slope 30% west facing. Rainfall 750-800 mm. Surrounding plants *Rubus*, *Crataegus*,

Abies. Pedigree - Wild. Fruit small, 4.0 x 3.5 cm, greenish with yellow case. Flavor astringent, aromatic, flavorful. Fruit disease: scab. Tree height 12 m; spreading habit, horizontal branches; huge scaffold branches at wide angles; modified spur; one of the highest trees in the area, leaning towards slope.

**PI 600447. *Malus sieversii* (Ledeb.) M. Roem.**

Wild. GMAL 3550. Collected 09/12/1993 in Kazakhstan. Latitude 45 deg. 24' N. Longitude 80 deg. 24' E. Elevation 1285 m. Kazakhstan, Sarkand, Village of Topolevka, Forestry Camp #16 Topolevka Forestry Area, Taldy-Kurgan region, Soldier's Gorge, Dzhungarksy Alatau. Across valley, 70 m N, at base of S slope. Soil drier. Slope 10% south facing. Rainfall 750-800 mm. Population 100+. Surrounding plants *Crataegus*, *Prunus*. Pedigree - Wild. Fruit large, 3.8 x 4.0 cm, yellow. Flavor good balance, aromatic, acidic, juicy, nice flavor. Fruit disease: scab. Leaf shape: roundish, healthy. Leaf disease: few scab, maybe resistance reaction to scab. Tree height 10 m; multiple trunks.

**PI 600448. *Malus kirghisorum* Al. Fed. & Fed.**

Wild. GMAL 3551. Collected 09/12/1993 in Kazakhstan. Latitude 45 deg. 24' N. Longitude 80 deg. 24' E. Elevation 1285 m. Kazakhstan, Sarkand, Village of Topolevka, Forestry Camp #16 Topolevka Forestry Area, Taldy-Kurgan region, Soldier's Gorge, Dzhungarksy Alatau, on the way back to camp. Soil wet. Rainfall 750-800 mm. Population large. Surrounding plants *Rhamnus*, Box elder. Pedigree - Wild. Fruit large, 4.7 x 4.7 cm, large carpels, red strips with yellow background. Flavor aromatic, acidic, dry, nice flavor. Fruit disease: scab+. Leaf shape: healthy. Leaf disease: scab. Insect: spider mite++. Tree height 9 m; spreading habit; spur type; multiple trunks.

**PI 600449. *Malus kirghisorum* Al. Fed. & Fed.**

Wild. GMAL 3552. Collected 09/12/1993 in Kazakhstan. Latitude 45 deg. 24' N. Longitude 80 deg. 24' E. Elevation 1290 m. Kazakhstan, Sarkand, Village of Topolevka, Forestry Camp #16 Topolevka Forestry Area, Taldy-Kurgan region, Soldier's Gorge, Dzhungarksy Alatau, on the way back to camp; 80 m up slope towards W on NW ridge. Slope 1%. Rainfall 750-800 mm. Population size large. Surrounding plants *Rhamnus*, Box elder. Pedigree - Wild. Fruit 4.0 x 4.0 cm, round, yellow with slight green cast. Flavor very astringent, bad flavor. Fruit disease: scab. Leaf disease: scab. Tree erect habit, bearing at top of tree; few side branches.

**PI 600450. *Malus sieversii* (Ledeb.) M. Roem.**

Wild. GMAL 3553. Collected 09/13/1993 in Kazakhstan. Elevation 1380 m. Kazakhstan, Sarkand, Village of Topolevka, Forestry Camp #16 Topolevka Forestry Area, Taldy-Kurgan region, Soldier's Gorge, Dzhungarksy Alatau, less than 1 km S of campsite, W side of road. Soil moist humus. Slope 45% NW facing. Rainfall 750-800 mm. Surrounding plants *Crataegus*, *Berberis*, *Populus tremuloides*, *Fragaria*. Pedigree - Wild. Fruit Round, flat, short pedicle, red block with strip, bright carmine. Flavor acidic, aromatic, astringent, mealy, not bad flavor; early maturing, most fruit had dropped. Fruit disease: scab.

**PI 600451. *Malus sieversii* (Ledeb.) M. Roem.**

Wild. GMAL 3554. Collected 09/13/1993 in Kazakhstan. Latitude 45 deg.

24' N. Longitude 80 deg. 24' E. Elevation 1305 m. Kazakhstan, Sarkand, Village of Topolevka, Forestry Camp #16 Topolevka Forestry Area, Taldy-Kurgan region, Soldier's Gorge, Dzhungarksy Alatau, just S of campsite, E side of road. Soil moist humus. Slope 20% NW facing. Rainfall 750-800 mm. Surrounding plants Rhamnus, Crataegus, Quercus, Tilia. Pedigree - Wild. Fruit 5.5 x 5.0 cm, round, Gala type, red carmine strip on yellow background. Flavor aromatic, somewhat bitter, not astrigent, good flavor. Fruit disease: scab. Leaf disease: none. Insect: one aphid. One of the best apples found. Tree height 8-10 m; upright habit; erect spurs.

**PI 600452. *Malus sieversii* (Ledeb.) M. Roem.**

Wild. GMAL 3555. Collected 09/13/1993 in Kazakhstan. Latitude 45 deg. 24' N. Longitude 80 deg. 24' E. Elevation 1305 m. Kazakhstan, Sarkand, Village of Topolevka, Forestry Camp #16 Topolevka Forestry Area, Taldy-Kurgan region, Soldier's Gorge, Dzhungarksy Alatau, just S of campsite, E side of road. Soil moist humus. Slope 20% NW facing. Rainfall 750-800 mm. Surrounding plants Rhamnus, Crataegus, Quercus, Tilia. Pedigree - Wild. Fruit 5.25 x 4.5 cm, round, flat, medium pedicel length, green, immature. Flavor somewhat aromatic, starchy, grassy flavor. Fruit disease: scab. Leaf disease: rust lesions, tan necrotic spots. Fruitful, desirable, oxidizes quickly. Tree height 15 m.

**PI 600453. *Malus sieversii* (Ledeb.) M. Roem.**

Wild. GMAL 3556. Collected 09/14/1993 in Kazakhstan. Latitude 45 deg. 31' N. Longitude 80 deg. 43' E. Elevation 1345 m. Kazakhstan, Lepsinsk, Black River Forestry Camp, Dodakalava Ridge ?, Dzhungarsky Alatau, near Black River Camp. Slope 10-20% NW. Surrounding plants Prunus, Chrysanthemum. Pedigree - Wild. Fruit small, green yellow, waxy. Flavor somewhat sweet, hard, cardboard texture. Fruit disease: scab +++. Leaf disease: scab +++; growth stunted by severe scab, much underbrush. Tree 6-8 m.

**PI 600454. *Malus sieversii* (Ledeb.) M. Roem.**

Wild. GMAL 3557. Collected 09/14/1993 in Kazakhstan. Latitude 45 deg. 31' N. Longitude 80 deg. 43' E. Elevation 1400 m. Kazakhstan, Lepsinsk, Black River Forestry Camp, Dodakalava Ridge ?, Dzhungarsky Alatau. Sunny area. Soil moist humus. Slope S facing. Population large, widespread. Surrounding plants lush vegetation, Quercus, thistle, grass. Pedigree - Wild. Fruit 3.5 x 3.0 cm, green, immature. Flavor: faintly sweet somewhat astringent. Fruit disease: scab. Leaf disease: scab, frost tolerant. Tree semi-erect habit; spur bearing.

**PI 600455. *Malus sieversii* (Ledeb.) M. Roem.**

Wild. GMAL 3558. Collected 09/14/1993 in Kazakhstan. Latitude 45 deg. 30' N. Longitude 80 deg. 42' E. Elevation 1300 m. Kazakhstan, Lepsinsk, Black River Forestry Camp, Dodakalava Ridge ?, Dzhungarsky Alatau. Grazed meadow. Soil humus. Slope 10%. Surrounding plants Fragaria, Lonicera, grass. Pedigree - Wild. Fruit 3.5 x 3.2 cm, round, medium long pedicels, green, glossy. Flavor very acidic. Leaf disease: scab; reddish brown circular lesion; necrotic circle with green center. Tree widely spreading habit; branches long, thin, Golden Delicious type; not spur type; single tree in open area.

**PI 600456. *Malus sieversii* (Ledeb.) M. Roem.**



Wild. GMAL 3559. Collected 09/14/1993 in Kazakhstan. Latitude 45 deg. 30' N. Longitude 80 deg. 42' E. Elevation 1280 m. Kazakhstan, Lepsinsk, Black River Forestry Camp, Dodakalava Ridge ?, Dzhungarsky Alatau. At edge of flat cultivated area edge of Malus forest with defoliation. Soil dry. Slope W facing. Pedigree - Wild. Fruit medium large, 3.3 x 3.4 cm, medium pedicel length, yellow, glossy, overripe. Flavor sweet, bland, very mealy. Fruit disease: scab ++. Leaf disease: scab, red circular necrotic spot, scorched leaves on one side of tree. Tree height 10-12 m; very broad and squat habit; one major trunk; branches Golden Delicious type.

**PI 600457. *Malus sieversii* (Ledeb.) M. Roem.**

Wild. GMAL 3560. Collected 09/14/1993 in Kazakhstan. Latitude 45 deg. 30' N. Longitude 80 deg. 42' E. Elevation 1270 m. Kazakhstan, Lepsinsk, Black River Forestry Camp, Dodakalava Ridge ?, Dzhungarsky Alatau. At edge of flat cultivated area edge of Malus forest with defoliation. Soil dry scant. West facing. Other trees in area also with scorched defoliation. Pedigree - Wild. Fruit medium, yellow green. Flavor sweet, acidic, some astringency, almost nice flavor. Fruit disease: scab. Fruit insect: strange dimpling on fruit; Leaf shape: normal. Leaf disease: scab; N and SE side of tree, scorched defoliation; oxidizes quickly. Tree height 8-10 m; broad as high habit spur type; short branches.

**PI 600458. *Malus sieversii* (Ledeb.) M. Roem.**

Wild. GMAL 3561. Collected 09/14/1993 in Kazakhstan. Latitude 45 deg. 30' N. Longitude 80 deg. 42' E. Elevation 1275 m. Kazakhstan, Lepsinsk, Black River Forestry Camp, Dodakalava Ridge ?, Dzhungarsky Alatau. At edge of flat cultivated area edge of Malus forest with defoliation. Soil dry. Slope 45% west facing. Pedigree - Wild. Fruit medium small, 2.5 x 3.1 cm, round, yellow green with red blush. Flavor: aromatic, acidic, somewhat astringent, juicy. Fruit disease: scab+. Fruit insect: dimpling on fruit matched by small thread of nectoric tissue in flesh. Leaf disease: scab ++, some defoliation. Tree height 8 m broader than tall habit.

**PI 600459. *Malus kirghisorum* Al. Fed. & Fed.**

Wild. GMAL 3562. Collected 09/17/1993 in Kazakhstan. Latitude 43 deg. 26' N. Longitude 77 deg. 27' E. Elevation 690 m. Kazakhstan, Aktogai Village, Issyk Arboretum. Slope flat. Surrounding plants 60 species of *Crataegus* and many other Kazakh species; lots of buckthorn. Pedigree - Wild. Fruit long pedicel, greenish-yellow, orange-pink blush. Flavor sweet, little acid. Seeds, resistant to frost and winter dryness (form, Ketmen Dessert).

**PI 600460. *Malus sieversii* (Ledeb.) M. Roem.**

Wild. GMAL 3563; niedzwetzkyana. Collected 09/17/1993 in Kazakhstan. Latitude 43 deg. 26' N. Longitude 77 deg. 27' E. Elevation 690 m. Kazakhstan, Aktogai Village, Issyk Arboretum. Slope flat. Surrounding plants 60 species of *Crataegus* and many other Kazakh species; lots of buckthorn. Pedigree - Wild. Fruit large, ribbed calyx, bright crimson. Flavor acidic-sweet with pleasant aroma. Fruit insect: damaged by moth, less than domestica. Frost hardy and resistant to winter dryness.

**PI 600461. *Malus sieversii* (Ledeb.) M. Roem.**

Wild. GMAL 3564. Collected 09/17/1993 in Kazakhstan. Latitude 43 deg.

- 19' N. Longitude 77 deg. 36' E. Elevation 1275 m. Kazakhstan, Turgen Village, Kamenka Gorge (Stone Gorge), East of Arboretum, near Composer's house retreat. Soil rocky. Slope east near stream. Population 50. Surrounding plants buckthorn, apricot, Betula. Pedigree - Wild. Fruit 4.3 x 4.6 cm, green with red blush. Flavor juicy, acidic, nice. Leaf shape like Red Delicious. Leaf disease: scab; scorch, gray necrotic leaf spots. Tree height 7 m; Golden Delicious habit; branches stripped by bear.
- PI 600462. *Malus sieversii* (Ledeb.) M. Roem.**  
Wild. GMAL 3565. Collected 09/17/1993 in Kazakhstan. Latitude 43 deg. 19' N. Longitude 77 deg. 36' E. Elevation 1275 m. Kazakhstan, Turgen Village, Kamenka Gorge (Stone Gorge), East of Arboretum, near Composer's house retreat. Soil rocky. Slope west. Population 50. Surrounding plants buckthorn, apricot, Betula. Pedigree - Wild. Fruit yellow-green, good flavor. Leaf disease: scab. Tree height 3 m.
- PI 600463. *Malus sieversii* (Ledeb.) M. Roem.**  
Wild. GMAL 3566. Collected 09/17/1993 in Kazakhstan. Latitude 43 deg. 19' N. Longitude 77 deg. 36' E. Elevation 1275 m. Kazakhstan, Turgen Village, Kamenka Gorge (Stone Gorge), East of Arboretum, near Composer's house retreat. Soil rocky. Slope near stream. Population 50. Surrounding plants buckthorn, apricot, Betula. Pedigree - Wild. Fruit 4.5 x 4.7 cm, Red Delicious shape, green-yellow with red blush. Flavor good balance of sweet and acid. Leaf disease: scab. Excellent quality, fruit one of the best. Tree height 10 m; Golden Delicious habit.
- PI 600464. *Malus sieversii* (Ledeb.) M. Roem.**  
Wild. GMAL 3567. Collected 09/17/1993 in Kazakhstan. Latitude 43 deg. 30' N. Longitude 77 deg. 41' E. Elevation 930 m. Kazakhstan, Malovdnoe Village, State Farm (Dr. Smuryghin). Pedigree - Wild. Fruit roundish, oval, greenish yellow with little dark red stripes. Flavor acidic sweet. Fruit mature in mid Sept., frost resistant and hardy to winter dryness, seeds. Leaf disease: mildew and scab tolerance. Tree height 4.7 m.
- PI 600465. *Malus sieversii* (Ledeb.) M. Roem.**  
Wild. GMAL 3568. Collected 09/19/1993 in Kazakhstan. Latitude 43 deg. 11' N. Longitude 77 deg. 7' E. Elevation 1680 m. Kazakhstan, near Alma Ata, Kotur Balak "Dirty Water", Delbalak "Clean Water", Kherbet Zailiysky Alatau, 30 m N of stream in gorge. Soil moist humus, deep brown. Slope 45% N facing. Population 30-40. Surrounding plants cultivated apricot, Sorbus, *Lonicera tartarica*. Pedigree - Wild. No info.
- PI 600466. *Malus sieversii* (Ledeb.) M. Roem.**  
Wild. GMAL 3569. Collected 09/19/1993 in Kazakhstan. Latitude 43 deg. 11' N. Longitude 77 deg. 7' E. Elevation 1685 m. Kazakhstan, near Alma Ata, Kotur Balak "Dirty Water", Delbalak "Clean Water", Kherbet Zailiysky Alatau, 30 m N of stream in gorge. Soil moist humus, deep brown. Slope 45% N facing. Population 30-40. Surrounding plants cultivated apricot, Sorbus, *Lonicera tartarica*. Pedigree - Wild. Fruit medium, 4.5 x 4.5 cm, globose, elongated with long pedicel, ribbed fruit, yellow green with strip, some blush. Flavor aromatic, sweet, crisp, somewhat bitter, somewhat juicy. Tree height 10 m, spreading habit; spur type.

- PI 600467. *Malus sieversii* (Ledeb.) M. Roem.**  
 Wild. GMAL 3570. Collected 09/19/1993 in Kazakhstan. Latitude 43 deg. 11' N. Longitude 77 deg. 7' E. Elevation 1685 m. Near Alma Ata, Kotur Balak "Dirty Water", Delbalak "Clean Water", Kherbet Zailiysky Alatau, 30 m N of stream in gorge; just to the East. Soil moist humus, deep brown. Slope 45% N facing. Population 30-40. Surrounding plants cultivated apricot, Sorbus, *Lonicera tartarica*. Pedigree - Wild. Fruit small, 3.2 x 2.9 cm, round flat, short pedicels, ribbed fruit, green, immature; flavor: acidic, hard. Fruit disease: scab, Leaf disease: scab. Tree height 8-9 m; erect habit; erect spurs.
- PI 600468. *Malus sieversii* (Ledeb.) M. Roem.**  
 Wild. GMAL 3571. Collected 09/21/1993 in Kazakhstan. Latitude 42 deg. 52' N. Longitude 69 deg. 55' E. Elevation 930 m. Chimkent, Boralday Forestry Region, Buldergen Gorge, Boralday Mountain, Khrebet Karatau, 40 m from stream. Open area. Soil dry sandy. Rainfall 350 mm. Surrounding plants *Fraxinus*, *Crataegus*, *Morus*. Pedigree - Wild. Fruit mummified, picked up from ground. Tree height 12 m; spreading habit; old.
- PI 600469. *Malus sieversii* (Ledeb.) M. Roem.**  
 Wild. GMAL 3572. Collected 09/21/1993 in Kazakhstan. Chimkent, Boralday Forestry Region, Boralday Mountain, Khrebet Karatau, not far from forestry camp, SW. Rainfall 350 mm. Surrounding plants: *Pistacia vera*, *Malus kirghisorum*, *Malus sierersii*. Pedigree - Wild. Fruit: Long pedicels, yellow, early maturing.
- PI 600470. *Malus kirghisorum* Al. Fed. & Fed.**  
 Wild. GMAL 3573. Collected 09/21/1993 in Kazakhstan. Chimkent, Boralday Forestry Region, Boralday Mountain, Khrebet Karatau, not far from forestry camp, SW. Rainfall 350 mm. Surrounding plants: *Pistacia vera*, *Malus kirghisorum*, *Malus sierversii*. Pedigree - Wild. Fruit: large, yellow.

The following were collected by Philip L. Forsline, USDA, ARS, Cornell University, Plant Genetic Resources Unit, Geneva, New York 14456-0462, United States. Donated by Aimak Dj. Djangaliev, Academy of Sciences Rep. of Kazkhstan, Main Botanical Garden, 187 Tulebaev st., apt. 11, Almaty, Alma-Ata 480091, Kazakhstan; Philip L. Forsline, USDA, ARS, Cornell University, Plant Genetic Resources Unit, Geneva, New York 14456-0462, United States. Received 11/02/1993.

- PI 600471. *Malus kirghisorum* Al. Fed. & Fed.**  
 Wild. GMAL 3574. Collected 09/22/1993 in Kyrgyzstan. Latitude 41 deg. 23' N. Longitude 73 deg. 6' E. Elevation 1335 m. Near Dzhahalal-abad, Koumhama Village, Ferganskiy Kherbet, open grazed meadow, at edge of hill and flat area, NE of village. Soil dry, humus. Slope gentle west facing. Rainfall 700-1700 mm (1190 mm avg.). Surrounding plants: *Prunus sogdiana*. Pedigree - Wild. Fruit 3.5 x 3.5 cm, oblong, deep pedicel cavity, medium pedicel, yellow with red blush, red around pedicel if ripe. Flavor bland, sweetish. Fruit disease scab. Tree height 8 m; spreading habit; thin.
- PI 600472. *Malus kirghisorum* Al. Fed. & Fed.**

Wild. GMAL 3575. Collected 09/22/1993 in Kyrgyzstan. Latitude 41 deg. 23' N. Longitude 73 deg. 6' E. Elevation 1335 m. Near Dzhahalal-abad, Koumhama Village, Ferganskiy Kherbet, open grazed meadow, at edge of hill and flat area, NE of village. Soil dry humus. Slope SE facing. Rainfall 700-1700 mm (1190 mm avg.). Surrounding plants *Prunus sogdiana*. Pedigree - Wild. Fruit large, 4.6 x 4.0 cm, long pedicel, indented at base of pedicel, round flat fruit, wrinkled calyx cavity, greenish yellow, matures to yellow, waxy. Flavor sweet, good flavor; oxidizes quickly. Fruit disease scab. Leaf shape large, long. Tree height 10 m; spreading habit.

**PI 600473. *Malus kirghisorum* Al. Fed. & Fed.**

Wild. GMAL 3576. Collected 09/22/1993 in Kyrgyzstan. Latitude 41 deg. 23' N. Longitude 73 deg. 6' E. Elevation 1335 m. Near Dzhahalal-abad, Koumhama Village, Ferganskiy Kherbet, open grazed meadow, at edge of hill and flat area, NE of village. Soil dry, humus. Slope SE facing. Rainfall 700-1700 mm (1190 mm avg.). Surrounding plants: *Prunus sogdiana*. Pedigree - Wild. Plant small, crinkled calyx cavity, long pedicels, green. Flavor aromatic, sweet covering acidity. Fruit disease scab. Leaf shape round. Leaf disease scab. Tree height 10 m; spreading habit.

**PI 600474. *Malus kirghisorum* Al. Fed. & Fed.**

Wild. GMAL 3577. Collected 09/22/1993 in Kyrgyzstan. Latitude 41 deg. 23' N. Longitude 73 deg. 6' E. Elevation 1335 m. Near Dzhahalal-abad, Koumhama Village, Ferganskiy Kherbet, open grazed meadow, at edge of hill and flat area, NE of village. Soil dry, humus. Slope SE facing. Rainfall 700-1700 mm (1190 mm avg.). Surrounding plants: *Prunus sogdiana*. Pedigree - Wild. Fruit small, indent by pedicel, wide calyx cavity, wrinkled calyx end, short pedicel; yellow, white flesh, russet. Flavor overripe. Leaf shape long, narrow, elongated, long petiole. Tree height 12 m, large; 30 m N - GMAL 3576 uphill.

**PI 600475. *Malus kirghisorum* Al. Fed. & Fed.**

Wild. GMAL 3578. Collected 09/22/1993 in Kyrgyzstan. Latitude 41 deg. 23' N. Longitude 73 deg. 6' E. Elevation 1335 m. Near Dzhahalal-abad, Koumhama Village, Ferganskiy Kherbet, open grazed meadow, at edge of hill and flat area, NE of village. Edge of E facing slope. Soil dry, humus. Rainfall 700-1700 mm (1190 mm avg.). Surrounding plants: *Acer*, *Berberis*, *Juglans*. Pedigree - Wild. Fruit small, 2.5 x 2.0 cm, round, medium pedicel, deep pedicel cavity, wrinkled calyx end, yellow-orange, russet. Flavor sweet, juicy. Fruit disease scab ++. Leaf shape elongated, long petiole Tree height 10-12 m; old tree.

**PI 600476. *Malus kirghisorum* Al. Fed. & Fed.**

Wild. GMAL 3579. Collected 09/22/1993 in Kyrgyzstan. Latitude 41 deg. 23' N. Longitude 73 deg. 6' E. Elevation 1335 m. Near Dzhahalal-abad, Koumhama Village, Ferganskiy Kherbet, open grazed meadow, at edge of hill and flat area, NE of village. West facing slope. Soil dry, humus. Rainfall 700-1700 mm (1190 mm avg.). Pedigree - Wild. Fruit large, 4.0 x 4.0 cm, yellow, waxy. Flavor overripe. Leaf shape wide. Tree height 8-10 m.

**PI 600477. *Malus kirghisorum* Al. Fed. & Fed.**

Wild. GMAL 3580. Collected 09/22/1993 in Kyrgyzstan. Latitude 41 deg.

17' N. Longitude 72 deg. 52' E. Elevation 1550 m. Near Dzhalal-abad, Koumhama Village, Ferganskiy Kherbet, West of village. Rainfall 700-1700 mm (1190 mm avg.). Pedigree - Wild. Fruit small, 3.0 x 3.0 cm, oblong, red blush with yellow background. Flavor overmature. Fruit disease scab+. Leaf shape ?. Collected by crew at Sanatorium in Kyrgystan.

**PI 600478. *Malus kirghisorum* Al. Fed. & Fed.**

Wild. GMAL 3581. Collected 09/23/1993 in Kyrgyzstan. Latitude 41 deg. 16' N. Longitude 72 deg. 52' E. Elevation 1550 m. Near Dzhalal-abad, Koumhama Village, Ferganskiy Kherbet. Name of gorge means Crataegus, west of village. Soil dry. Slope 10% S facing. 5 trees in cluster. Grazed site. Surrounding plants: mixed population of *Acer turkestanica*, *Crataegus turkestanica*, *Cotoneaster*, *Juglans regel*, *Rosa*, *Lonicera*. Pedigree - Wild. Fruit small, 3.5 x 2.5 cm; round, short pedicel, wide calyx cavity, red stripes. Flavor sweet, aromatic, somewhat bitter. Fruit disease scab. Leaf shape smallish. Leaf disease scab. Tree height 10-12 m, spreading habit.

**PI 600479. *Malus kirghisorum* Al. Fed. & Fed.**

Wild. GMAL 3582. Collected 09/23/1993 in Kyrgyzstan. Latitude 41 deg. 16' N. Longitude 72 deg. 52' E. Elevation 1550 m. Near Dzhalal-abad, Koumhama Village, Ferganskiy Kherbet. West of village. Soil dry. Slope 10% S facing. Rainfall 700-1700 mm (1190 mm avg.). Surrounding plants *Acer turkestanica*, *Crataegus turkestanica*, *Cotoneaster*, *Juglans regel*, *Rosa*, *Lonicera*. Pedigree - Wild. Fruit medium, 4.0 x 4.5 cm, elongated, wide calyx cavity, green with orange blush, very yellow flesh, russet. Flavor sweet, bitter. Fruit disease scab ++.

**PI 600480. *Malus kirghisorum* Al. Fed. & Fed.**

Wild. GMAL 3583. Collected 09/23/1993 in Kyrgyzstan. Latitude 41 deg. 16' N. Longitude 72 deg. 52' E. Elevation 1550 m. Near Dzhalal-abad, Koumhama Village, Ferganskiy Kherbet. West of village. Soil dry. Slope 10% S facing. Rainfall 700-1700 mm (1190 mm avg.). Surrounding plants *Acer turkestanica*, *Crataegus turkestanica*, *Cotoneaster*, *Juglans regel*, *Rosa*, *Lonicera*. Pedigree - Wild. Fruit medium, 3.0 x 3.5 cm, round, flat, medium pedicel, flat, wide cavity, yellow, half covered with red blush, russet. Flavor sweet, somewhat aromatic, crisp texture; attractive. Fruit disease, scab.

**PI 600481. *Malus kirghisorum* Al. Fed. & Fed.**

Wild. GMAL 3584. Collected 09/23/1993 in Kyrgyzstan. Latitude 41 deg. 16' N. Longitude 72 deg. 52' E. Elevation 1550 m. Near Dzhalal-abad, Koumhama Village, Ferganskiy Kherbet. West of village. Soil dry. Slope 10% S facing. Rainfall 700-1700 mm (1190 mm avg.). Surrounding plants *Acer turkestanica*, *Crataegus turkestanica*, *Cotoneaster*, *Juglans regel*, *Rosa*, *Lonicera*. Pedigree - Wild. Fruit small, cherry-like, no calyx cavity, yellow. Flavor acidic. Fruit disease scab.

**PI 600482. *Malus kirghisorum* Al. Fed. & Fed.**

Wild. GMAL 3585. Collected 09/23/1993 in Kyrgyzstan. Latitude 41 deg. 16' N. Longitude 72 deg. 52' E. Elevation 1550 m. Near Dzhalal-abad, Koumhama Village, Ferganskiy Kherbet. West of village. Rainfall 700-1700 mm (1190 mm avg.). Pedigree - Wild. Fruit small, round, no calyx cavity, medium pedicel, green yellow with pink blush. Flavor acidic,

very hard, immature.

The following were collected by Yue Jin, North Dakota State University, Department of Plant Pathology, SU Station, P.O. Box 5012, Fargo, North Dakota 58105-5012, United States; Peter Bristol, The Holden Arboretum, 9500 Sperry Road, Kirtland, Ohio 44060-5172, United States; Tieshan; P. Meyer; Kris Bachtell, Morton Arboretum, NACPEC, Route 53, Lisle, Illinois 60532, United States. Donated by Edward J. Garvey, USDA, ARS, National Germplasm Repository, U.S. National Arboretum, Washington, District of Columbia 20002, United States. Received 01/11/1994.

**PI 600483. *Malus baccata* (L.) Borkh.**

Wild. GMAL 3586. Collected 09/01/1993 in Heilongjiang, China. Elevation 370 m. Ping Shan, Heilongjiang Province. Disturbed woodland, old-field edge. Pedigree - Wild. Fruit red, glossy. Fruits eaten, high in vitamin C. Five herbarium specimens.

**PI 600484. *Malus baccata* (L.) Borkh.**

Wild. GMAL 3587. Collected 09/10/1993 in Heilongjiang, China. Latitude 43 deg. 51' N. Longitude 128 deg. 57' E. Elevation 558 m. Jian Shan Jiao, Heilongjiang Province. Disturbed woodland edge along stream with mandshurica *Acer mono*, *Maackia amurensis*, *Quercus mongolica*. Pedigree - Wild. Fruit red, shiny. Five herbarium specimens.

The following were collected by Philip L. Forsline, USDA, ARS, Cornell University, Plant Genetic Resources Unit, Geneva, New York 14456-0462, United States; James Luby, University of Minnesota, Department of Horticultural Science, 342 Alderman Hall, St. Paul, Minnesota 55108, United States; Elizabeth E. Dickson, The University of Calgary, Herbarium, Dept. of Biological Sciences, 2500 University Drive NW, Calgary, Alberta T2N 1N4, Canada. Donated by Philip L. Forsline, USDA, ARS, Cornell University, Plant Genetic Resources Unit, Geneva, New York 14456-0462, United States. Received 09/21/1995.

**PI 600485. *Malus sieversii* (Ledeb.) M. Roem.**

Wild. Kaz 95 01-02; GMAL 3596. Collected 08/26/1995 in Kazakhstan. Latitude 43 deg. 6' 58'' N. Longitude 76 deg. 47' 46'' E. Elevation 1400 m. Zielisky Alatau Province. Almaty village. 17 km South to Southwest of Almaty Center. Aksay river West side of Zielisky Apple Belt. Landform - valley near river. Gravelly loam soil, some stoniness. Good drainage. Slope incline flat. Dominant tree sp: *M. sieversii*; Assoc.-Apricot, *Crataegus*. Dom. shrub sp: *Berberis*, *Hippophae*; Assoc.-*Rubus*, *Rosa*. Dominant herbaceous: Hops; Assoc.-*Geranium*, *Fragaria*. Sampled 150 fruits from 1 tree. Flesh flavor is aromatic. Bruises easily. Over color is 80% red, moderate scab. Low seed count (infertile).

**PI 600486. *Malus sieversii* (Ledeb.) M. Roem.**

Wild. Kaz 95 01-03; GMAL 3597. Collected 09/12/1995 in Kazakhstan. Latitude 43 deg. 21' 43'' N. Longitude 77 deg. 40' 28'' E. Elevation 1550 m. Zielisky Alatau Province. Almaty village. 30 km. East of Almaty in the Kuznetzov area. Landform: Slope. Slope incline: 15 degrees, East. Dominant tree sp: *M. sieversii*; Associated-*Crataegus*, *Sorbus*. Dominant shrub sp: *Rosa*; Assoc-*Lonicera*. Associated herbaceous: *Fragaria*,

Geranium, Thalictrum. Collected 08/26/1995 in Kazakhstan. Latitude 43 deg. 21' 43'' N. Longitude 77 deg. 40' 28'' E. Elevation 1550 m. Zielisky Alatau Province. Almaty village. 30 km. East of Almaty in the Kuznetzov area. Landform: Slope. Slope incline: 15 degrees, East. Dominant tree sp: *M. sieversii*; Associated-Crataegus, Sorbus. Dominant shrub sp: *Rosa*; Assoc-Lonicera. Associated herbaceous: *Fragaria*, *Geranium*, *Thalictrum*. Sampled 150 fruits from 1 tree. Fruit size is larger than 50mm, low scab. A bit immature - low seed set. Some codling moth damage.

**PI 600487. *Malus sieversii* (Ledeb.) M. Roem.**

Wild. Kaz 95 01-04; GMAL 3598. Collected 08/26/1995 in Kazakhstan. Latitude 43 deg. 6' 58'' N. Longitude 76 deg. 47' 46'' E. Elevation 1400 m. Zielisky Alatau Province. Almaty village. 17 km South to Southwest of Almaty Center. Aksay river West side of Zielisky Apple Belt. Landform - valley near river. Gravely loam soil, some stoniness. Good drainage. Slope incline flat. Dominant tree sp: *M. sieversii*; Assoc.-Apricot, *Crataegus*. Dom. shrub sp: *Berberis*, *Hippophae*; Assoc.-*Rubus*, *Rosa*. Dominant herbaceous: *Hops*; Assoc.-*Geranium*, *Fragaria*. Sampled 150 fruits from 1 tree. Flesh flavor is aromatic. Over color is 95% red, light scab. Unique shape at calyx and pedicel.

**PI 600488. *Malus sieversii* (Ledeb.) M. Roem.**

Wild. Kaz 95 02-01; GMAL 3599. Collected 08/26/1995 in Kazakhstan. Latitude 43 deg. 6' 33'' N. Longitude 76 deg. 54' 39'' E. Elevation 1440 m. Zielisky Alatau Province. Almaty village. 17 km South Almaty, along the Almatinka River - a holiday spot for week-enders. Loam soil, moderate stoniness. Slope incline of 50 degrees North. Dominant tree sp.: *Populus*; Associated-*Malus*, *Picea*, *Juniperus*. Dominant shrub sp.: *Rosa platyacanthi*; Assoc.-*Hippophae*. Dominant herbaceous: Grasses; Assoc.-*Clematis*. Sampled 100 fruits from 1 tree. Flesh flavor is aromatic. Immature fruit, may bruise easily. Good crotch angles.

**PI 600489. *Malus sieversii* (Ledeb.) M. Roem.**

Wild. Kaz 95 03-01; GMAL 3600. Collected 08/27/1995 in Kazakhstan. Latitude 43 deg. 17' 36'' N. Longitude 77 deg. 23' 44'' E. Elevation 1490 m. Zielisky Alatau Province. 40 km East of the Almatinka River, near stream bed. Forest region of Talgar - 188 hectares. Mikushina area, 1100-1800 m. Clay loam soil, limited stoniness. Good drainage. Flat slope, next to W. slope. Dom. tree sp.: *Malus*; Assoc-*Crataegus*, *Rhamnus*, *Populus*, *Salix*. Dom. shrub sp: *Rosa*. Assoc-*Rubus*, *Berberis*. Dom. herb.: *Humulus*; Assoc-*Origanum*, *Malva*, *Geranium*. Sampled 150 fruits from 1 tree. White seeds, immature fruit. Upright tree. Not real healthy-somewhat defoliated. Fruit over color is 90% red, scab detected.

**PI 600490. *Malus sieversii* (Ledeb.) M. Roem.**

Wild. Kaz 95 03-02; GMAL 3601. Collected 08/27/1995 in Kazakhstan. Latitude 43 deg. 17' 36'' N. Longitude 77 deg. 23' 44'' E. Elevation 1490 m. Zielisky Alatau Province. 40 km East of the Almatinka River, near stream bed. Forest region of Talgar - 188 hectares. Mikushina area, 1100-1800 m. Clay loam soil, limited stoniness. Good drainage. Flat slope, next to W. slope. Dom. tree sp.: *Malus*; Assoc-*Crataegus*, *Rhamnus*, *Populus*, *Salix*. Dom. shrub sp: *Rosa*. Assoc-*Rubus*, *Berberis*. Dom. herb.: *Humulus*; Assoc-*Origanum*, *Malva*, *Geranium*. Sampled 150 fruits from 1 tree. Spreading habit.

- PI 600491. *Malus sieversii* (Ledeb.) M. Roem.**  
 Wild. Kaz 95 04-03; GMAL 3602. Collected 08/27/1995 in Kazakhstan.  
 Latitude 43 deg. 19' 45'' N. Longitude 77 deg. 35' 55'' E. Elevation  
 1360 m. Zielisky Alatau Province. Turgen Forest region - 120 hectares.  
 Central part of Zielisky. Along stream next to North slope. Near  
 Composer's house (site 32 in 1993) - from 1360-1200 m. Dominant tree  
 sp.: Apricot; Associated-*Padus*. Dominant shrub sp.: *Berberis*;  
*Assoc-Ribes*. Dominant herbaceous: Grasses; *Assoc.-Geranium*, *Epilobium*,  
*Achillea*. Sampled 150 fruits from 1 tree. Flesh flavor is aromatic.  
 Fruit size is larger than 50mm. Same accession as GMAL 3734.
- PI 600492. *Malus sieversii* (Ledeb.) M. Roem.**  
 Wild. Kaz 95 04-05; GMAL 3603. Collected 08/27/1995 in Kazakhstan.  
 Latitude 43 deg. 19' 45'' N. Longitude 77 deg. 35' 55'' E. Elevation  
 1360 m. Zielisky Alatau Province. Turgen Forest region - 120 hectares.  
 Central part of Zielisky. Along stream next to North slope. Near  
 Composer's house (site 32 in 1993) - from 1360-1200 m. Dominant tree  
 sp.: Apricot; Associated-*Padus*. Dominant shrub sp.: *Berberis*;  
*Assoc-Ribes*. Dominant herbaceous: Grasses; *Assoc.-Geranium*, *Epilobium*,  
*Achillea*. Sampled 150 fruits from 1 tree. Fruit collected from old tree  
 with three major trucks. Fruit over color is 80% red, overripe.
- PI 600493. *Malus sieversii* (Ledeb.) M. Roem.**  
 Wild. Kaz 95 05-02; GMAL 3604. Collected 08/29/1995 in Kazakhstan.  
 Latitude 47 deg. 14' 39'' N. Longitude 81 deg. 34' 14'' E. Elevation 870  
 m. Semipalitinsk Region (Tarbagatai Mountain Range). Village of  
 Alekseyevka. 4 km. Northeast of Alekseyevka, 20 km. North of Urdzhar.  
 Flat area near stream. Collected in South end of West Valley.  
 Coordinates in Urdzhar: 47-05-01, 81-37-49. Temp: max. +41, min. -40.  
 Stoney gravely loam soil. Good drainage. 400 mm rainfall. Dominant tree  
 sp.: *Populus*. Dominant shrub sp.: *Crataegus*, *Rosa*; Associated-*Viburnum*.  
 Random pop. as close as 20 m. to stream. Many new small trees growing.  
 Sampled 150 fruits from 1 tree. Fruit free of scab, very clean & free of  
 disease, bruises easily. Flesh flavor is aromatic. High quality. Very  
 heavy cropload; spur type tree. Same as accession GMAL 3779.
- PI 600494. *Malus sieversii* (Ledeb.) M. Roem.**  
 Wild. Kaz 95 05-03; GMAL 3605. Collected 08/29/1995 in Kazakhstan.  
 Latitude 47 deg. 14' 39'' N. Longitude 81 deg. 34' 14'' E. Elevation 870  
 m. Semipalitinsk Region (Tarbagatai Mountain Range). Village of  
 Alekseyevka. 4 km. Northeast of Alekseyevka, 20 km. North of Urdzhar.  
 Flat area near stream. Collected in South end of West Valley.  
 Coordinates in Urdzhar: 47-05-01, 81-37-49. Temp: max. +41, min. -40.  
 Stoney gravely loam soil. Good drainage. 400 mm rainfall. Dominant tree  
 sp.: *Populus*. Dominant shrub sp.: *Crataegus*, *Rosa*; Associated-*Viburnum*.  
 Random pop. as close as 20 m. to stream. Many new small trees growing.  
 Sampled 150 fruits from 1 tree. Fruit is hard, bruises easily. Slight  
 scab detected. Very heavy cropload. Appears to be a hybrid with *M.*  
*baccata*.
- PI 600495. *Malus sieversii* (Ledeb.) M. Roem.**  
 Wild. Kaz 95 05-05; GMAL 3606. Collected 08/29/1995 in Kazakhstan.  
 Latitude 47 deg. 14' 39'' N. Longitude 81 deg. 34' 14'' E. Elevation 870  
 m. Semipalitinsk Region (Tarbagatai Mountain Range). Village of



Alekseyevka. 4 km. Northeast of Alekseyevka, 20 km. North of Urdzhar. Flat area near stream. Collected in South end of West Valley. Coordinates in Urdzhar: 47-05-01, 81-37-49. Temp: max. +41, min. -40. Stoney gravely loam soil. Good drainage. 400 mm rainfall. Dominant tree sp.: Populus. Dominant shrub sp.: Crataegus, Rosa; Associated-Viburnum. Random pop. as close as 20 m. to stream. Many new small trees growing. Sampled 30 fruits from 1 tree. Fruit is firm with aromatic flavor. Fruit size is larger than 50mm.

**PI 600496. Malus sieversii (Ledeb.) M. Roem.**

Wild. Kaz 95 05-06; GMAL 3607. Collected 08/29/1995 in Kazakhstan. Latitude 47 deg. 14' 39'' N. Longitude 81 deg. 34' 14'' E. Elevation 870 m. Semipalitinsk Region (Tarbagatai Mountain Range). Village of Alekseyevka. 4 km. Northeast of Alekseyevka, 20 km. North of Urdzhar. Flat area near stream. Collected in South end of West Valley. Coordinates in Urdzhar: 47-05-01, 81-37-49. Temp: max. +41, min. -40. Stoney gravely loam soil. Good drainage. 400 mm rainfall. Dominant tree sp.: Populus. Dominant shrub sp.: Crataegus, Rosa; Associated-Viburnum. Random pop. as close as 20 m. to stream. Many new small trees growing. Sampled 30 fruits from 1 tree. Fruit is firm with aromatic flesh flavor. Fruit size is larger than 50mm, free of scab. Scion also collected.

**PI 600497. Malus sieversii (Ledeb.) M. Roem.**

Wild. Kaz 95 06-01; GMAL 3608. Collected 08/29/1995 in Kazakhstan. Latitude 47 deg. 16' 12'' N. Longitude 81 deg. 34' 25'' E. Elevation 990 m. Semipalitinsk Region (Tarbagatai Mountain Range). 20 km. North of Urdzhar. 7 km. Northeast of Alekseyevka. Landform mostly hillside. Collected in North end of West Valley, upstream 3 km. from site 05 (GMAL's 3604-3607, GMAL's 3760-3789). Silt to clay loam soil. Aspect: Mostly East. Dominant tree sp.: M. sieversii; Associated-Populus, Pyrus, Acer. Dominant shrub sp.: Rosa; Assoc.-Lonicera, Amygdalus, Rubus. Dominant herbaceous: Grasses; Assoc.-Potentilla, Fragaria. Sampled 150 fruits from 1 tree. Flesh flavor is aromatic. Over color is 90% red. Fruit size is larger than 50mm, no scab. Spur type tree. Scion also collected.

**PI 600498. Malus sieversii (Ledeb.) M. Roem.**

Wild. Kaz 95 06-03; GMAL 3609. Collected 08/29/1995 in Kazakhstan. Latitude 47 deg. 16' 12'' N. Longitude 81 deg. 34' 25'' E. Elevation 990 m. Semipalitinsk Region (Tarbagatai Mountain Range). 20 km. North of Urdzhar. 7 km. Northeast of Alekseyevka. Landform mostly hillside. Collected in North end of West Valley, upstream 3 km. from site 05 (GMAL's 3604-3607, GMAL's 3760-3789). Silt to clay loam soil. Slope incline: 5%. Aspect: West. Dominant tree sp: M. sieversii; Associated-Populus, Pyrus, Acer. Dominant shrub sp: Rosa; Assoc.-Lonicera, Amygdalus, Rubus. Dominant herbaceous: Grasses; Assoc.-Potentilla, Fragaria. Sampled 150 fruits from 1 tree. Scab detected. Very heavy cropload. Spur type tree.

**PI 600499. Malus sieversii (Ledeb.) M. Roem.**

Wild. Kaz 95 06-04; GMAL 3610. Collected 08/29/1995 in Kazakhstan. Latitude 47 deg. 16' 12'' N. Longitude 81 deg. 34' 25'' E. Elevation 990 m. Semipalitinsk Region (Tarbagatai Mountain Range). 20 km. North of Urdzhar. 7 km. Northeast of Alekseyevka. Landform mostly hillside. Collected in North end of West Valley, upstream 3 km. from site 05

(GMAL's 3604-3607, GMAL's 3760-3789). Silt to clay loam soil. Slope incline: 5%. Aspect: West. Dominant tree sp: *M. sieversii*; Associated-Populus, Pyrus, Acer. Dominant shrub sp: Rosa; Assoc.-Lonicera, Amygdalus, Rubus. Dominant herbaceous: Grasses; Assoc.-Potentilla, Fragaria. Sampled 30 fruits from 1 tree. Fruit is firm, bruises easily. Fruit size is larger than 50mm, free of scab. Spur type tree.

**PI 600500. *Malus sieversii* (Ledeb.) M. Roem.**

Wild. Kaz 95 06-05; GMAL 3611. Collected 08/29/1995 in Kazakhstan. Latitude 47 deg. 16' 12'' N. Longitude 81 deg. 34' 25'' E. Elevation 990 m. Semipalitinsk Region (Tarbagatai Mountain Range). 20 km. North of Urdzhar. 7 km. Northeast of Alekseyevka. Landform mostly hillside. Collected in North end of West Valley, upstream 3 km. from site 05 (GMAL's 3604-3607, GMAL's 3760-3789). Silt to clay loam soil. Aspect: Mostly East. Dominant tree sp.: *M. sieversii*; Associated-Populus, Pyrus, Acer. Dominant shrub sp.: Rosa; Assoc.-Lonicera, Amygdalus, Rubus. Dominant herbaceous: Grasses; Assoc.-Potentilla, Fragaria. Sampled 30 fruits from 1 tree. Selected for texture and flavor. Fruit is firm. Fruit size is larger than 50mm, scab detected.

**PI 600501. *Malus sieversii* (Ledeb.) M. Roem.**

Wild. Kaz 95 06-06; GMAL 3612. Collected 08/29/1995 in Kazakhstan. Latitude 47 deg. 16' 12'' N. Longitude 81 deg. 34' 25'' E. Elevation 990 m. Semipalitinsk Region (Tarbagatai Mountain Range). 20 km. North of Urdzhar. 7 km. Northeast of Alekseyevka. Landform mostly hillside. Collected in North end of West Valley, upstream 3 km. from site 05 (GMAL's 3604-3607, GMAL's 3760-3789). Silt to clay loam soil. Aspect: Mostly East. Dominant tree sp.: *M. sieversii*; Associated-Populus, Pyrus, Acer. Dominant shrub sp.: Rosa; Assoc.-Lonicera, Amygdalus, Rubus. Dominant herbaceous: Grasses; Assoc.-Potentilla, Fragaria. Sampled 30 fruits from 1 tree. Flesh flavor is aromatic. Fruit size is larger than 50mm. Spur type tree.

**PI 600502. *Malus sieversii* (Ledeb.) M. Roem.**

Wild. Kaz 95 06-07; GMAL 3613. Collected 08/29/1995 in Kazakhstan. Latitude 47 deg. 16' 12'' N. Longitude 81 deg. 34' 25'' E. Elevation 990 m. Semipalitinsk Region (Tarbagatai Mountain Range). 20 km. North of Urdzhar. 7 km. Northeast of Alekseyevka. Landform mostly hillside. Collected in North end of West Valley, upstream 3 km. from site 05 (GMAL's 3604-3607, GMAL's 3760-3789). Silt to clay loam soil. Aspect: Mostly East. Dominant tree sp.: *M. sieversii*; Associated-Populus, Pyrus, Acer. Dominant shrub sp.: Rosa; Assoc.-Lonicera, Amygdalus, Rubus. Dominant herbaceous: Grasses; Assoc.-Potentilla, Fragaria. Sampled 30 fruits from 1 tree. Flesh flavor is aromatic. Over color is 90% red, scab detected. Not as healthy as most selections in Tarbagatai.

**PI 600503. *Malus sieversii* (Ledeb.) M. Roem.**

Wild. Kaz 95 06-08; GMAL 3614. Collected 08/29/1995 in Kazakhstan. Latitude 47 deg. 16' 12'' N. Longitude 81 deg. 34' 25'' E. Elevation 990 m. Semipalitinsk Region (Tarbagatai Mountain Range). 20 km. North of Urdzhar. 7 km. Northeast of Alekseyevka. Landform mostly hillside. Collected in North end of West Valley, upstream 3 km. from site 05 (GMAL's 3604-3607, GMAL's 3760-3789). Silt to clay loam soil. Aspect: West. Dominant tree sp.: *M. sieversii*; Associated-Populus, Pyrus, Acer.

Dominant shrub sp.: *Rosa*; Assoc.-*Lonicera*, *Amygdalus*, *Rubus*. Dominant herbaceous: Grasses; Assoc.-*Potentilla*, *Fragaria*. Sampled 30 fruits from 1 tree. Fruit collected from tree with nice shape. Fruit is firm with aromatic flesh flavor. Fruit size is larger than 50mm. Very clean & free of disease. Scion also collected.

**PI 600504. *Malus sieversii* (Ledeb.) M. Roem.**

Wild. Kaz 95 06-09; GMAL 3615. Collected 08/29/1995 in Kazakhstan. Latitude 47 deg. 16' 12'' N. Longitude 81 deg. 34' 25'' E. Elevation 990 m. Semipalitinsk Region (Tarbagatai Mountain Range). 20 km. North of Urdzhar. 7 km. Northeast of Alekseyevka. Landform mostly hillside. Collected in North end of West Valley, upstream 3 km. from site 05 (GMAL's 3604-3607, GMAL's 3760-3789). Silt to clay loam soil. Slope incline: 10%. Aspect: West. Dominant tree sp: *M. sieversii*; Associated-*Populus*, *Pyrus*, *Acer*. Dom. shrub sp: *Rosa*; Assoc.-*Lonicera*, *Amygdalus*, *Rubus*. Dominant herbaceous: Grasses; Assoc.-*Potentilla*, *Fragaria*. Sampled 30 fruits from 1 tree. Fruit is firm with aromatic flesh flavor. Very little scab. Skin clear. Spur type tree.

**PI 600505. *Malus sieversii* (Ledeb.) M. Roem.**

Wild. Kaz 95 07-02; GMAL 3616. Collected 08/30/1995 in Kazakhstan. Latitude 47 deg. 16' 14'' N. Longitude 81 deg. 34' 45'' E. Elevation 960 m. Semipalitinsk Region (Tarbagatai Mountain Range). 20 km. North of Urdzhar, 6 km. NE of Alekseyevka. Slopes of East-West Valley. Collected on north slope of North Valley. Between & East of sites 05 & 06 (GMAL's 3604-3615, GMAL's 3760-3789). Slope incline: 15 degrees. Aspect: North. Rainfall: 400 mm. Dominant tree sp.: *M. sieversii*; Assoc.-*Crataegus*. Dominant shrub sp.: *Rosa*; Associated-*Amygdalus*. Dominant herbaceous: *Aster*. Sampled 30 fruits from 1 tree. Fruit is firm with aromatic flesh flavor, bruises easily. Fruit size is larger than 50mm, very attractive. Scion also collected. Same accession as GMAL 3792.

**PI 600506. *Malus sieversii* (Ledeb.) M. Roem.**

Wild. Kaz 95 07-03; GMAL 3617. Collected 08/30/1995 in Kazakhstan. Latitude 47 deg. 16' 14'' N. Longitude 81 deg. 34' 45'' E. Elevation 960 m. Semipalitinsk Region (Tarbagatai Mountain Range). 20 km. North of Urdzhar, 6 km. NE of Alekseyevka. Slopes of East-West Valley. Collected on north slope of North Valley. Between & East of sites 05 & 06 (GMAL's 3604-3615, GMAL's 3760-3789). Slope incline: 5-20. Aspect: South and North. Rainfall: 400 mm. Dominant tree sp.: *Malus*. Dominant shrub sp.: *Rosa*; Associated-*Amygdalus*. Sampled 30 fruits from 1 tree. Flesh flavor is aromatic. Over color is 60% red. Slight to moderate scab.

**PI 600507. *Malus sieversii* (Ledeb.) M. Roem.**

Wild. Kaz 95 07-04; GMAL 3618. Collected 08/30/1995 in Kazakhstan. Latitude 47 deg. 16' 14'' N. Longitude 81 deg. 34' 45'' E. Elevation 960 m. Semipalitinsk Region (Tarbagatai Mountain Range). 20 km. North of Urdzhar, 6 km. NE of Alekseyevka. Slopes of East-West Valley. Collected on north slope of North Valley. Between & East of sites 05 & 06 (GMAL's 3604-3615, GMAL's 3760-3789). Slope incline: 5-20. Aspect: South and North. Rainfall: 400 mm. Dominant tree sp.: *M. sieversii*; Assoc.-*Crataegus*. Dominant shrub sp.: *Rosa*; Associated-*Amygdalus*. Dominant herbaceous: *Aster*. Sampled 30 fruits from 1 tree. Fruit is firm with aromatic flesh flavor, bruises easily. Over color is 60% red. Slight scab detected. Fruit size larger than 50mm. Spur type tree.

- PI 600508. *Malus sieversii* (Ledeb.) M. Roem.**  
 Wild. Kaz 95 07-05; GMAL 3619. Collected 08/30/1995 in Kazakhstan. Latitude 47 deg. 16' 14'' N. Longitude 81 deg. 34' 45'' E. Elevation 960 m. Semipalitinsk Region (Tarbagatai Mountain Range). 20 km. North of Urdzhar, 6 km. NE of Alekseyevka. Slopes of East-West Valley. Collected on north slope of North Valley. Between & East of sites 05 & 06 (GMAL's 3604-3615, GMAL's 3760-3789). Slope incline: 5-20. Aspect: South and North. Rainfall: 400 mm. Dominant tree sp.: *M. sieversii*; Assoc.-*Crataegus*. Dominant shrub sp.: *Rosa*; Associated-*Amygdalus*. Dominant herbaceous: *Aster*. Sampled 30 fruits from 1 tree. Flesh flavor is aromatic, very flavorful. Fruit size is larger than 50mm, generally free of scab. Scion also collected.
- PI 600509. *Malus sieversii* (Ledeb.) M. Roem.**  
 Wild. Kaz 95 08-01; GMAL 3620. Collected 08/30/1995 in Kazakhstan. Semipalitinsk Region (Tarbagatai Mountain Range). 20 km. North of Urdzhar. 5 km. Northeast of Alekseyevka. Collected mainly on west slopes in center of West Valley. Equidistant between sites 05 & 06 (GMAL's 3604-3615, GMAL's 3760-3789). Silt to clay loam soil. Aspect: West. Landform mostly hillside. Dominant tree sp.: *M. sieversii*. Dominant shrub sp.: *Rosa*; Associated-*Lonicera*, *Rubus*. Dominant herbaceous: *Malva*; Assoc.-*Fragaria*. Sampled 15 fruits from 1 tree. Flesh flavor is aromatic. Fruit size is larger than 50mm obtained from a small tree.
- PI 600510. *Malus sieversii* (Ledeb.) M. Roem.**  
 Wild. Kaz 95 08-02; GMAL 3621. Collected 08/30/1995 in Kazakhstan. Semipalitinsk Region (Tarbagatai Mountain Range). 20 km. North of Urdzhar. 5 km. Northeast of Alekseyevka. Collected mainly on west slopes in center of West Valley. Equidistant between sites 05 & 06 (GMAL's 3604-3615, GMAL's 3760-3789). Silt to clay loam soil. Aspect: West. Landform mostly hillside. Dominant tree sp.: *M. sieversii*. Dominant shrub sp.: *Rosa*; Associated-*Lonicera*, *Rubus*. Dominant herbaceous: *Malva*; Assoc.-*Fragaria*. Sampled 30 fruits from 1 tree. Fruit is firm with aromatic flesh flavor. Fruit size is larger than 50mm, some scab present. Spur type tree.
- PI 600511. *Malus sieversii* (Ledeb.) M. Roem.**  
 Wild. Kaz 95 08-03; GMAL 3622. Collected 08/30/1995 in Kazakhstan. Semipalitinsk Region (Tarbagatai Mountain Range). 20 km. North of Urdzhar. 5 km. Northeast of Alekseyevka. Collected mainly on west slopes in center of West Valley. Equidistant between sites 05 & 06 (GMAL's 3604-3615, GMAL's 3760-3789). Silt to clay loam soil. Aspect: West. Landform mostly hillside. Dominant tree sp.: *M. sieversii*. Dominant shrub sp.: *Rosa*; Associated-*Lonicera*, *Rubus*. Dominant herbaceous: *Malva*; Assoc.-*Fragaria*. Sampled 40 fruits from 1 tree. Flesh flavor is aromatic. Over color is 90% red. Fruit size is larger than 50mm. Spur type tree.
- PI 600512. *Malus sieversii* (Ledeb.) M. Roem.**  
 Wild. Kaz 95 08-04; GMAL 3623. Collected 08/30/1995 in Kazakhstan. Semipalitinsk Region (Tarbagatai Mountain Range). 20 km. North of Urdzhar. 5 km. Northeast of Alekseyevka. Collected mainly on west slopes in center of West Valley. Equidistant between sites 05 & 06 (GMAL's 3604-3615, GMAL's 3760-3789). Silt to clay loam soil. Aspect: North.

Landform mostly hillside. Dominant tree sp.: *M. sieversii*. Dominant shrub sp.: *Rosa*; Associated-*Lonicera*, *Rubus*. Dominant herbaceous: *Malva*; Assoc.-*Fragaria*. Sampled 30 fruits from 1 tree. Looks like a domesticated apple. Fruit is firm with aromatic flesh flavor, juicy. Fruit size is larger than 50mm. Winter keeper. Very heavy cropload. Scion also collected.

**PI 600513. *Malus sieversii* (Ledeb.) M. Roem.**

Wild. Kaz 95 08-05; GMAL 3624. Collected 08/30/1995 in Kazakhstan. Semipalitinsk Region (Tarbagatai Mountain Range). 20 km. North of Urdzhar. 5 km. Northeast of Alekseyevka. Collected mainly on west slopes in center of West Valley. Equidistant between sites 05 & 06 (GMAL's 3604-3615, GMAL's 3760-3789). Silt to clay loam soil. Aspect: Northwest. Landform mostly hillside. Dominant tree sp.: *M. sieversii*. Dominant shrub sp.: *Rosa*; Associated-*Lonicera*, *Rubus*. Dominant herbaceous: *Malva*; Assoc.-*Fragaria*. Sampled 25 fruits from 1 tree. Flesh flavor is aromatic and sweet. Fruit size is larger than 50mm, generally free of scab. Spur type tree.

**PI 600514. *Malus sieversii* (Ledeb.) M. Roem.**

Wild. Kaz 95 08-06; GMAL 3625. Collected 08/30/1995 in Kazakhstan. Semipalitinsk Region (Tarbagatai Mountain Range). 20 km. North of Urdzhar. 5 km. Northeast of Alekseyevka. Collected mainly on west slopes in center of West Valley. Equidistant between sites 05 & 06 (GMAL's 3604-3615, GMAL's 3760-3789). Silt to clay loam soil. Aspect: West. Landform mostly hillside. Dominant tree sp.: *M. sieversii*. Dominant shrub sp.: *Rosa*; Associated-*Lonicera*, *Rubus*. Dominant herbaceous: *Malva*; Assoc.-*Fragaria*. Sampled 15 fruits from 1 tree. Fruit is firm with aromatic flesh flavor. Over color is 80% red. Fruit size is larger than 50mm. Small amount of scab detected. Very column-shaped tree. Scion also collected.

**PI 600515. *Malus sieversii* (Ledeb.) M. Roem.**

Wild. Kaz 95 09-02F; GMAL 3626. Collected 08/31/1995 in Kazakhstan. Latitude 47 deg. 16' 41'' N. Longitude 81 deg. 35' 59'' E. Elevation 1120 m. Semipalitinsk Region (Tarbagatai Mountain Range). 20 km. North of Urdzhar, 6 km. East-Northeast of Alekseyevka, on separate jeep trail. East Valley collection site. Collected on north end on flat by East River. Slope incline 2 degrees. Aspect: East. Dominant tree sp.: *M. sieversii*. Dominant shrub sp.: *Rosa*; Associated-*Lonicera*, *Rubus*. Dominant herbaceous: *Malva*; Assoc.-*Fragaria*. Sampled 30 fruits from 1 tree. Fruit is firm with aromatic flesh flavor. Over color is 70% red. Fruit size is larger than 50mm. Looks scab free. Winter type. Commercial size.

**PI 600516. *Malus sieversii* (Ledeb.) M. Roem.**

Wild. Kaz 95 09-03F; GMAL 3627. Collected 08/31/1995 in Kazakhstan. Latitude 47 deg. 16' 41'' N. Longitude 81 deg. 35' 59'' E. Elevation 1120 m. Semipalitinsk Region (Tarbagatai Mountain Range). 20 km. North of Urdzhar, 6 km. East-Northeast of Alekseyevka, on separate jeep trail. East Valley collection site. Collected on north end on flat by East River. Flat slope. Dominant tree sp.: *M. sieversii*. Dominant shrub sp.: *Rosa*; Associated-*Lonicera*, *Rubus*. Dominant herbaceous: *Malva*; Assoc.-*Fragaria*. Sampled 60 fruits from 1 tree. Fruit is hard with aromatic flesh flavor. Over color is 90% red. Fruit size is larger than

50mm, free of scab. Very heavy cropload.

- PI 600517. *Malus sieversii* (Ledeb.) M. Roem.**  
Wild. Kaz 95 09-04F; GMAL 3628. Collected 08/31/1995 in Kazakhstan. Latitude 47 deg. 16' 41'' N. Longitude 81 deg. 35' 59'' E. Elevation 1120 m. Semipalitinsk Region (Tarbagatai Mountain Range). 20 km. North of Urdzhar, 6 km. East-Northeast of Alekseyevka, on separate jeep trail. East Valley collection site. Collected on north end on flat by East River. Slope incline 5 degrees. Aspect: East. Habitat destroyed by grazing. Dominant tree sp.: *M. sieversii*. Dominant shrub sp.: *Rosa*; Associated-*Lonicera*, *Rubus*. Dominant herbaceous: *Malva*; Assoc.-*Fragaria*. Sampled 15 fruits from 1 tree. Fruit is firm with aromatic flesh flavor, juicy, water core. Over color is 70% red. Spur type tree.
- PI 600518. *Malus sieversii* (Ledeb.) M. Roem.**  
Wild. Kaz 95 09-05F; GMAL 3629. Collected 08/31/1995 in Kazakhstan. Latitude 47 deg. 16' 41'' N. Longitude 81 deg. 35' 59'' E. Elevation 1120 m. Semipalitinsk Region (Tarbagatai Mountain Range). 20 km. North of Urdzhar, 6 km. East-Northeast of Alekseyevka, on separate jeep trail. East Valley collection site. Collected on north end on flat by East River. Flat slope. Dominant tree sp.: *M. sieversii*. Dominant shrub sp.: *Rosa*; Associated-*Lonicera*, *Rubus*. Dominant herbaceous: *Malva*; Assoc.-*Fragaria*. Sampled 30 fruits from 1 tree. Fruit is firm with aromatic flesh flavor. Fruit size is larger than 50mm. Very heavy cropload. Same as accession GMAL 3829.
- PI 600519. *Malus sieversii* (Ledeb.) M. Roem.**  
Wild. Kaz 95 09-02L; GMAL 3630. Collected 08/31/1995 in Kazakhstan. Latitude 47 deg. 16' 41'' N. Longitude 81 deg. 35' 59'' E. Elevation 1120 m. Semipalitinsk Region (Tarbagatai Mountain Range). 20 km. North of Urdzhar, 6 km. East-Northeast of Alekseyevka, on separate jeep trail. East Valley collection site. Collected on north end on flat by East River. Slope incline 10 degrees. Aspect: East. Dominant tree sp.: *M. sieversii*. Dominant shrub sp.: *Rosa*; Associated-*Lonicera*, *Rubus*. Dominant herbaceous: *Malva*; Assoc.-*Fragaria*. Sampled 30 fruits from 1 tree. Fruit is firm with aromatic flesh flavor. Fruit size is larger than 50mm.
- PI 600520. *Malus sieversii* (Ledeb.) M. Roem.**  
Wild. Kaz 95 09-03L; GMAL 3631. Collected 08/31/1995 in Kazakhstan. Latitude 47 deg. 16' 41'' N. Longitude 81 deg. 35' 59'' E. Elevation 1120 m. Semipalitinsk Region (Tarbagatai Mountain Range). 20 km. North of Urdzhar, 6 km. East-Northeast of Alekseyevka, on separate jeep trail. East Valley collection site. Collected on north end on flat by East River. Slope incline 10 degrees. Aspect: East. Dominant tree sp.: *M. sieversii*. Dominant shrub sp.: *Rosa*; Associated-*Lonicera*, *Rubus*. Dominant herbaceous: *Malva*; Assoc.-*Fragaria*. Sampled 30 fruits from 1 tree. Fruit is firm with aromatic flesh flavor. Fruit size is larger than 50mm. Looks clean of scab. Hail damage detected.
- PI 600521. *Malus sieversii* (Ledeb.) M. Roem.**  
Wild. Kaz 95 09-02D; GMAL 3632. Collected 08/31/1995 in Kazakhstan. Latitude 47 deg. 16' 40'' N. Longitude 81 deg. 35' 53'' E. Elevation 1120 m. Semipalitinsk Region (Tarbagatai Mountain Range). 20 km. North of Urdzhar, 6 km. East-Northeast of Alekseyevka, on separate jeep trail.

East Valley collection site. Collected on south end by East River. Dominant tree sp.: *M. sieversii*. Dominant shrub sp.: *Rosa*; Associated-*Lonicera*, *Rubus*. Dominant herbaceous: *Malva*; Assoc.-*Fragaria*. Sampled 30 fruits from 1 tree. Flesh flavor is aromatic. Fruit size is larger than 50mm, free of scab. Tree has wide angle branching, side branches long, central leader dominant. Heavy cropload.

- PI 600522. *Malus sieversii* (Ledeb.) M. Roem.**  
Wild. Kaz 95 10-01F; GMAL 3633. Collected 08/31/1995 in Kazakhstan. Latitude 47 deg. 15' 52'' N. Longitude 81 deg. 35' 5'' E. Elevation 1000 m. Semipalitinsk Region (Tarbagatai Mountain Range). 20 km. North of Urdzhar, 3-4 km. Northeast of Alekseyevka. Collected on east ridge of South Valley. Aspect: West. Dominant tree sp.: *M. sieversii*. Dominant shrub sp.: *Amygdalus*; Associated-*Rosa*. Dominant herbaceous: *Aster*; Assoc.-*Xanthium*. Sampled 40 fruits from 1 tree. Flesh flavor is aromatic. Over color is 85% red. Fruit size is larger than 50mm, clean with slight scab. Hangs well. Heavy cropload.
- PI 600523. *Malus sieversii* (Ledeb.) M. Roem.**  
Wild. Kaz 95 10-02F; GMAL 3634. Collected 08/31/1995 in Kazakhstan. Latitude 47 deg. 15' 52'' N. Longitude 81 deg. 35' 5'' E. Elevation 1000 m. Semipalitinsk Region (Tarbagatai Mountain Range). 20 km. North of Urdzhar, 3-4 km. Northeast of Alekseyevka. Collected in Middle and South Valley, on slopes or edges. Slope incline: 5 degrees. Aspect: West. Dominant tree sp.: *M. sieversii*. Dominant shrub sp.: *Amygdalus*; Associated-*Rosa*. Dominant herbaceous: *Aster*; Assoc.-*Xanthium*. Sampled 50 fruits from 1 tree. Fruit is hard. Over color is 80% red. Some hail damage noted. Tree sets fruit in large clusters. Heavy cropload. Spur type tree.
- PI 600524. *Malus sieversii* (Ledeb.) M. Roem.**  
Wild. Kaz 95 10-03F; GMAL 3635. Collected 08/31/1995 in Kazakhstan. Latitude 47 deg. 15' 52'' N. Longitude 81 deg. 35' 5'' E. Elevation 1000 m. Semipalitinsk Region (Tarbagatai Mountain Range). 20 km. North of Urdzhar, 3-4 km. Northeast of Alekseyevka. Collected in Middle and South Valley, on slopes or edges. Slope incline: 5 degrees. Aspect: West. Dominant tree sp.: *M. sieversii*. Dominant shrub sp.: *Amygdalus*; Associated-*Rosa*. Dominant herbaceous: *Aster*; Assoc.-*Xanthium*. Sampled 30 fruits from 1 tree. Fruit is firm, bruises easily. Nice finish - 'Golden Delicious' type. Very free of disease. Spur type tree.
- PI 600525. *Malus sieversii* (Ledeb.) M. Roem.**  
Wild. Kaz 95 10-04F; GMAL 3636. Collected 08/31/1995 in Kazakhstan. Latitude 47 deg. 15' 52'' N. Longitude 81 deg. 35' 5'' E. Elevation 1000 m. Semipalitinsk Region (Tarbagatai Mountain Range). 20 km. North of Urdzhar, 3-4 km. Northeast of Alekseyevka. Collected in South Valley, on slopes or edges. Slope incline: 10 degrees. Aspect: North. Dominant tree sp.: *M. sieversii*. Dominant shrub sp.: *Amygdalus*; Associated-*Rosa*. Dominant herbaceous: *Aster*; Assoc.-*Xanthium*. Sampled 35 fruits from 1 tree. Fruit is firm with aromatic and sweet flesh flavor. Over color is 60% red. Fruit size is larger than 50mm. Looks to be commercial size. Winter type. Scion also collected.
- PI 600526. *Malus sieversii* (Ledeb.) M. Roem.**  
Wild. Kaz 95 10-05F; GMAL 3637. Collected 08/31/1995 in Kazakhstan.

Latitude 47 deg. 15' 52'' N. Longitude 81 deg. 35' 5'' E. Elevation 1000 m. Semipalitinsk Region (Tarbagatai Mountain Range). 20 km. North of Urdzhar, 3-4 km. Northeast of Alekseyevka. Collected from west end between Middle and South Valley, on a ridge. Slope incline: 3 degrees. Aspect: Northwest. Dominant tree sp.: *M. sieversii*. Dominant shrub sp.: *Amygdalus*; Associated-Rosa. Dominant herbaceous: Aster; Assoc.-Xanthium. Sampled 50 fruits from 1 tree. Flesh flavor is aromatic. Over color is 85% red. Fruit size is larger than 50mm, moderate scab. Largest apple found in Tarbagatui (over 73mm). Scion also collected.

**PI 600527. *Malus sieversii* (Ledeb.) M. Roem.**

Wild. Kaz 95 10-06F; GMAL 3638. Collected 08/31/1995 in Kazakhstan. Latitude 47 deg. 15' 52'' N. Longitude 81 deg. 35' 5'' E. Elevation 1000 m. Semipalitinsk Region (Tarbagatai Mountain Range). 20 km. North of Urdzhar, 3-4 km. Northeast of Alekseyevka. Collected from Middle Valley. Slope incline: 15 degrees. Aspect: North. Dominant tree sp.: *M. sieversii*. Dominant shrub sp.: *Amygdalus*; Associated-Rosa. Dominant herbaceous: Aster; Assoc.-Xanthium. Sampled 30 fruits from 1 tree. Flesh flavor is aromatic. Bruises easily. Fruit size is larger than 50mm. Very blemish free, almost 'Yellow Transparent' color. Heavy cropload.

**PI 600528. *Malus sieversii* (Ledeb.) M. Roem.**

Wild. Kaz 95 10-07F; GMAL 3639. Collected 08/31/1995 in Kazakhstan. Latitude 47 deg. 15' 52'' N. Longitude 81 deg. 35' 5'' E. Elevation 1000 m. Semipalitinsk Region (Tarbagatai Mountain Range). 20 km. North of Urdzhar, 3-4 km. Northeast of Alekseyevka. Collected in Middle and South Valley. Slope incline: 5 degrees. Aspect: North. Dominant tree sp.: *M. sieversii*. Dominant shrub sp.: *Amygdalus*; Associated-Rosa. Dominant herbaceous: Aster; Assoc.-Xanthium. Sampled 40 fruits from 1 tree. Flesh flavor is aromatic, excellent flavor. Over color is 90% red. Fruit size is larger than 50mm, slight scab present; otherwise very clean. Spur type tree.

**PI 600529. *Malus sieversii* (Ledeb.) M. Roem.**

Wild. Kaz 95 10-08F; GMAL 3640. Collected 08/31/1995 in Kazakhstan. Latitude 47 deg. 15' 52'' N. Longitude 81 deg. 35' 5'' E. Elevation 1000 m. Semipalitinsk Region (Tarbagatai Mountain Range). 20 km. North of Urdzhar, 3-4 km. Northeast of Alekseyevka. Collected in Middle and South Valley. Aspect: North. Dominant tree sp.: *M. sieversii*. Dominant shrub sp.: *Amygdalus*; Associated-Rosa. Dominant herbaceous: Aster; Assoc.-Xanthium. Sampled 40 fruits from 1 tree. Flesh flavor is acid/aromatic mix. Fruit size is larger than 50mm. Nice clean finish.

**PI 600530. *Malus sieversii* (Ledeb.) M. Roem.**

Wild. Kaz 95 10-09F; GMAL 3641. Collected 08/31/1995 in Kazakhstan. Latitude 47 deg. 15' 52'' N. Longitude 81 deg. 35' 5'' E. Elevation 1000 m. Semipalitinsk Region (Tarbagatai Mountain Range). 20 km. North of Urdzhar, 3-4 km. Northeast of Alekseyevka. Collected from east end of Middle Valley. Aspect: North. Dominant tree sp.: *M. sieversii*. Dominant shrub sp.: *Amygdalus*; Associated-Rosa. Dominant herbaceous: Aster; Assoc.-Xanthium. Sampled 30 fruits from 1 tree. Fruit is hard with aromatic flesh flavor. Over color is 90% red. Fruit size is larger than 50mm. Very free of disease.



- PI 600531. *Malus sieversii* (Ledeb.) M. Roem.**  
 Wild. Kaz 95 10-10F; GMAL 3642. Collected 08/31/1995 in Kazakhstan.  
 Latitude 47 deg. 15' 52'' N. Longitude 81 deg. 35' 5'' E. Elevation 1000  
 m. Semipalitinsk Region (Tarbagatai Mountain Range). 20 km. North of  
 Urdzhar, 3-4 km. Northeast of Alekseyevka. Collected in West and South  
 Valley. Slope incline: 3 degrees. Aspect: South. Dominant tree sp.: *M.*  
*sieversii*. Dominant shrub sp.: *Amygdalus*; Associated-*Rosa*. Dominant  
 herbaceous: *Aster*; Assoc.-*Xanthium*. Sampled 30 fruits from 1 tree.  
 Summer apple. Fruit over mature, but still hanging tightly. Fruit is  
 firm with aromatic flesh flavor. Over color is 70% red. Fruit size is  
 larger than 50mm. Spur type tree.
- PI 600532. *Malus sieversii* (Ledeb.) M. Roem.**  
 Wild. Kaz 95 10-01L; GMAL 3643. Collected 08/31/1995 in Kazakhstan.  
 Latitude 47 deg. 15' 52'' N. Longitude 81 deg. 35' 5'' E. Elevation 1000  
 m. Semipalitinsk Region (Tarbagatai Mountain Range). 20 km. North of  
 Urdzhar, 3-4 km. Northeast of Alekseyevka. Collected in West and South  
 Valley. Slope incline: 5-10 degrees. Aspect: South. Dominant tree sp.:  
*M. sieversii*. Dominant shrub sp.: *Amygdalus*; Associated-*Rosa*. Dominant  
 herbaceous: *Aster*; Assoc.-*Xanthium*. Sampled 150 fruits from 1 tree.  
 Fruit is firm with aromatic flesh flavor. Over color is 90% red. Fruit  
 size is larger than 50mm, no scab. Closest to McIntosh group of those  
 sampled. Spur type tree. Scion also collected.
- PI 600533. *Malus sieversii* (Ledeb.) M. Roem.**  
 Wild. Kaz 95 10-02L; GMAL 3644. Collected 08/31/1995 in Kazakhstan.  
 Latitude 47 deg. 15' 52'' N. Longitude 81 deg. 35' 5'' E. Elevation 1000  
 m. Semipalitinsk Region (Tarbagatai Mountain Range). 20 km. North of  
 Urdzhar, 3-4 km. Northeast of Alekseyevka. Collected in West and South  
 Valley. Slope incline: 5-10 degrees. Aspect: South. Dominant tree sp.:  
*M. sieversii*. Dominant shrub sp.: *Amygdalus*; Associated-*Rosa*. Dominant  
 herbaceous: *Aster*; Assoc.-*Xanthium*. Sampled 30 fruits from 1 tree. Tree  
 has multiple trunks, reddish bark on new growth. Fruit is hard, small  
 seeds. Over color is 80% red. Looks unusual, maybe has *M. baccata* in  
 it's genetic background. Heavy croplod.
- PI 600534. *Malus sieversii* (Ledeb.) M. Roem.**  
 Wild. Kaz 95 10-03L; GMAL 3645. Collected 08/31/1995 in Kazakhstan.  
 Latitude 47 deg. 15' 52'' N. Longitude 81 deg. 35' 5'' E. Elevation 1000  
 m. Semipalitinsk Region (Tarbagatai Mountain Range). 20 km. North of  
 Urdzhar, 3-4 km. Northeast of Alekseyevka. Collected in West and South  
 Valley. Slope incline: 5-10 degrees. Aspect: South. Dominant tree sp.:  
*M. sieversii*. Dominant shrub sp.: *Amygdalus*; Associated-*Rosa*. Dominant  
 herbaceous: *Aster*; Assoc.-*Xanthium*. Sampled 30 fruits from 1 tree.  
 Fruit is hard with aromatic flesh flavor. Spur type tree.
- PI 600535. *Malus sieversii* (Ledeb.) M. Roem.**  
 Wild. Kaz 95 10-04L; GMAL 3646. Collected 08/31/1995 in Kazakhstan.  
 Latitude 47 deg. 15' 52'' N. Longitude 81 deg. 35' 5'' E. Elevation 1000  
 m. Semipalitinsk Region (Tarbagatai Mountain Range). 20 km. North of  
 Urdzhar, 3-4 km. Northeast of Alekseyevka. Collected in West and South  
 Valley. Slope incline: 5-10 degrees. Aspect: South. Dominant tree sp.:  
*M. sieversii*. Dominant shrub sp.: *Amygdalus*; Associated-*Rosa*. Dominant  
 herbaceous: *Aster*; Assoc.-*Xanthium*. Sampled 30 fruits from 1 tree. Tree  
 has wide branch angles. Late fruit and leaves damaged by hail. Fruit is

firm with aromatic flesh flavor. Fruit size is larger than 50mm, no scab. Spur type tree.

- PI 600536. *Malus sieversii* (Ledeb.) M. Roem.**  
Wild. Kaz 95 10-05L; GMAL 3647. Collected 08/31/1995 in Kazakhstan. Latitude 47 deg. 15' 52'' N. Longitude 81 deg. 35' 5'' E. Elevation 1000 m. Semipalitinisk Region (Tarbagatai Mountain Range). 20 km. North of Urdzhar, 3-4 km. Northeast of Alekseyevka. Collected in West and South Valley. Slope incline: 10 degrees. Aspect: South. Dominant tree sp.: *M. sieversii*. Dominant shrub sp.: *Amygdalus*; Associated-Rosa. Dominant herbaceous: *Aster*; Assoc.-*Xanthium*. Sampled 30 fruits from 1 tree. Fruit is firm with aromatic flesh flavor. Over color is 60% red. Fruit larger than 50mm, no scab. Hail damage. Seeds mixed with 10-06L (GMAL 3648); separated later by color & estimated number with high confidence. Heavycrop load. Spur type tree.
- PI 600537. *Malus sieversii* (Ledeb.) M. Roem.**  
Wild. Kaz 95 10-06L; GMAL 3648. Collected 08/31/1995 in Kazakhstan. Latitude 47 deg. 15' 52'' N. Longitude 81 deg. 35' 5'' E. Elevation 1000 m. Semipalitinisk Region (Tarbagatai Mountain Range). 20 km. North of Urdzhar, 3-4 km. Northeast of Alekseyevka. Collected in West and South Valley. Slope incline: 10 degrees. Aspect: South. Dominant tree sp.: *M. sieversii*. Dominant shrub sp.: *Amygdalus*; Associated-Rosa. Dominant herbaceous: *Aster*; Assoc.-*Xanthium*. Sampled 15 fruits from 1 tree. Fruit is hard, no scab. Seeds may have been mixed with GMAL 3647. Spur type tree.
- PI 600538. *Malus sieversii* (Ledeb.) M. Roem.**  
Wild. Kaz 95 10-07L; GMAL 3649. Collected 08/31/1995 in Kazakhstan. Latitude 47 deg. 15' 52'' N. Longitude 81 deg. 35' 5'' E. Elevation 1000 m. Semipalitinisk Region (Tarbagatai Mountain Range). 20 km. North of Urdzhar, 3-4 km. Northeast of Alekseyevka. Collected in West and South Valley. Slope incline: 10 degrees. Aspect: South. Dominant tree sp.: *M. sieversii*. Dominant shrub sp.: *Amygdalus*; Associated-Rosa. Dominant herbaceous: *Aster*; Assoc.-*Xanthium*. Sampled 30 fruits from 1 tree. Fruit is firm with aromatic flesh flavor, juicy. No scab present. Hail damage. Fruit larger than 50mm. Very free of disease. Spur type tree.
- PI 600539. *Malus sieversii* (Ledeb.) M. Roem.**  
Wild. Kaz 95 11-02; GMAL 3650. Collected 09/03/1995 in Kazakhstan. Latitude 45 deg. 23' 21'' N. Longitude 80 deg. 24' 51'' E. Elevation 1640 m. Topolevka village. 15 km. East of Topolevka - Djungarsky Range. 3 km. Southeast of Topolevka Forestry Camp. Elevation: 1500-1690 m. Slope incline: 30 degrees. Aspect: Southwest. Dominant tree sp.: *M. sieversii*; Associated-Betula, Crataegus, Padus, Sorbus. Dominant shrub sp.: *Berberis*; Assoc.-*Cotoneaster*, *Rubus*. Dominant herbaceous: *Fragaria*; Assoc.-*Dianthus*. Sampled 150 fruits from 1 tree. Two trees - cloned of each other together. Tree dwarfed by high elevation. Scab on fruit.
- PI 600540. *Malus sieversii* (Ledeb.) M. Roem.**  
Wild. Kaz 95 11-03; GMAL 3651. Collected 09/03/1995 in Kazakhstan. Latitude 45 deg. 23' 21'' N. Longitude 80 deg. 24' 51'' E. Elevation 1610 m. Topolevka village. 15 km. East of Topolevka - Djungarsky Range. 3 km. Southeast of Topolevka Forestry Camp. Elevation: 1500-1690 m. Slope incline: 40 degrees. Aspect: Northeast. Dominant tree sp.: *M.*

sieversii; Associated-Betula, Crataegus, Padus, Sorbus. Dominant shrub sp.: Berberis; Assoc.-Cotoneaster, Rubus. Dominant herbaceous: Fragaria; Assoc.-Dianthus. Sampled 150 fruits from 1 tree. Flesh flavor is aromatic, bruises easily. Over color is 60% red, scab present. Hail damage. Fifty year old tree.

**PI 600541. Malus sieversii (Ledeb.) M. Roem.**

Wild. Kaz 95 11-04; GMAL 3652. Collected 09/03/1995 in Kazakhstan. Latitude 45 deg. 23' 21'' N. Longitude 80 deg. 24' 51'' E. Elevation 1550 m. Topolevka village. 15 km. East of Topolevka - Djungarsky Range. 3 km. Southeast of Topolevka Forestry Camp. Landform: By rock outcrop. Elevation: 1500-1690 m. Sandy/gravelly soil, shallow, low PH. Slope incline: 35 degrees. Aspect: NW. Dominant tree sp.: M. sieversii; Assoc-Betula, Crataegus, Padus, Sorbus. Dom. shrub sp.: Berberis; Assoc-Cotoneaster, Rubus. Dom. herb.: Fragaria; Assoc-Dianthus. Sampled 150 fruits from 1 tree. Fruit is firm. Scab present. Hail marks. Tree dwarfed by elevation and poor soil.

**PI 600542. Malus sieversii (Ledeb.) M. Roem.**

Wild. Kaz 95 11-05; GMAL 3653. Collected 09/03/1995 in Kazakhstan. Latitude 45 deg. 23' 34'' N. Longitude 80 deg. 24' 31'' E. Elevation 1500 m. Topolevka village. 15 km. East of Topolevka - Djungarsky Range. 3 km. Southeast of Topolevka Forestry Camp. Elevation: 1500-1690 m. Sandy, very rocky soil. Slope incline: 15 degrees. Aspect: West. Dominant tree sp.: M. sieversii; Assoc-Betula, Crataegus, Padus, Sorbus. Dominant shrub sp.: Berberis; Assoc-Cotoneaster, Rubus. Dominant herbaceous: Fragaria; Assoc-Dianthus. Sampled 150 fruits from 1 tree. Fruits very soft. Scab present. 100 year old tree.

**PI 600543. Malus sieversii (Ledeb.) M. Roem.**

Wild. Kaz 95 12-02; GMAL 3654. Collected 09/03/1995 in Kazakhstan. Latitude 45 deg. 23' 46'' N. Longitude 80 deg. 24' 28'' E. Elevation 1450 m. Topolevka village. 15 km. East of Topolevka - Djungarsky Range. 1.5 km. Southeast of Topolevka Forestry Camp. Elevation: 1220-1450 m. Aspect: Northwest. Dominant tree sp.: M. sieversii; Assoc.-Acer, Quercus, Tilia, Populus, Rhamnus. Dominant shrub sp.: Lonicera; Assoc-Berberis, Cotoneaster, Rubus. Dominant herbaceous: Grasses; Assoc.-Fragaria, Chelidonium, Urtica. Sampled 150 frts from 1 tree. Fruit is firm, largest in Djungarsky. Some codling moth eggs visible in seed. Quite clean of scab. Tree sets fruit in clusters; has clonal offshoots. Scion also coll. Spur type tree. Same accession as GMAL 3890.

**PI 600544. Malus sieversii (Ledeb.) M. Roem.**

Wild. Kaz 95 12-03; GMAL 3655. Collected 09/03/1995 in Kazakhstan. Latitude 45 deg. 23' 46'' N. Longitude 80 deg. 24' 28'' E. Elevation 1500 m. Topolevka village. 15 km. East of Topolevka - Djungarsky Range. 1.5 km. Southeast of Topolevka Forestry Camp. Landform: Plateau. Elevation: 1220-1450 m. Aspect: Northwest. Dominant tree sp.: M. sieversii; Assoc.-Acer, Quercus, Tilia, Populus, Rhamnus. Dominant shrub sp.: Lonicera; Assoc-Berberis, Cotoneaster, Rubus. Dominant herbaceous: Grasses; Assoc.-Fragaria, Chelidonium, Urtica. Sampled 150 fruits from 1 tree. Fruit is hard. Slight scab. 100 year old tree.

**PI 600545. Malus sieversii (Ledeb.) M. Roem.**

Wild. Kaz 95 12-04; GMAL 3656. Collected 09/03/1995 in Kazakhstan.

Latitude 45 deg. 23' 46'' N. Longitude 80 deg. 24' 28'' E. Elevation 1500 m. Topolevka village. 15 km. East of Topolevka - Djungarsky Range. 1.5 km. Southeast of Topolevka Forestry Camp. Elevation: 1220-1450 m. Aspect: East. Dominant tree sp.: *M. sieversii*; Assoc.-*Acer*, *Quercus*, *Tilia*, *Populus*, *Rhamnus*. Dominant shrub sp.: *Lonicera*; Assoc.-*Berberis*, *Cotoneaster*, *Rubus*. Dominant herbaceous: Grasses; Assoc.-*Fragaria*, *Chelidonium*, *Urtica*. Sampled 100 fruits from 1 tree. Flesh flavor is aromatic. Scab present. Fruit contains insect eggs in seed area. Tree tall and thin.

**PI 600546. *Malus sieversii* (Ledeb.) M. Roem.**

Wild. Kaz 95 12-05; GMAL 3657. Collected 09/03/1995 in Kazakhstan. Latitude 45 deg. 23' 46'' N. Longitude 80 deg. 24' 28'' E. Elevation 1220 m. Topolevka village. 15 km. East of Topolevka - Djungarsky Range. 1.5 km. Southeast of Topolevka Forestry Camp. Elevation: 1220-1450 m. Dominant tree sp.: *M. sieversii*; Assoc.-*Acer*, *Quercus*, *Tilia*, *Populus*, *Rhamnus*. Dominant shrub sp.: *Lonicera*; Assoc.-*Berberis*, *Cotoneaster*, *Rubus*. Dominant herbaceous: Grasses; Assoc.-*Fragaria*, *Chelidonium*, *Urtica*. Sampled 150 fruits from 1 tree. Fruit is firm with aromatic flesh flavor. Fruit size is larger than 50mm, very little scab. Collected very close to GMAL 3554 in 1993. Maybe near *M. x domestica* source.

**PI 600547. *Malus sieversii* (Ledeb.) M. Roem.**

Wild. Kaz 95 13-01; GMAL 3658. Collected 09/03/1995 in Kazakhstan. Latitude 45 deg. 24' 25'' N. Longitude 80 deg. 24' 42'' E. Elevation 1170 m. Topolevka village. 15 km. East of Topolevka - Djungarsky Mountain Range. 3 km. East of Topolevka Forestry Camp. Landform: Edge of cliff. Fertile soil. Slope incline: 80 degrees. Aspect: NW. Dominant tree sp.: *M. sieversii*; Associated-*Populus*, *Crataegus*, *Acer*, *Betula*, *Franglua*. Dom. shrub sp.: *Lonicera*; Assoc.-*Ribes*. Dom. herbaceous: *Humulus*; Assoc.-*Cirsium*, *Urtica*, *Thalictrum*. Sampled 40 fruits from 1 tree. Fruit is firm; Shows some scab.

**PI 600548. *Malus sieversii* (Ledeb.) M. Roem.**

Wild. Kaz 95 13-02; GMAL 3659. Collected 09/03/1995 in Kazakhstan. Latitude 45 deg. 24' 25'' N. Longitude 80 deg. 24' 42'' E. Elevation 1170 m. Topolevka village. 15 km. East of Topolevka - Djungarsky Mountain Range. 3 km. East of Topolevka Forestry Camp. Landform: Next to ridge trail. Slope incline: 10 degrees. Aspect: Southwest. Dominant tree sp.: *M. sieversii*; Associated-*Populus*, *Crataegus*, *Acer*, *Betula*, *Franglua*. Dom. shrub sp.: *Lonicera*; Assoc.-*Ribes*. Dominant herbaceous: *Humulus*; Assoc.-*Cirsium*, *Urtica*, *Thalictrum*. Sampled 40 fruits from 1 tree. Fruit is firm and small, but selected for flavor, texture and flesh color. Some scab.

**PI 600549. *Malus sieversii* (Ledeb.) M. Roem.**

Wild. Kaz 95 13-03; GMAL 3660. Collected 09/03/1995 in Kazakhstan. Latitude 45 deg. 24' 25'' N. Longitude 80 deg. 24' 42'' E. Elevation 1320 m. Topolevka village. 15 km. East of Topolevka - Djungarsky Mountain Range. 3 km. East of Topolevka Forestry Camp. Rich fertile soil. Drainage: Wet. Dominant tree sp.: *M. sieversii*; Associated-*Populus*, *Crataegus*, *Acer*, *Betula*, *Franglua*. Dom. shrub sp.: *Lonicera*; Assoc.-*Ribes*. Dominant herbaceous: *Humulus*; Assoc.-*Cirsium*, *Urtica*, *Thalictrum*. Sampled 40 fruits from 1 tree. Frost russet on

fruit. 150 year old tree. Branches dead on lower part due to shading. Very large carpels (covers half of fruit, very rare). Very free of disease.

**PI 600550. *Malus sieversii* (Ledeb.) M. Roem.**

Wild. Kaz 95 13-04; GMAL 3661. Collected 09/03/1995 in Kazakhstan. Latitude 45 deg. 24' 25'' N. Longitude 80 deg. 24' 42'' E. Elevation 1320 m. Topolevka village. 15 km. East of Topolevka - Djungarsky Mountain Range. 3 km. East of Topolevka Forestry Camp. Rich fertile soil. Drainage: Wet. Dominant tree sp.: *M. sieversii*; Associated-*Populus*, *Crataegus*, *Acer*, *Betula*, *Franglua*. Dom. shrub sp.: *Lonicera*; Assoc-*Ribes*. Dominant herbaceous: *Humulus*; Assoc-*Cirsium*, *Urtica*, *Thalictrum*. Sampled 40 fruits from 1 tree. Fruit is firm with aromatic flesh flavor. Very free of disease.

**PI 600551. *Malus sieversii* (Ledeb.) M. Roem.**

Wild. Kaz 95 13-05; GMAL 3662. Collected 09/03/1995 in Kazakhstan. Latitude 45 deg. 24' 25'' N. Longitude 80 deg. 24' 42'' E. Elevation 1320 m. Topolevka village. 15 km. East of Topolevka - Djungarsky Mountain Range. 3 km. East of Topolevka Forestry Camp. Slope incline: Flat. Dominant tree sp.: *M. sieversii*; Associated-*Populus*, *Crataegus*, *Acer*, *Betula*, *Franglua*. Dominant shrub sp.: *Lonicera*; Assoc.-*Ribes*. Dominant herbaceous: *Humulus*; Assoc.-*Cirsium*, *Urtica*, *Thalictrum*. Sampled 40 fruits from 1 tree. Fruit is firm with aromatic flesh flavor. Frost russet on fruit. Relatively clean.

**PI 600552. *Malus sieversii* (Ledeb.) M. Roem.**

Wild. Kaz 95 13-06; GMAL 3663. Collected 09/03/1995 in Kazakhstan. Latitude 45 deg. 24' 25'' N. Longitude 80 deg. 24' 42'' E. Elevation 1320 m. Topolevka village. 15 km. East of Topolevka - Djungarsky Mountain Range. 3 km. East of Topolevka Forestry Camp. Aspect: Southeast. Dominant tree sp.: *M. sieversii*; Associated-*Populus*, *Crataegus*, *Acer*, *Betula*, *Franglua*. Dominant shrub sp.: *Lonicera*; Assoc.-*Ribes*. Dominant herbaceous: *Humulus*; Assoc.-*Cirsium*, *Urtica*, *Thalictrum*. Sampled 40 fruits from 1 tree. Fruit is firm.

**PI 600553. *Malus sieversii* (Ledeb.) M. Roem.**

Wild. Kaz 95 14-02; GMAL 3664. Collected 09/05/1995 in Kazakhstan. Latitude 45 deg. 31' 14'' N. Longitude 80 deg. 43' 55'' E. Elevation 1190 m. Lepsinsk village. 9 km. Southeast of Lepsinsk. 2 km. Southeast of Lepsinsk Forestry Camp. Landform: Ridge. Elevation: 1190-1360 m. Slope incline: 10 degrees. Aspect: Temp: max. +45, min. -40. West. Dominant tree sp: *M. sieversii*; Assoc-*Populus*, *Padus*. Dom. shrub sp: *Rubus*; Assoc-*Lonicera*. Dom. herb: *Urtica*; Assoc-*Cirsium*, *Geranium*, *Aster*, *Malva*, *Rumex*. Sampled 150 fruits from 1 tree. Flesh flavor is aromatic. Bruises very easily. Scab detected. Very heavy cropload.

**PI 600554. *Malus sieversii* (Ledeb.) M. Roem.**

Wild. Kaz 95 14-03; GMAL 3665. Collected 09/05/1995 in Kazakhstan. Latitude 45 deg. 31' 14'' N. Longitude 80 deg. 43' 55'' E. Elevation 1190 m. Lepsinsk village. 9 km. Southeast of Lepsinsk. 2 km. Southeast of Lepsinsk Forestry Camp. Elevation: 1190-1360 m. Slope incline: 20 degrees. Aspect: North. Temp: max. +45, min. -40. Dominant tree sp: *M. sieversii*; Assoc-*Populus*, *Padus*. Dom. shrub sp: *Rubus*; Assoc-*Lonicera*. Dom. herb: *Urtica*; Assoc-*Cirsium*, *Geranium*, *Aster*, *Malva*, *Rumex*.

Sampled 150 fruits from 1 tree. Fruit is firm, scab present.

**PI 600555. *Malus sieversii* (Ledeb.) M. Roem.**

Wild. Kaz 95 14-05; GMAL 3666. Collected 09/05/1995 in Kazakhstan. Latitude 45 deg. 31' 14'' N. Longitude 80 deg. 43' 55'' E. Elevation 1190 m. Lepsinsk village. 9 km. Southeast of Lepsinsk. 2 km. Southeast of Lepsinsk Forestry Camp. Elevation: 1190-1360 m. Slope incline: 20 degrees. Aspect: Northeast. Temp: max. +45, min. -40. Dominant tree sp: *M. sieversii*; Assoc-*Populus*, *Padus*. Dom. shrub sp: *Rubus*; Assoc-*Lonicera*. Dom. herb: *Urtica*; Assoc-*Cirsium*, *Geranium*, *Aster*, *Malva*, *Rumex*. Fruit bruises easily, scab present.

**PI 600556. *Malus sieversii* (Ledeb.) M. Roem.**

Wild. Kaz 95 14-06; GMAL 3667. Collected 09/05/1995 in Kazakhstan. Latitude 45 deg. 31' 19'' N. Longitude 80 deg. 43' 10'' E. Elevation 1190 m. Lepsinsk village. 9 km. Southeast of Lepsinsk. 2 km. Southeast of Lepsinsk Forestry Camp. Elevation: 1190-1360 m. Aspect: Northwest. Lowest elevation in this population. Temp: max. +45, min. -40. Dominant tree sp: *M. sieversii*; Assoc-*Populus*, *Padus*. Dom. shrub sp: *Rubus*; Assoc-*Lonicera*. Dom. herb: *Urtica*; Assoc-*Cirsium*, *Geranium*, *Aster*, *Malva*, *Rumex*. Sampled 150 fruits from 1 tree. One of few red fruited trees in area. Fruit is firm. Much collected apple in area. Same accession as GMAL 3929.

**PI 600557. *Malus sieversii* (Ledeb.) M. Roem.**

Wild. Kaz 95 15-01; GMAL 3668. Collected 09/05/1995 in Kazakhstan. Latitude 45 deg. 30' 39'' N. Longitude 80 deg. 42' 57'' E. Elevation 1270 m. Lepsinsk village. 9 km. Southeast of Lepsinsk. 3 km. Southwest of Lepsinsk Forestry Camp. Landform: Ridge. Gravely loam soil. Excellent drainage. Aspect N-S. Dominant tree sp: *M. sieversii*; Assoc-*Populus*, *Crataegus*. Dominant shrub sp: *Rosa*; Assoc-*Rubus*. Dominant herbaceous: Grasses; Assoc-*Aster*, *Cirsium*. Sampled 150 fruits from 1 tree. Fruit is firm. Area where trees were nearly defoliated in 1993, looks much better in 1995.

**PI 600558. *Malus sieversii* (Ledeb.) M. Roem.**

Wild. Kaz 95 15-02; GMAL 3669. Collected 09/05/1995 in Kazakhstan. Latitude 45 deg. 30' 39'' N. Longitude 80 deg. 42' 57'' E. Elevation 1270 m. Lepsinsk village. 9 km. Southeast of Lepsinsk. 3 km. Southwest of Lepsinsk Forestry Camp. Landform: Ridge. Excellent drainage. Slope incline 5 degrees. Aspect West. Dominant tree sp: *M. sieversii*; Assoc-*Populus*, *Crataegus*. Dominant shrub sp: *Rosa*; Assoc-*Rubus*. Dominant herbaceous: Grasses; Assoc-*Aster*, *Cirsium*. Sampled 150 fruits from 1 tree. Fruit is firm. Scab present.

**PI 600559. *Malus sieversii* (Ledeb.) M. Roem.**

Wild. Kaz 95 15-03; GMAL 3670. Collected 09/05/1995 in Kazakhstan. Latitude 45 deg. 30' 39'' N. Longitude 80 deg. 42' 57'' E. Elevation 1270 m. Lepsinsk village. 9 km. Southeast of Lepsinsk. 3 km. Southwest of Lepsinsk Forestry Camp. Landform: Ridge. Excellent drainage. Slope incline 10 degrees. Aspect Northwest. Dominant tree sp: *M. sieversii*; Assoc-*Populus*, *Crataegus*. Dominant shrub sp: *Rosa*; Assoc-*Rubus*. Dominant herbaceous: Grasses; Assoc-*Aster*, *Cirsium*. Sampled 150 fruits from 1 tree. Fruit is firm with aromatic flesh flavor. Scab present.

- PI 600560. *Malus sieversii* (Ledeb.) M. Roem.**  
 Wild. Kaz 95 15-04; GMAL 3671. Collected 09/05/1995 in Kazakhstan.  
 Latitude 45 deg. 30' 39'' N. Longitude 80 deg. 42' 57'' E. Elevation  
 1270 m. Lepsinsk village. 9 km. Southeast of Lepsinsk. 3 km. Southwest  
 of Lepsinsk Forestry Camp. Landform: On cliff of ridge. Excellent  
 drainage. Slope incline 70 degrees. Aspect East. Collected on edge of  
 cliff. Dominant tree sp: *M. sieversii*; Assoc-Populus, *Crataegus*.  
 Dominant shrub sp: *Rosa*; Assoc-*Rubus*. Dominant herbaceous: Grasses;  
 Assoc-*Aster*, *Cirsium*. Sampled 60 fruits from 1 tree. Selected for leaf  
 form that stood out (thick, dark green, disease free). Clean of scab.
- PI 600561. *Malus sieversii* (Ledeb.) M. Roem.**  
 Wild. Kaz 95 17-01; GMAL 3672. Collected 09/09/1995 in Kazakhstan.  
 Latitude 42 deg. 52' 27'' N. Longitude 69 deg. 53' 25'' E. Elevation 620  
 m. Karatau Province. Boraldy River Forest area. 2 km. South of Boraldy  
 Forest Camp which is 80 km. North of Chimkent. Stream bed area. Rocky  
 soil, dry. Slope incline: flat. Dominant tree sp: *Crataegus*;  
 Associated-*M. sieversii*, *Prunus*, *Morus*, *Rhamnus*. Dominant shrub sp:  
*Clematis*; Assoc-*Rubus*. Dominant herbaceous: Grasses. Sampled 60 fruits  
 from 1 tree. Fruit is firm. Early season. Shows drought stress.
- PI 600562. *Malus sieversii* (Ledeb.) M. Roem.**  
 Wild. Kaz 95 17-03; GMAL 3673. Collected 09/09/1995 in Kazakhstan.  
 Latitude 42 deg. 52' 27'' N. Longitude 69 deg. 53' 25'' E. Elevation 620  
 m. Karatau Province. Boraldy River Forest area. 2 km. South of Boraldy  
 Forest Camp which is 80 km. North of Chimkent. Stream bed area. Rocky  
 soil, dry. Slope incline: flat. Dominant tree sp: *Crataegus*;  
 Associated-*M. sieversii*, *Prunus*, *Morus*, *Rhamnus*. Dominant shrub sp:  
*Clematis*; Assoc-*Rubus*. Dominant herbaceous: Grasses. Sampled 60 fruits  
 from 1 tree. Same accession as GMAL 3951.
- PI 500563. *Malus sieversii* (Ledeb.) M. Roem.**  
 Wild. Kaz 95 17-04; GMAL 3674. Collected 09/09/1995 in Kazakhstan.  
 Latitude 42 deg. 52' 27'' N. Longitude 69 deg. 53' 25'' E. Elevation 620  
 m. Karatau Province. Boraldy River Forest area. 2 km. South of Boraldy  
 Forest Camp which is 80 km. North of Chimkent. Stream bed area. Rocky  
 soil, dry. Slope incline: 20%. Aspect: North. Dominant tree sp:  
*Crataegus*; Associated-*M. sieversii*, *Prunus*, *Morus*, *Rhamnus*. Dominant  
 shrub sp: *Clematis*; Assoc-*Rubus*. Dominant herbaceous: Grasses. Sampled  
 60 fruits from 1 tree. Flesh flavor is aromatic. Over color is 90% red.  
 Clean of scab.
- PI 600564. *Malus sieversii* (Ledeb.) M. Roem.**  
 Wild. Kaz 95 17-05; GMAL 3675. Collected 09/09/1995 in Kazakhstan.  
 Latitude 42 deg. 52' 27'' N. Longitude 69 deg. 53' 25'' E. Elevation 620  
 m. Karatau Province. Boraldy River Forest area. 2 km. South of Boraldy  
 Forest Camp which is 80 km. North of Chimkent. Stream bed area. Rocky  
 soil, dry. Slope incline: flat. Dominant tree sp: *Crataegus*;  
 Associated-*M. sieversii*, *Prunus*, *Morus*, *Rhamnus*. Dominant shrub sp:  
*Clematis*; Assoc-*Rubus*. Dominant herbaceous: Grasses. Sampled 60 fruits  
 from 1 tree. Fruit is hard.
- PI 600565. *Malus sieversii* (Ledeb.) M. Roem.**  
 Wild. Kaz 95 17-06; GMAL 3676. Collected 09/09/1995 in Kazakhstan.  
 Latitude 42 deg. 52' 27'' N. Longitude 69 deg. 53' 25'' E. Elevation 620

m. Karatau Province. Boraldy River Forest area. 2 km. South of Boraldy Forest Camp which is 80 km. North of Chimkent. Stream bed area. Rocky soil, dry. Aspect: North. Dominant tree sp: Crataegus; Associated-M. sieversii, Prunus, Morus, Rhamnus. Dominant shrub sp: Clematis; Assoc-Rubus. Dominant herbaceous: Grasses. Sampled 60 fruits from 1 tree. Fruit is firm. Drought stressed. Spur type tree (upright habit).

**PI 600566. Malus sieversii (Ledeb.) M. Roem.**

Wild. Kaz 95 17-10; GMAL 3677. Collected 09/09/1995 in Kazakhstan. Latitude 42 deg. 52' 27'' N. Longitude 69 deg. 53' 25'' E. Elevation 620 m. Karatau Province. Boraldy River Forest area. 2 km. South of Boraldy Forest Camp which is 80 km. North of Chimkent. Stream bed area. Rocky soil, dry. Slope incline: 10 degrees. Aspect: North. Dominant tree sp: Crataegus; Associated-M. sieversii, Prunus, Morus, Rhamnus. Dominant shrub sp: Clematis; Assoc-Rubus. Dominant herbaceous: Grasses. Sampled 150 fruits from 1 tree. Fruit is firm with aromatic flesh flavor. Very clean.

**PI 600567. Malus sieversii (Ledeb.) M. Roem.**

Wild. Kaz 95 17-11; GMAL 3678. Collected 09/09/1995 in Kazakhstan. Latitude 42 deg. 52' 27'' N. Longitude 69 deg. 53' 25'' E. Elevation 620 m. Karatau Province. Boraldy River Forest area. 2 km. South of Boraldy Forest Camp which is 80 km. North of Chimkent. Stream bed area. Rocky soil, dry. Slope incline: 15 degrees. Aspect: North. Dominant tree sp: Crataegus; Associated-M. sieversii, Prunus, Morus, Rhamnus. Dominant shrub sp: Clematis; Assoc-Rubus. Dominant herbaceous: Grasses. Sampled 40 fruits from 1 tree.

**PI 600568. Malus sieversii (Ledeb.) M. Roem.**

Wild. Kaz 95 17-12; GMAL 3679. Collected 09/09/1995 in Kazakhstan. Latitude 42 deg. 52' 27'' N. Longitude 69 deg. 53' 25'' E. Elevation 620 m. Karatau Province. Boraldy River Forest area. 2 km. South of Boraldy Forest Camp which is 80 km. North of Chimkent. Stream bed area. Rocky soil, dry. Slope incline: 10 degrees. Aspect: North. Dominant tree sp: Crataegus; Associated-M. sieversii, Prunus, Morus, Rhamnus. Dominant shrub sp: Clematis; Assoc-Rubus. Dominant herbaceous: Grasses. Sampled 20 fruits from 1 tree. Fruit is firm. Very free of disease. Insect damage in fruit.

**PI 600569. Malus sieversii (Ledeb.) M. Roem.**

Wild. Kaz 95 17-13; GMAL 3680. Collected 09/09/1995 in Kazakhstan. Latitude 42 deg. 52' 27'' N. Longitude 69 deg. 53' 25'' E. Elevation 750 m. Karatau Province. Boraldy River Forest area. 2 km. South of Boraldy Forest Camp which is 80 km. North of Chimkent. Stream bed area. Rocky soil, dry. Slope incline: 50 degrees. Aspect: North. Dominant tree sp: Crataegus; Associated-M. sieversii, Prunus, Morus, Rhamnus. Dominant shrub sp: Clematis; Assoc-Rubus. Dominant herbaceous: Grasses. Sampled 30 fruits from 1 tree. Flavor texture and firmness not evaluated. Shows some larvae (codling moth?) in carpels. Very early season for fruit.

**PI 600570. Malus sieversii (Ledeb.) M. Roem.**

Wild. Kaz 95 18-03; GMAL 3682. Collected 09/10/1995 in Kazakhstan. Latitude 42 deg. 53' 18'' N. Longitude 69 deg. 52' 52'' E. Elevation 910 m. Karatau Province. Boraldy River Forest area. 5 km. North of Boraldy Forest Camp which is 80 km. North of Chimkent. Xerophytic. Very stony



soil, dry. Slope incline: 10 degrees, N-NW. Rainfall: less than 300 mm. Dominant tree sp: *Crataegus*; Associated-M. *Sieversii*. Dominant shrub sp: *Amygdalus*; Assoc-*Cerasus*. Associated herbaceous: *Rheum*, *Tulipa*. Sampled 150 fruits from 1 tree. Fruit is hard with aromatic flesh flavor. Very clean. Same accession as GMAL 3971. Spur type tree.

**PI 600571. *Malus sieversii* (Ledeb.) M. Roem.**

Wild. Kaz 95 18-04; GMAL 3683. Collected 09/10/1995 in Kazakhstan. Latitude 42 deg. 53' 18'' N. Longitude 69 deg. 52' 52'' E. Elevation 910 m. Karatau Province. Boraldy River Forest area. 5 km. North of Boraldy Forest Camp which is 80 km. North of Chimkent. Xerophytic. Very stony soil, dry. Slope incline: 10 degrees, N-NW. Rainfall: less than 300 mm. Dominant tree sp: *Crataegus*; Associated-M. *Sieversii*. Dominant shrub sp: *Amygdalus*; Assoc-*Cerasus*. Associated herbaceous: *Rheum*, *Tulipa*. Sampled 150 fruits from 1 tree. Fruit is firm with aromatic flesh flavor. Over color is 70% red. Very Clean. Spur type tree.

**PI 600572. *Malus sieversii* (Ledeb.) M. Roem.**

Wild. Kaz 95 18-05; GMAL 3684. Collected 09/10/1995 in Kazakhstan. Latitude 42 deg. 53' 18'' N. Longitude 69 deg. 52' 52'' E. Elevation 910 m. Karatau Province. Boraldy River Forest area. 5 km. North of Boraldy Forest Camp which is 80 km. North of Chimkent. Xerophytic. Very stony soil, dry. Slope incline: 10 degrees, N-NW. Rainfall: less than 300 mm. Dominant tree sp: *Crataegus*; Associated-M. *Sieversii*. Dominant shrub sp: *Amygdalus*; Assoc-*Cerasus*. Associated herbaceous: *Rheum*, *Tulipa*. Sampled 70 fruits from 1 tree. Fruit is hard. Bears in large clusters. Very clean. Spur type tree.

**PI 600573. *Malus sieversii* (Ledeb.) M. Roem.**

Wild. Kaz 95 18-08; GMAL 3687. Collected 09/10/1995 in Kazakhstan. Latitude 42 deg. 53' 18'' N. Longitude 69 deg. 52' 52'' E. Elevation 910 m. Karatau Province. Boraldy River Forest area. 5 km. North of Boraldy Forest Camp which is 80 km. North of Chimkent. Xerophytic. Very stony soil, dry. Slope incline: 10 degrees, N-NW. Rainfall: less than 300 mm. Dominant tree sp: *Crataegus*; Associated-M. *Sieversii*. Dominant shrub sp: *Amygdalus*; Assoc-*Cerasus*. Associated herbaceous: *Rheum*, *Tulipa*. Sampled 150 fruits from 1 tree. Fruit is firm with aromatic flesh flavor, bruises easily. Very clean. Spur type tree.

**PI 600574. *Malus sieversii* (Ledeb.) M. Roem.**

Wild. Kaz 95 18-09; GMAL 3688. Collected 09/10/1995 in Kazakhstan. Latitude 42 deg. 53' 18'' N. Longitude 69 deg. 52' 52'' E. Elevation 910 m. Karatau Province. Boraldy River Forest area. 5 km. North of Boraldy Forest Camp which is 80 km. North of Chimkent. Xerophytic. Very stony soil, dry. Slope incline: 10 degrees, N-NW. Rainfall: less than 300 mm. Dominant tree sp: *Crataegus*; Associated-M. *Sieversii*. Dominant shrub sp: *Amygdalus*; Assoc-*Cerasus*. Associated herbaceous: *Rheum*, *Tulipa*. Sampled 200 fruits from 1 tree. Flesh flavor is aromatic. Very clean. Spur type tree.

**PI 600575. *Malus sieversii* (Ledeb.) M. Roem.**

Wild. Kaz 95 18-10; GMAL 3689. Collected 09/10/1995 in Kazakhstan. Latitude 42 deg. 53' 18'' N. Longitude 69 deg. 52' 52'' E. Elevation 910 m. Karatau Province. Boraldy River Forest area. 5 km. North of Boraldy Forest Camp which is 80 km. North of Chimkent. Xerophytic. Very stony

soil, dry. Slope incline: 10 degrees, N-NW. Rainfall: less than 300 mm. Dominant tree sp: *Crataegus*; Associated-M. *Sieversii*. Dominant shrub sp: *Amygdalus*; Assoc-*Cerasus*. Associated herbaceous: *Rheum*, *Tulipa*. Sampled 60 fruits from 1 tree. Fruit is firm with aromatic flesh flavor. Over color is 75% red. Very clean. Spur type tree.

**PI 600576. *Malus sieversii* (Ledeb.) M. Roem.**

Wild. Kaz 95 18-11; GMAL 3690. Collected 09/10/1995 in Kazakhstan. Latitude 42 deg. 53' 18'' N. Longitude 69 deg. 52' 52'' E. Elevation 910 m. Karatau Province. Boraldy River Forest area. 5 km. North of Boraldy Forest Camp which is 80 km. North of Chimkent. Xerophytic. Very stony soil, dry. Slope incline: 10 degrees, N-NW. Rainfall: less than 300 mm. Dominant tree sp: *Crataegus*; Associated-M. *Sieversii*. Dominant shrub sp: *Amygdalus*; Assoc-*Cerasus*. Associated herbaceous: *Rheum*, *Tulipa*. Sampled 150 fruits from 1 tree. Fruit is firm with aromatic flesh flavor. Very clean. Very old tree. Spur type tree.

**PI 600577. *Malus sieversii* (Ledeb.) M. Roem.**

Wild. Kaz 95 18-14; GMAL 3691. Collected 09/10/1995 in Kazakhstan. Latitude 42 deg. 53' 18'' N. Longitude 69 deg. 52' 52'' E. Elevation 910 m. Karatau Province. Boraldy River Forest area. 5 km. North of Boraldy Forest Camp which is 80 km. North of Chimkent. Xerophytic. Very stony soil, dry. Slope incline: 10 degrees, N-NW. Rainfall: less than 300 mm. Dominant tree sp: *Crataegus*; Associated-M. *Sieversii*. Dominant shrub sp: *Amygdalus*; Assoc-*Cerasus*. Associated herbaceous: *Rheum*, *Tulipa*. Sampled 150 fruits from 1 tree. Fruit is hard. Over color is 90% red. Stressed from drought. Spur type tree.

**PI 600578. *Malus sieversii* (Ledeb.) M. Roem.**

Wild. Kaz 95 18-17; GMAL 3692. Collected 09/10/1995 in Kazakhstan. Latitude 42 deg. 53' 18'' N. Longitude 69 deg. 52' 52'' E. Elevation 910 m. Karatau Province. Boraldy River Forest area. 5 km. North of Boraldy Forest Camp which is 80 km. North of Chimkent. Xerophytic. Very stony soil, dry. Slope incline: 10 degrees, N-NW. Rainfall: less than 300 mm. Dominant tree sp: *Crataegus*; Associated-M. *Sieversii*. Dominant shrub sp: *Amygdalus*; Assoc-*Cerasus*. Associated herbaceous: *Rheum*, *Tulipa*. Sampled 80 fruits from 1 tree. Fruit is firm with aromatic flesh flavor. Good apple. Remote from the main population.

**PI 600579. *Malus sieversii* (Ledeb.) M. Roem.**

Wild. Kaz 95 19-01; GMAL 3694. Collected 09/10/1995 in Kazakhstan. Latitude 42 deg. 52' 29'' N. Longitude 69 deg. 53' 11'' E. Elevation 600 m. Karatau Province. Boraldy River Forest area. 1.5 km. West of Boraldy Forest Camp which is 80 km. North of Chimkent. Landform: Stream bed. Slope incline: 5 degrees, North. Dominant tree sp: *Salix*; Associated-*Crataegus*, *Rhamnus*. Dominant shrub sp: *Lonicera*. Dominant herbaceous: Grasses. Sampled 70 fruits from 1 tree. Fruit is hard.

**PI 600580. *Malus sieversii* (Ledeb.) M. Roem.**

Wild. Kaz 95 19-02; GMAL 3695. Collected 09/10/1995 in Kazakhstan. Latitude 42 deg. 52' 29'' N. Longitude 69 deg. 53' 11'' E. Elevation 600 m. Karatau Province. Boraldy River Forest area. 1.5 km. West of Boraldy Forest Camp which is 80 km. North of Chimkent. Landform: Stream bed. Slope incline: 5 degrees, North. Dominant tree sp: *Salix*; Associated-*Crataegus*, *Rhamnus*. Dominant shrub sp: *Lonicera*. Dominant

herbaceous: Grasses. Sampled 70 fruits from 1 tree. Fruit is hard.

**PI 600581. *Malus sieversii* (Ledeb.) M. Roem.**  
Wild. Kaz 95 19-03; GMAL 3696. Collected 09/10/1995 in Kazakhstan.  
Latitude 42 deg. 52' 29'' N. Longitude 69 deg. 53' 11'' E. Elevation 600 m. Karatau Province. Boraldy River Forest area. 1.5 km. West of Boraldy Forest Camp which is 80 km. North of Chimkent. Landform: Stream bed. Slope incline: 5 degrees, North. Dominant tree sp: *Salix*; Associated-*Crataegus*, *Rhamnus*. Dominant shrub sp: *Lonicera*. Dominant herbaceous: Grasses. Sampled 70 fruits from 1 tree. Fruit is hard. Fruit collected well past ripe, but holds well. Very large leaves. Spur type tree.

**PI 600582. *Malus sieversii* (Ledeb.) M. Roem.**  
Wild. Kaz 95 20-01; GMAL 3697. Collected 09/12/1995 in Kazakhstan.  
Latitude 43 deg. 21' 43'' N. Longitude 77 deg. 40' 28'' E. Elevation 1550 m. Zielisky Alatau Province. Almaty village. 30 km. East of Almaty in the Kuznetsov area. Landform: Slope. Slope incline: 15 degrees, East. Dominant tree sp: *M. sieversii*; Associated-*Crataegus*, *Sorbus*. Dominant shrub sp: *Rosa*; Assoc-*Lonicera*. Associated herbaceous: *Fragaria*, *Geranium*, *Thalictrum*. Sampled 20 fruits from 1 tree. Fruit is hard. Very free of disease.

**PI 600583. *Malus sieversii* (Ledeb.) M. Roem.**  
Wild. Kaz 95 20-02; GMAL 3698. Collected 09/12/1995 in Kazakhstan.  
Latitude 43 deg. 21' 43'' N. Longitude 77 deg. 40' 28'' E. Elevation 1550 m. Zielisky Alatau Province. Almaty village. 30 km. East of Almaty in the Kuznetsov area. Landform: Slope. Slope incline: 15 degrees, East. Dominant tree sp: *M. sieversii*; Associated-*Crataegus*, *Sorbus*. Dominant shrub sp: *Rosa*; Assoc-*Lonicera*. Associated herbaceous: *Fragaria*, *Geranium*, *Thalictrum*. Sampled 100 fruits from 1 tree. Fruit is hard. Very early leaf fall - yellow foilage. Very free of disease.

**PI 600584. *Malus sieversii* (Ledeb.) M. Roem.**  
Wild. Kaz 95 20-03; GMAL 3699. Collected 09/12/1995 in Kazakhstan.  
Latitude 43 deg. 21' 43'' N. Longitude 77 deg. 40' 28'' E. Elevation 1550 m. Zielisky Alatau Province. Almaty village. 30 km. East of Almaty in the Kuznetsov area. Landform: Slope. Slope incline: 15 degrees, East. Dominant tree sp: *M. sieversii*; Associated-*Crataegus*, *Sorbus*. Dominant shrub sp: *Rosa*; Assoc-*Lonicera*. Associated herbaceous: *Fragaria*, *Geranium*, *Thalictrum*. Sampled 100 fruits from 1 tree. Fruit is firm. Very free of disease.

The following were collected by Philip L. Forsline, USDA, ARS, Cornell University, Plant Genetic Resources Unit, Geneva, New York 14456-0462, United States. Received 09/19/1996.

**PI 600585. *Malus sieversii* (Ledeb.) M. Roem.**  
Wild. KAZ 96 01-02; GMAL 4010. Collected 08/28/1996 in Kazakhstan.  
Latitude 43 deg. 20' 23'' N. Longitude 79 deg. 28' 54'' E. Elevation 1640 m. Ketmen Mts. Village-Kirghiz sai. Southwest of Bol'shoye Asku Village. Heavily grazed area, no undergrowth. Heavily grazed area, no undergrowth. Soil: Gravely loam. Incline 10-20%, north, open grazed. N. ridge above stream; rainfall 600-650mm. Dominant tree sp:

Apricot, Crataegus; Assoc-Populus & Betula above 1660m. Dominant shrub sp: Sorbus, Berberis; Assoc-Lonicera.

**PI 600586. *Malus sieversii* (Ledeb.) M. Roem.**

Wild. KAZ 96 01-03; GMAL 4011. Collected 08/28/1996 in Kazakhstan. Latitude 43 deg. 20' 23'' N. Longitude 79 deg. 28' 54'' E. Elevation 1640 m. Ketmen Mts. Village-Kirghiz sai. Southwest of Bol'shoye Asku Village. Heavily grazed area, no undergrowth. Soil: Gravely loam. Incline 10-20%, north, open grazed. North ridge above stream; rainfall 600-650mm. Dominant tree sp: Apricot, Crataegus; Assoc-Populus & Betula above 1660m. Dominant shrub sp: Sorbus, Berberis; Assoc-Lonicera.

**PI 600587. *Malus sieversii* (Ledeb.) M. Roem.**

Wild. KAZ 96 03-02; GMAL 4012. Collected 09/01/1996 in Kazakhstan. Latitude 47 deg. 16' 4'' N. Longitude 81 deg. 34' 59'' E. Elevation 820 m. Semipalitinsk Region-Tarbagatai Mt. region. 4 km northeast of Alekseyevka, 20 km north of Urdzhar. Collected on the south side of site 10, middle valley (1995), 150 yds. west of East end valley, 50 ft. up from field. Soil: Silt, Little rock, good drainage. Variable incline, open, ridges on valleys. Dominant tree sp: *M. sieversii*; Assoc-Crataegus. Dominant shrub sp: Rosa; Assoc-Lonicera. Dominant herbaceous: Humulus; Assoc-Circium. Rainfall 400mm.

**PI 600588. *Malus sieversii* (Ledeb.) M. Roem.**

Wild. KAZ 96 03-02; GMAL 4013. Collected 09/01/1996 in Kazakhstan. Latitude 47 deg. 16' 20'' N. Longitude 81 deg. 34' 31'' E. Elevation 830 m. Semipalitinsk Region-Tarbagatai Mt. region. 4 km northeast of Alekseyevka, 20 km north of Urdzhar. Collected on south side of site 10, 1995 (middle valley) near 03-02. Soil: Silt, Little rock, good drainage. Variable incline, open, ridges on valleys. Dominant tree sp: *M. sieversii*; Assoc-Crataegus. Dominant shrub sp: Rosa; Assoc-Lonicera. Dominant herbaceous: Humulus; Assoc-Circium. Rainfall 400mm.

**PI 600589. *Malus sieversii* (Ledeb.) M. Roem.**

Wild. KAZ 96 03-04; GMAL 4014. Collected 09/01/1996 in Kazakhstan. Latitude 47 deg. 16' 14'' N. Longitude 81 deg. 34' 45'' E. Elevation 860 m. Semipalitinsk Region-Tarbagatai Mt. region. 4 km northeast of Alekseyevka, 20 km north of Urdzhar. Collected in site 07(1995). East end of valley on north side. Soil: Silt, Little rock, good drainage. Variable incline, south, open, ridges on valleys. Dominant tree sp: *M. sieversii*; Assoc-Crataegus. Dominant shrub sp: Rosa; Assoc-Lonicera. Dominant herbaceous: Humulus; Assoc-Circium. Rainfall 400mm.

**PI 600590. *Malus sieversii* (Ledeb.) M. Roem.**

Wild. KAZ 96 03-05; GMAL 4015. Collected 09/01/1996 in Kazakhstan. Latitude 47 deg. 16' 4'' N. Longitude 81 deg. 34' 45'' E. Elevation 840 m. Semipalitinsk Region-Tarbagatai Mt. region. 4 km NE of Alekseyevka, 20 km north of Urdzhar. Collected at site 10(1995) middle valley where it merges with site 08(1995) near river on west side, collected near creek. Soil: Silt, Little rock, good drainage. Variable incline, open, ridges on valleys. Dominant tree sp: *M. sieversii*; Assoc-Crataegus. Dominant shrub sp: Rosa; Assoc-Lonicera. Dominant herbaceous: Humulus; Assoc-Circium. Rainfall 400mm.

**PI 600591. *Malus sieversii* (Ledeb.) M. Roem.**

Wild. KAZ 96 03-07; GMAL 4016. Collected 09/02/1996 in Kazakhstan. Latitude 47 deg. 15' 51'' N. Longitude 81 deg. 34' 45'' E. Elevation 840 m. Semipalitinsk Region-Tarbagatai Mt. region. 4 km NE of Alekseyevka, 20 km north of Urdzhar. Collected middle of south valley (site 10, 1995) on south side, 50 ft. from field edge, may be same as one elite collected in 1995. Soil: Silt, Little rock, good drainage. Variable incline, open, ridges on valleys. Dominant tree sp: *M. sieversii*; Assoc-Crataegus. Dominant shrub sp: *Rosa*; Assoc-Lonicera. Dominant herbaceous: *Humulus*; Assoc-Circium. Rainfall 400mm.

**PI 600592. *Malus sieversii* (Ledeb.) M. Roem.**

Wild. KAZ 96 03-08; GMAL 4017. Collected 09/02/1996 in Kazakhstan. Latitude 47 deg. 15' 51'' N. Longitude 81 deg. 34' 45'' E. Elevation 840 m. Semipalitinsk Region-Tarbagatai Mt. region. 4 km Northeast of Alekseyevka, 20 km north of Urdzhar. Collected 75 ft. west of 03-07. Soil: Silt, Little rock, good drainage. Variable incline, north, open, ridges on valleys. Dominant tree sp: *M. sieversii*; Assoc-Crataegus. Dominant shrub sp: *Rosa*; Assoc-Lonicera. Dominant herbaceous: *Humulus*; Assoc-Circium. Rainfall 400mm.

**PI 600593. *Malus sieversii* (Ledeb.) M. Roem.**

Wild. KAZ 96 03-09; GMAL 4018. Collected 09/02/1996 in Kazakhstan. Latitude 47 deg. 16' 4'' N. Longitude 81 deg. 34' 57'' E. Elevation 900 m. Semipalitinsk Region-Tarbagatai Mt. region. 4 km NE of Alekseyevka, 20 km north of Urdzhar. Collected at east end of South valley (site 10 1995) just 10 ft. from field on west-facing slope. Soil: Silt, Little rock, good drainage. Variable incline, west, open, ridges on valleys. Dominant tree sp: *M. sieversii*; Assoc-Crataegus. Dominant shrub sp: *Rosa*; Assoc-Lonicera. Dominant herbaceous: *Humulus*; Assoc-Circium. Rainfall 400mm.

**PI 600594. *Malus sieversii* (Ledeb.) M. Roem.**

Wild. KAZ 96 03-10; GMAL 4019. Collected 09/02/1996 in Kazakhstan. Latitude 47 deg. 16' 4'' N. Longitude 81 deg. 34' 57'' E. Elevation 880 m. Semipalitinsk Region-Tarbagatai Mt. region. 4 km NE of Alekseyevka, 20 km north of Urdzhar. Collected on north side of south valley (site 10 1995) south facing slope. Soil: Silt, Little rock, good drainage. Variable incline, open, ridges on valleys. Dominant tree sp: *M. sieversii*; Assoc-Crataegus. Dominant shrub sp: *Rosa*; Assoc-Lonicera. Dominant herbaceous: *Humulus*; Assoc-Circium. Rainfall 400mm.

**PI 600595. *Malus sieversii* (Ledeb.) M. Roem.**

Wild. KAZ 96 03-12; GMAL 4021. Collected 09/02/1996 in Kazakhstan. Latitude 47 deg. 16' 4'' N. Longitude 81 deg. 34' 57'' E. Elevation 840 m. Semipalitinsk Region-Tarbagatai Mt. region. 4 km NE of Alekseyevka, 20 km north of Urdzhar. Collected near streams near site 05(1995) on west end of site 10(1995). Soil: Silt, Little rock, good drainage. Variable incline, open, ridges on valleys. Dominant tree sp: *M. sieversii*; Assoc-Crataegus. Dominant shrub sp: *Rosa*; Assoc-Lonicera. Dominant herbaceous: *Humulus*; Assoc-Circium. Rainfall 400mm.

**PI 600596. *Malus sieversii* (Ledeb.) M. Roem.**

Wild. KAZ 96 03-13; GMAL 4022. Collected 09/02/1996 in Kazakhstan. Latitude 47 deg. 15' 9'' N. Longitude 81 deg. 34' 14'' E. Elevation 800 m. Semipalitinsk Region-Tarbagatai Mt. region. 4 km NE of Alekseyevka,

20 km north of Urdzhar. Collected on west facing slope in site 05(1995) just up the incline from the road. Soil: Silt, Little rock, good drainage. Variable incline, open, ridges on valleys. Dominant tree sp: *M. sieversii*; Assoc-Crataegus. Dominant shrub sp: *Rosa*; Assoc-Lonicera. Dominant herbaceous: *Humulus*; Assoc-Circium. Rainfall 400mm.

**PI 600597. *Malus sieversii* (Ledeb.) M. Roem.**

Wild. KAZ 96 03-14; GMAL 4023. Collected 09/03/1996 in Kazakhstan. Latitude 47 deg. 16' 5'' N. Longitude 81 deg. 35' 34'' E. Elevation 800 m. Semipalitinsk Region-Tarbagatai Mt. region. 4 km NE of Alekseyevka, 20 km north of Urdzhar. Collected along road in center of site 09(1995) may have been collected as an elite in 1995. Soil: Silt, Little rock, good drainage. Variable incline, open, ridges on valleys. Dominant tree sp: *M. sieversii*; Assoc-Crataegus. Dominant shrub sp: *Rosa*; Assoc-Lonicera. Dominant herbaceous: *Humulus*; Assoc-Circium. Rainfall 400mm.

**PI 600598. *Malus sieversii* (Ledeb.) M. Roem.**

Wild. KAZ 96 03-15; GMAL 4024. Collected 09/03/1996 in Kazakhstan. Latitude 47 deg. 16' 5'' N. Longitude 81 deg. 35' 30'' E. Elevation 1030 m. Semipalitinsk Region-Tarbagatai Mt. region. 4 km northeast of Alekseyevka, 20 km north of Urdzhar. Near 03-14, 1/2km north of 03-14. Soil: Silt, Little rock, good drainage. Variable incline, open, ridges on valleys. Dominant tree sp: *M. sieversii*; Assoc-Crataegus. Dominant shrub sp: *Rosa*; Assoc-Lonicera. Dominant herbaceous: *Humulus*; Assoc-Circium. Rainfall 400mm.

**PI 600599. *Malus sieversii* (Ledeb.) M. Roem.**

Wild. KAZ 96 05-02; GMAL 4025. Collected 09/05/1996 in Kazakhstan. Latitude 45 deg. 41' 1'' N. Longitude 81 deg. 51' 45'' E. Elevation 1240 m. Andreyevka District-Djungarsky Mt. range. 5 miles northwest of Konstantinova. Drainage good, Incline 10-40 degrees, northwest, very open. Cultivation to southeast-forested ridge on northwest, rainfall 700mm. Dominant tree sp: *Malus*, *Betula*, *Populus*. Dominant Shrub sp: *Rosa*.

**PI 600600. *Malus sieversii* (Ledeb.) M. Roem.**

Wild. KAZ 96 05-03; GMAL 4026. Collected 09/05/1996 in Kazakhstan. Latitude 45 deg. 41' 1'' N. Longitude 81 deg. 51' 45'' E. Elevation 1240 m. Andreyevka District-Djungarsky Mt. range. 5 miles northwest of Konstantinova. Drainage good, Incline 10-40 degrees, northwest, very open. Cultivation to southeast-forested ridge on Northwest, rainfall 700mm. Dominant tree sp: *Malus*, *Betula*, *Populus*. Dominant Shrub sp: *Rosa*.

**PI 600601. *Malus sieversii* (Ledeb.) M. Roem.**

Wild. KAZ 96 05-04; GMAL 4027. Collected 09/05/1996 in Kazakhstan. Latitude 45 deg. 41' 1'' N. Longitude 81 deg. 51' 45'' E. Elevation 1190 m. Andreyevka District-Djungarsky Mt. range. 5 miles northwest of Konstantinova. Drainage good, Incline 10-40 degrees, northwest, very open. Cultivation to southeast-forested ridge on northwest, rainfall 700mm. Dominant tree sp: *Malus*, *Betula*, *Populus*. Dominant Shrub sp: *Rosa*.

**PI 600602. *Malus sieversii* (Ledeb.) M. Roem.**

- Wild. KAZ 96 05-05; GMAL 4028. Collected 09/05/1996 in Kazakhstan. Latitude 45 deg. 41' 1'' N. Longitude 81 deg. 51' 45'' E. Elevation 1190 m. Andreyevka District-Djungarsky Mt. range. 5 miles northwest of Konstantinova. Drainage good, Incline 10-40 degrees, Northwest, very open. Cultivation to southeast-forested ridge on Northwest, rainfall 700mm. Dominant tree sp: Malus, Betula, Populus. Dominant Shrub sp: Rosa.
- PI 600603. Malus sieversii (Ledeb.) M. Roem.**  
Wild. KAZ 96 06-02; GMAL 4029. Collected 09/06/1996 in Kazakhstan. Latitude 45 deg. 31' 2'' N. Longitude 80 deg. 43' 40'' E. Elevation 1230 m. 9 km southeast of Lepinsk, 2 km southeast of Lepsinsk Forestry Camp. Incline 20%. Excellent drainage, mostly N-Ne, rainfall 700mm. Dominant Tree sp: Malus sieversii: Assoc-Populus tremula. Dominant shrub sp: Rubus caesius: Assoc-Lonicera. Dominant Herbaceous: Urtica; Assoc-Cirsium.
- PI 600604. Malus sieversii (Ledeb.) M. Roem.**  
Wild. KAZ 96 06-03; GMAL 4030. Collected 09/06/1996 in Kazakhstan. Latitude 45 deg. 31' 2'' N. Longitude 80 deg. 43' 40'' E. Elevation 1230 m. 9 km southeast of Lepinsk, 2 km southeast of Lepsinsk Forestry Camp. Incline 20%. Excellent drainage, mostly N-Ne, rainfall 700mm. Dominant Tree sp: Malus sieversii: Assoc-Populus tremula. Dominant shrub sp: Rubus caesius: Assoc-Lonicera. Dominant Herbaceous: Urtica; Assoc-Cirsium.
- PI 600605. Malus sieversii (Ledeb.) M. Roem.**  
Wild. KAZ 96 07-02; GMAL 4031. Collected 09/07/1996 in Kazakhstan. Latitude 45 deg. 24' 44'' N. Longitude 80 deg. 24' 44'' E. Elevation 1250 m. 15km east of Topelevka-Djungarsky Range. 3 km southeast of Topelevka Forestry Camp. Collections made in radius around camp. Incline 10%, east. Fertile. Dominant tree sp: Malus sieversii; Assoc.-Betula, Crataegus, Acer, Quercus, Tilia, Populus, Betula. Dom. Shrub Sp: Berberis, Lonicera: Assoc.-Cotoneaster, Rubus, Berberis, Ribes. Dom. herb.:Fragaria,Grasses,Humulus:Assoc.-Dianthus.
- PI 600606. Malus sieversii (Ledeb.) M. Roem.**  
Wild. KAZ 96 07-03; GMAL 4032. Collected 09/08/1996 in Kazakhstan. Latitude 45 deg. 24' 26'' N. Longitude 80 deg. 26' 22'' E. Elevation 1460 m. 15km east of Topelevka-Djungarsky Range. 3 km southeast of Topelevka Forestry Camp. Collections made in radius around camp. Incline 10%, northwest. Fertile. Dominant tree sp: Malus sieversii; Assoc.-Betula, Crataegus, Acer, Quercus, Tilia, Populus, Betula. Dom. Shrub Sp: Berberis, Lonicera: Assoc.-Cotoneaster, Rubus, Berberis, Ribes. Dom. herb.:Fragaria,Grasses,Humulus:Assoc.-Dianthus.
- PI 600607. Malus sieversii (Ledeb.) M. Roem.**  
Wild. KAZ 96 07-06; GMAL 4035. Collected 09/08/1996 in Kazakhstan. Latitude 45 deg. 24' 12'' N. Longitude 80 deg. 24' 22'' E. Elevation 1500 m. 15km east of Topelevka-Djungarsky Range. 3 km southeast of Topelevka Forestry Camp. Collections made in radius around camp. Aspect west. Fertile. Dominant tree sp: Malus sieversii; Assoc.-Betula, Crataegus, Acer, Quercus, Tilia, Populus, Betula. Dom. Shrub Sp: Berberis, Lonicera: Assoc.-Cotoneaster, Rubus, Berberis, Ribes. Dom. herb.:Fragaria,Grasses,Humulus:Assoc.-Dianthus.

- PI 600608. *Malus sieversii* (Ledeb.) M. Roem.**  
 Wild. KAZ 96 07-08; GMAL 4037. Collected 09/09/1996 in Kazakhstan.  
 Latitude 45 deg. 24' 17'' N. Longitude 80 deg. 24' 25'' E. Elevation  
 1220 m. 15km east of Topelevka-Djungarsky Range. 3 km southeast of  
 Topelevka Forestry Camp. Collections made in radius around camp.  
 Fertile. Dominant tree sp: *Malus sieversii*; Assoc.-*Betula*, *Crataegus*,  
*Acer*, *Quercus*, *Tilia*, *Populus*, *Betula*. Dom. Shrub Sp: *Berberis*,  
*Lonicera*: Assoc.-*Cotoneaster*, *Rubus*, *Berberis*, *Ribes*. Dom.  
 herb.: *Fragaria*, *Grasses*, *Humulus*: Assoc.-*Dianthus*.
- PI 600609. *Malus sieversii* (Ledeb.) M. Roem.**  
 Wild. KAZ 96 07-09; GMAL 4038. Collected 09/09/1996 in Kazakhstan.  
 Latitude 45 deg. 24' 37'' N. Longitude 80 deg. 24' 19'' E. Elevation  
 1240 m. 15km east of Topelevka-Djungarsky Range. 3 km southeast of  
 Topelevka Forestry Camp. Collections made in radius around camp. Aspect  
 southeast. Fertile. Dominant tree sp: *Malus sieversii*; Assoc.-*Betula*,  
*Crataegus*, *Acer*, *Quercus*, *Tilia*, *Populus*, *Betula*. Dom. Shrub Sp:  
*Berberis*, *Lonicera*: Assoc.-*Cotoneaster*, *Rubus*, *Berberis*, *Ribes*. Dom.  
 herb.: *Fragaria*, *Grasses*, *Humulus*: Assoc.-*Dianthus*.
- PI 600610. *Malus sieversii* (Ledeb.) M. Roem.**  
 Wild. KAZ 96 07-10; GMAL 4039. Collected 09/09/1996 in Kazakhstan.  
 Latitude 45 deg. 24' 55'' N. Longitude 80 deg. 24' 10'' E. Elevation  
 1250 m. 15km east of Topelevka-Djungarsky Range. 3 km southeast of  
 Topelevka Forestry Camp. Collections made in radius around camp. Aspect  
 flat. Fertile. Dominant tree sp: *Malus sieversii*; Assoc.-*Betula*,  
*Crataegus*, *Acer*, *Quercus*, *Tilia*, *Populus*, *Betula*. Dom. Shrub Sp:  
*Berberis*, *Lonicera*: Assoc.-*Cotoneaster*, *Rubus*, *Berberis*, *Ribes*. Dom.  
 herb.: *Fragaria*, *Grasses*, *Humulus*: Assoc.-*Dianthus*.
- PI 600611. *Malus sieversii* (Ledeb.) M. Roem.**  
 Wild. KAZ 96 07-11; GMAL 4040. Collected 09/09/1996 in Kazakhstan.  
 Latitude 45 deg. 25' 12'' N. Longitude 80 deg. 23' 50'' E. Elevation  
 1210 m. 15 miles east of the village of Topelevka. Djungarsky Mt. Range.  
 Collections made in radius around camp. NW, open. Dominant Tree sp:  
*malus sieversii*; Assoc.-*Betula*, *Crataegus*, *Acer*, *Quercus*, *Tilia*. Dom.  
 shrub sp: *Berberis*, *Lonicera*; Assoc.-*Cotoneaster*, *Rubus*, *Ribes*. Dom.  
 Herb.: *Fragaria*, *Grasses*, *Humulus*; Assoc.-*Dianthus*, *Chelidonium*, *Urtica*.
- PI 600612. *Malus sieversii* (Ledeb.) M. Roem.**  
 Wild. KAZ 96 08-02; GMAL 4041. Collected 09/12/1996 in Kazakhstan.  
 Latitude 42 deg. 40' 4'' N. Longitude 70 deg. 15' 21'' E. Elevation 780  
 m. Kok Bulak (Black Spring) Forestry Camp. 35 km southeast of Boraldy  
 Camp visited in 1995. Collections made in and around camp- north, east,  
 south of camp. Variable and open, stream bed and hillsides. Rainfall  
 275mm. Dominant tree sp: *Crataegus*; Assoc.-*Malus*, *Vitis*, *Morus* *Rhamnus*.  
 Dominant shrub sp: *Amygdalus*, *Pyrus*, *Rosa*. Dominant herbaceous: *Grasses*.
- PI 600613. *Malus sieversii* (Ledeb.) M. Roem.**  
 Wild. KAZ 96 08-03; GMAL 4042. Collected 09/12/1996 in Kazakhstan.  
 Latitude 42 deg. 40' 16'' N. Longitude 70 deg. 15' 28'' E. Elevation 800  
 m. Kok Bulak (Black Spring) Forestry Camp. 35 km southeast of Boraldy  
 Camp visited in 1995. Collected along river east of camp. Variable and  
 open, stream bed and hillsides. Rainfall 275mm. Dominant tree sp:



Crataegus; Assoc.-Malus, Vitis, Morus Rhamnus. Dominant shrub sp:  
Amygdalus, Pyrus, Rosa. Dominant herbaceous: Grasses.

**PI 600614. Malus sieversii (Ledeb.) M. Roem.**

Wild. KAZ 96 08-06; GMAL 4044. Collected 09/13/1996 in Kazakhstan.  
Latitude 42 deg. 40' 10'' N. Longitude 70 deg. 15' 43'' E. Elevation 815  
m. Kok Bulak (Black Spring) Forestry Camp. 35 km southeast of Boraldy  
Camp visited in 1995. Collected along river north of camp. Variable and  
open, stream bed and hillsides. Rainfall 275mm. Dominant tree sp:  
Crataegus; Assoc.-Malus, Vitis, Morus Rhamnus. Dominant shrub sp:  
Amygdalus, Pyrus, Rosa. Dominant herbaceous: Grasses.

**PI 600615. Malus sieversii (Ledeb.) M. Roem.**

Wild. KAZ 96 08-07; GMAL 4045. Collected 09/13/1996 in Kazakhstan.  
Latitude 42 deg. 41' 10'' N. Longitude 70 deg. 15' 43'' E. Elevation 820  
m. Kok Bulak (Black Spring) Forestry Camp. 35 km southeast of Boraldy  
Camp visited in 1995. Collections made in and around camp-north, east,  
south of camp. Variable and open, stream bed and hillsides. Rainfall  
275mm. Dominant tree sp: Crataegus; Assoc.-Malus, Vitis, Morus Rhamnus.  
Dominant shrub sp: Amygdalus, Pyrus, Rosa. Dominant herbaceous: Grasses.

**PI 600616. Malus sieversii (Ledeb.) M. Roem.**

Wild. KAZ 96 08-10; GMAL 4046. Collected 09/13/1996 in Kazakhstan.  
Latitude 42 deg. 42' 5'' N. Longitude 70 deg. 16' 36'' E. Elevation 940  
m. Kok Bulak (Black Spring) Forestry Camp. 35 km southeast of Boraldy  
Camp visited in 1995. Collections made in and around camp-north, east,  
south of camp. Variable and open, stream bed and hillsides. Rainfall  
275mm. Dominant tree sp: Crataegus; Assoc.-Malus, Vitis, Morus Rhamnus.  
Dominant shrub sp: Amygdalus, Pyrus, Rosa. Dominant herbaceous: Grasses.

**PI 600617. Malus sieversii (Ledeb.) M. Roem.**

Wild. KAZ 96 08-11; GMAL 4047. Collected 09/13/1996 in Kazakhstan.  
Latitude 42 deg. 42' 27'' N. Longitude 70 deg. 17' 22'' E. Elevation  
1040 m. Kok Bulak (Black Spring) Forestry Camp. 35 km southeast of  
Boraldy Camp visited in 1995. Collections made in and around camp-noth,  
east, south of camp. Variable and open, stream bed and hillsides.  
Rainfall 275mm. Dominant tree sp: Crataegus; Assoc.-Malus, Vitis, Morus  
Rhamnus. Dominant shrub sp: Amygdalus, Pyrus, Rosa. Dominant herbaceous:  
Grasses.

**PI 600618. Malus sieversii (Ledeb.) M. Roem.**

Wild. KAZ 96 08-12; GMAL 4048. Collected 09/13/1996 in Kazakhstan.  
Latitude 42 deg. 42' 43'' N. Longitude 70 deg. 17' 47'' E. Elevation  
1170 m. Kok Bulak (Black Spring) Forestry Camp. 35 km southeast of  
Boraldy Camp visited in 1995. Collections made in and around camp-  
north, east, south of camp. Variable and open, stream bed and hillsides.  
Rainfall 275mm. Dominant tree sp: Crataegus; Assoc.-Malus, Vitis, Morus  
Rhamnus. Dominant shrub sp: Amygdalus, Pyrus, Rosa. Dominant herbaceous:  
Grasses.

**PI 600619. Malus sieversii (Ledeb.) M. Roem.**

Wild. KAZ 96 08-13; GMAL 4049. Collected 09/14/1996 in Kazakhstan.  
Latitude 42 deg. 39' 57'' N. Longitude 70 deg. 14' 50'' E. Elevation 780  
m. Kok Bulak (Black Spring) Forestry Camp. 35 km southeast of Boraldy  
Camp visited in 1995. Collections made in and around camp-north, east,

south of camp. Variable and open, stream bed and hillsides. Rainfall 275mm. Dominant tree sp: *Crataegus*; Assoc.-*Malus*, *Vitis*, *Morus* *Rhamnus*. Dominant shrub sp: *Amygdalus*, *Pyrus*, *Rosa*. Dominant herbaceous: Grasses.

**PI 600620. *Malus sieversii* (Ledeb.) M. Roem.**

Wild. KAZ 96 08-14; GMAL 4050. Collected 09/14/1996 in Kazakhstan. Latitude 42 deg. 40' 9'' N. Longitude 70 deg. 15' 4'' E. Elevation 830 m. Kok Bulak (Black Spring) Forestry Camp. 35 km southeast of Boraldy Camp visited in 1995. Collections made in and around camp-north, east, south of camp. Variable and open, stream bed and hillsides. Rainfall 275mm. Dominant tree sp: *Crataegus*; Assoc.-*Malus*, *Vitis*, *Morus* *Rhamnus*. Dominant shrub sp: *Amygdalus*, *Pyrus*, *Rosa*. Dominant herbaceous: Grasses.

**PI 600621. *Malus sieversii* (Ledeb.) M. Roem.**

Wild. KAZ 96 08-15; GMAL 4051. Collected 09/14/1996 in Kazakhstan. Latitude 42 deg. 40' 9'' N. Longitude 70 deg. 15' 4'' E. Elevation 840 m. Kok Bulak (Black Spring) Forestry Camp. 35 km southeast of Boraldy Camp visited in 1995. Collections made in and around camp-north, east, south of camp. Variable and open, stream bed and hillsides. Rainfall 275mm. Dominant tree sp: *Crataegus*; Assoc.-*Malus*, *Vitis*, *Morus* *Rhamnus*. Dominant shrub sp: *Amygdalus*, *Pyrus*, *Rosa*. Dominant herbaceous: Grasses.

**PI 600622. *Malus sieversii* (Ledeb.) M. Roem.**

Wild. KAZ 96 08-17; GMAL 4053. Collected 09/14/1996 in Kazakhstan. Latitude 42 deg. 39' 45'' N. Longitude 70 deg. 15' 13'' E. Elevation 930 m. Kok Bulak (Black Spring) Forestry Camp. 35 km southeast of Boraldy Camp visited in 1995. Collections made in and around camp-north, east, south of camp. Variable and open, stream bed and hillsides. Rainfall 275mm. Dominant tree sp: *Crataegus*; Assoc.-*Malus*, *Vitis*, *Morus* *Rhamnus*. Dominant shrub sp: *Amygdalus*, *Pyrus*, *Rosa*. Dominant herbaceous: Grasses.

**PI 600623. *Malus sieversii* (Ledeb.) M. Roem.**

Wild. KAZ 96 09-02; GMAL 4054. Collected 09/15/1996 in Kazakhstan.

**PI 600624. *Malus sieversii* (Ledeb.) M. Roem.**

Wild. KAZ 96 09-04; GMAL 4055. Collected 09/15/1996 in Kazakhstan.

Unknown source. Received 04/01/1914.

**PI 600625. *Citrus limon* (L.) Burm. f.**

Cultivar. "VILLAFRANCA"; RCRC 390. Psorosis and exocortis removed by shoot tip grafting 1985. Buds from tree with yield of 1250 lbs/year.

Unknown source. Received 01/01/1930.

**PI 600626. *Citrus limonia* Osbeck**

Cultivar. "AUSTRALIAN RED"; RCRC 2319. Exocortis removed by shoot tip grafting 1985. Very similar to CRC Nos. 131, 712, 2318, 2424, 2451, and 2875.

Unknown source. Received 01/01/1978.

**PI 600627. *Citrus sinensis* (L.) Osbeck**  
Cultivar. "ATWOOD OLD BUDLINE"; RCRC 3791. Appears indistinguishable from parent variety, Washington navel.

Unknown source. Received 01/01/1930.

**PI 600628. *Citrus celebica* Koord.**  
Cultivar. "C. MACROPHYLLA"; RCRC 2446.

Unknown source. Received 04/01/1985.

**PI 600629. *Citrus aurantiifolia* (Christm.) Swingle**  
Cultivar. "MEXICAN"; RCRC 3822. No information on source. Exocortis removed by shoot tip micrografting 1986.

Unknown source. Received 01/01/1980.

**PI 600630. *Citrus medica* L.**  
Cultivar. "VAR. YUNNANENSIS"; RCRC 3798. Fruit large, elongate with blunt nose. Rind moderately thick, medium yellow bumpy, furrowed. Flesh light yellow, sour, seedless.

Unknown source. Received 01/01/1948.

**PI 600631. *Citrus medica* L.**  
Cultivar. "JAPANSCHÉ CITROEN"; RCRC 2875. Said to have been a natural hybrid in Java.

Unknown source. Received 01/21/1915.

**PI 600632. *Citrus maxima* (Burm.) Merr.**  
Cultivar. "SIAMESE "SEEDLESS" "; RCRC 640. Seedy (1987), medium size, globose to slightly pyriform. Rind medium to thick, light yellow. Small central core, yellow flesh with slight tinge of pink, sour. Similar to Kao Phuang.

The following were developed by F.W. Savage, Eustis, Florida, United States. Received 01/01/1934.

**PI 600633. *Citrus x tangelo* J. W. Ingram & H. E. Moore**  
Cultivar. "EARLY"; WEBBER EARLY; RCRC 2560. Pedigree - Bowen grapefruit X tangerine. Size medium, globose. Rind medium deep orange. Flesh orange. Moderately seedy, tart.

Unknown source. Received 04/01/1992.

**PI 600634. *Atalantia roxburghiana* Hook. f.**  
RRUT 2.

Unknown source. Received 04/01/1992.

**PI 600635. *Afraegle gabonensis* (Swingle) Engl.**  
RRUT 3.

Unknown source. Received 06/01/1991.

**PI 600636. *Atalantia monophylla* DC.**  
Wild. RRUT 4. Collected 05/29/1991 in Malaysia. Kuala Sedili, Kota Tinggi District, Johore. Growing on sandy coast. Collected from wild plant.

Unknown source. Received 03/01/1991.

**PI 600637. *Micromelum minutum* (G. Forst.) Seem.**  
RRUT 7.

Unknown source. Received 02/01/1992.

**PI 600638. *Glycosmis perakensis* V. Naray.**  
RRUT 8. Endemic to Malaysia. Rheophytic. Originally from Taman Negara.

Unknown source. Received 06/01/1992.

**PI 600639. *Citrus halimii* B. C. Stone**  
RRUT 9.

Unknown source. Received 04/01/1992.

**PI 600640. *Clausena harmandiana* (Pierre) Guillaumin**  
RRUT 10. Originally from East Java.

Unknown source. Received 02/01/1992.

**PI 600641. *Glycosmis mauritiana* (Lam.) Tanaka**  
RRUT 11.

Unknown source. Received 03/01/1992.

**PI 600642. *Paramignya lobata* Burkill**  
RRUT 13.

Unknown source. Received 11/01/1991.

**PI 600643. *Pleiospermium latialatum* Swingle**

RRUT 14.

Unknown source. Received 01/01/1990.

**PI 600644. Citrus clementina hort. ex Tanaka**  
Cultivar. "CLEMENTINA OROVAL"; RCRC 4010.

Unknown source. Received 01/01/1990.

**PI 600645. Citrus clementina hort. ex Tanaka**  
Cultivar. "CLEMENTINA FINA"; RCRC 4011.

Unknown source. Received 01/01/1990.

**PI 600646. Citrus unshiu Marcow.**  
Cultivar. "CLAUSELLINA"; RCRC 4012.

Unknown source. Received 02/01/1989.

**PI 600647. Poncirus trifoliata (L.) Raf.**  
Cultivar. "BIG-LEAF"; RCRC 4006.

Unknown source. Received 02/01/1989.

**PI 600648. Poncirus trifoliata (L.) Raf.**  
Cultivar. "LITTLE-LEAF"; RCRC 4007.

Unknown source. Received 02/01/1989.

**PI 600649. Poncirus trifoliata (L.) Raf.**  
Cultivar. "LITTLE-LEAF"; RCRC 4008.

Unknown source. Received 02/01/1989.

**PI 600650. Poncirus trifoliata (L.) Raf.**  
CRC 4009; RCRC 4009.

Unknown source. Received 10/01/1994.

**PI 600651. Citrus medica L.**  
Cultivar. "S-1"; RCRC 3878. Selected seedling of Arizona 861. This is a seedling citron budline produced through CCPP and found to be especially sensitive as an indicator for mild citron viroid.

The following were donated by Luis Navarro, IVIA, Apartado Oficial 46071, 46113 Moncada, Valencia, Valencia, Spain. Received 05/20/1991.

**PI 600652. *Citrus sinensis* (L.) Osbeck**  
Cultivar. "NAVELATE"; IVIA 1-20; IPPN 100; RCRC 4022.

The following were donated by Joe Furr, USDCS, Indio, California, United States; Albert Newcomb, Thermal Plaza Nursery, 68035 P Highway 86, Thermal, California 92274, United States. Received 10/01/1994.

**PI 600653. *Citrus reticulata* Blanco**  
Cultivar. "TEMPLE X DANCY"; B-456; IPPN 129; RCRC 4021. Pedigree - Temple X Dancy.

**PI 600654. *Citrus reticulata* Blanco**  
Cultivar. "CLEMANTINE X PEARL"; A-988; IPPN 128; RCRC 4020. Pedigree - Clementine X Pearl. USDCS Tree 53-7-1 or 59-74-1.

**PI 600655. *Citrus reticulata* Blanco**  
Cultivar. "TEMPLE X MINNEOLA"; USDCS 52-27-24; B-444; IPPN 127; RCRC 4019. Pedigree - Temple X Minneola.

The following were donated by Albert Newcomb, Thermal Plaza Nursery, 68035 P Highway 86, Thermal, California 92274, United States. Received 04/22/1992.

**PI 600656. *Citrus sinensis* (L.) Osbeck**  
Cultivar. "THERMAL TAROCCO"; B-404; IPPN 125; RCRC 4018. Different and better than CRC 3596 Tarocco, D.A. Newcomb, R. Copeland.

Unknown source. Received 10/01/1994.

**PI 600657. *Poncirus trifoliata* (L.) Raf.**  
Cultivar. "SMALL LEAF"; IPPN 68; RCRC 4017.

The following were collected by Fawcett, Florida, United States. Received 10/01/1994.

**PI 600658. *Citrus sinensis* (L.) Osbeck**  
Cultivar. #55; "IMPERIAL VARIEGATED"; RCRC 321. Collected 1914 in Florida, United States. City Point. Dr. Heintz's grove.

Unknown source. Received 10/01/1994.

**PI 600659. *Citrus sinensis* (L.) Osbeck**  
Cultivar. "SMITH'S EARLY"; IPPN 102; RCRC 574. Buds from tree 1125 in Rubidoux Tract Variety Block. This was probably introduced to Spain in about 1940 where it is now grown under 'Navelina', W.P. Bitters.

The following were donated by Luis Navarro, IVIA, Apartado Oficial 46071, 46113 Moncada, Valencia, Valencia, Spain. Received 10/01/1994.

**PI 600660. *Citrus sinensis* (L.) Osbeck**  
Cultivar. "NAVELINA"; IPPN 81; RCRC 4015.

The following were donated by John Bash, University of California, Citrus Clonal Protection Program, 4650 14th Street, Riverside, California 92501, United States. Received 10/01/1994.

**PI 600661. *Citrus limon* (L.) Burm. f.**  
Cultivar. "TAYLOR"; IPPN 67; RCRC 4014.

The following were donated by E.M. Nauer. Received 10/01/1994.

**PI 600662. *Citrus sinensis* (L.) Osbeck**  
Cultivar. "PALMER"; IPPN 65; RCRC 4013. "New" Palmer accession. Probably not the same as CRC 3964.

Unknown source. Received 03/01/1996.

**PI 600663. *Citrus maxima* (Burm.) Merr.**  
Cultivar. "RUBIDOUX"; RCRC 4028.

The following were donated by John B. Carpenter, U.S. Date & Citrus Station, USDA-ARS, Indio, California, United States. Received 03/01/1996.

**PI 600664. *Citrus reticulata* Blanco**  
Cultivar. "RUBIDOUX"; HY-9-11; RCRC 4031.

The following were donated by Robert Bream, Lindsay, California, United States. Received 03/01/1996.

**PI 600665. *Citrus sinensis* (L.) Osbeck**  
Cultivar. "BREAM TAROCCO"; RCRC 4032.

The following were donated by A. Lee, Outspan Citrus Improvement Programme, P.O. Box 12154, Centrahil, South Africa. Received 03/01/1996.

**PI 600666. *Citrus unshiu* Marcow.**  
Cultivar. "KUNO WASE"; RCRC 4030.

The following were developed by S. Burdette, Outspan Citrus Center, Nelspruit, South Africa. Donated by A. Lee, Outspan Citrus Improvement Programme, P.O. Box 12154, Centrahil, South Africa. Received 03/01/1996.

**PI 600667. *Citrus maxima* (Burm.) Merr.**  
Cultivar. "POMELIT"; RCRC 4026. Possibly a hybrid of 'Djeroek Delima Kapjor' (Indonesia). Selected late 1970s by H. de Lange (CSFRI).  
Synonyms: 'Djeroek Delima Kopjor', 'Hybrid 202', 'Cameron'.

The following were donated by North Lange Farm, Woodlake, California, United States. Received 03/01/1996.

**PI 600668. Citrus unshiu** Marcow.  
Cultivar. "DART I (NORTH)"; RRUT 16.

The following were donated by John Dungan, Mehrten Ranch, Lindcove, California, United States. Received 03/01/1996.

**PI 600669. Citrus unshiu** Marcow.  
Cultivar. "DUNGAN"; RRUT 17.

The following were developed by Herb C. Barrett, USDA, ARS, US Horticultural Research Laboratory, 2120 Camden Road, Orlando, Florida 32803, United States. Donated by C. J. Hearn, USDA, ARS, U.S. Horticultural Laboratory, 2120 Camden Road, Orlando, Florida 32803, United States. Received 03/01/1996.

**PI 600670. Citrus maxima** (Burm.) Merr.  
Cultivar. "US 145"; RCRC 4027. Selected from Thong Dee pummelo seedlings grown from seed collected in USDA germplasm collection by K. Scudder and planted in Orlando in 1947. Synonym: USDA Thong Dee.

The following were developed by C. J. Hearn, USDA, ARS, U.S. Horticultural Laboratory, 2120 Camden Road, Orlando, Florida 32803, United States. Received 03/01/1996.

**PI 600671. Citrus sinensis** (L.) Osbeck  
Cultivar. "AMBERSWEET"; FF-10-65-5; RCRC 4002. Pedigree - (Clementine tangelo X Orlando tangelo) X seedling midseason sweet orange (1-3-54 X 15-3).

The following were donated by Willits and Newcomb Nursery, Arvin, California, United States. Received 03/01/1996.

**PI 600672. Citrus sinensis** (L.) Osbeck  
Cultivar. "ROBERTSON"; RCRC 4023. This selection was cleaned up to replace 'old' Robertson (CRC 3792, VI 364, PI 539576), which had gall.

The following were donated by T. Mulholland, Mulholland Nursery, 5505 South Hills Valley Road, Orange Cove, California 93646, United States. Received 03/01/1996.

**PI 600673. Citrus sinensis** (L.) Osbeck  
Cultivar. "SPRING"; E-351; RCRC 4024.

The following were donated by O.W. Clark, Temple, Texas, United States. Received 01/01/1961.



**PI 600674. *Ruta graveolens* L.**

Cultivar. "CRC 3508"; Herb of Grace; RCRC 3508. Found in Mediterranean countries and cultivated gardens. Formerly the English as well as the Germans and Dutch used the green leaves in their ragouts. Leaves also used as pickles. The Italians are said to eat the leaves in salad. Introduced into Britain before 1562 (McIntosh, C. Book Gard. 2:242. 1855). Rue is included among American garden medicinal plants by McMahon (McMahon, B. Amer. Gard. Cal. 584. 1806), and other writers.

The following were donated by Whitmore Foundation Farm, USDA-ARS, Groveland, Florida, United States. Received 04/01/1988.

**PI 600675. *Citrus reticulata* Blanco**

Cultivar. "USDA 88-2"; R51 T06; 6-13-44; RCRC 3991. Pedigree - Lee X Nove.

The following were developed by Jude Grosser, IFAS, CREC, 700 Experiment Station Road, Lake Alfred, Florida 33850, United States. Received 01/01/1990.

**PI 600676. X *Citroncirus* sp.**

Breeding. CRC 4025; RCRC 4025. Somatic hybrid.

The following were developed by Phil L. Bruckner, Montana State University, Department of Plant Science, Leon Johnson Hall, Bozeman, Montana 59717-0312, United States. Received 02/09/1998.

**PI 600677. *Triticum aestivum* L., nom. cons.**

Breeding. Pureline. MT9222; NSGC 6482. Pedigree - Nuwest/8/(MT7869, ((Sinvalocho/Wichita//Hope/Cheyenne/3/Wichita/4/Seu Seun 27, TX55-391-56-D8)/5/Westmont, MT7015)/6/Froid/7/Yogo\*3//Norin 10/Brevor)/9/Norwin/3/(Mt7840, Trader/Froid//Wanser/Winoka). Hard red winter wheat. Good yield, average winterhardiness and test weight. Medium tall semidwarf with medium early heading and better than average lodging resistance. Good flour extraction and average protein and baking characteristics. White chaffed, awned. Coleoptile length long (102 mm). Resistant to prevalent races of stem rust (*Puccinia graminis*). Moderately resistant to stripe rust (*Puccinia striiformis*). Susceptible to both leaf rust (*Puccinia recondita*) and dwarf bunt (*Tilletia controversa*). Tested in the 96-97 Northern Regional Performance Nursery.

**PI 600678. *Triticum aestivum* L., nom. cons.**

Breeding. Pureline. MT91192; NSGC 6483. Pedigree - (WWP4394, Austrian line)/Nuwest/4/(Rego/Cheyenne//Winalta, MT7431)/3/(MT7978, Centurk/Marias). Hard red winter wheat. Good yield and winterhardiness, average protein and quality, but low test weight. Medium tall semidwarf with medium late heading and average lodging resistance. White chaffed, awned. Coleoptile length medium short (78 mm). Resistant to prevalent races of stem rust (*Puccinia graminis*). Moderately resistant to stripe rust (*Puccinia striiformis*). Susceptible to both leaf rust (*Puccinia recondita*) and dwarf bunt (*Tilletia controversa*). Tested in the 96-97 Northern Regional Performance Nursery.

The following were developed by Mario C. Therrien, Agriculture and Agri-Food Canada, Brandon Research Centre, Box 1000A, Brandon, Manitoba R7A 5Z7, Canada . Received 01/21/1998.

**PI 600679. *Hordeum vulgare* L. ssp. *vulgare***

Cultivar. Pureline. "AC ROSSER"; F180-2; BT 377. CV-272. Pedigree - Galt/Johnston/3/Steptoe//BT 351/Heartland. Height 80-90 cm. Maturity 85-88 d. Lodging moderate. Seed size mid. Kernel quality feed. Resistant to *Cochliobolus sativus* and *Pyrenophora teres*. Intermediate reaction to *Puccinia graminis* and *Ustilage nuda*. Susceptible to *Rhynchosporium secalis* and *Septoria passerinii*.

**PI 600680. *Hordeum vulgare* L. ssp. *vulgare***

Cultivar. Pureline. "AC HAWKEYE"; H67-3; HB 103. CV-271. Pedigree - GO1-1/Tupper/3/Virden//Conquest/Post. Height 105-120 cm. Maturity 89-93 d. Lodging low. Seed size large, hullless. Kernel quality food or feed. Resistant to *Rhynchosporium secalis* and *Cochliobolus sativus*. Intermediate reaction to *Puccinia graminis*. Susceptible to *Septoria passerinii*, *Pyrenophora teres*, *Ustilage nuda*, *U. hordeii*.

The following were developed by Don Salmon, Agriculture and Agri-Food Canada, Field Crop Research Centre, 5030 50 Street, Lacombe, Alberta T4L 1W8, Canada. Received 02/06/1998.

**PI 600681. *Triticum aestivum* L., nom. cons.**

Breeding. Pureline. 83W023004. Pedigree - Lowrin 11/Norstar. Winter wheat with resistance to powdery mildew (*Erysiphe graminis*). Straw strong with tolerance to cold intermediate between Winalta and Norstar. Spikes fusiform, awnless, white chaff and red seed. Stems purple pigmentation during growing season. Yields similar to Norstar but inferior milling and baking quality.

**PI 600682. *Triticum aestivum* L., nom. cons.**

Breeding. 83W023034. Pedigree - Lowrin 11/Norstar. Winter wheat resistant to powdery mildew (*Erysiphe graminis*). Straw strong with tolerance to cold intermediate between Winalta and Norstar. Spikes fusiform, awnless, white chaff and red seed. Stems purple pigmentation during growing season. Yields similar to Norstar but inferior milling and baking quality.

The following were developed by R.E. Knox, Agriculture Canada, Research Station, Box 1030, Swift Current, Saskatchewan S9H 3X2, Canada. Received 02/09/1998.

**PI 600683. *Triticum aestivum* L., nom. cons.**

Breeding. Pureline. P8810-B5B3A2A2. Pedigree - HY366/RL5711//2\*HY366/3/3\*HY366-BL31. Awed, white spring wheat with complete resistance to prevalent races of leaf rust and stem rust found in the Northern Great Plains (1995 adult plant evaluation). In seedling test (greenhouse 1995) using prevalent leaf and stem rust races from the Northern Great Plains from 1991, showed complete resistance. Earlier generation seedling tests to stem rust race C63 aided in selecting this

resistant line. Moderately late maturing semi-dwarf with modest level of sprouting resistance. Seed medium large with intermediate protein. Grain yield performance low. Rust resistance derived from RL5711 which carries Lr35 and Sr39.

The following were collected by Jose Fernandez Martinez, CIDA-Junta de Andalucia, Apartado 4084, Cordoba, Cordoba 14071, Spain. Received 08/14/1990.

**PI 600684. Helianthus annuus L.**

Landrace. Population. JFM 40; CO-PB 10; Ames 14118. Collected 10/1985 in Cordoba, Spain. Latitude 38 deg. 20' 0'' N. Longitude 4 deg. 37' 0'' W. Villanueva de Cordoba. Farm land. Accession regenerated 3 times by donor. Last regeneration 07/1989 with 30 plants. Open pollinated variety.

**PI 600685. Helianthus annuus L.**

Landrace. Population. JFM 41; CO-PB 11; Ames 14119. Collected 10/1985 in Cordoba, Spain. Latitude 38 deg. 20' 0'' N. Longitude 4 deg. 37' 0'' W. Villanueva de Cordoba. Farm land. Accession regenerated 3 times by donor. Last regeneration 07/1989 with 30 plants. Open pollinated variety.

**PI 600686. Helianthus annuus L.**

Landrace. Population. JFM 45; CO-PB 15; Ames 14122. Collected 10/1985 in Cordoba, Spain. Latitude 38 deg. 12' 0'' N. Longitude 5 deg. 9' 0'' W. Villanueva del Rey. Farm land. Accession regenerated 3 times by donor. Last regeneration 07/1989 with 30 plants. Open pollinated variety.

**PI 600687. Helianthus annuus L.**

Landrace. Population. JFM 46; CO-PB 16; Ames 14123. Collected 10/1985 in Cordoba, Spain. Latitude 38 deg. 13' 0'' N. Longitude 5 deg. 16' 0'' W. Dona Rama. Farm land. Accession regenerated 3 times by donor. Last regeneration 07/1989 with 30 plants. Open pollinated variety.

**PI 600688. Helianthus annuus L.**

Landrace. Population. JFM 48; CO-PB 18; Ames 14125. Collected 10/1985 in Cordoba, Spain. Latitude 38 deg. 12' 0'' N. Longitude 5 deg. 18' 0'' W. Navalcuervo. Farm land. Accession regenerated 3 times by donor. Last regeneration 07/1989 with 30 plants. Open pollinated variety.

**PI 600689. Helianthus annuus L.**

Landrace. Population. JFM 50; CO-PB 20; Ames 14127. Collected 10/1985 in Cordoba, Spain. Latitude 38 deg. 11' 0'' N. Longitude 5 deg. 21' 0'' W. Ojuelos Altos. Farm land. Accession regenerated 3 times by donor. Last regeneration 07/1989 with 30 plants. Open pollinated variety.

**PI 600690. Helianthus annuus L.**

Landrace. Population. JFM 56; CO-PB 26; Ames 14130. Collected 10/1985 in Cordoba, Spain. Latitude 38 deg. 11' 0'' N. Longitude 5 deg. 17' 0'' W. Posadilla. Farm land. Accession regenerated 3 times by donor. Last regeneration 07/1989 with 30 plants. Open pollinated variety.

**PI 600691. Helianthus annuus L.**

Landrace. Population. JFM 58; CO-PB 28; Ames 14132. Collected 10/1985 in

Cordoba, Spain. Latitude 38 deg. 5' 0'' N. Longitude 5 deg. 1' 0'' W. Villaviciosa de Cordoba. Farm land. Accession regenerated 3 times by donor. Last regeneration 07/1989 with 30 plants. Open pollinated variety.

**PI 600692. Helianthus annuus L.**

Landrace. Population. JFM 59; CO-PB 29; Ames 14133. Collected 10/1985 in Cordoba, Spain. Latitude 38 deg. 5' 0'' N. Longitude 5 deg. 1' 0'' W. Villaviciosa de Cordoba. Farm land. Accession regenerated 3 times by donor. Last regeneration 07/1989 with 30 plants. Open pollinated variety.

**PI 600693. Helianthus annuus L.**

Landrace. Population. JFM 60; CO-PB 30; Ames 14134. Collected 10/1985 in Cordoba, Spain. Latitude 38 deg. 5' 0'' N. Longitude 5 deg. 1' 0'' W. Villaviciosa de Cordoba. Farm land. Accession regenerated 3 times by donor. Last regeneration 07/1989 with 30 plants. Open pollinated variety.

**PI 600694. Helianthus annuus L.**

Landrace. Population. JFM 61; CO-PB 31; Ames 14135. Collected 10/1985 in Cordoba, Spain. Latitude 38 deg. 5' 0'' N. Longitude 5 deg. 1' 0'' W. Villaviciosa de Cordoba. Farm land. Accession regenerated 3 times by donor. Last regeneration 07/1989 with 30 plants. Open pollinated variety.

**PI 600695. Helianthus annuus L.**

Landrace. Population. JFM 68; CO-PB 38; Ames 14139. Collected 10/1985 in Cordoba, Spain. Latitude 37 deg. 53' 0'' N. Longitude 4 deg. 46' 0'' W. Cordoba. Farm land. Accession regenerated 3 times by donor. Last regeneration 07/1989 with 30 plants. Open pollinated variety.

**PI 600696. Helianthus annuus L.**

Landrace. Population. JFM 71; CO-PB 41; Ames 14142. Collected 10/1985 in Cordoba, Spain. Latitude 38 deg. 20' 0'' N. Longitude 4 deg. 37' 0'' W. Villanueva de Cordoba. Farm land. Accession regenerated 3 times by donor. Last regeneration 07/1989 with 30 plants. Open pollinated variety.

**PI 600697. Helianthus annuus L.**

Landrace. Population. JFM 76; CO-PB 46; Ames 14147. Collected 10/1985 in Cordoba, Spain. Latitude 38 deg. 29' 0'' N. Longitude 4 deg. 57' 0'' W. El Viso. Farm land. Accession regenerated 3 times by donor. Last regeneration 07/1989 with 30 plants. Open pollinated variety.

**PI 600698. Helianthus annuus L.**

Landrace. Population. JFM 79; CO-PB 49; Ames 14150. Collected 10/1985 in Cordoba, Spain. Latitude 37 deg. 16' 0'' N. Longitude 4 deg. 32' 0'' W. Benameji. Farm land. Accession regenerated 3 times by donor. Last regeneration 07/1989 with 30 plants. Open pollinated variety.

**PI 600699. Helianthus annuus L.**

Landrace. Population. JFM 81; CO-PB 51; Ames 14152. Collected 10/1985 in Cordoba, Spain. Latitude 37 deg. 16' 0'' N. Longitude 4 deg. 32' 0'' W. Benameji. Farm land. Accession regenerated 3 times by donor. Last

regeneration 07/1989 with 30 plants. Open pollinated variety.

**PI 600700. Helianthus annuus L.**

Landrace. Population. JFM 85; CO-PB 55; Ames 14154. Collected 10/1985 in Cordoba, Spain. Latitude 37 deg. 16' 0'' N. Longitude 4 deg. 32' 0'' W. Benameji. Farm land. Accession regenerated 3 times by donor. Last regeneration 07/1989 with 30 plants. Open pollinated variety.

**PI 600701. Helianthus annuus L.**

Landrace. Population. JFM 87; CO-PB 57; Ames 14156. Collected 10/1985 in Cordoba, Spain. Latitude 37 deg. 17' 0'' N. Longitude 4 deg. 29' 0'' W. Encinas Reales. Farm land. Accession regenerated 3 times by donor. Last regeneration 07/1989 with 30 plants. Open pollinated variety.

**PI 600702. Helianthus annuus L.**

Landrace. Population. JFM 89; CO-PB 59; Ames 14158. Collected 10/1985 in Cordoba, Spain. Latitude 38 deg. 30' 0'' N. Longitude 5 deg. 9' 0'' W. Hinojosa del Duque. Farm land. Accession regenerated 3 times by donor. Last regeneration 07/1989 with 30 plants. Open pollinated variety.

**PI 600703. Helianthus annuus L.**

Landrace. Population. JFM 94; CO-PB 64; Ames 14161. Collected 10/1985 in Cordoba, Spain. Latitude 38 deg. 30' 0'' N. Longitude 5 deg. 9' 0'' W. Hinojosa del Duque. Farm land. Accession regenerated 3 times by donor. Last regeneration 07/1989 with 30 plants. Open pollinated variety.

**PI 600704. Helianthus annuus L.**

Landrace. Population. JFM 97; CO-PB 67; Ames 14163. Collected 10/1985 in Cordoba, Spain. Latitude 38 deg. 27' 0'' N. Longitude 4 deg. 59' 0'' W. Villaralto. Farm land. Accession regenerated 3 times by donor. Last regeneration 07/1989 with 30 plants. Open pollinated variety.

**PI 600705. Helianthus annuus L.**

Landrace. Population. JFM 98; CO-PB 68; Ames 14164. Collected 10/1985 in Cordoba, Spain. Latitude 38 deg. 30' 0'' N. Longitude 5 deg. 9' 0'' W. Hinojosa del Duque. Farm land. Accession regenerated 3 times by donor. Last regeneration 07/1989 with 30 plants. Open pollinated variety.

**PI 600706. Helianthus annuus L.**

Landrace. Population. JFM 102; CO-PB 72; Ames 14168. Collected 10/1985 in Cordoba, Spain. Latitude 37 deg. 16' 0'' N. Longitude 4 deg. 32' 0'' W. Benameji. Farm land. Accession regenerated 3 times by donor. Last regeneration 07/1989 with 30 plants. Open pollinated variety.

**PI 600707. Helianthus annuus L.**

Landrace. Population. JFM 176; CO-PB 76; Ames 14172. Collected 10/1985 in Cordoba, Spain. Latitude 37 deg. 17' 0'' N. Longitude 4 deg. 29' 0'' W. Encinas Reales. Farm land. Accession regenerated 3 times by donor. Last regeneration 07/1989 with 30 plants. Open pollinated variety.

**PI 600708. Helianthus annuus L.**

Landrace. Population. JFM 108; CO-PB 78; Ames 14174. Collected 10/1985 in Cordoba, Spain. Latitude 37 deg. 16' 0'' N. Longitude 4 deg. 32' 0'' W. Benameji. Farm land. Accession regenerated 3 times by donor. Last regeneration 07/1989 with 30 plants. Open pollinated variety.

- PI 600709. Helianthus annuus L.**  
Landrace. Population. JFM 112; CO-PB 82; Ames 14178. Collected 10/1985 in Cordoba, Spain. Latitude 38 deg. 23' 0'' N. Longitude 4 deg. 58' 0'' W. Alcaracejos. Farm land. Accession regenerated 3 times by donor. Last regeneration 07/1989 with 30 plants. Open pollinated variety.
- PI 600710. Helianthus annuus L.**  
Landrace. Population. JFM 117; CO-PB 87; Ames 14182. Collected 10/1985 in Cordoba, Spain. Latitude 38 deg. 12' 0'' N. Longitude 5 deg. 1' 0'' W. Espiel. Farm land. Accession regenerated 3 times by donor. Last regeneration 07/1989 with 30 plants. Open pollinated variety.
- PI 600711. Helianthus annuus L.**  
Landrace. Population. JFM 124; CO-PB 94; Ames 14188. Collected 10/1985 in Cordoba, Spain. Latitude 38 deg. 23' 0'' N. Longitude 4 deg. 58' 0'' W. Alcaracejos. Farm land. Accession regenerated 3 times by donor. Last regeneration 07/1989 with 30 plants. Open pollinated variety.
- PI 600712. Helianthus annuus L.**  
Landrace. Population. JFM 128; CO-PB 98; Ames 14192. Collected 10/1985 in Cordoba, Spain. Latitude 38 deg. 1' 0'' N. Longitude 4 deg. 23' 0'' W. Montoro. Farm land. Accession regenerated 3 times by donor. Last regeneration 07/1989 with 30 plants. Open pollinated variety.
- PI 600713. Helianthus annuus L.**  
Landrace. Population. JFM 132; CO-PB 102; Ames 14194. Collected 10/1985 in Cordoba, Spain. Latitude 37 deg. 42' 0'' N. Longitude 5 deg. 6' 0'' W. Fuente Palmera. Farm land. Accession regenerated 3 times by donor. Last regeneration 07/1989 with 30 plants. Open pollinated variety.
- PI 600714. Helianthus annuus L.**  
Landrace. Population. JFM 135; CO-PB 105; Ames 14196. Collected 10/1985 in Cordoba, Spain. Latitude 38 deg. 23' 0'' N. Longitude 4 deg. 58' 0'' W. Alcaracejos. Farm land. Accession regenerated 3 times by donor. Last regeneration 07/1989 with 30 plants. Open pollinated variety.
- PI 600715. Helianthus annuus L.**  
Landrace. Population. JFM 139; CO-PB 109; Ames 14199. Collected 10/1985 in Cordoba, Spain. Latitude 38 deg. 23' 0'' N. Longitude 5 deg. 0' 0'' W. Villanueva del Duque. Farm land. Accession regenerated 3 times by donor. Last regeneration 07/1989 with 30 plants. Open pollinated variety.
- PI 600716. Helianthus annuus L.**  
Landrace. Population. JFM 151; CO-PB 121; Ames 14209. Collected 10/1985 in Cordoba, Spain. Latitude 37 deg. 53' 0'' N. Longitude 4 deg. 46' 0'' W. Cordoba. Farm land. Accession regenerated 3 times by donor. Last regeneration 07/1989 with 30 plants. Open pollinated variety.

The following were donated by Thomas Gulya, USDA, ARS, North Dakota State University, Northern Crops Research Laboratory, Fargo, North Dakota 58105, United States. Received 05/19/1993.

**PI 600717. *Helianthus annuus* L.**

Ames 21079; Mandan #1. Collected in United States. Alfred Bowers received seed from the opening of Moves Slowly's bundle. He was the last of the traditional corn priests, he died about 1907. His daughter, Scattered Corn, inherited the bundle who passed it on to her daughter, Otter Sage. Bowers conducted his fieldwork on the Ft. Bernhold Reservation in the 1930's. Type 1 plants of three different types present in original population.

**PI 600718. *Helianthus annuus* L.**

Ames 21080; Mandan #2. Collected in United States. Alfred Bowers received seed from the opening of Moves Slowly's bundle. He was the last of the traditional corn priests, he died about 1907. His daughter, Scattered Corn, inherited the bundle who passed it on to her daughter, Otter Sage. Bowers conducted his fieldwork on the Ft. Bernhold Reservation in the 1930's. Type 2 plants of three different types present in original population.

**PI 600719. *Helianthus annuus* L.**

Ames 21081; Mandan #3. Collected in United States. Alfred Bowers received seed from the opening of Moves Slowly's bundle. He was the last of the traditional corn priests, he died about 1907. His daughter, Scattered Corn, inherited the bundle who passed it on to her daughter, Otter Sage. Bowers conducted his fieldwork on the Ft. Bernhold Reservation in the 1930's. Type 3 plants of three different types present in original population.

**PI 600720. *Helianthus annuus* L.**

Ames 21082; Hidatsa #1. Collected in United States. Multi-headed.

**PI 600721. *Helianthus annuus* L.**

Ames 21083; Hidatsa #2. Collected in United States. Single-headed.

**PI 600722. *Helianthus annuus* L.**

I02-007-GN1015; Ames 21084. Collected 07/17/1987 in Arizona, United States. Collected from a garden at a house on Navajo County White Mountain Fort Apache Reservation.

The following were donated by Jerry F. Miller, USDA, ARS, Northern Crops Research Laboratory, P.O. Box 5677, Fargo, North Dakota 58105, United States. Received 05/01/1995.

**PI 600723. *Helianthus annuus* L.**

Cultivated. Population. BRS-1; Ames 22447. Bird Resistant Synthetic. A composite of plants selected for white hulls or white hulls with a light tan tint, long wrap-around bracts, flat or concave heads, and neck length exceeding 23 cm. Flowering date of plants (R4-R5 stage) ranged from 67-73 days after planting. Composite was observed to be susceptible to rust, incited by *Puccinia helianthi* Schw.

**PI 600724. *Helianthus annuus* L.**

Cultivated. Population. BRS-2; Ames 22448. Bird Resistant Synthetic. Composite of plants selected for white hulls or white hulls with a light tan tint, long wrap-around bracts, flat or concave heads, and neck

length exceeding 23cm. Flowering date of plants (R4-R5 stage) ranged from 84-87 days after planting. Composite was observed to be susceptible to rust.

**PI 600725. *Helianthus annuus* L.**

Cultivated. Population. BRS-3; Ames 22449. Bird Resistant Synthetic. Composite of plants selected for white hulls or white hulls with a light tan tint, short wrap-around bracts, flat or slightly concave heads, and seed set tightly in the heads. The flowering date of plants (R4-R5 stage) ranged from 67-73 days after planting. Composite was observed to have some resistance to rust.

The following were developed by Montana State University, Montana Agr. Exp. Sta., Department of Plant and Soil Science, Bozeman, Montana 59717, United States. Received 1971.

**PI 600726. *Onobrychis viciifolia* Scop.**

Cultivar. "REMONT". CV-13; PVP 7200105.

The following were developed by USDA, ARS, NCRPIS, Iowa State University, Regional Plant Introduction Station, Ames, Iowa 50011, United States. Received 1976.

**PI 600727. *Lotus corniculatus* L.**

Cultivar. "CARROLL". PVP 7300090; CV-4.

The following were developed by Loft's Pedigreed Seed, Inc., One Chimney Rock Road, P.O. Box 146, Bound Brook, New Jersey 08805, United States. Donated by C. R. Funk, Rutgers University, Cook College, Dept. of Soils and Crops, New Brunswick, New Jersey 08903, United States. Received 1980.

**PI 600728. *Lolium perenne* L.**

Cultivar. "YORKTOWN II"; Foundation Lot J07-7. PVP 7800001; CV-70.

The following were developed by Pfister Hybrid Corn Co., United States. Received 03/1980.

**PI 600729. *Zea mays* L. ssp. *mays***

Cultivar. "LP1 NR HT". PVP 7800020.

The following were developed by International Seeds Inc., P.O. Box 168, Halsey, Oregon 97348, United States. Received 1981.

**PI 600730. *Lolium perenne* L.**

Cultivar. "REGAL"; Oregon Lot L28-0-11R. PVP 7700110; CV-76.

The following were developed by Rogers Delinted Cottonseed Co., United States. Received 1980.



**PI 600731. *Gossypium hirsutum* L.**  
Cultivar. "ROGERS LG-10". PVP 7900030.

The following were developed by Asgrow Seed Company, Kalamazoo, Michigan, United States. Received 04/1980.

**PI 600732. *Cucumis melo* L. ssp. *melo***  
Cultivar. "GUSTO 45". PVP 7300068.

The following were developed by Wilbur-Ellis Company, United States. Received 1980.

**PI 600733. *Pisum sativum* L.**  
Cultivar. "ALPHA I". PVP 7900120.

The following were developed by C.L. Garrett, United States. Received 1980.

**PI 600734. *Stenotaphrum secundatum* (Walter) Kuntze**  
Cultivar. "CHRISTI". PVP 7700112.

The following were developed by Barenbrug's Zaadhandel N.V., Arnhem, Netherlands. Received 1980.

**PI 600735. *Poa pratensis* L.**  
Cultivar. "BARBIE". PVP 7800071.

The following were developed by Wilbur-Ellis Company, United States. Received 1980.

**PI 600736. *Pisum sativum* L.**  
Cultivar. "PROTO IV". PVP 8000001.

The following were developed by W. Atlee Burpee Company, 300 Park Avenue, Warminster, Pennsylvania 18974, United States. Received 1980.

**PI 600737. *Tagetes patula* L.**  
Cultivar. "HAPPY RED". PVP 7900060.

The following were developed by Denholm Seed Company, Los Angeles, California, United States. Received 1980.

**PI 600738. *Tagetes patula* L.**  
Cultivar. "SPRY BOY". PVP 7900084.

The following were developed by Farmers Forage Research Cooperative, West Lafayette, Indiana, United States. Donated by S. J. Baluch, FFR Cooperative, 4112 East State Road 225, West Lafayette, Indiana 47906, United States.

Received 1980.

**PI 600739. *Festuca arundinacea* Schreb.**

Cultivar. "FORAGER"; Lot Number L2-9-4. CV-17; PVP 7900101.

The following were developed by Victor Heintzberger, Bruce Church Company, 1020 Merrill Street, Salinas, California 93912, United States. Received 1980.

**PI 600740. *Lactuca sativa* L.**

Cultivar. "VIVA II". PVP 8000043.

The following were developed by Grower's Seed Association, United States. Received 1980.

**PI 600741. *Gossypium hirsutum* L.**

Cultivar. "GSA 74". PVP 7900071.

The following were developed by R. James, United States; L. James, United States. Donated by R. James, United States; James Luby, University of Minnesota, Department of Horticultural Science, 342 Alderman Hall, St. Paul, Minnesota 55108, United States. Received 06/1980.

**PI 600742. *Zea mays* L. ssp. *mays***

Cultivar. "POP-N-EAT". PVP 7900100.

The following were developed by Goldsmith Seeds, Inc., Gilroy, California, United States. Received 1980.

**PI 600743. *Tagetes patula* L.**

Cultivar. "JANIE". PVP 8000053.

The following were developed by Dunn Seed Farms, Inc., United States. Received 1980.

**PI 600744. *Gossypium hirsutum* L.**

Cultivar. "DUNN 219". PVP 7900006.

The following were developed by National Seed Development Organization, The Granaries, White House Lane, Cambridge, England, United Kingdom. Received 1980.

**PI 600745. *Festuca rubra* L.**

Cultivar. "MERLIN". PVP 7800092.

The following were developed by Victor Heintzberger, Bruce Church Company, 1020 Merrill Street, Salinas, California 93912, United States. Received 1980.

**PI 600746. *Lactuca sativa* L.**

Cultivar. "VALLEY QUEEN". PVP 8000044.

The following were developed by Royal Sluis, Koninklijke, Zaaizaadbedrijven, Gebroeders Sluis, B.V., Netherlands. Received 1980.

**PI 600747. Brassica oleracea var. botrytis L.**  
Cultivar. "Dok Elgon". PVP 7800079.

The following were developed by Dunns Seed and Grain, Ltd., United Kingdom. Received 1980.

**PI 600748. Lolium multiflorum Lam.**  
Cultivar. "DELTOP". PVP 7700016.

**PI 600749. Lolium multiflorum Lam.**  
Cultivar. "DELTONIC". PVP 7700017.

The following were developed by Grower's Seed Association, United States. Received 1980.

**PI 600750. Gossypium hirsutum L.**  
Cultivar. "GSA 78". PVP 7900072.

The following were developed by Rothermel Seed Company, United States. Received 1980.

**PI 600751. Zea mays L. ssp. mays**  
Cultivar. "SEAGULL SEVENTEEN". PVP 7900077.

The following were developed by Donald L. Stuteville, Kansas State University, Department of Plant Pathology, Throckmorton Hall, Manhattan, Kansas 66506, United States; E.L. Sorensen, Agricultural Research Service - USDA, Kansas State University, Agronomy Dept., Manhattan, Kansas 66506, United States; E.K. Horber, Dept. of Entomology, Kansas State University, Waters Hall, Manhattan, Kansas 66505, United States. Donated by Kansas State University, Kansas Agric. Exp. Sta., Manhattan, Kansas 66506, United States. Received 1978.

**PI 600752. Medicago sativa L. ssp. sativa**  
Cultivar. "RILEY"; EXPER KS 43 SYN. PVP 7800099; CV-88. Pedigree - 8-clone synthetic with parent clones derived from Cherokee (5), Kanza (1), polycross progeny tracing to Buffalo (1), and polycross progeny tracing to Williamsburg (1). Adapted to areas similar to Buffalo, Cherokee and Kanza. Forage yields equal or greater than all check cultivars in Kansas. Seed yields in California and Idaho similar to Ranger. Resistant to bacterial wilt, pea aphid, and spotted alfalfa aphid biotypes in Kansas. Moderately resistant to rust and downy mildew. Resistance to potato leafhopper yellowing similar to Cherokee. More resistant to anthracnose and summer black stem than any other cultivar tested in Kansas.

The following were developed by John Bodger & Sons Company, United States.  
Received 1980.

**PI 600753. *Tagetes erecta* L.**  
Cultivar. "ICE CRUSH". PVP 8000006.

The following were developed by Moran Seeds, Inc., United States. Donated by  
Moran Seeds, Inc.. Received 08/1980.

**PI 600754. *Cucumis melo* L. ssp. *melo***  
Cultivar. "TOP NET". PVP 8000020.

The following were developed by Pfister Hybrid Corn Co., United States.  
Received 08/1980.

**PI 600755. *Zea mays* L. ssp. *mays***  
Cultivar. "LP1 CMS HT". PVP 7800019.

The following were developed by Crites-Moscow Growers, Inc., 212 8th, P.O.  
Box 8912, Moscow, Idaho 83843, United States. Received 1980.

**PI 600756. *Pisum sativum* L.**  
Cultivar. "REGAL 36". PVP 8000003.

The following were developed by Asgrow Seed Company, Kalamazoo, Michigan,  
United States. Received 1980.

**PI 600757. *Pisum sativum* L.**  
Cultivar. "DINOS". PVP 8000118.

**PI 600758. *Pisum sativum* L.**  
Cultivar. "KLOS". PVP 8000114.

**PI 600759. *Pisum sativum* L.**  
Cultivar. "BAROK". PVP 8000119.

**PI 600760. *Pisum sativum* L.**  
Cultivar. "CLIC". PVP 8000113.

The following were developed by R. Stagi, Stagi and Stevens Farms, United  
States. Received 10/1980.

**PI 600761. *Helianthus annuus* L.**  
Cultivar. "GSF-1". PVP 7900022.

The following were developed by Pacific Oilseeds, Inc., Woodland, California,  
United States. Received 1980.

PI 600762. *Carthamus tinctorius* L.  
Cultivar. "S-742". PVP 7900056.

PI 600763. *Carthamus tinctorius* L.  
Cultivar. "S-541". PVP 7900057.

The following were developed by Rogers Brothers Seed Company, P.O. Box 4727, Boise, Idaho 83711-0727, United States. Received 1980.

PI 600764. *Pisum sativum* L.  
Cultivar. "SOUNDER". PVP 8000096.

PI 600765. *Pisum sativum* L.  
Cultivar. "DUKE". PVP 8000097.

PI 600766. *Pisum sativum* L.  
Cultivar. "SALVO". PVP 8000099.

The following were developed by New Mexico Crop Improvement Assoc., New Mexico, United States. Received 1980.

PI 600767. *Onobrychis viciifolia* Scop.  
Cultivar. "RENUMEX". PVP 7900082; CV-18.

The following were developed by Saatzucht Steinach Gmb H., Germany. Received 1980.

PI 600768. *Lolium perenne* L.  
Cultivar. "LORETTA". PVP 7500083.

The following were developed by Asgrow Seed Company, Kalamazoo, Michigan, United States. Received 1980.

PI 600769. *Brassica oleracea* var. *botrytis* L.  
Cultivar. "Toro". PVP 8000013.

The following were developed by Mississippi State University, Mississippi Agr. Exp. Sta., State College, Mississippi, United States. Donated by Clarence E. Watson, Jr., Mississippi State University, Agronomy Department, Box 5248, Mississippi State, Mississippi 39762, United States. Received 1980.

PI 600770. *Lolium multiflorum* Lam.  
Cultivar. "MARSHALL". CV-72; PVP 8200179.

The following were developed by W.L. Jones, United States. Received 12/1980.

PI 600771. *Cucurbita pepo* L.  
Cultivar. "ROYAL KNIGHT". PVP 8000130.

The following were developed by Illinois Foundation Seeds Inc., Tolono, Illinois 61880, United States. Received 12/1980.

**PI 600772. *Zea mays* L. ssp. *mays***  
Cultivar. "FR19". PVP 8000011.

The following were developed by Quali-Sel, Inc., United States. Received 1980.

**PI 600773. *Lactuca sativa* L.**  
Cultivar. "SUMI". PVP 8000134.

The following were developed by James B. Moutray, ABI Alfalfa, 2316 259th Street, Ames, Iowa 50011, United States. Donated by North American Plant Breeders, Inc., Ames, Iowa, United States. Received 1975.

**PI 600774. *Medicago sativa* L.**  
Cultivar. "CITATION"; LOT 154. PVP 7600023; CV-107. Pedigree - 7-clone synthetic with 2 parental clones derived from DuPuits, 2 from Vernal, and 1 each from Alfa, Narragansett, and Saranac. Adapted to North Central U.S. for use in hay, greenchop, and dehydration production. Fall dormancy to Ranger. Resistance to bacterial wilt and pea aphid similar to Vernal and Kanza, respectively.

The following were developed by Mommersteeg International B.V., Advanta Seeds West, Netherlands. Received 1980.

**PI 600775. *Lolium perenne* L.**  
Cultivar. "CARAVELLE". PVP 7700064.

The following were developed by Pennsylvania State University, Pennsylvania Agricultural Experiment Station, State College, Pennsylvania, United States. Received 1980.

**PI 600776. *Agrostis stolonifera* var. *palustris* (Huds.) Farw.**  
Cultivar. "PENNEAGLE". PVP 7900009.

The following were developed by Denholm Seed Company, Los Angeles, California, United States. Received 1980.

**PI 600777. *Tagetes patula* L.**  
Cultivar. "QUEEN BEE". PVP 7900081.

The following were developed by Asgrow Seed Company, Kalamazoo, Michigan, United States. Received 1980.

**PI 600778. *Pisum sativum* L.**

Cultivar. "GOAL". PVP 8000116.

**PI 600779. *Pisum sativum* L.**  
Cultivar. "POMAK". PVP 8000115.

**PI 600780. *Lactuca sativa* L.**  
Cultivar. "REDHEAD". PVP 8000095.

The following were developed by Rijk Zwaan Zaadteelt en Zaadhandel B.V., Meo Voto Beheer BV, De Lier, Netherlands. Received 1981.

**PI 600781. *Brassica oleracea* var. *botrytis* L.**  
Cultivar. "SILVER STAR". PVP 8000004.

The following were developed by National Seed Development Organization, The Granaries, White House Lane, Cambridge, England, United Kingdom. Received 1981.

**PI 600782. *Lolium multiflorum* Lam.**  
Cultivar. "MARIS LEDGER". PVP 7200050.

The following were developed by Pickseed West, Inc., P.O. Box 888, 33149 Highway 99E, Tangent, Oregon 97389, United States. Donated by C. R. Funk, Rutgers University, Cook College, Dept. of Soils and Crops, New Brunswick, New Jersey 08903, United States. Received 1981.

**PI 600783. *Lolium perenne* L.**  
Cultivar. "BLAZER"; R-34/M2-8-85. CV-80; PVP 7900050.

**PI 600784. *Lolium perenne* L.**  
Cultivar. "DASHER"; R-33/LOT M2-8-81. PVP 7900051; CV-75.

**PI 600785. *Lolium perenne* L.**  
Cultivar. "FIESTA"; R-32/LOT L51-9-F31. CV-73; PVP 7900052.

The following were developed by Agriculture Service Corporation, Oregon, United States. Donated by C. R. Funk, Rutgers University, Cook College, Dept. of Soils and Crops, New Brunswick, New Jersey 08903, United States. Received 1981.

**PI 600786. *Lolium perenne* L.**  
Cultivar. "PENNANT"; UM COMPOSITE. PVP 8000141; CV-83.

The following were developed by E.F. Burlingham & Sons, 1936 19th Avenue, P.O. Box 217, Forest Grove, Oregon 97116, United States. Donated by C. R. Funk, Rutgers University, Cook College, Dept. of Soils and Crops, New Brunswick, New Jersey 08903, United States. Received 1981.

**PI 600787. *Lolium perenne* L.**  
Cultivar. "BELLE"; MP-1. CV-74; PVP 8000101.

The following were developed by Asgrow Seed Company, Kalamazoo, Michigan, United States. Received 1981.

**PI 600788. *Pisum sativum* L.**  
Cultivar. "CERAS". PVP 8000117.

The following were developed by Barbara L. Rose, University of California, Department of Botany, Davis, California 95616, United States; W. Meyer, Pure-Seed Testing, Inc., P.O. Box 449, Hubbard, Oregon 97032, United States; C.A. Rose-Fricker, Pure-Seed Testing, Inc., 3057 G Street, Hubbard, Oregon 97032, United States; C.R. Funk, Hubbard Seed and Supply Company, P.O. Box 310, Hubbard, Oregon 97032, United States. Donated by Pure-Seed Testing, Inc., P.O. Box 449, Hubbard, Oregon 97032, United States. Received 1981.

**PI 600789. *Poa pratensis* L.**  
Cultivar. "COLUMBIA"; M65-9-P92F/P-92. PVP 7900103; CV-24. Pedigree - Selected from an old, non-irrigated, moderately low maintenance turf near Frederick, Maryland. Moderately low-growing, turf-type with medium texture and bright, medium dark green color. Exceptionally attractive early spring color, stays green into late fall and maintains good winter color in protected areas. Good resistance to leaf spot and crown rot disease and leaf rust. Moderately good resistance to stripe smut, snow mold, stem rust and Fusarium blight disease. Well suited where Kentucky bluegrass is adapted.

The following were developed by Asgrow Seed Company, Kalamazoo, Michigan, United States. Received 1981.

**PI 600790. *Citrullus lanatus* (Thunb.) Matsum. & Nakai**  
Cultivar. "PEROLA". PVP 8000143.

The following were developed by Holden's Foundation Seeds, Inc., United States. Received 1981.

**PI 600791. *Zea mays* L. ssp. *mays***  
Cultivar. "LH38". PVP 8000066.

The following were developed by Asgrow Seed Company, Kalamazoo, Michigan, United States. Received 1981.

**PI 600792. *Citrullus lanatus* (Thunb.) Matsum. & Nakai**  
Cultivar. "DOMEK". PVP 8000166.

The following were developed by South Dakota Foundation Seed Stocks, South Dakota, United States. Received 1981.

**PI 600793. *Alopecurus arundinaceus* Poir.**  
Cultivar. "RETAIN". PVP 8000132.



The following were developed by Pure-Seed Testing, Inc., P.O. Box 449, Hubbard, Oregon 97032, United States. Received 1981.

**PI 600794. *Poa pratensis* L.**  
Cultivar. "SHASTA". PVP 8000079.

The following were developed by Great Plains Research Company, Inc., United States. Received 1981.

**PI 600795. *Medicago sativa* L.**  
Cultivar. "CIMARRON". PVP 7900092.

The following were developed by James B. Moutray, ABI Alfalfa, 2316 259th Street, Ames, Iowa 50011, United States. Received 1980.

**PI 600796. *Medicago sativa* L.**  
Cultivar. "OLYMPIC"; LOT 547. PVP 7600021; CV-110. Pedigree - 932-clone cultivar with parentage tracing to 1) Flemish types (37%) Anchor, Tempo, Saranac; 2) central types (33%) Kanza, Dawson, Cody; and 3) hardy types (30%) Titan, Weevlchek, Vernal. Adapted to the central and mid-Atlantic U.S. for hay, greenchop and dehydration purposes. Fall dormancy similar to Saranac. Resistant to bacterial wilt (similar to Vernal), anthracnose and Fusarium wilt. Susceptible to Phytophthora root rot.

The following were developed by Rice Researchers, Inc., United States. Received 1981.

**PI 600797. *Oryza sativa* L.**  
Cultivar. "RRI-105". PVP 7900085.

The following were developed by Dunn Seed Farms, Inc., United States. Received 1981.

**PI 600798. *Gossypium hirsutum* L.**  
Cultivar. "DUNN 224". PVP 8000129.

The following were developed by James B. Moutray, ABI Alfalfa, 2316 259th Street, Ames, Iowa 50011, United States. Received 1980.

**PI 600799. *Medicago sativa* L.**  
Cultivar. "VORIS A-77"; LOT 403. CV-122; PVP 8000035. Pedigree - 97-clone synthetic with parentage tracing equally to Atlas, Olympic and Vanguard. Adapted to the Central U.S. for hay, dehydration and greenchop production. Fall dormancy similar to Saranac. Resistant to anthracnose (similar to Saranac AR), bacterial wilt (similar to Vernal) and Fusarium wilt. Low resistance to Phytophthora root rot.

The following were developed by Barenbrug's Zaadhandel N.V., Arnhem, Netherlands. Received 1981.

**PI 600800. *Lolium perenne* L.**  
Cultivar. "BARRY". PVP 7800070.

The following were developed by Loft's Pedigreed Seed, Inc., One Chimney Rock Road, P.O. Box 146, Bound Brook, New Jersey 08805, United States. Donated by C. R. Funk, Rutgers University, Cook College, Dept. of Soils and Crops, New Brunswick, New Jersey 08903, United States. Received 1980.

**PI 600801. *Festuca arundinacea* Schreb.**  
Cultivar. "REBEL". PVP 8000153; CV-18.

The following were developed by Asgrow Seed Company, Kalamazoo, Michigan, United States. Received 1981.

**PI 600802. *Pisum sativum* L.**  
Cultivar. "CAPRICE". PVP 8000112.

The following were developed by A.G. Gustafson, United States. Received 1981.

**PI 600803. *Pisum sativum* L.**  
Cultivar. "BELLROY". PVP 8000157.

The following were developed by D.J. Vanderhave, Postbus 1, Kapelle, Netherlands. Received 1981.

**PI 600804. *Festuca longifolia* Thuill.**  
Cultivar. "SILVANA". PVP 7900069.

The following were developed by John Bodger & Sons Company, United States. Received 1981.

**PI 600805. *Cosmos sulphureus* Cav.**  
Cultivar. "SUNNY GOLD". PVP 8100045.

The following were developed by G.W. Pepin, Pickseed West, Inc., P.O. Box 888, Tangent, Oregon, United States; M.F. Robinson, Seed Research of Oregon, Inc., 644 SW 13th Street, Corvallis, Oregon 97333, United States; C.R. Funk, Hubbard Seed and Supply Company, P.O. Box 310, Hubbard, Oregon 97032, United States. Donated by C. R. Funk, Rutgers University, Cook College, Dept. of Soils and Crops, New Brunswick, New Jersey 08903, United States. Received 1981.

**PI 600806. *Poa pratensis* L.**  
Cultivar. "AMERICA"; IS-154; J6P151161. CV-23; PVP 8100011. Pedigree - A single, highly apomictic selection from Bellevue/Belturf. Leafy, low-growing, turf-type with attractive, compact, fine texture, high

density and bright, dark green color growth. Turns green in early spring and retains color into late fall. Good resistance to leaf spot and crown rot disease and stem rust. Shows less damage from stripe rust than common Kentucky bluegrass cultivars. Good performance in light shade to full sun in Southern Canada and regions of the U.S. where Kentucky bluegrass is adapted.

The following were developed by Interstate Seed Company, United States.  
Received 1981.

**PI 600807. *Helianthus annuus* L.**  
Cultivar. "IS 2501". PVP 8100026.

**PI 600808. *Helianthus annuus* L.**  
Cultivar. "IS 2168". PVP 8100025.

**PI 600809. *Helianthus annuus* L.**  
Cultivar. "IS 3401". PVP 8100027.

The following were developed by Custom Ag Service, Inc., United States.  
Received 1981.

**PI 600810. *Gossypium hirsutum* L.**  
Cultivar. "CASCOT BR-1". PVP 8000032.

The following were developed by C. R. Funk, Rutgers University, Cook College, Dept. of Soils and Crops, New Brunswick, New Jersey 08903, United States; H.W. Indyk, New Jersey Agr. Exp. Sta., Rutgers University, Soils and Crops Department, New Brunswick, New Jersey 08903, United States; A.W. Jacklin, Jacklin Seed Company, West 5300 Jacklin Avenue, Post Falls, Idaho, United States; W. Miner. Donated by C. R. Funk, Rutgers University, Cook College, Dept. of Soils and Crops, New Brunswick, New Jersey 08903, United States.  
Received 1981.

**PI 600811. *Poa pratensis* L.**  
Cultivar. "ECLIPSE"; P-164. CV-22; PVP 8000154. Pedigree - 64-765-4 (SP-1/Belturf)/Anheuser Dwarf. Highly apomictic hybrid. Low-growing, leafy, turf-type with attractive, dark green color, good vigor and density, and medium texture. Improved shade tolerance. Good to moderately good resistance to leaf spot and crown rot disease, leaf rust, stem rust, many races of powdery mildew, stripe smut and dollar spot. Well suited for either full sun to light shade in regions where Kentucky bluegrass is adapted.

The following were developed by Interstate Seed Company, United States.  
Received 1981.

**PI 600812. *Helianthus annuus* L.**  
Cultivar. "IS 3795". PVP 8100028.

The following were developed by John Bodger & Sons Company, United States. Received 1981.

**PI 600813. *Tagetes patula* L.**  
Cultivar. "SCARLET SOPHIA". PVP 8100046.

The following were developed by Michigan State University, Michigan Agr. Exp. Sta., East Lansing, Michigan 48824, United States. Received 1981.

**PI 600814. *Festuca pratensis* Huds.**  
Cultivar. "BEAUMONT". PVP 7900091.

The following were developed by Heart Seed Co., Inc., United States. Received 1981.

**PI 600815. *Poa pratensis* L.**  
Cultivar. "ARGYLE". PVP 7900114.

The following were developed by Rogers Brothers Seed Company, P.O. Box 4727, Boise, Idaho 83711-0727, United States. Received 1981.

**PI 600816. *Pisum sativum* L.**  
Cultivar. "ALCAN". PVP 8000098.

The following were developed by J.T. Keel, United States. Received 1981.

**PI 600817. *Arachis hypogaea* L.**  
Cultivar. "K-29". PVP 8000155.

The following were developed by E. D. Donnelly, Auburn University, Agronomy and Soils Department, Auburn, Alabama 36830, United States. Received 1981.

**PI 600818. *Vicia sativa* L.**  
Cultivar. "CAHABA WHITE". CV-3; PVP 7900031.

**PI 600819. *Vicia sativa* L.**  
Cultivar. "VANTAGE". CV-4; PVP 7900032.

**PI 600820. *Vicia sativa* L.**  
Cultivar. "NOVA II". CV-5; PVP 7900033.

**PI 600821. *Vicia sativa* L.**  
Cultivar. "VANGUARD". PVP 7900034; CV-6.

The following were developed by W.A. Henderson, United States; E.M. Henderson, United States. Received 1981.

**PI 600822. *Euphorbia lathyris* L.**  
Cultivar. "CHICO". PVP 8100030.

The following were developed by Pioneer Hi-Bred International, Inc., 6800 Pioneer Pkwy., P.O. Box 316, Johnston, Iowa 50131-0316, United States. Received 1981.

**PI 600823. *Triticum aestivum* L., nom. cons.**  
Cultivar. "S78". PVP 7800007.

The following were developed by Robert J. Buker, 5808 N.W. Alki, Vancouver, Washington 98663, United States; S. J. Baluch, FFR Cooperative, 4112 East State Road 225, West Lafayette, Indiana 47906, United States. Donated by S. J. Baluch, FFR Cooperative, 4112 East State Road 225, West Lafayette, Indiana 47906, United States. Received 1979.

**PI 600824. *Medicago sativa* L.**  
Cultivar. "HI-PHY"; F-726. PVP 8000047; CV-118. Pedigree - 9-clone synthetic with 6 clones derived from Weevlc hek and 3 clones from Tempo. Adapted to the central region and the Great Lakes area where *Phytophthora* root rot is a problem. Flower color is mostly purple and blue. Fall dormancy similar to Tempo. Forage yields equal or greater than Agate and Vernal. Highly resistant to bacterial wilt. Moderately resistant to *Phytophthora* root rot and *Fusarium* wilt. Low resistance to potato leafhopper yellowing. Unknown reaction to pea aphid, spotted alfalfa aphid, anthracnose and stem nematode.

The following were developed by Rogers Delinted Cottonseed Co., United States . Received 1981.

**PI 600825. *Gossypium hirsutum* L.**  
Cultivar. "ROGERS LG-102". PVP 8100024.

The following were developed by Ferry-Morse Seed Company, Inc., P.O. Box 100, Mountain View, California 94042, United States. Received 1982.

**PI 600826. *Dendranthema x grandiflorum* (Ramat.) Kitam.**  
Cultivar. "APPLAUSE YELLOW SHADES". PVP 7900029.

**PI 600827. *Dendranthema x grandiflorum* (Ramat.) Kitam.**  
Cultivar. "APPLAUSE WHITE SHADES". PVP 7900027.

**PI 600828. *Dendranthema x grandiflorum* (Ramat.) Kitam.**  
Cultivar. "APPLAUSE LAVENDER SHADES". PVP 7900028.

**PI 600829. *Dendranthema x grandiflorum* (Ramat.) Kitam.**  
Cultivar. "APPLAUSE BRONZE SHADES". PVP 7900026.

The following were developed by Waller Flowerseed Company, P.O. Box 935, 4th and Obispo Streets, Guadalupe, California 93434, United States. Received 1982.

**PI 600830. *Dahlia* sp.**  
Cultivar. "REDSKIN". PVP 7200036.

The following were developed by Dept. of Scientific & Industrial Res., Crops Research Division, Christchurch, South Island, New Zealand. Received 1982.

**PI 600831. *Medicago sativa* L.**  
Cultivar. "RERE". PVP 8100035.

The following were developed by William H. Weinheimer, Agrigenetics Corporation, 490 McCloskey Road, Hollister, California 95023, United States. Received 1982.

**PI 600832. *Triticum aestivum* L., nom. cons.**  
Cultivar. "FRONTIERSMAN". PVP 8100076.

The following were developed by Moran Seeds, Inc., United States. Donated by Moran Seeds, Inc.. Received 1982.

**PI 600833. *Lactuca sativa* L.**  
Cultivar. "DELMAR". PVP 8000082.

The following were developed by Brent Loy, University of New Hampshire, Department of Plant Biology, Nesmith Hall, Durham, New Hampshire 03824-3597, United States. Received 1982.

**PI 600834. *Cucurbita maxima* Duchesne ex Lam.**  
Cultivar. "AUTUMN PRIDE". PVP 8100050.

The following were developed by William H. Weinheimer, Agrigenetics Corporation, 490 McCloskey Road, Hollister, California 95023, United States. Received 1982.

**PI 600835. *Triticum aestivum* L., nom. cons.**  
Cultivar. "BRAWNY". PVP 8100073.

The following were developed by Pioneer Hi-Bred International, Inc., 6800 Pioneer Pkwy., P.O. Box 316, Johnston, Iowa 50131-0316, United States. Received 1982.

**PI 600836. *Triticum aestivum* L., nom. cons.**  
Cultivar. "PR2360". PVP 8100004.

The following were developed by William H. Weinheimer, Agrigenetics Corporation, 490 McCloskey Road, Hollister, California 95023, United States. Received 1982.

**PI 600837. *Triticum aestivum* L., nom. cons.**

Cultivar. "CITATION". PVP 8100074.

The following were developed by L.L. Schrader, United States. Received 1982.

**PI 600838. *Triticum aestivum* L., nom. cons.**  
Cultivar. "TUT". PVP 8100010.

The following were developed by William H. Weinheimer, Agrigenetics Corporation, 490 McCloskey Road, Hollister, California 95023, United States. Received 1982.

**PI 600839. *Triticum aestivum* L., nom. cons.**  
Cultivar. "ENCORE". PVP 8100075.

The following were developed by Pioneer Hi-Bred International, Inc., 6800 Pioneer Pkwy., P.O. Box 316, Johnston, Iowa 50131-0316, United States. Received 1982.

**PI 600840. *Triticum aestivum* L., nom. cons.**  
Cultivar. "PL145". PVP 8000142.

The following were developed by Cebeco Zaden B.V., Rotterdam, Netherlands. Received 1982.

**PI 600841. *Lolium perenne* L.**  
Cultivar. "ELKA". PVP 8100018.

The following were developed by James B. Moutray, ABI Alfalfa, 2316 259th Street, Ames, Iowa 50011, United States; J.L. Mansfield; S.M. Hurst. Donated by James B. Moutray, ABI Alfalfa, 2316 259th Street, Ames, Iowa 50011, United States. Received 1980.

**PI 600842. *Medicago sativa* L.**  
Cultivar. "ANSWER"; LOT 406. PVP 8000037; CV-123. Pedigree - 57-clone synthetic with parentage tracing to Anchor (30 clones), Apollo (15 clones), and NAPB hardy germplasm pool (12 clones). Adapted to North Central U.S. for hay, dehydration and greenchop production. Fall dormancy similar to Saranac. Highly resistant to *Phytophthora* root rot. Resistant to bacterial wilt (similar to Vernal) and *Fusarium* wilt (similar to Agate). Moderately resistant to anthracnose.

The following were developed by C. Tateosian, United States. Received 1982.

**PI 600843. *Cucurbita moschata* (Duchesne ex Lam.) Duchesne ex Poir.**  
Cultivar. "BUNUTKIN". PVP 8100039.

The following were developed by Asgrow Seed Company, Kalamazoo, Michigan, United States. Received 1982.

**PI 600844. *Pisum sativum* L.**  
Cultivar. "TROLLY". PVP 8200012.

The following were developed by Gallatin Valley Seed Co., Idaho, United States. Received 1982.

**PI 600845. *Pisum sativum* L.**  
Cultivar. "EARLY SWEET NO. 9". PVP 8100110.

The following were developed by Asgrow Seed Company, Kalamazoo, Michigan, United States. Received 1982.

**PI 600846. *Pisum sativum* L.**  
Cultivar. "KRILLA". PVP 8200011.

**PI 600847. *Pisum sativum* L.**  
Cultivar. "BONNAIRE". PVP 8200013.

The following were developed by Dairyland Seed Company, Inc., Clinton, Wisconsin, United States. Received 1982.

**PI 600848. *Trifolium pratense* L.**  
Cultivar. "RUBY". PVP 8000124.

The following were developed by Pure-Seed Testing, Inc., P.O. Box 449, Hubbard, Oregon 97032, United States. Donated by C. R. Funk, Rutgers University, Cook College, Dept. of Soils and Crops, New Brunswick, New Jersey 08903, United States. Received 1981.

**PI 600849. *Festuca arundinacea* Schreb.**  
Cultivar. "FALCON". CV-19; PVP 8000160.

The following were developed by James B. Moutray, ABI Alfalfa, 2316 259th Street, Ames, Iowa 50011, United States; J.L. Mansfield; S.M. Hurst. Donated by James B. Moutray, ABI Alfalfa, 2316 259th Street, Ames, Iowa 50011, United States. Received 1980.

**PI 600850. *Medicago sativa* L.**  
Cultivar. "TRIDENT"; LOT 405. CV-128; PVP 8000038. Pedigree - 36-clone synthetic with parentage tracing to: Apollo (23 clones), a NAPB Flemish germplasm pool (8 clones), WL 318 (4 clones) and a NAPB germplasm pool consisting of variety releases from Kansas and Nebraska (1 clone). Adapted to the North Central U.S. for hay, dehydration and greenchop production. Fall dormancy similar to Saranac. Highly resistant to *Phytophthora* root rot (superior to Agate) and *Fusarium* wilt (similar to Agate). Resistant to bacterial wilt (similar to Vernal). Moderately resistant to anthracnose.



The following were developed by John Haight, Plant Genetics, 1918 S. Middleton Road, Nampa, Idaho 83686, United States; James B. Moutray, ABI Alfalfa, 2316 259th Street, Ames, Iowa 50011, United States; W.G. Hartman. Donated by North American Plant Breeders, Inc., Ames, Iowa, United States. Received 1982.

**PI 600851. *Medicago sativa* L.**

Cultivar. "BARON"; LOT 713. PVP 8200036; CV-137. Pedigree - 654-plant cultivar derived from a cross of 2 populations: 1) parents trace to El Unico (9), Mesa Sirsa (3), Mesilla (3), Zia/Turkistan (3), Acco (2), Miller syn (2), WL504 (2), and 1 clone each WL501, AT520, Acco 657, Hayden, Kanza; 2) WL318. Adapted to the San Joaquin, Sacramento, central and southern coastal valleys and high desert valleys of California, and southern half of New Mexico and Arizona for hay, dehydration and greenchop purposes. Fall dormancy similar to Caliverde 65. Highly resistant to pea aphid, blue alfalfa aphid and spotted alfalfa aphid (all similar to Cuf 101). Resistant to *Phytophthora* root rot (similar to Agate) and *Fusarium* wilt (similar to Saranac AR). Moderately resistant to bacterial wilt (similar to Ranger) and anthracnose.

The following were developed by James B. Moutray, ABI Alfalfa, 2316 259th Street, Ames, Iowa 50011, United States; J.R. Thomas. Donated by James B. Moutray, ABI Alfalfa, 2316 259th Street, Ames, Iowa 50011, United States. Received 1980.

**PI 600852. *Medicago sativa* L.**

Cultivar. "ATLAS"; LOT 401. CV-109; PVP 7600022. Pedigree - 1407-clone cultivar with parentage tracing about equally to: 1) Northern hardy types predominately Titan, Vernal, and Weevlchek and 2) Flemish types predominately Anchor and Saranac. Adapted to the North Central U.S. for hay, greenchop, and dehydration purposes. Fall dormancy similar to Saranac. Resistant to bacterial wilt, anthracnose and *Fusarium* wilt. Susceptible to *Phytophthora* root rot.

The following were developed by D.J. Vanderhave, Postbus 1, Kapelle, Netherlands. Received 1982.

**PI 600853. *Lolium perenne* L.**

Cultivar. "BIANCA". PVP 8000019.

The following were developed by Rilcot Seed Company, United States. Received 1982.

**PI 600854. *Gossypium hirsutum* L.**

Cultivar. "RILCOT 90-A". PVP 7600042.

The following were developed by New Mexico State University Agricultural Experiment Station, Las Cruces, New Mexico 88003, United States. Donated by Arden A. Baltensperger, New Mexico State University, Dept. of Agronomy & Horticulture, Las Cruces, New Mexico 88003, United States. Received 1982.

PI 600855. *Trifolium fragiferum* L.  
Cultivar. "FRESA". CV-38; PVP 8200113.

The following were developed by Delta and Pine Land Company, Scott, Mississippi, United States. Received 1982.

PI 600856. *Gossypium hirsutum* L.  
Cultivar. "DELTAPINE SR-482". PVP 8200067.

PI 600857. *Gossypium hirsutum* L.  
Cultivar. "DELTAPINE 30". PVP 8200029.

The following were developed by Pioneer Hi-Bred International, Inc., 6800 Pioneer Pkwy., P.O. Box 316, Johnston, Iowa 50131-0316, United States. Received 1982.

PI 600858. *Triticum aestivum* L., nom. cons.  
Cultivar. "2550". PVP 8200054.

The following were developed by Bailey Seed Farms, Inc., United States. Received 1982.

PI 600859. *Triticum aestivum* L., nom. cons.  
Cultivar. "BAILEY 4287". PVP 8200016.

The following were developed by Southern States Cooperative, Inc., United States. Received 1982.

PI 600860. *Avena sativa* L.  
Cultivar. "SOUTHERN STATES 76-30". PVP 8200078.

The following were developed by Barenbrug's Zaadhandel N.V., Arnhem, Netherlands. Received 1982.

PI 600861. *Poa pratensis* L.  
Cultivar. "BARBLUE". PVP 8100171.

The following were developed by R.E. Engel, Rutgers University, New Brunswick, New Jersey 08903, United States; F. Curra; A. Caravella; A.R. Mazur; Richard H. Hurley, Lofts Seed, Inc., 347 Elizabeth Avenue, Suite 101, Somerset, New Jersey 08873, United States. Donated by Richard H. Hurley, Lofts Seed, Inc., 347 Elizabeth Avenue, Suite 101, Somerset, New Jersey 08873, United States. Received 1982.

PI 600862. *Poa pratensis* L.  
Cultivar. "MYSTIC"; P-140 OR P-141. PVP 8100157; CV-25. Pedigree - Single highly apomictic plant that survived sodium arsenite treatments on the 8th fairway of Echo Lake Country Club, Westfield, New Jersey. Selection made by Engel and Caravella in 1957. Moderately low growing,

fine leafed, turf type with bright green color. Similar to cultivar Touchdown. Attractive and dense. Competes well against *Poa annua* invasion. Tolerates close mowing and has good winter color. Good resistance to powdery mildew, stripe smut and *Fusarium* blight. Moderate resistance to leaf spot and crown rot disease.

The following were developed by Denholm Seed Company, Los Angeles, California, United States. Received 1982.

**PI 600863. *Tagetes patula* L.**  
Cultivar. "BONANZA YELLOW". PVP 8200004.

The following were developed by W. Atlee Burpee Company, 300 Park Avenue, Warminster, Pennsylvania 18974, United States. Received 1982.

**PI 600864. *Tagetes erecta* L.**  
Cultivar. "XANTHO-ORANGE". PVP 8200017.

The following were developed by John Haight, Plant Genetics, 1918 S. Middleton Road, Nampa, Idaho 83686, United States; James B. Moutray, ABI Alfalfa, 2316 259th Street, Ames, Iowa 50011, United States; W.G. Hartman. Donated by North American Plant Breeders, Inc., Ames, Iowa, United States. Received 1982.

**PI 600865. *Medicago sativa* L.**  
Cultivar. "APOLLO II"; LOT 676. PVP 8200035; CV-133. Pedigree - Developed from populations tracing predominately to Apollo, Anchor, Trident, Answer, Atlas, Olympic and small amounts of other cultivars. Adapted to the north central and northwest U.S. for hay, dehydration and greenchop purposes where *Verticillium* wilt limits production. Fall dormancy similar to Saranac. Resistant to *Phytophthora* root rot (similar to Agate), bacterial wilt (equal to Vernal) and *Fusarium* wilt (similar to Agate). Moderately resistant to *Verticillium* wilt, anthracnose and stem nematode.

The following were developed by J.L. Kugler, W-L Research, Inc., 21029 Rd. 6, SE, Warden, Washington 98857, United States; I.I. Kawaguchi; J.H. Graham; D.F. Beard, Water-Loomis Co., 10916 Borndale Drive, Adelphi, Maryland 20783, United States. Donated by L. O. Brown, W-L Research, Inc., 2000 Oak Street, Bakersfield, California 93301, United States. Received 1982.

**PI 600866. *Medicago sativa* L.**  
Cultivar. "WL 316"; WM 1131. CV-101; PVP 8200031. Pedigree - Developed from 567 plant selections derived from screening 7 experimental synthetic cultivars for resistance to either anthracnose or bacterial wilt. Parental material trace to Vertus and to a lesser degree Team and Grimm. Semi-dormant. Fall growth intermediate between Saranac and DuPuits. Recommended for hay and haylage production. Adapted to Pennsylvania and Maryland and west to Iowa and Nebraska. Flower color is dark purple to purple (78%), variegated (17%), and light yellow to cream (5%). Resistant to *Verticillium* wilt, anthracnose, *Fusarium* wilt, pea

aphid biotypes occurring in Maryland, and spotted alfalfa aphid. Moderate resistance to bacterial wilt, Phytophthora root rot and stem nematode. Low resistance to blue alfalfa aphid.

The following were developed by Pure-Seed Testing, Inc., P.O. Box 449, Hubbard, Oregon 97032, United States. Received 1982.

**PI 600867. *Festuca rubra* ssp. *fallax* (Thuill.) Nyman**  
Cultivar. "SHADOW". CV-24; PVP 8100155.

The following were developed by D.J. Vanderhave, Postbus 1, Kapelle, Netherlands. Received 1982.

**PI 600868. *Festuca longifolia* Thuill.**  
Cultivar. "HARTINA". PVP 8100161.

The following were developed by Barenbrug's Zaadhandel N.V., Arnhem, Netherlands. Received 1982.

**PI 600869. *Festuca arundinacea* Schreb.**  
Cultivar. "BARCEL". PVP 8100085.

The following were developed by Pure-Seed Testing, Inc., P.O. Box 449, Hubbard, Oregon 97032, United States. Received 1982.

**PI 600870. *Festuca arundinacea* Schreb.**  
Cultivar. "OLYMPIC"; M65-1-OFF/AG-125A. PVP 8100168; CV-20.

The following were developed by Royal Sluis, Koninklijke, Zaaizaadbedrijven, Gebroeders Sluis, B.V., Netherlands. Received 1982.

**PI 600871. *Brassica oleracea* var. *botrytis* L.**  
Cultivar. "VERNON". PVP 8100087.

The following were developed by Hurst, Gunson, Cooper, Taber, Ltd., England, United Kingdom. Received 1982.

**PI 600872. *Oenothera biennis* L.**  
Cultivar. "CONSTABLE". PVP 8100103.

The following were developed by University of Idaho, Idaho Agr. Exp. Sta., Moscow, Idaho, United States. Received 1982.

**PI 600873. *Trifolium repens* L.**  
Cultivar. "STAR". PVP 8100173; CV-5.

The following were developed by N.F. Davis Drier & Elevator, Inc., United

States. Received 1982.

**PI 600874. *Oryza sativa* L.**  
Cultivar. "CALPEARL". PVP 8100094.

The following were developed by Rogers Brothers Seed Company, P.O. Box 4727, Boise, Idaho 83711-0727, United States. Received 1982.

**PI 600875. *Pisum sativum* L.**  
Cultivar. "NOVELLA II". PVP 8200069.

The following were developed by Loft's Pedigreed Seed, Inc., One Chimney Rock Road, P.O. Box 146, Bound Brook, New Jersey 08805, United States. Donated by C. R. Funk, Rutgers University, Cook College, Dept. of Soils and Crops, New Brunswick, New Jersey 08903, United States. Received 1983.

**PI 600876. *Lolium perenne* L.**  
Cultivar. "PRELUDE"; R-40. PVP 8200177; CV-88.

The following were developed by International Seeds Inc., P.O. Box 168, Halsey, Oregon 97348, United States. Donated by C. R. Funk, Rutgers University, Cook College, Dept. of Soils and Crops, New Brunswick, New Jersey 08903, United States. Received 1983.

**PI 600877. *Lolium perenne* L.**  
Cultivar. "GATOR"; R-39A. CV-90; PVP 8300179.

The following were developed by Pure-Seed Testing, Inc., P.O. Box 449, Hubbard, Oregon 97032, United States. Donated by C. R. Funk, Rutgers University, Cook College, Dept. of Soils and Crops, New Brunswick, New Jersey 08903, United States. Received 1983.

**PI 600878. *Lolium perenne* L.**  
Cultivar. "MANHATTAN II"; W6 3065. PVP 8200154; CV-91.

The following were developed by Agriculture Service Corporation, Oregon, United States. Donated by C. R. Funk, Rutgers University, Cook College, Dept. of Soils and Crops, New Brunswick, New Jersey 08903, United States. Received 1983.

**PI 600879. *Lolium perenne* L.**  
Cultivar. "PREMIER"; R-36. CV-86; PVP 8200150.

The following were developed by Cebeco Zaden B.V., Rotterdam, Netherlands. Received 1983.

**PI 600880. *Pisum sativum* L.**  
Cultivar. "MAXI". PVP 8000016.

The following were developed by Gallatin Valley Seed Co., Idaho, United States. Received 1983.

- PI 600881. *Pisum sativum* L.  
Cultivar. "CAN-DELITE". PVP 8300049.
- PI 600882. *Pisum sativum* L.  
Cultivar. "TRIPOD". PVP 8300050.
- PI 600883. *Pisum sativum* L.  
Cultivar. "FRIDGIT". PVP 8300051.
- PI 600884. *Pisum sativum* L.  
Cultivar. "HEADLINER". PVP 8300052.

The following were developed by Wilbur-Ellis Company, United States. Received 1983.

- PI 600885. *Pisum sativum* L.  
Cultivar. "VALGREEN". PVP 8300053.
- PI 600886. *Pisum sativum* L.  
Cultivar. "ARISTAGREN". PVP 8300054.

The following were developed by Gallatin Valley Seed Co., Idaho, United States. Received 1983.

- PI 600887. *Pisum sativum* L.  
Cultivar. "EARLY FREEZER 680". PVP 8100109.

The following were developed by Crites-Moscow Growers, Inc., 212 8th, P.O. Box 8912, Moscow, Idaho 83843, United States. Received 1983.

- PI 600888. *Pisum sativum* L.  
Cultivar. "SULTAN". PVP 8300039.

The following were developed by Musser Seed Company, Inc., California, United States. Received 1983.

- PI 600889. *Pisum sativum* L.  
Cultivar. "SWEET SNAP". PVP 8200147.

The following were developed by C.H. Campbell. Donated by C.H. Campbell Jr., Germain's, Inc., United States. Received 1983.

- PI 600890. *Gossypium hirsutum* L.  
Cultivar. "GERMAIN'S ACALA GC-363". PVP 8100060.
- PI 600891. *Gossypium hirsutum* L.

Cultivar. "GERMAIN'S ACALA GC-445". PVP 8100061.

**PI 600892. *Gossypium hirsutum* L.**

Cultivar. "GERMAIN'S ACALA GC-555". PVP 8100062.

The following were developed by Germain Seed & Plant Co., Los Angeles, California, United States. Received 1983.

**PI 600893. *Gossypium hirsutum* L.**

Cultivar. "GERMAIN'S ACALA GC-510". PVP 8200166.

The following were developed by G & P Seed Company, Inc., United States. Received 1983.

**PI 600894. *Gossypium hirsutum* L.**

Cultivar. "GP 5479". PVP 8300033.

The following were developed by Custom Ag Service, Inc., United States. Received 1983.

**PI 600895. *Gossypium hirsutum* L.**

Cultivar. "CASCOT C-13". PVP 8300034.

The following were developed by Moran Seeds, Inc., United States. Donated by Moran Seeds, Inc.. Received 1983.

**PI 600896. *Citrullus lanatus* (Thunb.) Matsum. & Nakai**

Cultivar. "SUN GOLD". PVP 8200061.

The following were developed by Plant Breeders 1, Inc., United States. Received 1983.

**PI 600897. *Hordeum vulgare* L. ssp. *vulgare***

Cultivar. "SEVEN". PVP 8300055.

The following were developed by Loft's Pedigreed Seed, Inc., One Chimney Rock Road, P.O. Box 146, Bound Brook, New Jersey 08805, United States. Donated by Richard H. Hurley, Lofts Seed, Inc., 347 Elizabeth Avenue, Suite 101, Somerset, New Jersey 08873, United States. Received 1982.

**PI 600898. *Festuca arundinacea* Schreb.**

Cultivar. "CLEMFINE"; L-FA-SYN I. PVP 8200175; CV-22.

The following were developed by International Seeds Inc., P.O. Box 168, Halsey, Oregon 97348, United States. Received 1983.

**PI 600899. *Festuca arundinacea* Schreb.**

Cultivar. "HOUNDG"; ISI TF 791. CV-28; PVP 8300011.

The following were developed by Loft's Pedigreed Seed, Inc., One Chimney Rock Road, P.O. Box 146, Bound Brook, New Jersey 08805, United States. Donated by Richard H. Hurley, Lofts Seed, Inc., 347 Elizabeth Avenue, Suite 101, Somerset, New Jersey 08873, United States. Received 1983.

**PI 600900. *Festuca longifolia* Thuill.**  
Cultivar. "RELIANT". PVP 8200168; CV-25.

The following were developed by Petoseed Company, Inc., Saticoy, California 93004, United States. Received 1983.

**PI 600901. *Lycopersicon esculentum* Mill., nom. cons.**  
Cultivar. "PETO 94-C". PVP 8100159.

The following were developed by Musser Seed Company, Inc., California, United States. Received 1983.

**PI 600902. *Citrullus lanatus* (Thunb.) Matsum. & Nakai**  
Cultivar. "BUSH CHARLESTON GRAY". PVP 8200190.

**PI 600903. *Citrullus lanatus* (Thunb.) Matsum. & Nakai**  
Cultivar. "BUSH JUBILEE". PVP 8200189.

The following were developed by Pioneer Hi-Bred International, Inc., 6800 Pioneer Pkwy., P.O. Box 316, Johnston, Iowa 50131-0316, United States. Received 1983.

**PI 600904. *Gossypium hirsutum* L.**  
Cultivar. "7563". PVP 8300031.

The following were developed by Delta and Pine Land Company, Scott, Mississippi, United States. Received 1983.

**PI 600905. *Gossypium hirsutum* L.**  
Cultivar. "DELTAPINE SR-383". PVP 8200137.

The following were developed by North Carolina State University, North Carolina Agr. Exp. Sta., Raleigh, North Carolina, United States. Received 1983.

**PI 600906. *Lycopersicon esculentum* Mill., nom. cons.**  
Cultivar. "NC 50-7". PVP 8200070.

**PI 600907. *Lycopersicon esculentum* Mill., nom. cons.**  
Cultivar. "CHEROKEE". PVP 8200075.

The following were developed by Campbell Soup Company, United States.



Received 1983.

**PI 600908. *Lycopersicon esculentum* Mill., nom. cons.**  
Cultivar. "EARLY HARVEST". PVP 8300001.

The following were developed by Winsor Grain, Inc., United States. Received 1983.

**PI 600909. *Fagopyrum esculentum* Moench**  
Cultivar. "WINSOR ROYAL". PVP 8300046.

The following were developed by Pacific Seed Production Co., United States. Received 1983.

**PI 600910. *Bromus carinatus* Hook. & Arn.**  
Cultivar. "DEBORAH". PVP 8200096.

The following were developed by Royal Sluis, Koninklijke, Zaaizaadbedrijven, Gebroeders Sluis, B.V., Netherlands. Received 1983.

**PI 600911. *Calendula officinalis* L.**  
Cultivar. "ORANGE GITANA". PVP 8200083.

The following were developed by Joseph Harris Company, Inc., 3670 Buffalo Road, Rochester, New York 14624, United States. Received 1983.

**PI 600912. *Solanum melongena* L.**  
Cultivar. "LITTLE FINGERS". PVP 8200068.

The following were developed by Ferry-Morse Seed Company, Inc., P.O. Box 100, Mountain View, California 94042, United States. Received 1983.

**PI 600913. *Lactuca sativa* L.**  
Cultivar. "FM 8248". PVP 8100051.

The following were developed by W. Brotherton Seed Company, Inc., United States. Received 1983.

**PI 600914. *Pisum sativum* L.**  
Cultivar. "ORCAS". PVP 8100047.

The following were developed by Asgrow Seed Company, Kalamazoo, Michigan, United States. Received 1983.

**PI 600915. *Pisum sativum* L.**  
Cultivar. "PLUS". PVP 8200097.

The following were developed by Gallatin Valley Seed Co., Idaho, United States. Received 1983.

PI 600916. *Pisum sativum* L.  
Cultivar. "SUGARANN". PVP 8100111.

PI 600917. *Pisum sativum* L.  
Cultivar. "SUGARMEL". PVP 8100112.

PI 600918. *Pisum sativum* L.  
Cultivar. "SUGARBON". PVP 8100122.

The following were developed by Petoseed Company, Inc., Saticoy, California 93004, United States. Received 1983.

PI 600919. *Lycopersicon esculentum* Mill., nom. cons.  
Cultivar. "PETO 343". PVP 8300009.

PI 600920. *Lycopersicon esculentum* Mill., nom. cons.  
Cultivar. "PETO 460". PVP 8300008.

The following were developed by A.L. Castle, Inc., Homestead, Florida, United States. Received 1983.

PI 600921. *Lycopersicon esculentum* Mill., nom. cons.  
Cultivar. "CASTLONG UG". PVP 8100077.

The following were developed by Northrup, King & Company, 1500 Jackson N.E., Minneapolis, Minnesota 55413, United States. Received 1983.

PI 600922. *Puccinellia distans* (Jacq.) Parl.  
Cultivar. "FULTS". PVP 8300071.

The following were developed by Causmex Corporation, United States. Received 1983.

PI 600923. *Triticum aestivum* L., nom. cons.  
Cultivar. "A99AR". PVP 8200159.

The following were developed by Coker's Pedigreed Seed Co., P.O. Box 340, Hartsville, South Carolina 29550, United States. Received 1983.

PI 600924. *Triticum aestivum* L., nom. cons.  
Cultivar. "FELAND". PVP 8300064.

The following were developed by Sluis & Groot, P.O.B. 13, Westeinde 62, Enkhuizen, North Holland 1600 AA, Netherlands. Received 1982.

PI 600925. *Brassica oleracea* var. *botrytis* L.

Cultivar. "WHITE SUMMER". PVP 8100063.

The following were developed by Moran Seeds, Inc., United States. Donated by Moran Seeds, Inc.. Received 1982.

**PI 600926. *Lycopersicon esculentum* Mill., nom. cons.**  
Cultivar. "ADVANTAGE". PVP 8200104.

The following were developed by A.L. Castle, Inc., Homestead, Florida, United States. Received 1982.

**PI 600927. *Lycopersicon esculentum* Mill., nom. cons.**  
Cultivar. "CASTLEROCK". PVP 8100078.

The following were developed by W. Atlee Burpee Company, 300 Park Avenue, Warminster, Pennsylvania 18974, United States. Received 1982.

**PI 600928. *Lycopersicon esculentum* Mill., nom. cons.**  
Cultivar. "SUPER BEEFSTEAK". PVP 8200028.

The following were developed by A.L. Castle, Inc., Homestead, Florida, United States. Received 1982.

**PI 600929. *Lycopersicon esculentum* Mill., nom. cons.**  
Cultivar. "CASTLE RED". PVP 8200139.

The following were developed by Moran Seeds, Inc., United States. Donated by Moran Seeds, Inc.. Received 1982.

**PI 600930. *Lycopersicon esculentum* Mill., nom. cons.**  
Cultivar. "MORAN 3053". PVP 8200105.

The following were developed by Germain Seed & Plant Co., Los Angeles, California, United States. Received 1982.

**PI 600931. *Triticum durum* Desf.**  
Cultivar. "D-5003". PVP 8200103.

The following were developed by Pioneer Hi-Bred International, Inc., 6800 Pioneer Pkwy., P.O. Box 316, Johnston, Iowa 50131-0316, United States. Received 1982.

**PI 600932. *Triticum aestivum* L., nom. cons.**  
Cultivar. "2369". PVP 8200086.

The following were developed by William H. Weinheimer, Agrigenetics Corporation, 490 McCloskey Road, Hollister, California 95023, United States.

Received 1982.

PI 600933. *Triticum aestivum* L., nom. cons.  
Cultivar. "5409". PVP 8200114.

The following were developed by T. Bolack, United States. Received 1982.

PI 600934. *Capsicum annuum* L.  
Cultivar. "ORANGE CAYENNE". PVP 8200110.

The following were developed by F.K. Suzuki International, Inc., United States. Received 1982.

PI 600935. *Stevia rebaudiana* (Bertoni) Bertoni  
Cultivar. "P J SUZUKI". PVP 8200065.

The following were developed by Germinal Holdings Ltd., England, United Kingdom. Received 1982.

PI 600936. *Agrostis capillaris* L.  
Cultivar. "DUCHESS". PVP 8200081.

The following were developed by Joseph Harris Company, Inc., 3670 Buffalo Road, Rochester, New York 14624, United States. Received 1982.

PI 600937. *Brassica rapa* L.  
Cultivar. "ROYAL GEM". PVP 8200045.

The following were developed by N.F. Davis Drier & Elevator, Inc., United States. Received 1982.

PI 600938. *Oryza sativa* L.  
Cultivar. "CALIFORNIA BELLE". PVP 8200106.

The following were developed by Asgrow Seed Company, Kalamazoo, Michigan, United States. Received 1982.

PI 600939. *Pisum sativum* L.  
Cultivar. "DUAL". PVP 8200010.

PI 600940. *Pisum sativum* L.  
Cultivar. "DEW". PVP 8200009.

The following were developed by Green Giant Company, United States. Received 1982.

PI 600941. *Pisum sativum* L.  
Cultivar. "265". PVP 8100003.

PI 600942. *Pisum sativum* L.  
Cultivar. "260". PVP 8100002.

The following were developed by Cebeco Zaden B.V., Rotterdam, Netherlands.  
Received 1982.

PI 600943. *Pisum sativum* L.  
Cultivar. "MIRANDA". PVP 8100054.

The following were developed by Holden's Foundation Seeds, Inc., United States. Received 1982.

PI 600944. *Zea mays* L. *ssp. mays*  
Cultivar. "LH39". PVP 8000067.

The following were developed by Northrup, King & Company, 1500 Jackson N.E., Minneapolis, Minnesota 55413, United States. Received 1982.

PI 600945. *Raphanus sativus* L.  
Cultivar. "RED BARON". PVP 8100037.

The following were developed by D'Arrigo Brothers Company of California, Salinas, California, United States. Received 1982.

PI 600946. *Raphanus sativus* L.  
Cultivar. "SNOW BELLE". PVP 8200025.

The following were developed by Zelder B.V., 6595 N W, Ottersum, Netherlands.  
Received 1982.

PI 600947. *Festuca rubra ssp. fallax* (Thuill.) Nyman  
Cultivar. "LOBI". PVP 8200018.

The following were developed by Mommersteeg International B.V., Advanta Seeds West, Netherlands. Received 1982.

PI 600948. *Dactylis glomerata* L.  
Cultivar. "MOBITE". PVP 8200022.

The following were developed by J.L. Kugler, W-L Research, Inc., 21029 Rd. 6, SE, Warden, Washington 98857, United States; I.I. Kawaguchi; J.L. Force; J.H. Graham; D.F. Beard, Water-Loomis Co., 10916 Borndale Drive, Adelphi, Maryland 20783, United States. Donated by L. O. Brown, W-L Research, Inc., 2000 Oak Street, Bakersfield, California 93301, United States. Received 1982.

PI 600949. *Medicago sativa* L.  
Cultivar. "WL 315". PVP 8200030; CV-114. Pedigree - Composed of 30

parent clones derived from 12% *M. falcata*, 10% Ladak, 47% *M. varia* (mostly Vernal and Atlantic), 2% Turkistan, 20% Flemish (mostly Saranac), 8% Chilean, and 1% Peruvian. Adapted for hay or haylage production from eastern Colorado through Nebraska and Kansas eastward to Virginia and New York. Flower color is 80% purple, 19% variegated, and 1% yellow. Fall dormancy similar to Saranac. High resistance to bacterial wilt, *Fusarium* wilt and pea aphid biotypes endemic to Maryland. Tolerant to potato leafhopper yellowing. Moderately resistant to *Phytophthora* root rot, anthracnose, stem nematode and spotted alfalfa aphid biotyped endemic to Kern County, California.

The following were developed by Coffey Seed Company, United States. Received 1982.

**PI 600950. *Citrullus lanatus* (Thunb.) Matsum. & Nakai**  
Cultivar. "CRIMSON DIAMOND". PVP 8200077.

**PI 600951. *Citrullus lanatus* (Thunb.) Matsum. & Nakai**  
Cultivar. "CHUBBY GRAY". PVP 8200047.

The following were developed by Stoneville Pedigreed Seed Co., Mississippi, United States. Received 1982.

**PI 600952. *Gossypium hirsutum* L.**  
Cultivar. "STONEVILLE 302". PVP 8200051.

The following were developed by Northrup King & Co., P.O. Box 1406, Woodland, California 95695, United States. Donated by B. Knipe, Northrup King Company, P.O. Box 1406, Woodland, California 95695, United States. Received 1982.

**PI 600953. *Medicago sativa* L.**  
Cultivar. "SPREDOR 2"; K6-11. PVP 8200034. Very winter hardy and high resistance to bacterial wilt. Strongly creeping rooted.

The following were developed by Holden's Foundation Seeds, Inc., United States. Received 1983.

**PI 600954. *Zea mays* L. ssp. *mays***  
Cultivar. "LH119". PVP 8200064.

**PI 600955. *Zea mays* L. ssp. *mays***  
Cultivar. "LH51". PVP 8200062.

The following were developed by DeKalb-Pfizer Genetics, United States. Received 1983.

**PI 600956. *Zea mays* L. ssp. *mays***  
Cultivar. "MDF-13D". PVP 8200151.

The following were developed by Holden's Foundation Seeds, Inc., United States. Received 1983.

**PI 600957. *Zea mays* L. ssp. *mays***  
Cultivar. "LH74". PVP 8200063.

The following were developed by DeKalb-Pfizer Genetics, United States. Received 1983.

**PI 600958. *Zea mays* L. ssp. *mays***  
Cultivar. "FAPW". PVP 8200152.

The following were developed by Holden's Foundation Seeds, Inc., United States. Received 1983.

**PI 600959. *Zea mays* L. ssp. *mays***  
Cultivar. "LH145". PVP 8300102.

The following were developed by Coker's Pedigreed Seed Co., P.O. Box 340, Hartsville, South Carolina 29550, United States. Received 1983.

**PI 600960. *Gossypium hirsutum* L.**  
Cultivar. "COKER 500". PVP 8300078.

The following were developed by G & P Seed Company, Inc., United States. Received 1983.

**PI 600961. *Gossypium hirsutum* L.**  
Cultivar. "GP 1005". PVP 8300108.

The following were developed by Coffey Seed Company, United States. Received 1983.

**PI 600962. *Citrullus lanatus* (Thunb.) Matsum. & Nakai**  
Cultivar. "BIG CRIMSON". PVP 8300101.

The following were developed by William H. Weinheimer, Agrigenetics Corporation, 490 McCloskey Road, Hollister, California 95023, United States. Received 1983.

**PI 600963. *Pisum sativum* L.**  
Cultivar. "SUNSET". PVP 8300074.

The following were developed by Wilbur-Ellis Company, United States. Received 1983.

**PI 600964. *Pisum sativum* L.**  
Cultivar. "OPAL". PVP 8300065.

**PI 600965. *Pisum sativum* L.**  
Cultivar. "MIDGET". PVP 8300066.

The following were developed by Cebeco Zaden B.V., Rotterdam, Netherlands.  
Received 1983.

**PI 600966. *Hordeum vulgare* L. ssp. vulgare**  
Cultivar. "APEX". PVP 8300084.

The following were developed by D.J. Vanderhave, Postbus 1, Kapelle,  
Netherlands. Received 1983.

**PI 600967. *Hordeum vulgare* L. ssp. vulgare**  
Cultivar. "PISTON". PVP 8300087.

The following were developed by Cebeco Zaden B.V., Rotterdam, Netherlands.  
Received 1983.

**PI 600968. *Hordeum vulgare* L. ssp. vulgare**  
Cultivar. "BELLONA". PVP 8300085.

The following were developed by D.J. Vanderhave, Postbus 1, Kapelle,  
Netherlands. Received 1983.

**PI 600969. *Festuca rubra* L.**  
Cultivar. "MAGENTA". PVP 8300021.

The following were developed by Pure-Seed Testing, Inc., P.O. Box 449,  
Hubbard, Oregon 97032, United States. Received 1983.

**PI 600970. *Festuca arundinacea* Schreb.**  
Cultivar. "FINELAWN". PVP 8300080.

The following were developed by Pickseed West, Inc., P.O. Box 888, 33149  
Highway 99E, Tangent, Oregon 97389, United States. Received 1983.

**PI 600971. *Festuca arundinacea* Schreb.**  
Cultivar. "MUSTANG". PVP 8300023; CV-29.

The following were developed by Pure-Seed Testing, Inc., P.O. Box 449,  
Hubbard, Oregon 97032, United States. Received 1983.

**PI 600972. *Lolium multiflorum* Lam.**  
Cultivar. "TT-80". PVP 8300081.

The following were developed by Snow Brand Seed Company, Ltd., Japan. Donated



by Snow Brand Seed Company, United States. Received 1983.

**PI 600973. *Lolium perenne* L.**  
Cultivar. "FRIEND". PVP 8300060.

The following were developed by Coker's Pedigreed Seed Co., P.O. Box 340, Hartsville, South Carolina 29550, United States. Received 1983.

**PI 600974. *Triticum aestivum* L., nom. cons.**  
Cultivar. "COKER 916". PVP 8300036.

The following were developed by Hokkaido National Experiment Station, Sapporo, Japan. Received 1983.

**PI 600975. *Beta vulgaris* L. ssp. *vulgaris***  
Cultivar. "NK-152". PVP 8300086.

The following were developed by Moran Seeds, Inc., United States. Donated by Moran Seeds, Inc.. Received 1983.

**PI 600976. *Cucumis melo* L. ssp. *melo***  
Cultivar. "TOP NET SR". PVP 8300113.

The following were developed by Bronco Seed Company, United States. Received 1983.

**PI 600977. *Gossypium hirsutum* L.**  
Cultivar. "BRONCO 625". PVP 8300124.

The following were developed by Ferry-Morse Seed Company, Inc., P.O. Box 100, Mountain View, California 94042, United States. Received 1983.

**PI 600978. *Lycopersicon esculentum* Mill., nom. cons.**  
Cultivar. "APEX 1000". PVP 8300119.

The following were developed by Rice Researchers, Inc., United States. Received 1983.

**PI 600979. *Oryza sativa* L.**  
Cultivar. "RRI-7530". PVP 8300123.

The following were developed by Wisconsin Crop Improvement Association, Wisconsin, United States. Received 1983.

**PI 600980. *Pisum sativum* L.**  
Cultivar. "FRONTIER". PVP 8300114.

The following were developed by Pioneer Hi-Bred International, Inc., 6800 Pioneer Pkwy., P.O. Box 316, Johnston, Iowa 50131-0316, United States. Received 1983.

**PI 600981. *Zea mays* L. ssp. *mays***  
Cultivar. "AD38". PVP 8300115.

The following were developed by Pure-Seed Testing, Inc., P.O. Box 449, Hubbard, Oregon 97032, United States. Received 1983.

**PI 600982. *Lolium x hybridum* Hausskn.**  
Cultivar. "AGREE". PVP 8300125.

The following were developed by Rogers Brothers Seed Company, P.O. Box 4727, Boise, Idaho 83711-0727, United States. Received 1983.

**PI 600983. *Pisum sativum* L.**  
Cultivar. "HONEY POD". PVP 8300099.

The following were developed by A.G. Gustafson, United States. Received 1983.

**PI 600984. *Pisum sativum* L.**  
Cultivar. "CHALLIS". PVP 8300109.

The following were developed by D'Arrigo Brothers Company of California, Salinas, California, United States. Received 1983.

**PI 600985. *Brassica oleracea* var. *botrytis* L.**  
Cultivar. "DARRIGO NO 905". PVP 8200024.

The following were developed by Northrup, King & Company, 1500 Jackson N.E., Minneapolis, Minnesota 55413, United States. Received 1983.

**PI 600986. *Cucumis melo* L. ssp. *melo***  
Cultivar. "MARATHON". PVP 8200089.

The following were developed by Stauffer Chemical Company, Seed Group, Westport, Connecticut 06680, United States. Received 1983.

**PI 600987. *Helianthus annuus* L.**  
Cultivar. "SS405B". PVP 8300132.

The following were developed by Sluis & Groot, P.O.B. 13, Westeinde 62, Enkhuizen, North Holland 1600 AA, Netherlands. Received 1983.

**PI 600988. *Brassica oleracea* var. *botrytis* L.**  
Cultivar. "WHITE FOX". PVP 8300003.

**PI 600989. *Brassica oleracea* var. *botrytis* L.**  
Cultivar. "WHITE ROCK". PVP 8200085.

The following were developed by Royal Sluis, Koninklijke, Zaaizaadbedrijven, Gebroeders Sluis, B.V., Netherlands. Received 1983.

**PI 600990. *Brassica oleracea* var. *botrytis* L.**  
Cultivar. "ANDES". PVP 8200108.

**PI 600991. *Brassica oleracea* var. *botrytis* L.**  
Cultivar. "CERVINA". PVP 8200109.

The following were developed by Goldsmith Seeds, Inc., Gilroy, California, United States. Received 1983.

**PI 600992. *Tagetes patula* L.**  
Cultivar. "JANIE FLAME". PVP 8300019.

The following were developed by Ferry-Morse Seed Company, Inc., P.O. Box 100, Mountain View, California 94042, United States. Received 1983.

**PI 600993. *Lycopersicon esculentum* Mill., nom. cons.**  
Cultivar. "LIBERATOR". PVP 8100058.

The following were developed by Petoseed Company, Inc., Saticoy, California 93004, United States. Received 1983.

**PI 600994. *Lycopersicon esculentum* Mill., nom. cons.**  
Cultivar. "PETO 95-43". PVP 8100160.

The following were developed by Musser Seed Company, Inc., California, United States. Received 1983.

**PI 600995. *Cucurbita pepo* L.**  
Cultivar. "82-2177". PVP 8200182.

The following were developed by G.E. Pogue Seed Co., Inc., United States. Received 1983.

**PI 600996. *Pennisetum orientale* Rich.**  
Cultivar. "COWBOY". PVP 8300149.

The following were developed by Goldsmith Seeds, Inc., Gilroy, California, United States. Received 1983.

**PI 600997. *Cucumis melo* L. ssp. *melo***  
Cultivar. "MUSKETEER". PVP 8200138.

The following were developed by Ferry-Morse Seed Company, Inc., P.O. Box 100, Mountain View, California 94042, United States. Received 1983.

**PI 600998. *Capsicum annuum* L.**  
Cultivar. "MERCED". PVP 8100057.

The following were developed by Scattini Seeds, Inc., United States. Received 1983.

**PI 600999. *Brassica oleracea* var. *botrytis* L.**  
Cultivar. "INDEPENDENCE". PVP 8200088.

The following were developed by Joseph Harris Company, Inc., 3670 Buffalo Road, Rochester, New York 14624, United States. Received 1983.

**PI 601000. *Raphanus sativus* L.**  
Cultivar. "RED KING". PVP 8300024.

The following were developed by Sakata Seed America, Inc., United States. Received 1983.

**PI 601001. *Catharanthus roseus* (L.) G. Don**  
Cultivar. "DWARF LITTLE SALMON". PVP 8300022.

The following were developed by Mommersteeg International B.V., Advanta Seeds West, Netherlands. Received 1983.

**PI 601002. *Lolium perenne* L.**  
Cultivar. "OVATION". PVP 8300152.

The following were developed by Holden's Foundation Seeds, Inc., United States. Received 1983.

**PI 601003. *Zea mays* L. *ssp. mays***  
Cultivar. "LH143". PVP 8300138.

**PI 601004. *Zea mays* L. *ssp. mays***  
Cultivar. "LH132". PVP 8300148.

The following were developed by Pioneer Hi-Bred International, Inc., 6800 Pioneer Pkwy., P.O. Box 316, Johnston, Iowa 50131-0316, United States. Received 1983.

**PI 601005. *Zea mays* L. *ssp. mays***  
Cultivar. "207". PVP 8300144.

**PI 601006. *Zea mays* L. *ssp. mays***  
Cultivar. "G50". PVP 8300143.

- PI 601007. *Zea mays* L. ssp. *mays*  
Cultivar. "B09". PVP 8300142.
- PI 601008. *Zea mays* L. ssp. *mays*  
Cultivar. "G35". PVP 8300140.
- PI 601009. *Zea mays* L. ssp. *mays*  
Cultivar. "B47". PVP 8300141.

The following were developed by Crites-Moscow Growers, Inc., 212 8th, P.O. Box 8912, Moscow, Idaho 83843, United States. Received 1983.

- PI 601010. *Pisum sativum* L.  
Cultivar. "SUPERSHOOT". PVP 8200180.
- PI 601011. *Pisum sativum* L.  
Cultivar. "IMAGE". PVP 8300010.

The following were developed by Musser Seed Company, Inc., California, United States. Received 1983.

- PI 601012. *Pisum sativum* L.  
Cultivar. "LACY LADY". PVP 8200146.

The following were developed by Gallatin Valley Seed Co., Idaho, United States. Received 1983.

- PI 601013. *Pisum sativum* L.  
Cultivar. "SUGAR RAE". PVP 8100123.

The following were developed by Pure Line Seeds, Inc., P.O. Box 8866, Moscow, Idaho 83843, United States. Received 1983.

- PI 601014. *Pisum sativum* L.  
Cultivar. "SUNDANCE". PVP 8200186.
- PI 601015. *Pisum sativum* L.  
Cultivar. "ARCTIC". PVP 8300015.

The following were developed by Asgrow Seed Company, Kalamazoo, Michigan, United States. Received 1983.

- PI 601016. *Pisum sativum* L.  
Cultivar. "PERK". PVP 8300134.
- PI 601017. *Pisum sativum* L.  
Cultivar. "STAMPEDE". PVP 8300133.

The following were developed by Cannors Seed Corporation, Lewisville, Idaho, United States. Received 1983.

PI 601018. *Pisum sativum* L.  
Cultivar. "77 EARLY PERFECTION". PVP 8200169.

The following were developed by Gallatin Valley Seed Co., Idaho, United States. Received 1983.

PI 601019. *Pisum sativum* L.  
Cultivar. "BADGER". PVP 8100107.

The following were developed by University of Kentucky., Kentucky Agric. Expt Sta., Lexington, Kentucky, United States. Received 1983.

PI 601020. *Festuca arundinacea* Schreb.  
Cultivar. "JOHNSTONE". PVP 8300154; CV-23.

The following were developed by Moran Seeds, Inc., United States. Donated by Moran Seeds, Inc.. Received 1983.

PI 601021. *Apium graveolens* var. *dulce* (Mill.) Pers.  
Cultivar. "DEACON". PVP 8300156.

PI 601022. *Apium graveolens* var. *dulce* (Mill.) Pers.  
Cultivar. "BISHOP". PVP 8300155.

The following were developed by John Bodger & Sons Company, United States. Received 1983.

PI 601023. *Tagetes erecta* L.  
Cultivar. "PINEAPPLE CRUSH IMPROVED". PVP 8300160.

PI 601024. *Tagetes erecta* L.  
Cultivar. "PAPAYA CRUSH IMPROVED". PVP 8300159.

PI 601025. *Tagetes erecta* L.  
Cultivar. "PUMPKIN CRUSH IMPROVED". PVP 8300158.

The following were developed by D.D. Alvey, FFR Cooperative, 4112 E. State Road 225, West Lafayette, Indiana 47906, United States. Donated by FFR Cooperative, United States. Received 1983.

PI 601026. *Zea mays* L. ssp. *mays*  
Cultivar. "F42". PVP 8300157.

The following were developed by Svalof AB, International 268 00, Svalov, Sweden. Received 1983.

PI 601027. *Poa pratensis* L.  
Cultivar. "AMAZON". PVP 8300166.

The following were developed by Gallatin Valley Seed Co., Idaho, United States. Received 1983.

PI 601028. *Pisum sativum* L.  
Cultivar. "SUGAR DADDY". PVP 8300163.

PI 601029. *Pisum sativum* L.  
Cultivar. "SUPER SUGAR MEL". PVP 8300165.

PI 601030. *Pisum sativum* L.  
Cultivar. "STRINGLESS SUGAR SNAP". PVP 8300164.

The following were developed by Asgrow Seed Company, Kalamazoo, Michigan, United States. Received 1984.

PI 601031. *Pisum sativum* L.  
Cultivar. "NOW". PVP 8400125.

PI 601032. *Pisum sativum* L.  
Cultivar. "RAMPART". PVP 8400107.

PI 601033. *Pisum sativum* L.  
Cultivar. "PAYLOAD". PVP 8400103.

PI 601034. *Pisum sativum* L.  
Cultivar. "ELEGANCE". PVP 8400104.

PI 601035. *Pisum sativum* L.  
Cultivar. "TREK". PVP 8400106.

PI 601036. *Pisum sativum* L.  
Cultivar. "VULCAN". PVP 8400105.

The following were developed by Pioneer Hi-Bred International, Inc., 6800 Pioneer Pkwy., P.O. Box 316, Johnston, Iowa 50131-0316, United States. Received 1984.

PI 601037. *Zea mays* L. *ssp. mays*  
Cultivar. "G80". PVP 8400128.

The following were developed by Harris Moran Seed Company, P.O. Box 4938, Modesto, California 95352-4938, United States. Received 1983.

PI 601038. *Lycopersicon esculentum* Mill., nom. cons.  
Cultivar. "HARRIS MORAN 3075". PVP 8300172.

The following were developed by Mommersteeg International B.V., Advanta Seeds

West, Netherlands. Received 1983.

**PI 601039. Festuca rubra L.**  
Cultivar. "MONCORDE". PVP 8300169.

The following were developed by Sunseeds Genetics Inc., Hollister, California 95024, United States. Received 1983.

**PI 601040. Abelmoschus esculentus (L.) Moench**  
Cultivar. "CAJUN QUEEN". PVP 8300168.

The following were developed by Loft's Pedigreed Seed, Inc., One Chimney Rock Road, P.O. Box 146, Bound Brook, New Jersey 08805, United States. Donated by Richard H. Hurley, Lofts Seed, Inc., 347 Elizabeth Avenue, Suite 101, Somerset, New Jersey 08873, United States. Received 1983.

**PI 601041. Lolium perenne L.**  
Cultivar. "REPELL"; GT-II. CV-93; PVP 8400148.

The following were developed by Pure-Seed Testing, Inc., P.O. Box 449, Hubbard, Oregon 97032, United States. Received 1983.

**PI 601042. Lolium perenne L.**  
Cultivar. "2DF". PVP 8200176.

The following were developed by Saatzucht Steinach Gmb H., Germany. Received 1983.

**PI 601043. Lolium perenne L.**  
Cultivar. "LORINA". PVP 8200149.

The following were developed by Loft's Pedigreed Seed, Inc., One Chimney Rock Road, P.O. Box 146, Bound Brook, New Jersey 08805, United States. Donated by Richard H. Hurley, Lofts Seed, Inc., 347 Elizabeth Avenue, Suite 101, Somerset, New Jersey 08873, United States. Received 1983.

**PI 601044. Lolium perenne L.**  
Cultivar. "PALMER". PVP 8200178; CV-85.

The following were developed by Barenbrug's Zaadhandel N.V., Arnhem, Netherlands. Received 1983.

**PI 601045. Lolium perenne L.**  
Cultivar. "BARCLAY". PVP 8300016.

The following were developed by Northrup, King & Company, 1500 Jackson N.E., Minneapolis, Minnesota 55413, United States. Received 1983.



PI 601046. *Lolium perenne* L.  
Cultivar. "DELRAY". PVP 8200043.

PI 601047. *Lolium perenne* L.  
Cultivar. "GOALIE". PVP 8200044.

The following were developed by Mommersteeg International B.V., Advanta Seeds West, Netherlands. Received 1983.

PI 601048. *Lolium multiflorum* Lam.  
Cultivar. "MULTIMO". PVP 8200021.

The following were developed by Pure-Seed Testing, Inc., P.O. Box 449, Hubbard, Oregon 97032, United States. Received 1983.

PI 601049. *Lolium multiflorum* Lam.  
Cultivar. "WA-77". PVP 8200148.

The following were developed by Mommersteeg International B.V., Advanta Seeds West, Netherlands. Received 1983.

PI 601050. *Lolium multiflorum* Lam.  
Cultivar. "CARAMBA". PVP 8200042.

The following were developed by Pure-Seed Testing, Inc., P.O. Box 449, Hubbard, Oregon 97032, United States. Received 1983.

PI 601051. *Lolium x hybridum* Hausskn.  
Cultivar. "3CN". PVP 8200158.

PI 601052. *Lolium x hybridum* Hausskn.  
Cultivar. "OREGREEN". PVP 8000149.

The following were developed by University of Idaho, Idaho Agr. Exp. Sta., Moscow, Idaho, United States. Received 1983.

PI 601053. *Festuca idahoensis* Elmer  
Cultivar. "NEZPURS". PVP 8400002; CV-27.

PI 601054. *Festuca idahoensis* Elmer  
Cultivar. "JOSEPH". CV-26; PVP 8400003.

The following were developed by Mommersteeg International B.V., Advanta Seeds West, Netherlands. Received 1983.

PI 601055. *Festuca longifolia* Thuill.  
Cultivar. "CRYSTAL". PVP 8300174.

PI 601056. *Poa pratensis* L.

Cultivar. "CYNTHIA". PVP 8300017.

The following were developed by Crites-Moscow Growers, Inc., 212 8th, P.O. Box 8912, Moscow, Idaho 83843, United States. Received 1983.

PI 601057. *Pisum sativum* L.  
Cultivar. "SPAN". PVP 8300177.

PI 601058. *Pisum sativum* L.  
Cultivar. "BONITO". PVP 8300176.

The following were developed by Charles M. Taliaferro, Oklahoma State University, Department of Agronomy, 368 Agricultural Hall North, Stillwater, Oklahoma 74078-0507, United States; R.M. Ahring; W.L. Richardson. Donated by Charles M. Taliaferro, Oklahoma State University, Department of Agronomy, 368 Agricultural Hall North, Stillwater, Oklahoma 74078-0507, United States. Received 1983.

PI 601059. *Cynodon dactylon* (L.) Pers. var. *dactylon*  
Cultivar. "GUYMON"; GX59. PVP 8300171; CV-13. Pedigree - Two-parental clone ( $2n=4X=36$ ) derived from interpollination of winterhardy, self-incompatible accessions 9959 (PI 253302) and 12156. Greater winterhardiness compared to bermudagrass of Arizona or California origin. Darker green foliage and wider leaves (up to 6mm). Internodes not pigmented. Leaves have more pubescence on both abaxial and adaxial surfaces. Average number of hulled seeds per gram 3265. Used for soil stabilization and turf.

The following were developed by Petoseed Company, Inc., Saticoy, California 93004, United States. Received 1983.

PI 601060. *Lactuca sativa* L.  
Cultivar. "RED SAILS". PVP 8400001.

The following were developed by Gold Kist, Inc., United States. Received 1983.

PI 601061. *Arachis hypogaea* L.  
Cultivar. "GK-7". PVP 8200141.

The following were developed by Auburn University, Alabama Agr. Exp. Sta., Auburn, Alabama, United States. Donated by Joe Norton, Auburn University, Department of Horticulture, Auburn, Alabama 36849, United States. Received 1984.

PI 601062. *Citrullus lanatus* (Thunb.) Matsum. & Nakai  
Cultivar. "AU-JUBILANT". PVP 8400015.

PI 601063. *Citrullus lanatus* (Thunb.) Matsum. & Nakai  
Cultivar. "AU-PRODUCER". PVP 8400016.

The following were developed by Anderson Clayton and Company, Houston, Texas, United States. Received 1984.

**PI 601064. *Hordeum vulgare* L. ssp. vulgare**  
Cultivar. "POCO". PVP 8000092.

The following were developed by Northrup, King & Company, 1500 Jackson N.E., Minneapolis, Minnesota 55413, United States. Received 1984.

**PI 601065. *Hordeum vulgare* L. ssp. vulgare**  
Cultivar. "401". PVP 8100015.

**PI 601066. *Hordeum vulgare* L. ssp. vulgare**  
Cultivar. "400". PVP 8000088.

**PI 601067. *Hordeum vulgare* L. ssp. vulgare**  
Cultivar. "409". PVP 8000089.

The following were developed by Wilbur-Ellis Company, United States. Received 1984.

**PI 601068. *Hordeum vulgare* L. ssp. vulgare**  
Cultivar. "ONDA". PVP 8000083.

The following were developed by Pioneer Hi-Bred International, Inc., 6800 Pioneer Pkwy., P.O. Box 316, Johnston, Iowa 50131-0316, United States. Received 1984.

**PI 601069. *Triticum aestivum* L., nom. cons.**  
Cultivar. "2165". PVP 8400026.

**PI 601070. *Triticum aestivum* L., nom. cons.**  
Cultivar. "2157". PVP 8400027.

**PI 601071. *Triticum aestivum* L., nom. cons.**  
Cultivar. "2172". PVP 8400043.

The following were developed by Western Plant Breeders, Phoenix, Arizona, United States. Received 1984.

**PI 601072. *Triticum aestivum* L., nom. cons.**  
Cultivar. "WESTBRED CHALLENGER". PVP 8400023.

**PI 601073. *Triticum aestivum* L., nom. cons.**  
Cultivar. "APEX 83". PVP 8400024.

The following were developed by Sogetal, Inc., United States. Received 1984.

PI 601074. *Triticum aestivum* L., nom. cons.  
Cultivar. "HIPRO". PVP 8400047.

PI 601075. *Triticum aestivum* L., nom. cons.  
Cultivar. "MINDORO". PVP 8400048.

The following were developed by CR Seeds, United States. Received 1984.

PI 601076. *Triticum aestivum* L., nom. cons.  
Cultivar. "COKER 983". PVP 8400058.

The following were developed by Fred C. Elliott, Elliott Plant Breeding, 1084  
Angus Way, Yuma, Arizona 85364, United States. Received 1984.

PI 601077. X *Triticosecale* sp.  
Cultivar. "NUTRICAL". PVP 8200026.

The following were developed by ARCO Seed Company, United States. Received  
1984.

PI 601078. X *Triticosecale* sp.  
Cultivar. "GRACE". PVP 8200032.

The following were developed by Holden's Foundation Seeds, Inc., United  
States. Received 1984.

PI 601079. *Zea mays* L. ssp. *mays*  
Cultivar. "LH123HT". PVP 8400030.

The following were developed by J.C. Robinson Seed Company, United States.  
Received 1984.

PI 601080. *Zea mays* L. ssp. *mays*  
Cultivar. "CR1HT". PVP 8400042.

The following were developed by Black Jewel Popcorn, Inc., United States.  
Received 1984.

PI 601081. *Zea mays* L. ssp. *mays*  
Cultivar. "BLACK JEWELL 85". PVP 8400033.

The following were developed by Rijk Zwaan Zaadteelt en Zaadhandel B.V., Meo  
Voto Beheer BV, De Lier, Netherlands. Received 1984.

PI 601082. *Brassica oleracea* var. *botrytis* L.  
Cultivar. "SENATOR". PVP 8400045.

PI 601083. *Brassica oleracea* var. *botrytis* L.

Cultivar. "TRITON". PVP 8400044.

The following were developed by Auburn University, Alabama Agr. Exp. Sta., Auburn, Alabama, United States. Received 1984.

PI 601084. *Vigna unguiculata* (L.) Walp.  
Cultivar. "FREEZEGREEN". PVP 8000131.

The following were developed by Northrup, King & Company, 1500 Jackson N.E., Minneapolis, Minnesota 55413, United States. Received 1984.

PI 601085. *Vigna unguiculata* (L.) Walp.  
Cultivar. "BIG BOY PURPLEHULL". PVP 8200040.

The following were developed by Mississippi Foundation Seed Stocks, Mississippi, United States. Received 1984.

PI 601086. *Vigna unguiculata* (L.) Walp.  
Cultivar. "MISSISSIPPI CREAM". PVP 8000068.

The following were developed by Snow Brand Seed Company, Ltd., Japan. Donated by Snow Brand Seed Company, United States. Received 1984.

PI 601087. *Festuca pratensis* Huds.  
Cultivar. "FIRST". PVP 8400049.

The following were developed by Mommersteeg International B.V., Advanta Seeds West, Netherlands. Received 1984.

PI 601088. *Lolium perenne* L.  
Cultivar. "FANTOOM". PVP 8400040.

The following were developed by International Seeds Inc., P.O. Box 168, Halsey, Oregon 97348, United States. Received 1984.

PI 601089. *Lolium x hybridum* Hausskn.  
Cultivar. "BISON". PVP 8400038.

The following were developed by W.W. Johnson and Sons, Limited, United Kingdom. Received 1984.

PI 601090. *Festuca rubra* L.  
Cultivar. "JUPITER". PVP 8400039.

The following were developed by North American Plant Breeders, Inc., Ames, Iowa, United States. Donated by James B. Moutray, ABI Alfalfa, 2316 259th Street, Ames, Iowa 50011, United States. Received 1980.

**PI 601091. *Trifolium pratense* L.**  
Cultivar. "REDLAND II". CV-21; PVP 8100070.

The following were developed by D.J. Vanderhave, Postbus 1, Kapelle, Netherlands. Received 1984.

**PI 601092. *Poa pratensis* L.**  
Cultivar. "ASSET". PVP 8400046.

The following were developed by Oklahoma State University, Oklahoma Agr. Exp. Sta., Department of Agronomy, Stillwater, Oklahoma 74074, United States. Received 1984.

**PI 601093. *Gossypium hirsutum* L.**  
Cultivar. "SIMWALT 82". PVP 8400010.

The following were developed by Moran Seeds, Inc., United States. Donated by Moran Seeds, Inc.. Received 1984.

**PI 601094. *Lactuca sativa* L.**  
Cultivar. "VAN MOR". PVP 8100172.

The following were developed by Genecorp Technology, United States. Received 1984.

**PI 601095. *Lactuca sativa* L.**  
Cultivar. "VAN SAL 210". PVP 8400054.

The following were developed by John Haight, Plant Genetics, 1918 S. Middleton Road, Nampa, Idaho 83686, United States; James B. Moutray, ABI Alfalfa, 2316 259th Street, Ames, Iowa 50011, United States; W.G. Hartman. Donated by Nickerson American Plant Breeders, Inc., Ames, Iowa, United States. Received 1984.

**PI 601096. *Medicago sativa* L.**  
Cultivar. "ENDURE". PVP 8400034; CV-140. Pedigree - Developed from populations that undergone selection for winterhardiness, general desirability and resistance to several diseases. The populations trace to Atlas, Olympic, Apollo, Thunder, Armor, and several other cultivars. Fall dormancy similar to Ranger. Adapted to the north central and northwest regions for hay, dehydration and green chop purposes where *Verticillium* wilt limits production. Resistant to *Phytophthora* root rot (similar to Agate), bacterial wilt (equal to Vernal), *Fusarium* wilt (similar to Agate) and *Verticillium* wilt (similar to Vertus). Moderate resistance to anthracnose.

The following were developed by Campbell Soup Company, United States. Received 1984.

PI 601097. *Lycopersicon esculentum* Mill., nom. cons.  
Cultivar. "EASY WINNER". PVP 8400050.

The following were developed by Purdue University, Indiana Agr. Exp. Station, West Lafayette, Indiana 47907, United States. Received 1984.

PI 601098. *Lycopersicon esculentum* Mill., nom. cons.  
Cultivar. "INDIANA 812". PVP 8400056.

The following were developed by King Grain U.S.A., Inc., United States. Received 1984.

PI 601099. *Vigna radiata* (L.) R. Wilczek  
Cultivar. "MUNGKING I". PVP 8400051.

The following were developed by Pure Line Seeds, Inc., P.O. Box 8866, Moscow, Idaho 83843, United States. Received 1984.

PI 601100. *Pisum sativum* L.  
Cultivar. "MISTY". PVP 8400031.

The following were developed by Coffey Seed Company, United States. Received 1984.

PI 601101. *Citrullus lanatus* (Thunb.) Matsum. & Nakai  
Cultivar. "LONG CRIMSON". PVP 8400055.

The following were developed by Northrup, King & Company, 1500 Jackson N.E., Minneapolis, Minnesota 55413, United States. Received 1984.

PI 601102. *Hordeum vulgare* L. ssp. *vulgare*  
Cultivar. "560". PVP 8300110.

The following were developed by Pioneer Hi-Bred International, Inc., 6800 Pioneer Pkwy., P.O. Box 316, Johnston, Iowa 50131-0316, United States. Received 1984.

PI 601103. *Triticum aestivum* L., nom. cons.  
Cultivar. "2553". PVP 8200055.

The following were developed by Germinal Holdings Ltd., England, United Kingdom. Received 1984.

PI 601104. *Festuca rubra* L.  
Cultivar. "LOGRO". PVP 8200079.

The following were developed by D.J. Vanderhave, Postbus 1, Kapelle, Netherlands. Received 1984.

**PI 601105. *Festuca rubra* L.**  
Cultivar. "CONTOUR". PVP 8200183.

The following were developed by Auburn University, Alabama Agr. Exp. Sta., Auburn, Alabama, United States. Donated by J.F. Pedersen, Auburn University, Dept. of Agronomy & Soils, Auburn, Alabama 36849, United States. Received 1982.

**PI 601106. *Festuca arundinacea* Schreb.**  
Cultivar. "AU TRIUMPH"; AF-5. PVP 8400017; CV-21.

The following were developed by Barbara L. Rose, University of California, Department of Botany, Davis, California 95616, United States; W. Meyer, Pure-Seed Testing, Inc., P.O. Box 449, Hubbard, Oregon 97032, United States; C.R. Funk, Hubbard Seed and Supply Company, P.O. Box 310, Hubbard, Oregon 97032, United States; J.M. Johnson-Cicalese, University of Nebraska-Lincoln, 377 Plant Science, Lincoln, Nebraska 68583-0724, United States. Donated by Pure-Seed Testing, Inc., P.O. Box 449, Hubbard, Oregon 97032, United States. Received 1983.

**PI 601107. *Poa pratensis* L.**  
Cultivar. "MIDNIGHT"; P1528T/M7-2-1TF. CV-26; PVP 8200181. Pedigree - Single, highly apomictic aberrant plant from the open-pollinated progeny of F64-603 (selection from old lawn near Natural History Museum in Washington D.C. in 1963). Persistent, low growing, turf type that is compact, dense, medium fine texture, slow leaf extension rate and very dark green color. Very good heat and cold tolerance. Good vigor and mowing qualities, tolerates close mowing. Fair shade adaptation. Good resistance to leaf spot and crown rot disease, stripe smut and dollar spot. Recommended for use in either full sun or light shade in regions where Kentucky bluegrass is well adapted.

The following were developed by Moran Seeds, Inc., United States. Donated by Moran Seeds, Inc.. Received 1984.

**PI 601108. *Lactuca sativa* L.**  
Cultivar. "GREENFIELD". PVP 8400013.

The following were developed by William H. Weinheimer, Agrigenetics Corporation, 490 McCloskey Road, Hollister, California 95023, United States. Received 1984.

**PI 601109. *Gossypium hirsutum* L.**  
Cultivar. "GSC 25". PVP 8400057.

The following were developed by Northrup, King & Company, 1500 Jackson N.E., Minneapolis, Minnesota 55413, United States. Received 1984.



PI 601110. *Capsicum annuum* L.  
Cultivar. "JUPITER". PVP 8400065.

The following were developed by John Bodger & Sons Company, United States.  
Received 1984.

PI 601111. *Catharanthus roseus* (L.) G. Don  
Cultivar. "PINK PANTHER". PVP 8400066.

The following were developed by Genecorp Technology, United States. Received  
1984.

PI 601112. *Lactuca sativa* L.  
Cultivar. "GENECORP GREEN". PVP 8400060.

The following were developed by Quali-Sel, Inc., United States. Received  
1984.

PI 601113. *Lactuca sativa* L.  
Cultivar. "CENTURION". PVP 8200023.

The following were developed by Moran Seeds, Inc., United States. Donated by  
Moran Seeds, Inc.. Received 1984.

PI 601114. *Lactuca sativa* L.  
Cultivar. "EL TORO". PVP 8200027.

PI 601115. *Lactuca sativa* L.  
Cultivar. "YUMA". PVP 8100167.

The following were developed by Scattini Seeds, Inc., United States. Received  
1984.

PI 601116. *Lactuca sativa* L.  
Cultivar. "GOLDEN BIB". PVP 8300007.

The following were developed by Ferry-Morse Seed Company, Inc., P.O. Box 100,  
Mountain View, California 94042, United States. Received 1984.

PI 601117. *Lycopersicon esculentum* Mill., nom. cons.  
Cultivar. "PEELMECH". PVP 8200058.

PI 601118. *Lycopersicon esculentum* Mill., nom. cons.  
Cultivar. "VF 9209". PVP 8200059.

The following were developed by Petoseed Company, Inc., Saticoy, California  
93004, United States. Received 1984.

**PI 601119. *Lycopersicon esculentum* Mill., nom. cons.**  
Cultivar. "RIO COLORADO". PVP 8300035.

The following were developed by W. Atlee Burpee Company, 300 Park Avenue, Warminster, Pennsylvania 18974, United States. Received 1984.

**PI 601120. *Callistephus chinensis* (L.) Nees**  
Cultivar. "POT 'N PATIO VIOLET BLUE". PVP 8200129.

The following were developed by James B. Moutray, ABI Alfalfa, 2316 259th Street, Ames, Iowa 50011, United States; S.M. Hurst. Donated by James B. Moutray, ABI Alfalfa, 2316 259th Street, Ames, Iowa 50011, United States. Received 1983.

**PI 601121. *Medicago sativa* L.**  
Cultivar. "EXPO"; LOT 714. PVP 8100066; CV-125. Pedigree - 846-clone synthetic all tracing to Apollo. Adapted to North Central U.S. for hay, dehydration and greenchop production. Fall dormancy similar to Saranac. Highly resistant to the spotted alfalfa aphid biotype H. Resistant to bacterial wilt (similar to Vernal), *Phytophthora* root rot (similar to Agate) and *Fusarium* wilt. Moderately resistant to anthracnose.

The following were developed by John Haight, Plant Genetics, 1918 S. Middleton Road, Nampa, Idaho 83686, United States; James B. Moutray, ABI Alfalfa, 2316 259th Street, Ames, Iowa 50011, United States; W.G. Hartman. Donated by James B. Moutray, ABI Alfalfa, 2316 259th Street, Ames, Iowa 50011, United States. Received 1983.

**PI 601122. *Medicago sativa* L.**  
Cultivar. "GRANADA"; LOT 638. CV-136; PVP 8100071. Pedigree - Selected from Cuf 101 after 2 cycles of field screening for resistance to *Phytophthora* root rot and 1 cycle of greenhouse screen for resistance to blue alfalfa aphid. Adapted to the lower elevations of California, Arizona and New Mexico for hay, dehydration and greenchop production. Fall dormancy to Cuf 101. Highly resistant to pea aphid, blue alfalfa aphid, spotted alfalfa aphid and *Fusarium* wilt (all similar to Cuf 101). Resistant to *Phytophthora* root rot (similar to Agate). Susceptible to bacterial wilt and anthracnose.

The following were developed by James B. Moutray, ABI Alfalfa, 2316 259th Street, Ames, Iowa 50011, United States. Received 1983.

**PI 601123. *Medicago sativa* L.**  
Cultivar. "MAVERICK"; LOT 537. PVP 8100067; CV-131. Pedigree - 55-clone synthetic with parentage tracing to: Kane (20%), Drylander (19%), Roamer (19%), Fosters Siberian (16%), Beaver (14%) and Rambler (12%). Adapted to the Northern U.S. and Canadian Provinces of Manitoba, Saskatchewan, Alberta and British Columbia for hay production or grazing. Fall dormancy similar to Norseman. Resistant to bacterial wilt (similar to Vernal). Moderately resistant to *Phytophthora* root rot and *Fusarium*

wilt.

The following were developed by John Haight, Plant Genetics, 1918 S. Middleton Road, Nampa, Idaho 83686, United States; James B. Moutray, ABI Alfalfa, 2316 259th Street, Ames, Iowa 50011, United States; W.G. Hartman. Donated by James B. Moutray, ABI Alfalfa, 2316 259th Street, Ames, Iowa 50011, United States. Received 1983.

**PI 601124. *Medicago sativa* L.**

Cultivar. "ADVANTAGE"; LOT 456. PVP 8100064; CV-124. Pedigree - 305-clone synthetic with parentage tracing predominately to Apollo, Vanguard, Titan, Anchor, Weevlc hek and Atlas. Adapted to the North Central U.S. for hay, dehydration and greenchop production. Fall dormancy similar to Saranac. Resistant to bacterial wilt (similar to Vernal) and Phytophthora root rot (similar to Agate). Moderately resistant to anthracnose and Fusarium wilt.

The following were developed by James B. Moutray, ABI Alfalfa, 2316 259th Street, Ames, Iowa 50011, United States; S.M. Hurst; W.G. Hartman. Donated by James B. Moutray, ABI Alfalfa, 2316 259th Street, Ames, Iowa 50011, United States. Received 1983.

**PI 601125. *Medicago sativa* L.**

Cultivar. "THUNDER"; LOT 739. PVP 8200037; CV-132. Pedigree - 89-clone synthetic with parentage tracing to: Apollo (43%), Anchor (12%), Atlas (12%), Maverick (8%), Victoria (6%), and 19% from other NABP breeding populations. Adapted to the North Central U.S. for hay, dehydration and greenchop production. Fall dormancy similar to Ranger. Highly resistant to Fusarium wilt (similar to Agate). Resistant to bacterial wilt (similar to Vernal) and Phytophthora root rot (similar to Agate). Moderately resistant to anthracnose.

The following were developed by Terra Seed Company, United States. Received 1984.

**PI 601126. *Gossypium hirsutum* L.**

Cultivar. "TERRA SR-10". PVP 8400088.

The following were developed by Asgrow Seed Company, Kalamazoo, Michigan, United States. Received 1984.

**PI 601127. *Pisum sativum* L.**

Cultivar. "ENVY". PVP 8400094.

**PI 601128. *Pisum sativum* L.**

Cultivar. "BEMOL". PVP 8400092.

**PI 601129. *Pisum sativum* L.**

Cultivar. "MENUET". PVP 8400093.

The following were developed by William H. Weinheimer, Agrigenetics Corporation, 490 McCloskey Road, Hollister, California 95023, United States. Received 1984.

**PI 601130. *Gossypium hirsutum* L.**  
Cultivar. "GSC 20". PVP 8400101.

The following were developed by Snow Brand Seed Company, Ltd., Japan. Donated by Snow Brand Seed Company, United States. Received 1984.

**PI 601131. *Lolium multiflorum* Lam.**  
Cultivar. "SAKURA-WASE". PVP 8400124.

The following were developed by G. Manglitz, University of Nebraska, Rm. 305-C, Plant Industry Bldg., Lincoln, Nebraska 68583, United States; W. R. Kehr, USDA, University of Nebraska, 332 Keim Hall, E. Campus, 332 Keim Hall, E. Campus, Lincoln, Nebraska, United States; Donald K. Barnes, USDA, ARS, University of Minnesota, Dept. of Agronomy & Plant Genetics, St. Paul, Minnesota 55108, United States; F.I. Frosheiser; R.L. Ogden. Donated by W. R. Kehr, USDA, University of Nebraska, 332 Keim Hall, E. Campus, 332 Keim Hall, E. Campus, Lincoln, Nebraska, United States. Received 1984.

**PI 601132. *Medicago sativa* L.**  
Cultivar. "WRANGLER". PVP 8400119; CV-142. Pedigree - Developed from 2 cycles of recurrent phenotypic selection for phytophthora root rot resistance in N.S. 79. Germplasm traces to 5% *M. falcata*, 5% Ladak, 20% *M. varia*, 5% Chilean, 65% Turkistan, including PIs 197298, 206278, 207494, 234205. Winterhardy cultivar adapted for use in the North Central states and adjacent area. Highly resistant to phytophthora root rot (greater than Agate), pea aphid (similar to Kanza and Dawson) and both biotypes of spotted alfalfa aphid (similar to Dawson and Kanza). Resistant to bacterial wilt (similar to Vernal) and fusarium wilt (less than Agate). Moderate resistance to downy mildew and potato leafhopper yellowing (both similar to Vernal). Low resistance to verticillium wilt and anthracnose. Reaction to stem nematode is unknown.

The following were developed by Ferry-Morse Seed Company, Inc., P.O. Box 100, Mountain View, California 94042, United States. Received 1984.

**PI 601133. *Apium graveolens* var. *dulce* (Mill.) Pers.**  
Cultivar. "VENTURA". PVP 8400126.

The following were developed by E. Benary, Erfurt, Thuringia, Germany. Received 1984.

**PI 601134. *Gazania rigens* (L.) Gaertn.**  
Cultivar. "MINI-STAR TANGERINE". PVP 8400100.

The following were developed by Mommersteeg International B.V., Advanta Seeds West, Netherlands. Received 1984.

**PI 601135. *Festuca rubra* L.**  
Cultivar. "MARY". PVP 8200020.

The following were developed by Walter Baxter Seed Co., Inc., United States.  
Received 1984.

**PI 601136. *Lycopersicon esculentum* Mill., nom. cons.**  
Cultivar. "BAXTER'S EARLY BUSH CHERRY". PVP 8400145.

The following were developed by Harpool Seeds, Inc., Denton, Texas, United States.  
Received 1984.

**PI 601137. *Avena sativa* L.**  
Cultivar. "833". PVP 8400135.

The following were developed by Rohm and Haas Seeds, Inc., United States.  
Received 1984.

**PI 601138. *Triticum aestivum* L., nom. cons.**  
Cultivar. "RHS 8232". PVP 8400136.

The following were developed by D. Bork, United States. Received 1984.

**PI 601139. X *Triticosecale* sp.**  
Cultivar. "TRITI-GOLD 22". PVP 8400144.

The following were developed by Terramax Corporation, Canada. Received 1984.

**PI 601140. *Lathyrus* sp.**  
Cultivar. "TINGA". PVP 8400123.

The following were developed by W. Atlee Burpee Company, 300 Park Avenue,  
Warminster, Pennsylvania 18974, United States. Received 1984.

**PI 601141. *Citrullus lanatus* (Thunb.) Matsum. & Nakai**  
Cultivar. "SWEETHEART". PVP 8400139.

The following were developed by Germain Seed & Plant Co., Los Angeles,  
California, United States. Received 1984.

**PI 601142. *Gossypium hirsutum* L.**  
Cultivar. "GERMAIN'S ACALA GC-362". PVP 8400129.

The following were developed by Delta and Pine Land Company, Scott,  
Mississippi, United States. Received 1984.

**PI 601143. *Gossypium hirsutum* L.**  
Cultivar. "DELTAPINE 69". PVP 8400130.

The following were developed by W. Atlee Burpee Company, 300 Park Avenue, Warminster, Pennsylvania 18974, United States. Received 1984.

**PI 601144. *Cucurbita pepo* L.**  
Cultivar. "BUSHKIN". PVP 8400138.

The following were developed by D.J. Vanderhave, Postbus 1, Kapelle, Netherlands. Donated by A.J.P. Van Wijk, D.J. van der Have B.V., Grass Breeding Department, P.O. Box 1, 4410 AA Rilland, Rilland, Netherlands. Received 1984.

**PI 601145. *Lolium perenne* L.**  
Cultivar. "RANGER". PVP 8200184; CV-98.

The following were developed by Mississippi State University, Mississippi Agr. Exp. Sta., State College, Mississippi, United States. Donated by W.E. Knight, USDA, ARS, Plant Science Research Division, Mississippi State, Mississippi 39762-5367, United States. Received 1984.

**PI 601146. *Trifolium alexandrinum* L.**  
Cultivar. "BIGBEE". CV-47; PVP 8500017.

The following were developed by Cargill Wheat Research Farm, 2450 Drake Rd., Fort Collins, Colorado, United States. Received 1984.

**PI 601147. *Gossypium hirsutum* L.**  
Cultivar. "LANKART 175". PVP 8400153.

The following were developed by Scattini Seeds, Inc., United States. Received 1984.

**PI 601148. *Apium graveolens* var. *dulce* (Mill.) Pers.**  
Cultivar. "NAPOLEAN". PVP 8400156.

The following were developed by W. Weibull Seed Company, Landskrona, Sweden. Received 1984.

**PI 601149. *Festuca rubra* ssp. *fallax* (Thuill.) Nyman**  
Cultivar. "WILMA". PVP 8400152.

The following were developed by Pioneer Hi-Bred International, Inc., 6800 Pioneer Pkwy., P.O. Box 316, Johnston, Iowa 50131-0316, United States. Received 1984.

**PI 601150. *Zea mays* L. ssp. *mays***

Cultivar. "PHG 71". PVP 8400157.

The following were developed by Forage Seeds International, United States. Received 1984.

**PI 601151. *Medicago sativa* L.**  
Cultivar. "HASAWI +". PVP 8400155.

The following were developed by Cebeco Zaden B.V., Rotterdam, Netherlands. Received 1984.

**PI 601152. *Pisum sativum* L.**  
Cultivar. "RICARDO". PVP 8500014.

**PI 601153. *Pisum sativum* L.**  
Cultivar. "BELINDA". PVP 8500013.

**PI 601154. *Pisum sativum* L.**  
Cultivar. "OTHELLO". PVP 8500015.

The following were developed by Genecorp Technology, United States. Received 1984.

**PI 601155. *Lactuca sativa* L.**  
Cultivar. "DESERT QUEEN". PVP 8500003.

The following were developed by Nickerson American Plant Breeders, Inc., Ames, Iowa, United States. Received 1984.

**PI 601156. *Medicago sativa* L.**  
Cultivar. "GT-13R PLUS". PVP 8500006.

The following were developed by M.W. Lancaster, University of Idaho, Kimberly Res. and Ext. Ctr., 3793 North 3600 East, Kimberly, Idaho 83341, United States. Received 1984.

**PI 601157. *Cynodon dactylon* (L.) Pers. var. *dactylon***  
Cultivar. "LANCASTER". PVP 8500002.

The following were developed by Farms of Texas Company, Alvin, Texas, United States. Received 1984.

**PI 601158. *Oryza sativa* L.**  
Cultivar. "CB 801". PVP 8500011.

The following were developed by Asgrow Seed Company, Kalamazoo, Michigan, United States. Received 1984.

PI 601159. *Zea mays* L. *ssp. mays*  
Cultivar. "6103". PVP 8500005.

The following were developed by Cebeco Zaden B.V., Rotterdam, Netherlands.  
Received 1984.

PI 601160. *Hordeum vulgare* L. *ssp. vulgare*  
Cultivar. "EFRON". PVP 8500012.

The following were developed by Nickerson American Plant Breeders, Inc.,  
Ames, Iowa, United States. Received 1984.

PI 601161. *Medicago sativa* L.  
Cultivar. "DART". PVP 8500019.

PI 601162. *Medicago sativa* L.  
Cultivar. "ARROW". PVP 8500020.

The following were developed by University of Florida, Florida Agr. Exp.  
Sta., Quincy, Florida, United States. Donated by University of Florida,  
Florida Agr. Exp. Sta., Department of Agronomy, Gainesville, Florida 32611,  
United States. Received 1985.

PI 601163. *Triticum aestivum* L., nom. cons.  
Cultivar. "FLORIDA 302"; FL72185A-A1. PVP 8500054. Soft red winter  
wheat, bearded, high yield, excellent grazing wheat, well suited for  
dual purpose use. Good disease resistance especially powdery mildew.

The following were developed by Auburn University, Alabama Agr. Exp. Sta.,  
Auburn, Alabama, United States. Donated by Joe Norton, Auburn University,  
Department of Horticulture, Auburn, Alabama 36849, United States. Received  
1985.

PI 601164. *Cucumis melo* L. *ssp. melo*  
Cultivar. "AURORA". PVP 8500039.

The following were developed by DNA Plant Technology Corporation, United  
States. Received 1984.

PI 601165. *Lycopersicon esculentum* Mill., nom. cons.  
Cultivar. "DNAP-9". PVP 8400146.

The following were developed by Montana State University, Montana Agr. Exp.  
Sta., Department of Plant and Soil Science, Bozeman, Montana 59717, United  
States. Donated by J. Welsh, Montana State University, Montana Agr. Exp.  
Sta., 202 Linfield Hall, Bozeman, Montana 59717, United States. Received  
1985.

PI 601166. *Carthamus tinctorius* L.



Cultivar. "OKER"; MT 80B2793-2. CV-10; PVP 8500065.

The following were developed by W. Hare, Mississippi Agr. and Forestry Exp. Sta., Mississippi, United States; P. Thomas, Mississippi Agr. and Forestry Exp. Sta., Mississippi, United States. Received 1985.

**PI 601167. *Vigna unguiculata* (L.) Walp.**  
Cultivar. "MISSISSIPPI SHIPPER". PVP 8500073.

The following were developed by H.L. Umlauf, United States. Received 1984.

**PI 601168. *Avena sativa* L.**  
Cultivar. "MAGNUM". PVP 8500021.

The following were developed by D.J. Vanderhave, Postbus 1, Kapelle, Netherlands. Received 1985.

**PI 601169. *Hordeum vulgare* L. ssp. *vulgare***  
Cultivar. "SPIRIT". PVP 8500061.

The following were developed by Holden's Foundation Seeds, Inc., United States. Received 1985.

**PI 601170. *Zea mays* L. ssp. *mays***  
Cultivar. "LH82". PVP 8500037.

**PI 601171. *Zea mays* L. ssp. *mays***  
Cultivar. "LH93". PVP 8500038.

The following were developed by DeKalb-Pfizer Genetics, United States. Received 1985.

**PI 601172. *Zea mays* L. ssp. *mays***  
Cultivar. "HBA1". PVP 8500069.

The following were developed by Pure Line Seeds, Inc., P.O. Box 8866, Moscow, Idaho 83843, United States. Received 1985.

**PI 601173. *Pisum sativum* L.**  
Cultivar. "EARLY SWEET 41". PVP 8500042.

**PI 601174. *Pisum sativum* L.**  
Cultivar. "SUNFIRE". PVP 8500041.

**PI 601175. *Pisum sativum* L.**  
Cultivar. "BOLD". PVP 8500043.

The following were developed by Campbell Soup Company, United States.

Received 1985.

**PI 601176. *Lycopersicon esculentum* Mill., nom. cons.**  
Cultivar. "CX 8106". PVP 8500031.

**PI 601177. *Lycopersicon esculentum* Mill., nom. cons.**  
Cultivar. "TIOGA". PVP 8500030.

The following were developed by University of Florida, Florida Agr. Exp. Sta., Department of Agronomy, Gainesville, Florida 32611, United States. Received 1985.

**PI 601178. *Lycopersicon esculentum* Mill., nom. cons.**  
Cultivar. "HORIZON". PVP 8500055.

The following were developed by J & S Research Company, Inc., United States. Received 1985.

**PI 601179. *Gossypium hirsutum* L.**  
Cultivar. "SV 13". PVP 8500056.

The following were developed by D.L. West, Germain's, Inc., United States; H.P. Anderson, Germain's, Inc., United States; C.H. Campbell; K.L. Puryear. Donated by C.H. Campbell Jr., Germain's, Inc., United States; D.L. West, Germain's, Inc., United States. Received 1985.

**PI 601180. *Gossypium hirsutum* L.**  
Cultivar. "GERMAIN'S ACALA GC-352". PVP 8500076.

The following were developed by Germinal Holdings Ltd., England, United Kingdom. Received 1985.

**PI 601181. *Trifolium repens* L.**  
Cultivar. "ARAN". PVP 8200120.

The following were developed by Northrup, King & Company, 1500 Jackson N.E., Minneapolis, Minnesota 55413, United States. Received 1985.

**PI 601182. *Citrullus lanatus* (Thunb.) Matsum. & Nakai**  
Cultivar. "CHARLESTON ELITE". PVP 8500077.

The following were developed by Ferry-Morse Seed Company, Inc., P.O. Box 100, Mountain View, California 94042, United States. Received 1985.

**PI 601183. *Lactuca sativa* L.**  
Cultivar. "DYNASTY". PVP 8500034.

The following were developed by Harris Moran Seed Company, P.O. Box 4938,

Modesto, California 95352-4938, United States. Received 1985.

**PI 601184. *Lactuca sativa* L.**  
Cultivar. "SALAD BIBB". PVP 8500060.

The following were developed by Genecorp Technology, United States. Received 1985.

**PI 601185. *Lactuca sativa* L.**  
Cultivar. "BUENA VISTA". PVP 8500057.

The following were developed by Ferry-Morse Seed Company, Inc., P.O. Box 100, Mountain View, California 94042, United States. Received 1985.

**PI 601186. *Lactuca sativa* L.**  
Cultivar. "SHOGUN". PVP 8500033.

The following were developed by L.D. Maffei Seed Co., Inc., United States. Received 1985.

**PI 601187. *Pisum sativum* L.**  
Cultivar. "MF-502". PVP 8500087.

**PI 601188. *Pisum sativum* L.**  
Cultivar. "MC-201". PVP 8500097.

The following were developed by Rogers Brothers Seed Company, P.O. Box 4727, Boise, Idaho 83711-0727, United States. Received 1985.

**PI 601189. *Pisum sativum* L.**  
Cultivar. "JUPITER". PVP 8500092.

The following were developed by Quality Research Associates, United States. Received 1985.

**PI 601190. *Zea mays* L. *ssp. mays***  
Cultivar. "Q381". PVP 8500098.

The following were developed by Edward J. Funk and Sons, Inc., United States. Received 1985.

**PI 601191. *Zea mays* L. *ssp. mays***  
Cultivar. "DJ7". PVP 8500086.

The following were developed by Sunseeds Genetics Inc., Hollister, California 95024, United States. Received 1985.

**PI 601192. *Lycopersicon esculentum* Mill., nom. cons.**

Cultivar. "MYSTRO". PVP 8500064.

The following were developed by Swan Health Farms and Cattle Co., Inc., United States. Received 1985.

**PI 601193. Cucurbita pepo L.**

Cultivar. "SWAN WHITE TABLE QUEEN". PVP 8500083.

The following were developed by Pure-Seed Testing, Inc., P.O. Box 449, Hubbard, Oregon 97032, United States. Received 1985.

**PI 601194. Festuca arundinacea Schreb.**

Cultivar. "ASTRO". PVP 8500084.

The following were developed by J & S Research Company, Inc., United States. Received 1985.

**PI 601195. Gossypium hirsutum L.**

Cultivar. "SV 93". PVP 8500075.

The following were developed by Dunn Seed Farms, Inc., United States. Received 1985.

**PI 601196. Gossypium hirsutum L.**

Cultivar. "DUNN 1047". PVP 8500090.

**PI 601197. Gossypium hirsutum L.**

Cultivar. "DUNN 109". PVP 8500089.

**PI 601198. Gossypium hirsutum L.**

Cultivar. "DUNN 1002". PVP 8500091.

**PI 601199. Gossypium hirsutum L.**

Cultivar. "DUNN 325". PVP 8500088.

The following were developed by Svalof AB, International 268 00, Svalov, Sweden. Received 1985.

**PI 601200. Brassica napus L.**

Cultivar. "GLOBAL". PVP 8500114.

**PI 601201. Brassica napus L.**

Cultivar. "TOPAS". PVP 8500115.

The following were developed by Rohm and Haas Seeds, Inc., United States. Received 1985.

**PI 601202. Triticum aestivum L., nom. cons.**

Cultivar. "RODEO". PVP 8500106.

- PI 601203. *Triticum aestivum* L., nom. cons.  
Cultivar. "PONY". PVP 8500107.
- PI 601204. *Triticum aestivum* L., nom. cons.  
Cultivar. "BIGHORN". PVP 8500109.
- PI 601205. *Triticum aestivum* L., nom. cons.  
Cultivar. "NORAK". PVP 8500105.
- PI 601206. *Triticum aestivum* L., nom. cons.  
Cultivar. "LEIF". PVP 8500108.

The following were developed by Pioneer Hi-Bred International, Inc., 6800 Pioneer Pkwy., P.O. Box 316, Johnston, Iowa 50131-0316, United States. Received 1985.

- PI 601207. *Triticum aestivum* L., nom. cons.  
Cultivar. "2551". PVP 8500112.

The following were developed by DeKalb-Pfizer Genetics, United States. Received 1985.

- PI 601208. *Zea mays* L. ssp. *mays*  
Cultivar. "IB014". PVP 8500123.
- PI 601209. *Zea mays* L. ssp. *mays*  
Cultivar. "MBNA". PVP 8500127.
- PI 601210. *Zea mays* L. ssp. *mays*  
Cultivar. "78004". PVP 8500125.
- PI 601211. *Zea mays* L. ssp. *mays*  
Cultivar. "78010". PVP 8500126.

The following were developed by Asgrow Seed Company, Kalamazoo, Michigan, United States. Received 1985.

- PI 601212. *Pisum sativum* L.  
Cultivar. "SABER". PVP 8500132.
- PI 601213. *Pisum sativum* L.  
Cultivar. "GOYA". PVP 8500130.
- PI 601214. *Pisum sativum* L.  
Cultivar. "CITADEL". PVP 8500134.
- PI 601215. *Pisum sativum* L.  
Cultivar. "LEAH". PVP 8500133.
- PI 601216. *Pisum sativum* L.  
Cultivar. "UTRILLO". PVP 8500131.

The following were developed by W. Atlee Burpee Company, 300 Park Avenue, Warminster, Pennsylvania 18974, United States. Received 1985.

**PI 601217. *Pisum sativum* L.**  
Cultivar. "SNAPPY". PVP 8500128.

The following were developed by Sunseeds Genetics Inc., Hollister, California 95024, United States. Received 06/1985.

**PI 601218. *Pisum sativum* L.**  
Cultivar. "ALPINE". PVP 8500101. Early, midseason, 66 days to maturity. Plants 32" tall, determinate, stocky, vigorous. Resistant to Fusarium wilt. Highly double podded. Pods 3.25", straight, blunt, containing 6-7 dark green peas. 2000 seeds per lb. Heat units 1440. Cultivated.

The following were developed by D.J. Vanderhave, Postbus 1, Kapelle, Netherlands. Received 1985.

**PI 601219. *Lolium multiflorum* Lam.**  
Cultivar. "URBANA". PVP 8500111.

The following were developed by Alf Christianson Seed Co., Mt Vernon, Washington, United States. Received 1985.

**PI 601220. *Raphanus sativus* L.**  
Cultivar. "PLUM PURPLE". PVP 8500129.

The following were developed by University of Florida, Florida Agr. Exp. Sta., Department of Agronomy, Gainesville, Florida 32611, United States. Received 1985.

**PI 601221. *Citrullus lanatus* (Thunb.) Matsum. & Nakai**  
Cultivar. "CHARLEE". PVP 8500103.

The following were developed by Victor Heintzberger, Bruce Church Company, 1020 Merrill Street, Salinas, California 93912, United States. Received 1985.

**PI 601222. *Lactuca sativa* L.**  
Cultivar. "EXP 3518". PVP 8500102.

The following were developed by Sunseeds Genetics Inc., Hollister, California 95024, United States. Received 1985.

**PI 601223. *Pisum sativum* L.**  
Cultivar. "MENDOTA". PVP 8500163.

The following were developed by Terra Seed Company, United States. Received 1985.

**PI 601224. *Gossypium hirsutum* L.**  
Cultivar. "TERRA C-30". PVP 8500155.

**PI 601225. *Gossypium hirsutum* L.**  
Cultivar. "TERRA C-40". PVP 8500154.

The following were developed by International Seeds Inc., P.O. Box 168, Halsey, Oregon 97348, United States. Received 1985.

**PI 601226. *Festuca arundinacea* Schreb.**  
Cultivar. "WILLAMETTE". PVP 8500150.

The following were developed by O.M. Scott & Sons Company, Marysville, Ohio 43040, United States. Received 1985.

**PI 601227. *Festuca arundinacea* Schreb.**  
Cultivar. "CHESAPEAKE". PVP 8500161.

The following were developed by Coffey Seed Company, United States. Received 1985.

**PI 601228. *Citrullus lanatus* (Thunb.) Matsum. & Nakai**  
Cultivar. "YELLOW CRIMSON". PVP 8500148.

The following were developed by Pioneer Hi-Bred International, Inc., 6800 Pioneer Pkwy., P.O. Box 316, Johnston, Iowa 50131-0316, United States. Received 1985.

**PI 601229. *Zea mays* L. *ssp. mays***  
Cultivar. "PHG83". PVP 8500152.

The following were developed by Holden's Foundation Seeds, Inc., United States. Received 1985.

**PI 601230. *Zea mays* L. *ssp. mays***  
Cultivar. "LH150". PVP 8500153.

The following were developed by United AgriSeeds, Inc., Illinois, United States. Received 1985.

**PI 601231. *Medicago sativa* L.**  
Cultivar. "SALUTE". PVP 8500165.

The following were developed by Oregon State University, Oregon Agriculture Experiment Station, Corvallis, Oregon 97331, United States. Received 1985.

PI 601232. *Limnanthes alba* Hartw. ex Benth.  
Cultivar. "MERMAID". PVP 8500166.

The following were developed by Sesaco Corporation, United States. Received 1985.

PI 601233. *Sesamum indicum* L.  
Cultivar. "SESACO 2A". PVP 8500167.

PI 601234. *Sesamum indicum* L.  
Cultivar. "SESACO 7". PVP 8500170.

PI 601235. *Sesamum indicum* L.  
Cultivar. "SESACO 4". PVP 8500169.

PI 601236. *Sesamum indicum* L.  
Cultivar. "SESACO 3". PVP 8500168.

The following were developed by Columbia Basin Seeds, United States. Received 1985.

PI 601237. *Triticum aestivum* L., nom. cons.  
Cultivar. "CASHUP". PVP 8500178.

PI 601238. *Triticum aestivum* L., nom. cons.  
Cultivar. "BASIN". PVP 8500177.

The following were developed by Sluis & Groot, P.O.B. 13, Westeinde 62, Enkhuizen, North Holland 1600 AA, Netherlands. Received 1985.

PI 601239. *Brassica oleracea* var. *botrytis* L.  
Cultivar. "SG 111". PVP 8500151.

The following were developed by David Fisher, Del Monte Corp. Agricultural Research, 850 Thornton Street, Box 36, San Leandro, California 94577, United States. Received 1985.

PI 601240. *Capsicum annuum* L.  
Cultivar. "ALPHA II". PVP 8500187.

PI 601241. *Lycopersicon esculentum* Mill., nom. cons.  
Cultivar. "71-72". PVP 8500186.

The following were developed by International Seeds Inc., P.O. Box 168, Halsey, Oregon 97348, United States. Received 1985.

PI 601242. *Festuca arundinacea* Schreb.  
Cultivar. "MOJAVE". PVP 8500183.



The following were developed by Nickerson American Plant Breeders, Inc., Ames, Iowa, United States. Received 1985.

PI 601243. *Medicago sativa* L.  
Cultivar. "SAPPHIRE". PVP 8500188.

PI 601244. *Medicago sativa* L.  
Cultivar. "DIAMOND". PVP 8500189.

The following were developed by Gallatin Valley Seed Co., Idaho, United States. Received 1985.

PI 601245. *Pisum sativum* L.  
Cultivar. "EGO". PVP 8500190.

PI 601246. *Pisum sativum* L.  
Cultivar. "GALASWEET". PVP 8500191.

PI 601247. *Pisum sativum* L.  
Cultivar. "BOUNTY". PVP 8500192.

The following were developed by Agrigenetics Research Associates Ltd., United States. Received 1985.

PI 601248. *Triticum aestivum* L., nom. cons.  
Cultivar. "5630". PVP 8500194.

PI 601249. *Triticum aestivum* L., nom. cons.  
Cultivar. "5469". PVP 8500196.

The following were developed by Western Plant Breeders, Phoenix, Arizona, United States. Received 1985.

PI 601250. *Triticum durum* Desf.  
Cultivar. "WESTBRED LAKER". PVP 8500218.

The following were developed by Rijk Zwaan Zaadteelt en Zaadhandel B.V., Meo Voto Beheer BV, De Lier, Netherlands. Received 1985.

PI 601251. *Brassica oleracea* var. *botrytis* L.  
Cultivar. "SILVER STREAM". PVP 8500215.

The following were developed by Harpool Seeds, Inc., Denton, Texas, United States. Received 1985.

PI 601252. *Triticum aestivum* L., nom. cons.  
Cultivar. "MILBURN". PVP 8500203.

The following were developed by Goldsmith Seeds, Inc., Gilroy, California, United States. Received 1985.

PI 601253. *Tagetes patula* L.  
Cultivar. "JANIE BRIGHT YELLOW". PVP 8500202.

The following were developed by Western Plant Breeders, Phoenix, Arizona, United States. Received 1985.

PI 601254. *Hordeum vulgare* L. ssp. *vulgare*  
Cultivar. "WESTBRED BARCOTT". PVP 8500216.

The following were developed by Rogers Delinted Cottonseed Co., United States . Received 1985.

PI 601255. *Gossypium hirsutum* L.  
Cultivar. "ROGERS 7590". PVP 8500213.

The following were developed by Howard Dill Enterprises, Ltd, United States. Received 1985.

PI 601256. *Cucurbita maxima* Duchesne ex Lam.  
Cultivar. "DILLS ATLANTIC GIANT". PVP 8500204.

The following were developed by NPI Seed, Inc., Utah, United States. Received 1985.

PI 601257. *Festuca arundinacea* Schreb.  
Cultivar. "TEMPO". PVP 8500205.

The following were developed by Van Engelen Zaden B.V., Netherlands. Received 1985.

PI 601258. *Poa pratensis* L.  
Cultivar. "JULIA". PVP 8500212.

The following were developed by Svalof AB, International 268 00, Svalov, Sweden. Received 1985.

PI 601259. *Pisum sativum* L.  
Cultivar. "SV VICTORIA". PVP 8600002.

PI 601260. *Brassica napus* L.  
Cultivar. "GLACIER". PVP 8600004.

PI 601261. *Brassica napus* L.  
Cultivar. "CRYSTAL". PVP 8600003.

The following were developed by CR Seeds, United States. Received 1985.

**PI 601262. *Triticum aestivum* L., nom. cons.**  
Cultivar. "9227". PVP 8600009.

**PI 601263. *Triticum aestivum* L., nom. cons.**  
Cultivar. "9323". PVP 8600010.

The following were developed by Pioneer Hi-Bred International, Inc., 6800 Pioneer Pkwy., P.O. Box 316, Johnston, Iowa 50131-0316, United States. Received 1986.

**PI 601264. *Sorghum bicolor* (L.) Moench**  
Cultivar. "PH227". PVP 8600012.

The following were developed by UF Genetics, Inc., United States. Received 1986.

**PI 601265. *Pisum sativum* L.**  
Cultivar. "POLARIS". PVP 8600017.

The following were developed by Daehnfelddt, Inc., Denmark. Received 1986.

**PI 601266. *Brassica napus* L. var. *napus***  
Cultivar. "VIKING". PVP 8600016.

The following were developed by John Bodger & Sons Company, United States. Received 1986.

**PI 601267. *Tagetes patula* L.**  
Cultivar. "HERO RED". PVP 8600026.

**PI 601268. *Tagetes patula* L.**  
Cultivar. "ORANGE SOPHIA". PVP 8600027.

The following were developed by Asgrow Seed Company, Kalamazoo, Michigan, United States. Received 1986.

**PI 601269. *Zea mays* L. *ssp. mays***  
Cultivar. "5707". PVP 8600036.

The following were developed by Pioneer Hi-Bred International, Inc., 6800 Pioneer Pkwy., P.O. Box 316, Johnston, Iowa 50131-0316, United States. Received 1986.

**PI 601270. *Zea mays* L. *ssp. mays***  
Cultivar. "PHG29". PVP 8600047.

The following were developed by Standard Oil Company, United States. Received 1986.

PI 601271. *Zea mays* L. *ssp. mays*  
Cultivar. "SX-4-16-2". PVP 8500048.

PI 601272. *Zea mays* L. *ssp. mays*  
Cultivar. "SX-4-2". PVP 8400117.

PI 601273. *Zea mays* L. *ssp. mays*  
Cultivar. "SX-4-32-1". PVP 8500049.

PI 601274. *Zea mays* L. *ssp. mays*  
Cultivar. "SX-4-33-4-2". PVP 8500047.

PI 601275. *Zea mays* L. *ssp. mays*  
Cultivar. "SX-5-11". PVP 8400110.

PI 601276. *Zea mays* L. *ssp. mays*  
Cultivar. "SX-5-13-3". PVP 8500046.

The following were developed by Ronald D. Thorp, 1180 Avenida Ellena, Casa Grande, Arizona 85222, United States. Received 1986.

PI 601277. *Gossypium hirsutum* L.  
Cultivar. "BR-110". PVP 8600031.

The following were developed by Delta and Pine Land Company, Scott, Mississippi, United States. Received 1986.

PI 601278. *Gossypium hirsutum* L.  
Cultivar. "DELTAPINE 77". PVP 8600073.

The following were developed by Ag Tech, Inc., United States. Received 1986.

PI 601279. *Festuca arundinacea* Schreb.  
Cultivar. "SAFE". PVP 8600039.

The following were developed by Nickerson American Plant Breeders, Inc., Ames, Iowa, United States. Received 1986.

PI 601280. *Brassica napus* L.  
Cultivar. "LIRADONNA". PVP 8600063.

The following were developed by Sluis & Groot, P.O.B. 13, Westeinde 62, Enkhuizen, North Holland 1600 AA, Netherlands. Received 1986.

PI 601281. *Brassica oleracea* var. *botrytis* L.  
Cultivar. "WHITE SATIN". PVP 8600069.

The following were developed by Canola, Inc., Germany. Received 1986.

**PI 601282. *Brassica napus* L. var. *napus***  
Cultivar. "LINDORA-00". PVP 8600037.

The following were developed by J.A. Darden, United States. Received 1986.

**PI 601283. *Arachis hypogaea* L.**  
Cultivar. "AD1". PVP 8600030.

The following were developed by Gallatin Valley Seed Co., Idaho, United States. Received 1986.

**PI 601284. *Pisum sativum* L.**  
Cultivar. "DAYBREAK". PVP 8600054.

The following were developed by Rogers Brothers Seed Company, P.O. Box 4727, Boise, Idaho 83711-0727, United States. Received 1986.

**PI 601285. *Pisum sativum* L.**  
Cultivar. "NOMAD". PVP 8600067.

The following were developed by D.J. Vanderhave, Postbus 1, Kapelle, Netherlands. Received 1986.

**PI 601286. *Lolium perenne* L.**  
Cultivar. "TRIMMER". PVP 8600078.

The following were developed by Daehnfeltdt, Inc., Denmark. Received 1986.

**PI 601287. *Lolium perenne* L.**  
Cultivar. "POLLY". PVP 8600029.

The following were developed by World Seeds, Inc., Oceanside, California, United States. Received 1986.

**PI 601288. *Triticum aestivum* L., nom. cons.**  
Cultivar. "TAMMY". PVP 8600038.

The following were developed by Northrup, King & Company, 1500 Jackson N.E., Minneapolis, Minnesota 55413, United States. Received 1986.

**PI 601289. *Citrullus lanatus* (Thunb.) Matsum. & Nakai**  
Cultivar. "SUNSWEET". PVP 8600061.

The following were developed by Sluis & Groot, P.O.B. 13, Westeinde 62,

Enkhuizen, North Holland 1600 AA, Netherlands. Received 1986.

PI 601290. *Lactuca sativa* L.  
Cultivar. "CANASTA". PVP 8600045.

The following were developed by Genecorp Technology, United States. Received 1986.

PI 601291. *Lactuca sativa* L.  
Cultivar. "EARLY GIANT". PVP 8600035.

PI 601292. *Lactuca sativa* L.  
Cultivar. "CHIEFTAIN". PVP 8600055.

The following were developed by Texas A&M University, Texas Agricultural Exp. Station, College Station, Texas 77841, United States. Received 1986.

PI 601293. *Capsicum annuum* L.  
Cultivar. "HIDALGO". PVP 8600059.

PI 601294. *Capsicum annuum* L.  
Cultivar. "TAMBEL-2". PVP 8600028.

The following were developed by Harris Moran Seed Company, P.O. Box 4938, Modesto, California 95352-4938, United States. Received 1986.

PI 601295. *Raphanus sativus* L.  
Cultivar. "BELLE GLADE". PVP 8600048.

PI 601296. *Lycopersicon esculentum* Mill., nom. cons.  
Cultivar. "MURRIETA II". PVP 8600032.

The following were developed by E. Sahin, Netherlands. Received 1986.

PI 601297. *Tanacetum parthenium* (L.) Sch. Bip.  
Cultivar. "SANTANA". PVP 8600076.

The following were developed by W. Atlee Burpee Company, 300 Park Avenue, Warminster, Pennsylvania 18974, United States. Received 1986.

PI 601298. *Zinnia violacea* Cav.  
Cultivar. "RED LOLLIPOP". PVP 8600040.

The following were developed by Michigan State University, Michigan Agr. Exp. Sta., East Lansing, Michigan 48824, United States. Received 1986.

PI 601299. *Picea glauca* (Moench) Voss  
Cultivar. "HY-BLU". PVP 8500085.

The following were developed by DeKalb-Pfizer Genetics, United States.  
Received 1986.

**PI 601300. *Zea mays* L. ssp. *mays***  
Cultivar. "4676A". PVP 8600092.

**PI 601301. *Zea mays* L. ssp. *mays***  
Cultivar. "78002A". PVP 8600091.

The following were developed by Cargill Wheat Research Farm, 2450 Drake Rd.,  
Fort Collins, Colorado, United States. Received 1986.

**PI 601302. *Gossypium hirsutum* L.**  
Cultivar. "LANKART 511". PVP 8600086.

The following were developed by T.W. Rogers, Arkansas Agr. Exp. Sta.,  
Arkansas, United States. Received 1986.

**PI 601303. *Gossypium hirsutum* L.**  
Cultivar. "QUAPAW D". PVP 8600085.

The following were developed by Wilbur-Ellis Company, United States. Received  
1986.

**PI 601304. *Pisum sativum* L.**  
Cultivar. "PRINCESS". PVP 8600102. Princess is a non-bleaching line.

The following were developed by Asgrow Seed Company, Kalamazoo, Michigan,  
United States. Received 1986.

**PI 601305. *Pisum sativum* L.**  
Cultivar. "TREAT". PVP 8600100.

The following were developed by J. C. Brush, Johnstown, Pennsylvania, United  
States. Received 1986.

**PI 601306. *Cucurbita argyrosperma* C. Huber**  
Cultivar. "HAPPY". PVP 8600093.

The following were developed by University of Florida, Florida Agr. Exp.  
Sta., Department of Agronomy, Gainesville, Florida 32611, United States.  
Received 1986.

**PI 601307. *Citrullus lanatus* (Thunb.) Matsum. & Nakai**  
Cultivar. "MICKYLEE". PVP 8600104.

**PI 601308. *Citrullus lanatus* (Thunb.) Matsum. & Nakai**  
Cultivar. "MINILEE". PVP 8600105.

The following were developed by Asgrow Seed Company, Kalamazoo, Michigan, United States. Received 1986.

PI 601309. *Lactuca sativa* L.  
Cultivar. "BIX". PVP 8600110.

PI 601310. *Lactuca sativa* L.  
Cultivar. "CLASSIC". PVP 8600111.

PI 601311. *Lactuca sativa* L.  
Cultivar. "FAME". PVP 8600109.

The following were developed by Quali-Sel, Inc., United States. Received 1986.

PI 601312. *Lactuca sativa* L.  
Cultivar. "VANCRISP". PVP 8600108.

The following were developed by Hurst, Gunson, Cooper, Taber, Ltd., England, United Kingdom. Received 1986.

PI 601313. *Hordeum vulgare* L. *ssp. vulgare*  
Cultivar. "CAMARGUE". PVP 8600113.

PI 601314. *Hordeum vulgare* L. *ssp. vulgare*  
Cultivar. "CORNICHE". PVP 8600112.

The following were developed by Pure-Seed Testing, Inc., P.O. Box 449, Hubbard, Oregon 97032, United States. Received 1986.

PI 601315. *Poa trivialis* L.  
Cultivar. "COLT". PVP 8600118.

The following were developed by Holden's Foundation Seeds, Inc., United States. Received 1986.

PI 601316. *Zea mays* L. *ssp. mays*  
Cultivar. "LH54". PVP 8600128.

PI 601317. *Zea mays* L. *ssp. mays*  
Cultivar. "LH57". PVP 8600129.

The following were developed by Pioneer Hi-Bred International, Inc., 6800 Pioneer Pkwy., P.O. Box 316, Johnston, Iowa 50131-0316, United States. Received 1986.

PI 601318. *Zea mays* L. *ssp. mays*  
Cultivar. "PHG47". PVP 8600131.



- PI 601319. *Zea mays* L. *ssp. mays*  
Cultivar. "PHG72". PVP 8600134.
- PI 601320. *Zea mays* L. *ssp. mays*  
Cultivar. "PHG84". PVP 8600130.
- PI 601321. *Zea mays* L. *ssp. mays*  
Cultivar. "PHJ40". PVP 8600133.
- PI 601322. *Zea mays* L. *ssp. mays*  
Cultivar. "PHZ51". PVP 8600132.

The following were developed by Standard Oil Company, United States. Received 1986.

- PI 601323. *Zea mays* L. *ssp. mays*  
Cultivar. "SX-4-21". PVP 8400111.
- PI 601324. *Zea mays* L. *ssp. mays*  
Cultivar. "SX-4-4". PVP 8400116.
- PI 601325. *Zea mays* L. *ssp. mays*  
Cultivar. "SX-4-5". PVP 8400115.
- PI 601326. *Zea mays* L. *ssp. mays*  
Cultivar. "SX-5-14-1-2". PVP 8500051.
- PI 601327. *Zea mays* L. *ssp. mays*  
Cultivar. "SX-5-6". PVP 8400114.
- PI 601328. *Zea mays* L. *ssp. mays*  
Cultivar. "SX-5-9-1-2". PVP 8500045.
- PI 601329. *Zea mays* L. *ssp. mays*  
Cultivar. "SX-6-10". PVP 8400113.
- PI 601330. *Zea mays* L. *ssp. mays*  
Cultivar. "SX-6-15-2-1". PVP 8500050.
- PI 601331. *Zea mays* L. *ssp. mays*  
Cultivar. "SX-6-3". PVP 8400118.
- PI 601332. *Zea mays* L. *ssp. mays*  
Cultivar. "SX-6-7". PVP 8400112.

The following were developed by Rijk Zwaan Zaadteelt en Zaadhandel B.V., Meo Voto Beheer BV, De Lier, Netherlands. Received 1986.

- PI 601333. *Brassica oleracea* var. *botrytis* L.  
Cultivar. "ASPEN". PVP 8600115.

The following were developed by Northrup, King & Company, 1500 Jackson N.E., Minneapolis, Minnesota 55413, United States. Received 1986.

PI 601334. *Triticum aestivum* L., nom. cons.  
Cultivar. "775". PVP 8600126.

PI 601335. *Abelmoschus esculentus* (L.) Moench  
Cultivar. "PRELUDE". PVP 8600117.

The following were developed by Harris Moran Seed Company, P.O. Box 4938, Modesto, California 95352-4938, United States. Received 1986.

PI 601336. *Lactuca sativa* L.  
Cultivar. "GREEN TOWERS". PVP 8600135.

The following were developed by Petoseed Company, Inc., Saticoy, California 93004, United States. Received 1986.

PI 601337. *Lycopersicon esculentum* Mill., nom. cons.  
Cultivar. "PETO 111". PVP 8600136.

The following were developed by W. Atlee Burpee Company, 300 Park Avenue, Warminster, Pennsylvania 18974, United States. Received 1986.

PI 601338. *Cucumis sativus* L. var. *sativus*  
Cultivar. "PICKLEBUSH". PVP 8600149.

The following were developed by Genecorp Technology, United States. Received 1986.

PI 601339. *Lactuca sativa* L.  
Cultivar. "BIG RED". PVP 8600144.

The following were developed by Petoseed Company, Inc., Saticoy, California 93004, United States. Received 1986.

PI 601340. *Lactuca sativa* L.  
Cultivar. "BOUNTY". PVP 8600150.

The following were developed by Genecorp Technology, United States. Received 1986.

PI 601341. *Lactuca sativa* L.  
Cultivar. "MAVERICK". PVP 8600147.

The following were developed by LSL Biotechnologies, Inc., United States. Received 1986.

**PI 601342. *Lycopersicon esculentum* Mill., nom. cons.**  
Cultivar. "888". PVP 8600143.

The following were developed by Genecorp Technology, United States. Received 1986.

**PI 601343. *Lactuca sativa* L.**  
Cultivar. "VANPIRE". PVP 8600154.

The following were developed by University of Missouri., Missouri Agr. Exp Sta., Columbia, Missouri 65201, United States. Received 1986.

**PI 601344. *Gossypium hirsutum* L.**  
Cultivar. "DELCO 344"; M078-344. PVP 8600161; CV-90.

The following were developed by Farms of Texas Company, Alvin, Texas, United States. Received 1986.

**PI 601345. *Oryza sativa* L.**  
Cultivar. "V7713". PVP 8600162.

The following were developed by R.D. Ensign, Idaho Agr. Exp. Sta., Dept. of Plant, Soil & Ent. Sciences, Moscow, Idaho 83843, United States. Donated by University of Idaho, Idaho Agr. Exp. Sta., Moscow, Idaho, United States. Received 1986.

**PI 601346. *Poa pratensis* L.**  
Cultivar. "ALENE". PVP 8600165; CV-28. Pedigree - Derived from 3 generations of maternal line selection from germplasm introduced from southwestern Europe. Vigorous, rhizomatous, perennial turf with high quality, medium texture and density, and medium green color. Good survival at low temperatures. Equals or superior to Kenblue, South Dakota and Argyle. Relatively tall with excellent seed yields. Excellent resistance to stem rust. Moderate resistance to leaf rust, pink snow mold, gray snow mold and leafspot. Adapted for cool-season turf use in the U.S. and Canada.

The following were developed by Genecorp Technology, United States. Received 1986.

**PI 601347. *Lactuca sativa* L.**  
Cultivar. "RAMROD". PVP 8700002.

The following were developed by W. Atlee Burpee Company, 300 Park Avenue, Warminster, Pennsylvania 18974, United States. Received 1986.

**PI 601348. *Zinnia* sp.**  
Cultivar. "PINWHEEL ROSE". PVP 8600158.

The following were developed by Harris Moran Seed Company, P.O. Box 4938, Modesto, California 95352-4938, United States. Received 1986.

**PI 601349. Brassica oleracea L.**  
Cultivar. "BLUE DIAMOND". PVP 8700004.

The following were developed by Gro-Pro Enterprises, Inc., United States. Received 1986.

**PI 601350. Cucumis melo L. ssp. melo**  
Cultivar. "SUNGLO CASABA". PVP 8700013.

The following were developed by William H. Weinheimer, Agrigenetics Corporation, 490 McCloskey Road, Hollister, California 95023, United States. Received 1986.

**PI 601351. Gossypium hirsutum L.**  
Cultivar. "GSC 27". PVP 8700005.

**PI 601352. Gossypium hirsutum L.**  
Cultivar. "GSC 71+". PVP 8700006.

The following were developed by Svalof AB, International 268 00, Svalov, Sweden. Received 1986.

**PI 601353. Hordeum vulgare L. ssp. vulgare**  
Cultivar. "SEMIRA". PVP 8700021.

The following were developed by Victor Heintzberger, Bruce Church Company, 1020 Merrill Street, Salinas, California 93912, United States. Received 1986.

**PI 601354. Lactuca sativa L.**  
Cultivar. "PARAGON". PVP 8700015.

The following were developed by Ferry-Morse Seed Company, Inc., P.O. Box 100, Mountain View, California 94042, United States. Received 1986.

**PI 601355. Lactuca sativa L.**  
Cultivar. "REDPRIZE". PVP 8700023.

The following were developed by Sunseeds Genetics Inc., Hollister, California 95024, United States. Received 1986.

**PI 601356. Pisum sativum L.**  
Cultivar. "BLIZZARD". PVP 8700022.

The following were developed by Sluis & Groot, P.O.B. 13, Westeinde 62,

Enkhuizen, North Holland 1600 AA, Netherlands. Received 1986.

**PI 601357. *Verbena* sp.**

Cultivar. "ROMANCE SCARLET". PVP 8700008.

**PI 601358. *Verbena* sp.**

Cultivar. "ROMANCE WHITE". PVP 8700009.

The following were developed by C. Brogden, United States; C.E. Smith, Crops Research Division, USDA-ARS, Plant Industry Station, Beltsville, Maryland 20705-2350, United States. Received 1986.

**PI 601359. *Vigna unguiculata* (L.) Walp.**

Cultivar. "PINKEYE PINK POD". PVP 8700014.

The following were developed by Holden's Foundation Seeds, Inc., United States. Received 1986.

**PI 601360. *Zea mays* L. ssp. *mays***

Cultivar. "LH52". PVP 8700020.

The following were developed by Pioneer Hi-Bred International, Inc., 6800 Pioneer Pkwy., P.O. Box 316, Johnston, Iowa 50131-0316, United States. Received 1986.

**PI 601361. *Zea mays* L. ssp. *mays***

Cultivar. "PHR36". PVP 8700017.

**PI 601362. *Zea mays* L. ssp. *mays***

Cultivar. "PHW17". PVP 8700018.

The following were developed by Pennsylvania State University, Pennsylvania Agricultural Experiment Station, State College, Pennsylvania, United States. Received 1986.

**PI 601363. *Agrostis stolonifera* L. var. *stolonifera***

Cultivar. "PENNLINKS"; PSU-126. PVP 8700030.

The following were developed by LSL Biotechnologies, Inc., United States. Received 1986.

**PI 601364. *Lycopersicon esculentum* Mill., nom. cons.**

Cultivar. "887". PVP 8600142.

The following were developed by W. Atlee Burpee Company, 300 Park Avenue, Warminster, Pennsylvania 18974, United States. Received 1986.

**PI 601365. *Ocimum basilicum* L.**

Cultivar. "PURPLE RUFFLES". PVP 8600139.

The following were developed by Pioneer Hi-Bred International, Inc., 6800 Pioneer Pkwy., P.O. Box 316, Johnston, Iowa 50131-0316, United States. Received 1986.

**PI 601366. *Triticum aestivum* L., nom. cons.**  
Cultivar. "2154". PVP 8700010.

The following were developed by Barenbrug's Zaadhandel N.V., Arnhem, Netherlands. Received 1987.

**PI 601367. *Festuca rubra* L.**  
Cultivar. "BARCROWN". PVP 8700028.

The following were developed by Pioneer Hi-Bred International, Inc., 6800 Pioneer Pkwy., P.O. Box 316, Johnston, Iowa 50131-0316, United States. Received 1987.

**PI 601368. *Helianthus annuus* L.**  
Cultivar. "PHA009". PVP 8700050.

The following were developed by Western Plant Breeders, Phoenix, Arizona, United States. Received 1987.

**PI 601369. *Hordeum vulgare* L. ssp. vulgare**  
Cultivar. "FIESTA". PVP 8700053.

The following were developed by Barenbrug's Zaadhandel N.V., Arnhem, Netherlands. Received 1987.

**PI 601370. *Lolium perenne* L.**  
Cultivar. "BARBALL". PVP 8700027.

The following were developed by Harris Moran Seed Company, P.O. Box 4938, Modesto, California 95352-4938, United States. Received 1987.

**PI 601371. *Lycopersicon esculentum* Mill., nom. cons.**  
Cultivar. "Diablo". PVP 8700026.

The following were developed by Cannors Seed Corporation, Lewisville, Idaho, United States. Received 1987.

**PI 601372. *Pisum sativum* L.**  
Cultivar. "9000 Freezer". PVP 8700051.

The following were developed by Pioneer Hi-Bred International, Inc., 6800 Pioneer Pkwy., P.O. Box 316, Johnston, Iowa 50131-0316, United States.

Received 1987.

**PI 601373. *Triticum aestivum* L., nom. cons.**  
Cultivar. "2385". PVP 8700029.

The following were developed by Northrup, King & Company, 1500 Jackson N.E., Minneapolis, Minnesota 55413, United States. Received 1987.

**PI 601374. *Zea mays* L. ssp. *mays***  
Cultivar. "764". PVP 8700036.

**PI 601375. *Zea mays* L. ssp. *mays***  
Cultivar. "778". PVP 8700045.

**PI 601376. *Zea mays* L. ssp. *mays***  
Cultivar. "779". PVP 8700041.

**PI 601377. *Zea mays* L. ssp. *mays***  
Cultivar. "794". PVP 8700046.

The following were developed by Claeys Semences, France. Received 1987.

**PI 601378. *Zea mays* L. ssp. *mays***  
Cultivar. "LP5". PVP 8700031.

The following were developed by K.E. Hughes, United States. Received 1987.

**PI 601379. *Arachis hypogaea* L.**  
Cultivar. "KH20". PVP 8700094.

The following were developed by Campbell Soup Company, United States. Received 1987.

**PI 601380. *Capsicum annuum* L.**  
Cultivar. "VLACINI". PVP 8700016.

The following were developed by Harris Moran Seed Company, P.O. Box 4938, Modesto, California 95352-4938, United States. Received 1987.

**PI 601381. *Cichorium endivia* L.**  
Cultivar. "CRISPY GREEN". PVP 8700066.

The following were developed by Louisiana State University, Louisiana Agr. Exp. Sta., Baton Rouge, Louisiana 70803, United States. Received 1987.

**PI 601382. *Citrullus lanatus* (Thunb.) Matsum. & Nakai**  
Cultivar. LOUISIANA SWEET; RED-N-SWEET. PVP 8700078.

The following were developed by Shamrock Seed Co., Inc., United States.  
Received 1987.

**PI 601383. *Cucumis melo* L. ssp. *melo***  
Cultivar. "PMR 45 Full Net". PVP 8700083.

The following were developed by Barenbrug's Zaadhandel N.V., Arnhem,  
Netherlands. Received 1987.

**PI 601384. *Festuca arundinacea* Schreb.**  
Cultivar. "BARVETIA". PVP 8700071.

The following were developed by Pure-Seed Testing, Inc., P.O. Box 449,  
Hubbard, Oregon 97032, United States. Received 1987.

**PI 601385. *Festuca arundinacea* Schreb.**  
Cultivar. "CIMARRON". PVP 8700065.

**PI 601386. *Festuca arundinacea* Schreb.**  
Cultivar. "TRAILBLAZER". PVP 8700081.

The following were developed by Cebeco Zaden B.V., Rotterdam, Netherlands.  
Received 1987.

**PI 601387. *Festuca rubra* ssp. *fallax* (Thuill.) Nyman**  
Cultivar. "CENTER". PVP 8700077.

The following were developed by Denholm Seed Company, Los Angeles,  
California, United States. Received 1987.

**PI 601388. *Gazania rigens* (L.) Gaertn.**  
Cultivar. "DAYBREAK ORANGE". PVP 8700062.

The following were developed by Coker's Pedigreed Seed Co., P.O. Box 340,  
Hartsville, South Carolina 29550, United States. Received 1987.

**PI 601389. *Gossypium hirsutum* L.**  
Cultivar. "COKER 139". PVP 8700070.

The following were developed by D.L. West, Germain's, Inc., United States;  
H.P. Anderson, Germain's, Inc., United States; C.H. Campbell; K.L. Puryear.  
Donated by C.H. Campbell Jr., Germain's, Inc., United States; H.P. Anderson,  
Germain's, Inc., United States. Received 1987.

**PI 601390. *Gossypium hirsutum* L.**  
Cultivar. "GERMAINS ACALA GC-410". PVP 8700061.

The following were developed by Northrup, King & Company, 1500 Jackson N.E.,



Minneapolis, Minnesota 55413, United States. Received 1987.

PI 601391. *Gossypium hirsutum* L.  
Cultivar. "KC 380". PVP 8700069.

The following were developed by Cargill Wheat Research Farm, 2450 Drake Rd., Fort Collins, Colorado, United States. Received 1987.

PI 601392. *Gossypium hirsutum* L.  
Cultivar. "LANKART 311". PVP 8700086.

The following were developed by Barenbrug's Zaadhandel N.V., Arnhem, Netherlands. Received 1987.

PI 601393. *Koeleria macrantha* (Ledeb.) Schult.  
Cultivar. "Barkoel". PVP 8700072.

The following were developed by Victor Heintzberger, Bruce Church Company, 1020 Merrill Street, Salinas, California 93912, United States. Received 1987.

PI 601394. *Lactuca sativa* L.  
Cultivar. "GABILAN". PVP 8700059.

The following were developed by Willamette Seed Company, Oregon, United States. Received 1987.

PI 601395. *Lolium perenne* L.  
Cultivar. "CALIENTE". PVP 8700064.

The following were developed by Campbell Soup Company, United States. Received 1987.

PI 601396. *Lycopersicon esculentum* Mill., nom. cons.  
Cultivar. "RAMSAY". PVP 8700058.

The following were developed by Waterman-Loomis Company, 7625 Brown Bridge Road, Highland, Maryland 20777, United States. Received 1987.

PI 601397. *Medicago sativa* L.  
Cultivar. "CHIEF". PVP 8700074.

The following were developed by Farms of Texas Company, Alvin, Texas, United States. Received 1987.

PI 601398. *Oryza sativa* L.  
Cultivar. "V4716". PVP 8700085.

The following were developed by Asgrow Seed Company, Kalamazoo, Michigan, United States. Received 1987.

**PI 601399. *Pisum sativum* L.**  
Cultivar. "FLAIR". PVP 8700096.

**PI 601400. *Pisum sativum* L.**  
Cultivar. "GAIN". PVP 8700095.

The following were developed by Campbell Soup Company, United States. Received 1987.

**PI 601401. *Pisum sativum* var. *arvense* (L.) Poir.**  
Cultivar. "TREMONT SCOTCH". PVP 8700075.

The following were developed by Holden's Foundation Seeds, Inc., United States. Received 1987.

**PI 601402. *Zea mays* L. ssp. *mays***  
Cultivar. "LH146Ht". PVP 8700089.

**PI 601403. *Zea mays* L. ssp. *mays***  
Cultivar. "LH156". PVP 8700090.

**PI 601404. *Zea mays* L. ssp. *mays***  
Cultivar. "LH60". PVP 8700087.

**PI 601405. *Zea mays* L. ssp. *mays***  
Cultivar. "LH85". PVP 8700088.

The following were developed by DNA Plant Technology Corporation, United States. Received 1980.

**PI 601406. *Capsicum annuum* L.**  
Cultivar. "BELL-SWEET". PVP 8700124.

The following were developed by SeedTec International, Inc., Woodland, California, United States. Received 1980.

**PI 601407. *Carthamus tinctorius* L.**  
Cultivar. "S-553". PVP 8700117.

The following were developed by Pure-Seed Testing, Inc., P.O. Box 449, Hubbard, Oregon 97032, United States. Received 1980.

**PI 601408. *Festuca arundinacea* Schreb.**  
Cultivar. "FINELAWN 5GL". PVP 8700122.

The following were developed by Ronald D. Thorp, 1180 Avenida Ellena, Casa

Grande, Arizona 85222, United States. Received 1980.

**PI 601409. *Gossypium hirsutum* L.**  
Cultivar. "ACALA BR-115". PVP 8700136.

The following were developed by Pure-Seed Testing, Inc., P.O. Box 449, Hubbard, Oregon 97032, United States. Received 1980.

**PI 601410. *Lolium perenne* L.**  
Cultivar. "REGENCY". PVP 8700133.

The following were developed by David Fisher, Del Monte Corp. Agricultural Research, 850 Thorton Street, Box 36, San Leandro, California 94577, United States. Received 1980.

**PI 601411. *Lycopersicon esculentum* Mill., nom. cons.**  
Cultivar. "71-75". PVP 8700116.

The following were developed by DNA Plant Technology Corporation, United States. Received 1987.

**PI 601412. *Lycopersicon esculentum* Mill., nom. cons.**  
Cultivar. "DNAP-17". PVP 8700123.

The following were developed by W. Brotherton Seed Company, Inc., United States. Received 1987.

**PI 601413. *Pisum sativum* L.**  
Cultivar. "MENLO". PVP 8700099.

The following were developed by Pure-Seed Testing, Inc., P.O. Box 449, Hubbard, Oregon 97032, United States. Received 1987.

**PI 601414. *Poa pratensis* L.**  
Cultivar. "BLACKSBURG". PVP 8700140.

The following were developed by Pioneer Hi-Bred International, Inc., 6800 Pioneer Pkwy., P.O. Box 316, Johnston, Iowa 50131-0316, United States. Received 1980.

**PI 601415. *Sorghum bicolor* (L.) Moench**  
Cultivar. "PH 232". PVP 8700131.

The following were developed by Holden's Foundation Seeds, Inc., United States. Received 1980.

**PI 601416. *Zea mays* L. ssp. *mays***  
Cultivar. "LH61". PVP 8700137.

The following were developed by United AgriSeeds, Inc., Illinois, United States. Received 1980.

**PI 601417. *Zea mays* L. ssp. *mays***  
Cultivar. "NS701". PVP 8700134.

The following were developed by University of Missouri., Missouri Agr. Exp Sta., Columbia, Missouri 65201, United States. Received 1987.

**PI 601418. *Festuca arundinacea* Schreb.**  
Cultivar. "MOZARK". PVP 8700163.

The following were developed by Willamette Seed Company, Oregon, United States. Received 1987.

**PI 601419. *Festuca longifolia* Thuill.**  
Cultivar. "SERRA". PVP 8700161.

The following were developed by University of Georgia, Georgia Agr. Exp. Sta., Athens, Georgia 30602, United States. Received 1987.

**PI 601420. *Gossypium hirsutum* L.**  
Cultivar. "TIFCOT 56". PVP 8700152.

The following were developed by Royal Sluis, Inc., United States. Received 1987.

**PI 601421. *Lactuca sativa* L.**  
Cultivar. "ROYAL GREEN". PVP 8700142.

The following were developed by Pure-Seed Testing, Inc., P.O. Box 449, Hubbard, Oregon 97032, United States. Received 1987.

**PI 601422. *Lolium perenne* L.**  
Cultivar. "COMMANDER". PVP 8700166.

The following were developed by S. Z. Berry, Ohio State University, Department of Horticulture, Ohio Agric. Research & Development, Wooster, Ohio 44691, United States. Received 1987.

**PI 601423. *Lycopersicon esculentum* Mill., nom. cons.**  
Cultivar. "OHIO 8243". PVP 8700143.

The following were developed by N.F. Davis Drier & Elevator, Inc., United States. Received 1987.

PI 601424. *Oryza sativa* L.  
Cultivar. "S2-CALPEARL". PVP 8700144.

PI 601425. *Oryza sativa* L.  
Cultivar. "VALENCIA 87". PVP 8700145.

The following were developed by Gallatin Valley Seed Co., Idaho, United States. Received 1987.

PI 601426. *Pisum sativum* L.  
Cultivar. "FROLIC". PVP 8700148.

PI 601427. *Pisum sativum* L.  
Cultivar. "SUGAR POP". PVP 8700147.

The following were developed by Northrup, King & Company, 1500 Jackson N.E., Minneapolis, Minnesota 55413, United States. Received 1987.

PI 601428. *Triticum aestivum* L., nom. cons.  
Cultivar. "COKER 9733". PVP 8700159.

PI 601429. *Triticum aestivum* L., nom. cons.  
Cultivar. "COKER 9766". PVP 8700160.

PI 601430. *Zea mays* L. ssp. *mays*  
Cultivar. "807". PVP 8700151.

The following were developed by Genecorp, Inc., United States. Received 1987.

PI 601431. *Lactuca sativa* L.  
Cultivar. "BOSTON ROSE". PVP 8700179.

The following were developed by Royal Sluis, Koninklijke, Zaaizaadbedrijven, Gebroeders Sluis, B.V., Netherlands. Received 1987.

PI 601432. *Lactuca sativa* L.  
Cultivar. "ESMERALDA". PVP 8700183.

PI 601433. *Lactuca sativa* L.  
Cultivar. "KELVIN". PVP 8700182.

The following were developed by Genecorp, Inc., United States. Received 1987.

PI 601434. *Lactuca sativa* L.  
Cultivar. "SCARLETT BUTTER". PVP 8700180.

The following were developed by International Seeds Inc., P.O. Box 168, Halsey, Oregon 97348, United States. Received 1987.

**PI 601435. *Lolium perenne* L.**  
Cultivar. "LINDSAY". PVP 8700176.

**PI 601436. *Festuca arundinacea* Schreb.**  
Cultivar. "TRIDENT". PVP 8700177.

The following were developed by Waterman-Loomis Company, 7625 Brown Bridge Road, Highland, Maryland 20777, United States. Received 1987.

**PI 601437. *Medicago sativa* L.**  
Cultivar. "PRO-CUT". PVP 8700171.

The following were developed by DeKalb-Pfizer Genetics, United States. Received 1987.

**PI 601438. *Zea mays* L. ssp. *mays***  
Cultivar. "78371A". PVP 8700172.

**PI 601439. *Zea mays* L. ssp. *mays***  
Cultivar. "FBHJ". PVP 8700173.

**PI 601440. *Zea mays* L. ssp. *mays***  
Cultivar. "MBPM". PVP 8700175.

**PI 601441. *Zea mays* L. ssp. *mays***  
Cultivar. "PB80". PVP 8700174.

The following were developed by Pioneer Hi-Bred International, Inc., 6800 Pioneer Pkwy., P.O. Box 316, Johnston, Iowa 50131-0316, United States. Received 1987.

**PI 601442. *Zea mays* L. ssp. *mays***  
Cultivar. "PHG86". PVP 8700170.

The following were developed by D'Arrigo Brothers Company of California, Salinas, California, United States. Received 1987.

**PI 601443. *Brassica oleracea* var. *botrytis* L.**  
Cultivar. "D'ARRIGO NO. 502". PVP 8700192.

The following were developed by TS Seeds B.V., Netherlands. Received 1987.

**PI 601444. *Brassica oleracea* var. *botrytis* L.**  
Cultivar. "ALVERDA". PVP 8700190.

The following were developed by Zelder B.V., 6595 N W, Ottersum, Netherlands. Received 1987.

**PI 601445. *Brassica rapa* L.**

Cultivar. "MOSA". PVP 8700193.

The following were developed by Montana State University, Montana Agr. Exp. Sta., Department of Plant and Soil Science, Bozeman, Montana 59717, United States. Received 1987.

**PI 601446. *Carthamus tinctorius* L.**  
Cultivar. "MT 3697". PVP 8700187.

The following were developed by International Seeds Inc., P.O. Box 168, Halsey, Oregon 97348, United States. Received 1987.

**PI 601447. *Festuca arundinacea* Schreb.**  
Cultivar. "PACER". PVP 8700199.

The following were developed by MMG Agriseed, England, United Kingdom. Received 1987.

**PI 601448. *Hordeum vulgare* L. ssp. *vulgare***  
Cultivar. "CAMELOT". PVP 8700186.

The following were developed by F.B. Chesser, United States. Received 1987.

**PI 601449. *Lycopersicon esculentum* Mill., nom. cons.**  
Cultivar. "BEALL'S GOURMET". PVP 8700189.

The following were developed by Sunseeds Genetics Inc., Hollister, California 95024, United States. Received 1987.

**PI 601450. *Lycopersicon esculentum* Mill., nom. cons.**  
Cultivar. "Sun 1643"; Sunex 1643. PVP 8700194.

The following were developed by Rice Researchers, Inc., United States. Received 1987.

**PI 601451. *Oryza sativa* L.**  
Cultivar. "KRM-2". PVP 8700203.

The following were developed by Plant Breeders 1, Inc., United States. Received 1987.

**PI 601452. *Triticum aestivum* L., nom. cons.**  
Cultivar. "SYRINGA". PVP 8700188.

The following were developed by C.T. Smith Company, United States. Received 1987.

**PI 601453. *Vigna unguiculata* (L.) Walp.**  
Cultivar. "CT PINKEYE PURPLEHULL". PVP 8700185.

The following were developed by Sunseeds Genetics Inc., Hollister, California 95024, United States. Received 1987.

**PI 601454. X *Triticosecale* sp.**  
Cultivar. "EVE". PVP 8700206.

**PI 601455. X *Triticosecale* sp.**  
Cultivar. "STAN-I". PVP 8700205.

**PI 601456. X *Triticosecale* sp.**  
Cultivar. "VICTORIA". PVP 8700207.

The following were developed by DeKalb-Pfizer Genetics, United States. Received 1987.

**PI 601457. *Zea mays* L. ssp. *mays***  
Cultivar. "IB02". PVP 8700197.

**PI 601458. *Zea mays* L. ssp. *mays***  
Cultivar. "IBB15". PVP 8700196.

**PI 601459. *Zea mays* L. ssp. *mays***  
Cultivar. "IBC2". PVP 8700198.

The following were developed by Dunn Seed Farms, Inc., United States. Received 1987.

**PI 601460. *Gossypium hirsutum* L.**  
Cultivar. "DUNN HS 120". PVP 8700210.

The following were developed by Genecorp Technology, United States. Received 1987.

**PI 601461. *Lactuca sativa* L.**  
Cultivar. "BLAZER". PVP 8700208.

The following were developed by Royal Sluis, Inc., United States. Received 1987.

**PI 601462. *Lactuca sativa* L.**  
Cultivar. "ROYAL RED". PVP 8700211.

The following were developed by Royal Sluis, Koninklijke, Zaaizaadbedrijven, Gebroeders Sluis, B.V., Netherlands. Received 1987.

**PI 601463. *Lactuca sativa* L.**



Cultivar. "TELDA". PVP 8800004.

The following were developed by Michigan State University, Michigan Agr. Exp. Sta., East Lansing, Michigan 48824, United States. Received 1987.

**PI 601464. *Medicago sativa* L.**

Cultivar. "WEBFOOT". PVP 8700212.

The following were developed by Northrup, King & Company, 1500 Jackson N.E., Minneapolis, Minnesota 55413, United States. Received 1987.

**PI 601465. *Triticum aestivum* L., nom. cons.**

Cultivar. "COKER 833". PVP 8800005.

The following were developed by Holden's Foundation Seeds, Inc., United States. Received 1987.

**PI 601466. *Zea mays* L. *ssp. mays***

Cultivar. "LH59". PVP 8700213.

The following were developed by Pioneer Hi-Bred International, Inc., 6800 Pioneer Pkwy., P.O. Box 316, Johnston, Iowa 50131-0316, United States. Received 1987.

**PI 601467. *Zea mays* L. *ssp. mays***

Cultivar. "PHK05". PVP 8800001.

**PI 601468. *Zea mays* L. *ssp. mays***

Cultivar. "PHK29". PVP 8700214.

**PI 601469. *Zea mays* L. *ssp. mays***

Cultivar. "PHR25". PVP 8800002.

**PI 601470. *Zea mays* L. *ssp. mays***

Cultivar. "PHV78". PVP 8800003.

The following were developed by Ferry-Morse Seed Company, Inc., P.O. Box 100, Mountain View, California 94042, United States. Received 1986.

**PI 601471. *Lycopersicon esculentum* Mill., nom. cons.**

Cultivar. "SURESET". PVP 8600124.

The following were developed by Victor Heintzberger, Bruce Church Company, 1020 Merrill Street, Salinas, California 93912, United States. Received 1987.

**PI 601472. *Lactuca sativa* L.**

Cultivar. "WINTER KING". PVP 8800009.

The following were developed by Cal-West Seeds, Inc., California, United States. Received 1987.

**PI 601473. *Carthamus tinctorius* L.**  
Cultivar. "C/W-4440". PVP 8800016.

The following were developed by Germain Seed & Plant Co., Los Angeles, California, United States. Received 1987.

**PI 601474. *Gossypium hirsutum* L.**  
Cultivar. "GERMAINS ACALA GC-356". PVP 8800017.

The following were developed by Petoseed Company, Inc., Saticoy, California 93004, United States. Received 1987.

**PI 601475. *Lycopersicon esculentum* Mill., nom. cons.**  
Cultivar. "P-19". PVP 8500174.

The following were developed by Plant Genetics, Inc, United States. Received 1987.

**PI 601476. *Medicago sativa* L.**  
Cultivar. "SUTTER". PVP 8800013.

The following were developed by Pioneer Hi-Bred International, Inc., 6800 Pioneer Pkwy., P.O. Box 316, Johnston, Iowa 50131-0316, United States. Received 1987.

**PI 601477. *Triticum aestivum* L., nom. cons.**  
Cultivar. "2375". PVP 8800012.

The following were developed by Research Corporation Technologies, Inc., United States. Received 1987.

**PI 601478. *Andropogon gerardii* Vitman**  
Cultivar. "NIAGARA". PVP 8800020.

The following were developed by Ferry-Morse Seed Company, Inc., P.O. Box 100, Mountain View, California 94042, United States. Received 1987.

**PI 601479. *Lactuca sativa* L.**  
Cultivar. "FANFARE". PVP 8800023.

The following were developed by Koninklijke Zaaizaadbedrijven Gebr., Sluis B.V., Netherlands. Received 1987.

**PI 601480. *Lactuca sativa* L.**  
Cultivar. "LAJOLLA". PVP 8800022.

The following were developed by Ferry-Morse Seed Company, Inc., P.O. Box 100, Mountain View, California 94042, United States. Received 1987.

**PI 601481. *Lactuca sativa* L.**  
Cultivar. "SALVERDE". PVP 8800021.

The following were developed by Pickseed West, Inc., P.O. Box 888, 33149 Highway 99E, Tangent, Oregon 97389, United States. Received 1987.

**PI 601482. *Lolium perenne* L.**  
Cultivar. "DASHER II". PVP 8800024.

The following were developed by Dunn Seed Farms, Inc., United States. Received 1988.

**PI 601483. *Gossypium hirsutum* L.**  
Cultivar. "DUNN 400". PVP 8800052.

The following were developed by William H. Weinheimer, Agrigenetics Corporation, 490 McCloskey Road, Hollister, California 95023, United States. Received 1988.

**PI 601484. *Gossypium hirsutum* L.**  
Cultivar. "GSC 30". PVP 8800048.

The following were developed by Ferry-Morse Seed Company, Inc., P.O. Box 100, Mountain View, California 94042, United States. Received 01/1988.

**PI 601485. *Lactuca sativa* L.**  
Cultivar. "BELLAGREEN". PVP 8800026.

**PI 601486. *Lactuca sativa* L.**  
Cultivar. "GARNET". PVP 8800027.

The following were developed by Asgrow Seed Company, Kalamazoo, Michigan, United States. Received 1988.

**PI 601487. *Lactuca sativa* L.**  
Cultivar. "GREEN BOWL". PVP 8800051.

The following were developed by Genecorp Technology, United States. Received 1988.

**PI 601488. *Lactuca sativa* L.**  
Cultivar. "GREENGO". PVP 8800055.

The following were developed by Northrup, King & Company, 1500 Jackson N.E., Minneapolis, Minnesota 55413, United States. Received 1988.

PI 601489. *Zea mays* L. *ssp. mays*  
Cultivar. "740". PVP 8800028.

PI 601490. *Zea mays* L. *ssp. mays*  
Cultivar. "787". PVP 8800029.

PI 601491. *Zea mays* L. *ssp. mays*  
Cultivar. "790". PVP 8800030.

PI 601492. *Zea mays* L. *ssp. mays*  
Cultivar. "793". PVP 8800031.

The following were developed by Holden's Foundation Seeds, Inc., United States. Received 01/1988.

PI 601493. *Zea mays* L. *ssp. mays*  
Cultivar. "LH149". PVP 8800053.

PI 601494. *Zea mays* L. *ssp. mays*  
Cultivar. "LH65". PVP 8800050.

The following were developed by Pioneer Hi-Bred International, Inc., 6800 Pioneer Pkwy., P.O. Box 316, Johnston, Iowa 50131-0316, United States. Received 01/1988.

PI 601495. *Zea mays* L. *ssp. mays*  
Cultivar. "PHK42". PVP 8800035.

PI 601496. *Zea mays* L. *ssp. mays*  
Cultivar. "PHK76". PVP 8800036.

PI 601497. *Zea mays* L. *ssp. mays*  
Cultivar. "PHN11". PVP 8800037.

PI 601498. *Zea mays* L. *ssp. mays*  
Cultivar. "PHT55". PVP 8800046.

PI 601499. *Zea mays* L. *ssp. mays*  
Cultivar. "PHT77". PVP 8800038.

PI 601500. *Zea mays* L. *ssp. mays*  
Cultivar. "PHV63". PVP 8800039.

PI 601501. *Zea mays* L. *ssp. mays*  
Cultivar. "PHW65". PVP 8800040.

The following were developed by Northrup, King & Company, 1500 Jackson N.E., Minneapolis, Minnesota 55413, United States. Received 1988.

PI 601502. *Zea mays* L. *ssp. mays*  
Cultivar. "W8304". PVP 8800032.

The following were developed by SeedTec International, Inc., Woodland, California, United States. Received 1988.

PI 601503. *Carthamus tinctorius* L.  
Cultivar. "S-555". PVP 8700118.

The following were developed by Svalof AB, International 268 00, Svalov, Sweden. Received 1988.

PI 601504. *Brassica napus* L.  
Cultivar. "LEGEND". PVP 8800075.

The following were developed by Sunseeds Genetics Inc., Hollister, California 95024, United States. Received 1988.

PI 601505. *Capsicum annuum* L.  
Cultivar. "PRIMA BELLE". PVP 8800057.

The following were developed by SeedTec International, Inc., Woodland, California, United States. Received 1988.

PI 601506. *Carthamus tinctorius* L.  
Cultivar. "S-517". PVP 8800081.

The following were developed by J.R. Jordan, United States. Received 1988.

PI 601507. *Cynara cardunculus* L. *ssp. cardunculus*  
Cultivar. "BIG HEART XR-1". PVP 8800071.

The following were developed by D.D. Alvey, FFR Cooperative, 4112 E. State Road 225, West Lafayette, Indiana 47906, United States. Donated by FFR Cooperative, United States. Received 1988.

PI 601508. *Festuca arundinacea* Schreb.  
Cultivar. "PENNGRAZER". PVP 8800093.

The following were developed by J.H. Lambright, United States. Received 1988.

PI 601509. *Gossypium hirsutum* L.  
Cultivar. "LAMBRIGHT 2020". PVP 8800085.

The following were developed by Western Plant Breeders, Phoenix, Arizona, United States. Received 1988.

**PI 601510. *Hordeum vulgare* L. ssp. *vulgare***  
Cultivar. "WESTBRED WAXBAR". PVP 8800084.

The following were developed by Pure-Seed Testing, Inc., P.O. Box 449, Hubbard, Oregon 97032, United States. Received 1988.

**PI 601511. *Lolium perenne* L.**  
Cultivar. "COMPETITOR". PVP 8800101.

The following were developed by North Carolina State University, North Carolina Agr. Exp. Sta., Raleigh, North Carolina, United States. Received 1988.

**PI 601512. *Lycopersicon esculentum* Mill., nom. cons.**  
Cultivar. "NC 8288". PVP 8800059.

The following were developed by Daehnfelddt, Inc., Denmark. Received 1988.

**PI 601513. *Pisum sativum* L.**  
Cultivar. "DANTO". PVP 8800058.

The following were developed by Gallatin Valley Seed Co., Idaho, United States. Received 1988.

**PI 601514. *Pisum sativum* L.**  
Cultivar. "GENIE". PVP 8800089.

**PI 601515. *Pisum sativum* L.**  
Cultivar. "QUEST". PVP 8800088.

The following were developed by Cebeco Zaden B.V., Rotterdam, Netherlands. Received 1988.

**PI 601516. *Pisum sativum* L.**  
Cultivar. "SOLARA". PVP 8800056.

The following were developed by L.C. Nungesser K.G., Germany. Received 1988.

**PI 601517. *Poa pratensis* L.**  
Cultivar. "IKONE". PVP 8800073.

The following were developed by John Bodger & Sons Company, United States. Received 1988.

**PI 601518. *Tagetes patula* L.**  
Cultivar. "DISCO GOLDEN-YELLOW". PVP 8800096.

**PI 601519. *Tagetes patula* L.**

Cultivar. "DISCO ORANGE". PVP 8800094.

**PI 601520. *Tagetes patula* L.**  
Cultivar. "HERO FLAME". PVP 8800098.

**PI 601521. *Tagetes patula* L.**  
Cultivar. "HERO GOLD". PVP 8800099.

**PI 601522. *Tagetes patula* L.**  
Cultivar. "HERO HARMONY". PVP 8800097.

**PI 601523. *Tagetes patula* L.**  
Cultivar. "HERO YELLOW". PVP 8800100.

The following were developed by Snow Brand Seed Company, United States.  
Received 1988.

**PI 601524. *Dactylis glomerata* L.**  
Cultivar. "SUMMER GREEN". PVP 8800105.

The following were developed by Pure-Seed Testing, Inc., P.O. Box 449,  
Hubbard, Oregon 97032, United States. Received 1988.

**PI 601525. *Festuca arundinacea* Schreb.**  
Cultivar. "MURIETTA". PVP 8800135.

**PI 601526. *Festuca arundinacea* Schreb.**  
Cultivar. "AMIGO". PVP 8800132.

**PI 601527. *Festuca rubra* L.**  
Cultivar. "VISTA". PVP 8800136.

The following were developed by Terra International, Inc., United States.  
Received 1988.

**PI 601528. *Gossypium hirsutum* L.**  
Cultivar. "TERRA 207". PVP 8800133.

The following were developed by Genecorp Technology, United States. Received  
1988.

**PI 601529. *Lactuca sativa* L.**  
Cultivar. "KING CITY". PVP 8800131.

The following were developed by Pure-Seed Testing, Inc., P.O. Box 449,  
Hubbard, Oregon 97032, United States. Received 1988.

**PI 601530. *Lolium perenne* L.**  
Cultivar. "PEBBLE BEACH". PVP 8800113.

The following were developed by Plant Genetics, Inc, United States. Received 1988.

PI 601531. *Medicago sativa* L.  
Cultivar. "ARROYO". PVP 8800120.

PI 601532. *Medicago sativa* L.  
Cultivar. "FLINT". PVP 8800103.

PI 601533. *Medicago sativa* L.  
Cultivar. "VECTOR". PVP 8800102.

PI 601534. *Medicago sativa* L.  
Cultivar. "VORTEX". PVP 8800104.

PI 601535. *Medicago sativa* L.  
Cultivar. "YORK". PVP 8800119.

The following were developed by Rogers Brothers Seed Company, P.O. Box 4727, Boise, Idaho 83711-0727, United States. Received 1988.

PI 601536. *Pisum sativum* L.  
Cultivar. "EVERETT". PVP 8800106.

The following were developed by Booker Seeds Ltd., England, United Kingdom. Received 1988.

PI 601537. *Pisum sativum* L.  
Cultivar. "MAGNUS". PVP 8800126.

The following were developed by Douglass W. King Co., 4627 Emil Road, San Antonio, Texas 78220-0320, United States. Received 1988.

PI 601538. *Avena sativa* L.  
Cultivar. "MESQUITE II". PVP 8800204.

The following were developed by W. Atlee Burpee Company, 300 Park Avenue, Warminster, Pennsylvania 18974, United States. Received 1988.

PI 601539. *Coreopsis grandiflora* Hogg ex Sweet  
Cultivar. "EARLY SUNRISE". PVP 8800196.

The following were developed by D.D. Alvey, FFR Cooperative, 4112 E. State Road 225, West Lafayette, Indiana 47906, United States. Donated by FFR Cooperative, United States. Received 1988.

PI 601540. *Festuca arundinacea* Schreb.  
Cultivar. "CATTLE CLUB". PVP 8800170.



The following were developed by NPI Seed, Inc., Utah, United States. Received 1988.

**PI 601541. *Festuca arundinacea* Schreb.**  
Cultivar. "TIP". PVP 8800176.

The following were developed by California Planting Cotton Seed Distr., 30597 Jack Ave., Shafter, California 93263, United States. Received 1988.

**PI 601542. *Gossypium hirsutum* L.**  
Cultivar. "ACALA PREMA". PVP 8800171.

The following were developed by Northrup, King & Company, 1500 Jackson N.E., Minneapolis, Minnesota 55413, United States. Received 1988.

**PI 601543. *Gossypium hirsutum* L.**  
Cultivar. "KC311". PVP 8800197.

The following were developed by Stoneville Pedigreed Seed Co., Mississippi, United States. Received 1988.

**PI 601544. *Gossypium hirsutum* L.**  
Cultivar. "STONEVILLE 453". PVP 8800173.

The following were developed by Cargill Wheat Research Farm, 2450 Drake Rd., Fort Collins, Colorado, United States. Received 1988.

**PI 601545. *Helianthus annuus* L.**  
Cultivar. "687". PVP 8800180.

The following were developed by Genecorp Technology, United States. Received 1988.

**PI 601546. *Lactuca sativa* L.**  
Cultivar. "COS KING". PVP 8800201.

**PI 601547. *Lactuca sativa* L.**  
Cultivar. "GENECORP COS". PVP 8800198.

**PI 601548. *Lactuca sativa* L.**  
Cultivar. "IDEAL COS". PVP 8800199.

**PI 601549. *Lactuca sativa* L.**  
Cultivar. "MAJOR COS". PVP 8800200.

The following were developed by Waterman-Loomis Company, 7625 Brown Bridge Road, Highland, Maryland 20777, United States. Received 1988.

**PI 601550. *Medicago sativa* L.**  
Cultivar. "ALLSTAR". PVP 8800172.

The following were developed by Campbell Soup Company, United States.  
Received 1988.

**PI 601551. *Pisum sativum* var. *arvense* (L.) Poir.**  
Cultivar. "IRBY SCOTCH". PVP 8800206.

The following were developed by Cargill Wheat Research Farm, 2450 Drake Rd.,  
Fort Collins, Colorado, United States. Received 1988.

**PI 601552. *Sorghum bicolor* (L.) Moench**  
Cultivar. "A8087C". PVP 8800179.

The following were developed by Pioneer Hi-Bred International, Inc., 6800  
Pioneer Pkwy., P.O. Box 316, Johnston, Iowa 50131-0316, United States.  
Received 1988.

**PI 601553. *Sorghum bicolor* (L.) Moench**  
Cultivar. "PH257". PVP 8800181.

**PI 601554. *Sorghum bicolor* (L.) Moench**  
Cultivar. "PH289". PVP 8800182.

**PI 601555. *Sorghum bicolor* (L.) Moench**  
Cultivar. "PH308". PVP 8800183.

**PI 601556. *Sorghum bicolor* (L.) Moench**  
Cultivar. "PH309". PVP 8800184.

**PI 601557. *Sorghum bicolor* (L.) Moench**  
Cultivar. "PH310". PVP 8800185.

The following were developed by Cargill Wheat Research Farm, 2450 Drake Rd.,  
Fort Collins, Colorado, United States. Received 1988.

**PI 601558. *Zea mays* L. *ssp. mays***  
Cultivar. "11430". PVP 8800177.

**PI 601559. *Zea mays* L. *ssp. mays***  
Cultivar. "2369". PVP 8800178.

The following were developed by DeKalb-Pfizer Genetics, United States.  
Received 1988.

**PI 601560. *Zea mays* L. *ssp. mays***  
Cultivar. "2MA22". PVP 8800193.

**PI 601561. *Zea mays* L. *ssp. mays***

Cultivar. "6M502". PVP 8800191.

**PI 601562. Zea mays L. ssp. mays**  
Cultivar. "78551S". PVP 8800195.

**PI 601563. Zea mays L. ssp. mays**  
Cultivar. "87916W". PVP 8800189.

**PI 601564. Zea mays L. ssp. mays**  
Cultivar. "HB8229". PVP 8800190.

**PI 601565. Zea mays L. ssp. mays**  
Cultivar. "IBB14". PVP 8800192.

**PI 601566. Zea mays L. ssp. mays**  
Cultivar. "MBST". PVP 8800194.

The following were developed by Pioneer Hi-Bred International, Inc., 6800 Pioneer Pkwy., P.O. Box 316, Johnston, Iowa 50131-0316, United States. Received 1988.

**PI 601567. Zea mays L. ssp. mays**  
Cultivar. "PHH93". PVP 8800216.

**PI 601568. Zea mays L. ssp. mays**  
Cultivar. "PHM49". PVP 8800211.

**PI 601569. Zea mays L. ssp. mays**  
Cultivar. "PHN47". PVP 8800217.

**PI 601570. Zea mays L. ssp. mays**  
Cultivar. "PHP02". PVP 8800212.

**PI 601571. Zea mays L. ssp. mays**  
Cultivar. "PHR32". PVP 8800218.

**PI 601572. Zea mays L. ssp. mays**  
Cultivar. "PHR47". PVP 8800213.

**PI 601573. Zea mays L. ssp. mays**  
Cultivar. "PHT10". PVP 8800214.

**PI 601574. Zea mays L. ssp. mays**  
Cultivar. "PHT60". PVP 8800219.

**PI 601575. Zea mays L. ssp. mays**  
Cultivar. "PHW52". PVP 8800215.

**PI 601576. Zea mays L. ssp. mays**  
Cultivar. "PHW79". PVP 8800220.

The following were developed by Pickseed West, Inc., P.O. Box 888, 33149 Highway 99E, Tangent, Oregon 97389, United States. Received 1988.

**PI 601577. *Agrostis stolonifera* L. var. *stolonifera***  
Cultivar. "NATIONAL". PVP 8800225.

The following were developed by Willamette Seed Company, Oregon, United States. Received 1988.

**PI 601578. *Lolium rigidum* Gaudin**  
Cultivar. "COMET". PVP 8800228.

**PI 601579. *Lolium rigidum* Gaudin**  
Cultivar. "MAX". PVP 8800227.

The following were developed by KWS-AG, Germany. Received 1988.

**PI 601580. *Lolium perenne* L.**  
Cultivar. "ALLAIRE". PVP 8800226.

The following were developed by Willamette Seed Company, Oregon, United States. Received 1988.

**PI 601581. *Lolium perenne* L.**  
Cultivar. "AMAZON". PVP 8800229.

The following were developed by Western Plant Breeders, Phoenix, Arizona, United States. Received 1988.

**PI 601582. *Triticum durum* Desf.**  
Cultivar. "WESTBRED 883". PVP 8800233.

The following were developed by United AgriSeeds, Inc., Illinois, United States. Received 1988.

**PI 601583. *Zea mays* L. ssp. *mays***  
Cultivar. "NS501". PVP 8800149.

**PI 601584. *Zea mays* L. ssp. *mays***  
Cultivar. "OQ603". PVP 8800150.

The following were developed by Canola, Inc., Germany. Received 1988.

**PI 601585. *Brassica napus* L. var. *napus***  
Cultivar. "LIRABON-00". PVP 8800237.

The following were developed by V.T. Walhood, Westlake Farms, Inc., United States. Received 1988.

**PI 601586. *Gossypium hirsutum* L.**

Cultivar. "KINGS ACALA M5". PVP 8900026.

The following were developed by Western Plant Breeders, Phoenix, Arizona, United States. Received 1988.

**PI 601587. *Hordeum vulgare* L. ssp. *vulgare***  
Cultivar. "WESTBRED SPRINTER". PVP 8800236.

The following were developed by Asgrow Seed Company, Kalamazoo, Michigan, United States. Received 1988.

**PI 601588. *Lactuca sativa* L.**  
Cultivar. "ANDROS". PVP 8900021.

**PI 601589. *Lactuca sativa* L.**  
Cultivar. "CAPRI". PVP 8900022.

The following were developed by Genecorp Technology, United States. Received 1988.

**PI 601590. *Lactuca sativa* L.**  
Cultivar. "GENESYS GREEN". PVP 8900024.

The following were developed by Genecorp, Inc., United States. Received 1988.

**PI 601591. *Lactuca sativa* L.**  
Cultivar. "HONCHO 11". PVP 8900006.

The following were developed by Johnny's Selected Seeds, North Dixmont, Maine, United States. Received 1988.

**PI 601592. *Lactuca sativa* L.**  
Cultivar. "ROSALITA". PVP 8900002.

The following were developed by Victor Heintzberger, Bruce Church Company, 1020 Merrill Street, Salinas, California 93912, United States. Received 1988.

**PI 601593. *Lactuca sativa* L.**  
Cultivar. "MONARCH". PVP 8900004.

The following were developed by Genecorp Technology, United States. Received 1988.

**PI 601594. *Lactuca sativa* L.**  
Cultivar. "PRIMAVERA". PVP 8900027.

**PI 601595. *Lactuca sativa* L.**  
Cultivar. "RACY RED". PVP 8900023.

The following were developed by Asgrow Seed Company, Kalamazoo, Michigan, United States. Received 1988.

**PI 601596. *Lactuca sativa* L.**  
Cultivar. "RED SCEPTRE". PVP 8900014.

The following were developed by Genecorp, Inc., United States. Received 1988.

**PI 601597. *Lactuca sativa* L.**  
Cultivar. "VAN 007X". PVP 8900025.

The following were developed by L. Daehnfelddt A/S, United States. Received 1988.

**PI 601598. *Lolium multiflorum* Lam.**  
Cultivar. "RUSTMASTER". PVP 8900007.

The following were developed by Pickseed West, Inc., P.O. Box 888, 33149 Highway 99E, Tangent, Oregon 97389, United States. Received 1988.

**PI 601599. *Lolium perenne* L.**  
Cultivar. "BLAZER II". PVP 8800234.

The following were developed by O.M. Scott & Sons Company, Marysville, Ohio 43040, United States. Received 1988.

**PI 601600. *Lolium perenne* L.**  
Cultivar. "CALYPSO". PVP 8900008.

The following were developed by University of Florida, Florida Agr. Exp. Sta., Department of Agronomy, Gainesville, Florida 32611, United States. Received 1988.

**PI 601601. *Lycopersicon esculentum* Mill., nom. cons.**  
Cultivar. "Florida 7060"; Fla 7060. PVP 8900013.

**PI 601602. *Lycopersicon esculentum* Mill., nom. cons.**  
Cultivar. "Florida 7171"; Fla 7171. PVP 8900012.

The following were developed by Sluis & Groot, P.O.B. 13, Westeinde 62, Enkhuizen, North Holland 1600 AA, Netherlands. Received 1988.

**PI 601603. *Phlox drummondii* Hook.**  
Cultivar. "PALONA DEEP ROSE". PVP 8900019.

**PI 601604. *Phlox drummondii* Hook.**  
Cultivar. "PALONA LIGHT SALMON". PVP 8900020.

The following were developed by Pickseed West, Inc., P.O. Box 888, 33149 Highway 99E, Tangent, Oregon 97389, United States. Received 1988.

**PI 601605. *Poa pratensis* L.**  
Cultivar. "BRONCO". PVP 8900001.

The following were developed by HybriTech Seed International, Inc., A Unit of Monsanto Company, United States. Received 1988.

**PI 601606. *Triticum aestivum* L., nom. cons.**  
Cultivar. "7805". PVP 8900015.

**PI 601607. *Triticum aestivum* L., nom. cons.**  
Cultivar. "7833". PVP 8900016.

**PI 601608. *Triticum aestivum* L., nom. cons.**  
Cultivar. "7837". PVP 8900017.

**PI 601609. *Triticum aestivum* L., nom. cons.**  
Cultivar. "7846". PVP 8900018.

The following were developed by Northrup, King & Company, 1500 Jackson N.E., Minneapolis, Minnesota 55413, United States. Received 1988.

**PI 601610. *Zea mays* L. ssp. *mays***  
Cultivar. "H8431". PVP 8800152.

**PI 601611. *Zea mays* L. ssp. *mays***  
Cultivar. "S8324". PVP 8800153.

**PI 601612. *Zea mays* L. ssp. *mays***  
Cultivar. "S8326". PVP 8800154.

The following were developed by Victor Heintzberger, Bruce Church Company, 1020 Merrill Street, Salinas, California 93912, United States. Received 1988.

**PI 601613. *Lactuca sativa* L.**  
Cultivar. "PINNACLE". PVP 8900003.

The following were developed by DNA Plant Technology Corporation, United States. Received 1988.

**PI 601614. *Capsicum annuum* L.**  
Cultivar. "VEGI-SWEET". PVP 8800202.

The following were developed by Cal-West Seeds, Inc., California, United States. Received 1988.

PI 601615. *Carthamus tinctorius* L.  
Cultivar. "C/W 88-OL". PVP 8900056.

The following were developed by Cebeco Zaden B.V., Rotterdam, Netherlands.  
Received 1988.

PI 601616. *Festuca rubra* L.  
Cultivar. "CINDY". PVP 8900061.

The following were developed by Genecorp, Inc., United States. Received 1988.

PI 601617. *Lactuca sativa* L.  
Cultivar. "ATLAS". PVP 8900029.

The following were developed by Ferry-Morse Seed Company, Inc., P.O. Box 100,  
Mountain View, California 94042, United States. Received 1988.

PI 601618. *Lactuca sativa* L.  
Cultivar. "DUCHESS". PVP 8900042.

PI 601619. *Lactuca sativa* L.  
Cultivar. "FALLGREEN". PVP 8900043.

The following were developed by Asgrow Seed Company, Kalamazoo, Michigan,  
United States. Received 1988.

PI 601620. *Lactuca sativa* L.  
Cultivar. "LE CUP". PVP 8900054.

The following were developed by Genecorp, Inc., United States. Received 1988.

PI 601621. *Lactuca sativa* L.  
Cultivar. "LETTICH". PVP 8900030.

The following were developed by Ferry-Morse Seed Company, Inc., P.O. Box 100,  
Mountain View, California 94042, United States. Received 1988.

PI 601622. *Lactuca sativa* L.  
Cultivar. "SNOWBIRD". PVP 8900044.

The following were developed by Mommersteeg International B.V., Advanta Seeds  
West, Netherlands. Received 1988.

PI 601623. *Lolium perenne* L.  
Cultivar. "MONDIAL". PVP 8900057.

The following were developed by International Seeds Inc., P.O. Box 168,



Halsey, Oregon 97348, United States. Received 1988.

**PI 601624. *Lolium perenne* L.**  
Cultivar. "NOVA". PVP 8900046.

The following were developed by Pickseed West, Inc., P.O. Box 888, 33149 Highway 99E, Tangent, Oregon 97389, United States. Received 1988.

**PI 601625. *Lolium perenne* L.**  
Cultivar. "PLEASURE". PVP 8900059.

The following were developed by International Seeds Inc., P.O. Box 168, Halsey, Oregon 97348, United States. Received 1988.

**PI 601626. *Lolium perenne* L.**  
Cultivar. "PRESTIGE". PVP 8900047.

The following were developed by Pickseed West, Inc., P.O. Box 888, 33149 Highway 99E, Tangent, Oregon 97389, United States. Received 1988.

**PI 601627. *Lolium perenne* L.**  
Cultivar. "RIVIERA". PVP 8900045.

The following were developed by Cebeco Zaden B.V., Rotterdam, Netherlands. Received 1988.

**PI 601628. *Lolium perenne* L.**  
Cultivar. "SURPRISE". PVP 8900062.

The following were developed by Ferry-Morse Seed Company, Inc., P.O. Box 100, Mountain View, California 94042, United States. Received 1988.

**PI 601629. *Lycopersicon esculentum* Mill., nom. cons.**  
Cultivar. "COLUSA". PVP 8900031.

The following were developed by North Carolina State University, North Carolina Agr. Exp. Sta., Raleigh, North Carolina, United States. Received 1988.

**PI 601630. *Pennisetum flaccidum* Griseb.**  
Cultivar. "CAROSTAN". PVP 8900028.

The following were developed by Sluis & Groot, P.O.B. 13, Westeinde 62, Enkhuizen, North Holland 1600 AA, Netherlands. Received 1988.

**PI 601631. *Phlox drummondii* Hook.**  
Cultivar. "PALONA WHITE". PVP 8900048.

PI 601632. *Phlox drummondii* Hook.  
Cultivar. "PALONA DEEP SALMON". PVP 8900049.

PI 601633. *Phlox drummondii* Hook.  
Cultivar. "PALONA CARMINE". PVP 8900050.

PI 601634. *Phlox drummondii* Hook.  
Cultivar. "PALONA WHITE WITH EYE". PVP 8900051.

The following were developed by Deutsche S. Lippstadt-Bremen GMBH, Germany.  
Received 1988.

PI 601635. *Poa pratensis* L.  
Cultivar. "LIMOUSINE". PVP 8900052.

The following were developed by Takii & Company, LTD., Seed Growers and  
Merchants, P.O. Box 7, Kyoto Central, 180 Umekoji-i, Kyoto, Japan. Received  
1988.

PI 601636. *Steirodiscus tagetes* (L.) Schltr.  
Cultivar. "GOLD RUSH". PVP 8900053.

The following were developed by Pioneer Hi-Bred International, Inc., 6800  
Pioneer Pkwy., P.O. Box 316, Johnston, Iowa 50131-0316, United States.  
Received 1988.

PI 601637. *Triticum aestivum* L., nom. cons.  
Cultivar. "2370". PVP 8900037.

PI 601638. *Triticum aestivum* L., nom. cons.  
Cultivar. "XW 371". PVP 8900036.

The following were developed by Maskal Forages, Inc., United States. Received  
1989.

PI 601639. *Eragrostis tef* (Zuccagni) Trotter  
Cultivar. "DESSIE". PVP 8900033.

The following were developed by Pickseed West, Inc., P.O. Box 888, 33149  
Highway 99E, Tangent, Oregon 97389, United States. Received 1989.

PI 601640. *Festuca arundinacea* Schreb.  
Cultivar. "CHIEFTAIN". PVP 8900069.

The following were developed by Mommersteeg International B.V., Advanta Seeds  
West, Netherlands. Received 1989.

PI 601641. *Festuca rubra* L.  
Cultivar. "VICTOR". PVP 8900063.

The following were developed by Sluis & Groot, P.O.B. 13, Westeinde 62, Enkhuizen, North Holland 1600 AA, Netherlands. Received 1989.

**PI 601642. *Lobelia erinus* L.**  
Cultivar. "PAPERMOON"; L 16. PVP 8900072.

The following were developed by United AgriSeeds, Inc., Illinois, United States. Received 1989.

**PI 601643. *Medicago sativa* L.**  
Cultivar. "ALLEGIANCE". PVP 8900064.

The following were developed by Pure Line Seeds, Inc., P.O. Box 8866, Moscow, Idaho 83843, United States. Received 1989.

**PI 601644. *Pisum sativum* L.**  
Cultivar. "SCAMP". PVP 8900066.

**PI 601645. *Pisum sativum* L.**  
Cultivar. "SENTRY". PVP 8900067.

**PI 601646. *Pisum sativum* L.**  
Cultivar. "SUN BURST". PVP 8900068.

**PI 601647. *Pisum sativum* L.**  
Cultivar. "SUN-UP". PVP 8900065.

The following were developed by Goldsmith Seeds, Inc., Gilroy, California, United States. Received 1989.

**PI 601648. *Tagetes patula* L.**  
Cultivar. "AURORA YELLOW FIRE". PVP 8900070.

**PI 601649. *Tagetes patula* L.**  
Cultivar. "JANIE TANGERINE". PVP 8900071.

The following were developed by M.J. Goode, Arkansas Agr. Exp. Sta., Fayetteville, Arkansas, United States; J.L. Bowers, Arkansas Agr. Exp. Sta., Fayetteville, Arkansas, United States. Received 1989.

**PI 601650. *Cucumis sativus* L. var. *sativus***  
Cultivar. "ARKANSAS LITTLE LEAF". PVP 8900073.

The following were developed by Barenbrug's Zaadhandel N.V., Arnhem, Netherlands. Received 1989.

**PI 601651. *Festuca arundinacea* Schreb.**  
Cultivar. "BARNONE". PVP 8900083.

The following were developed by Southland Seed Company, United States.  
Received 1989.

**PI 601652. *Gossypium hirsutum* L.**  
Cultivar. "SOUTHLAND M1". PVP 8900078.

The following were developed by Barenbrug's Zaadhandel N.V., Arnhem,  
Netherlands. Received 1989.

**PI 601653. *Lolium perenne* L.**  
Cultivar. "BARRAGE". PVP 8900084.

The following were developed by Farms of Texas Company, Alvin, Texas, United  
States. Received 1989.

**PI 601654. *Oryza sativa* L.**  
Cultivar. "V7817". PVP 8900077.

The following were developed by Cebeco Zaden B.V., Rotterdam, Netherlands.  
Received 1989.

**PI 601655. *Pisum sativum* L.**  
Cultivar. "IMPALA". PVP 8900081.

The following were developed by Barenbrug's Zaadhandel N.V., Arnhem,  
Netherlands. Received 1989.

**PI 601656. *Poa pratensis* L.**  
Cultivar. "BARSWEET". PVP 8900085.

The following were developed by Farmers Marketing Corporation, United States.  
Received 1989.

**PI 601657. *Triticum turgidum* L.**  
Cultivar. "DUREX". PVP 8900082.

The following were developed by United AgriSeeds, Inc., Illinois, United  
States. Received 1989.

**PI 601658. *Zea mays* L. *ssp. mays***  
Cultivar. "1538". PVP 8900075.

The following were developed by Ferry-Morse Seed Company, Inc., P.O. Box 100,  
Mountain View, California 94042, United States. Received 1989.

**PI 601659. *Apium graveolens* var. *dulce* (Mill.) Pers.**

Cultivar. "HERCULES". PVP 8900100.

The following were developed by Calgene, Inc., Davis, California, United States. Received 1989.

**PI 601660. Brassica napus L.**  
Cultivar. "CERES". PVP 8900135.

**PI 601661. Brassica napus L.**  
Cultivar. "COBRA". PVP 8900136.

The following were developed by University of Florida, Florida Agr. Exp. Sta., Department of Agronomy, Gainesville, Florida 32611, United States. Received 1989.

**PI 601662. Citrullus lanatus (Thunb.) Matsum. & Nakai**  
Cultivar. "JUBILEE II". PVP 8900096.

The following were developed by Bronco Seed Company, United States. Received 1989.

**PI 601663. Gossypium hirsutum L.**  
Cultivar. "BRONCO 360". PVP 8900114.

The following were developed by J & S Research Company, Inc., United States. Received 1989.

**PI 601664. Gossypium hirsutum L.**  
Cultivar. "HS-46". PVP 8900104.

The following were developed by Rogers Delinted Cottonseed Co., United States . Received 1989.

**PI 601665. Gossypium hirsutum L.**  
Cultivar. "ROGERS LG 86". PVP 8900125.

The following were developed by Western Plant Breeders, Phoenix, Arizona, United States. Received 1989.

**PI 601666. Hordeum vulgare L. ssp. vulgare**  
Cultivar. "WINCHESTER". PVP 8900089.

The following were developed by Plant Genetics, Inc, United States. Received 1989.

**PI 601667. Lactuca sativa L.**  
Cultivar. "BELLA ROSA". PVP 8900110.

The following were developed by Arthur Yates and Company, Limited, Sydney, New South Wales, Australia. Received 1989.

**PI 601668. *Lactuca sativa* L.**  
Cultivar. "BULLS EYE". PVP 8900103.

The following were developed by Genecorp, Inc., United States. Received 1989.

**PI 601669. *Lactuca sativa* L.**  
Cultivar. "CHAMP". PVP 8900088.

The following were developed by Harris Moran Seed Company, P.O. Box 4938, Modesto, California 95352-4938, United States. Received 1989.

**PI 601670. *Lactuca sativa* L.**  
Cultivar. "DON JUAN". PVP 8900137.

The following were developed by Sakata Seed America, Inc., United States. Received 1989.

**PI 601671. *Lactuca sativa* L.**  
Cultivar. "EPIC"; MX 214. PVP 8900098.

**PI 601672. *Lactuca sativa* L.**  
Cultivar. "VULCAN"; MX-250. PVP 8900099.

**PI 601673. *Lactuca sativa* L.**  
Cultivar. "GEMINI"; MX31-2. PVP 8900097.

The following were developed by Arthur Yates and Company, Limited, Sydney, New South Wales, Australia. Received 1989.

**PI 601674. *Lactuca sativa* L.**  
Cultivar. "TARGET". PVP 8900102.

The following were developed by International Seeds Inc., P.O. Box 168, Halsey, Oregon 97348, United States. Received 1989.

**PI 601675. *Lolium perenne* L.**  
Cultivar. "DILLON". PVP 8900138.

The following were developed by Ferry-Morse Seed Company, Inc., P.O. Box 100, Mountain View, California 94042, United States. Received 1989.

**PI 601676. *Lycopersicon esculentum* Mill., nom. cons.**  
Cultivar. "BUTTE". PVP 8900118.

**PI 601677. *Lycopersicon esculentum* Mill., nom. cons.**

Cultivar. "YUBA". PVP 8900111.

The following were developed by University of Minnesota, Minnesota Agr. Exp. Sta., St. Paul, Minnesota 55108, United States. Received 1989.

**PI 601678. *Pastinaca sativa* L.**  
Cultivar. "ANDOVER". PVP 8900115.

The following were developed by Rogers Brothers Seed Company, P.O. Box 4727, Boise, Idaho 83711-0727, United States. Received 1989.

**PI 601679. *Pisum sativum* L.**  
Cultivar. "NORDIC". PVP 8900107.

The following were developed by Nestec S.A., Switzerland. Received 1989.

**PI 601680. *Pisum sativum* L.**  
Cultivar. "RECO". PVP 8900106.

The following were developed by Cardo Construct, Netherlands. Received 1989.

**PI 601681. *Tagetes minuta* L.**  
Cultivar. "NEMANON". PVP 8900119.

The following were developed by Mississippi State University, Mississippi Agr. Exp. Sta., State College, Mississippi, United States. Received 1989.

**PI 601682. *Vigna unguiculata* (L.) Walp.**  
Cultivar. "MISSISSIPPI PINKEYE". PVP 8900113.

The following were developed by J.C. Robinson Seed Company, United States. Received 1989.

**PI 601683. *Zea mays* L. *ssp. mays***  
Cultivar. "CR14". PVP 8900095.

The following were developed by Wilson Hybrids, Inc., United States. Received 1989.

**PI 601684. *Zea mays* L. *ssp. mays***  
Cultivar. "WIL900". PVP 8900092.

**PI 601685. *Zea mays* L. *ssp. mays***  
Cultivar. "WIL901". PVP 8900093.

**PI 601686. *Zea mays* L. *ssp. mays***  
Cultivar. "WIL903". PVP 8900094.

The following were developed by Cebeco Zaden B.V., Rotterdam, Netherlands.  
Received 1989.

**PI 601687. Festuca rubra L. ssp. rubra**  
Cultivar. "CLAUDIA". PVP 8900198.

**PI 601688. Festuca rubra L.**  
Cultivar. "CAPITOL". PVP 8900197.

The following were developed by Wilson Hybrids, Inc., United States. Received  
1989.

**PI 601689. Zea mays L. ssp. mays**  
Cultivar. "WIL500". PVP 8900156.

The following were developed by Kees Sahin, Zaden B.V., Gerard Doustraat 3,  
Alphen, Netherlands; I.E. Sahin. Donated by Kees Sahin, Zaden B.V., Gerard  
Doustraat 3, Alphen, Netherlands. Received 1989.

**PI 601690. Helianthus annuus L.**  
Cultivar. "SUNSPOT". PVP 8900168.

The following were developed by Pure-Seed Testing, Inc., P.O. Box 449,  
Hubbard, Oregon 97032, United States. Received 1989.

**PI 601691. Lolium perenne L.**  
Cultivar. "DIMENSION". PVP 8900142.

The following were developed by International Seeds Inc., P.O. Box 168,  
Halsey, Oregon 97348, United States. Received 1989.

**PI 601692. Lolium perenne L.**  
Cultivar. "CUTLESS". PVP 8900195.

The following were developed by Asgrow Seed Company, Kalamazoo, Michigan,  
United States. Received 1989.

**PI 601693. Pisum sativum L.**  
Cultivar. "AIM". PVP 8900157.

**PI 601694. Pisum sativum L.**  
Cultivar. "KARISMA". PVP 8900158.

**PI 601695. Pisum sativum L.**  
Cultivar. "MICRO". PVP 8900159.

**PI 601696. Pisum sativum L.**  
Cultivar. "QUANTUM". PVP 8900160.



The following were developed by Cebeco Zaden B.V., Rotterdam, Netherlands.  
Received 1989.

**PI 601697. *Pisum sativum* L.**  
Cultivar. "RENATA". PVP 8900145.

The following were developed by Asgrow Seed Company, Kalamazoo, Michigan,  
United States. Received 1989.

**PI 601698. *Pisum sativum* L.**  
Cultivar. "SHIELD". PVP 8900161.

**PI 601699. *Pisum sativum* L.**  
Cultivar. "TURBO". PVP 8900162.

The following were developed by Cebeco Zaden B.V., Rotterdam, Netherlands.  
Received 1989.

**PI 601700. *Poa pratensis* L.**  
Cultivar. "AMPELLIA". PVP 8900196.

The following were developed by Dept. of Scientific & Industrial Res.,  
Grasslands Division, Palmerston North, North Island, New Zealand. Received  
1989.

**PI 601701. *Agrostis capillaris* L.**  
Cultivar. "GRASSLANDS EGMONT". PVP 8900219.

The following were developed by TS Seeds B.V., Netherlands. Received 1989.

**PI 601702. *Brassica oleracea* var. *botrytis* L.**  
Cultivar. "MINARET". PVP 8900216.

The following were developed by SeedTec International, Inc., Woodland,  
California, United States. Received 1989.

**PI 601703. *Carthamus tinctorius* L.**  
Cultivar. "S-518". PVP 8900221.

The following were developed by Pure-Seed Testing, Inc., P.O. Box 449,  
Hubbard, Oregon 97032, United States. Received 1989.

**PI 601704. *Festuca arundinacea* Schreb.**  
Cultivar. "JAGUAR II". PVP 8900242.

**PI 601705. *Festuca arundinacea* Schreb.**  
Cultivar. "WINCHESTER". PVP 8900243.

**PI 601706. *Festuca rubra* L. ssp. *rubra***  
Cultivar. "SHADEMASTER". PVP 8900241.

The following were developed by Sally Vreseis Fox, United States. Received 1989.

**PI 601707. *Gossypium hirsutum* L.**  
Cultivar. "COYOTE". PVP 8900169.

**PI 601708. *Gossypium hirsutum* L.**  
Cultivar. "GREEN". PVP 8900170.

The following were developed by Seed Source, Inc., United States. Received 1989.

**PI 601709. *Gossypium hirsutum* L.**  
Cultivar. "S-35". PVP 8900207.

**PI 601710. *Gossypium hirsutum* L.**  
Cultivar. "S-55". PVP 8900208.

The following were developed by Genecorp, Inc., United States. Received 1989.

**PI 601711. *Lactuca sativa* L.**  
Cultivar. "YUPPIE". PVP 8900228.

The following were developed by Ferry-Morse Seed Company, Inc., P.O. Box 100, Mountain View, California 94042, United States. Received 1989.

**PI 601712. *Lycopersicon esculentum* Mill., nom. cons.**  
Cultivar. "ENDURO". PVP 8900204.

The following were developed by Dairyland Seed Company, Inc., Clinton, Wisconsin, United States. Received 1989.

**PI 601713. *Medicago sativa* L.**  
Cultivar. "MAGNUM III". PVP 8900229.

The following were developed by Cannors Seed Corporation, Lewisville, Idaho, United States. Received 1989.

**PI 601714. *Pisum sativum* L.**  
Cultivar. "APPLAUSE". PVP 8900230.

**PI 601715. *Pisum sativum* L.**  
Cultivar. "AVA". PVP 8900222.

The following were developed by Pioneer Hi-Bred International, Inc., 6800

Pioneer Pkwy., P.O. Box 316, Johnston, Iowa 50131-0316, United States.  
Received 1989.

- PI 601716. *Sorghum bicolor* (L.) Moench  
Cultivar. "PH328". PVP 8900239.
- PI 601717. *Sorghum bicolor* (L.) Moench  
Cultivar. "PH333". PVP 8900240.
- PI 601718. *Sorghum bicolor* (L.) Moench  
Cultivar. "PHA82". PVP 8900237.
- PI 601719. *Sorghum bicolor* (L.) Moench  
Cultivar. "PHA86". PVP 8900235.
- PI 601720. *Sorghum bicolor* (L.) Moench  
Cultivar. "PHB82". PVP 8900238.
- PI 601721. *Sorghum bicolor* (L.) Moench  
Cultivar. "PHB86". PVP 8900236.
- PI 601722. *Triticum aestivum* L., nom. cons.  
Cultivar. "2163". PVP 8900205.
- PI 601723. *Triticum aestivum* L., nom. cons.  
Cultivar. "2158"; XW171. PVP 8900206.

The following were developed by Northrup, King & Company, 1500 Jackson N.E.,  
Minneapolis, Minnesota 55413, United States. Received 1989.

- PI 601724. *Zea mays* L. *ssp. mays*  
Cultivar. "E8501". PVP 8900233.
- PI 601725. *Zea mays* L. *ssp. mays*  
Cultivar. "J8606". PVP 8900226.

The following were developed by Lifaco Genetics, United States. Received  
1989.

- PI 601726. *Zea mays* L. *ssp. mays*  
Cultivar. "L 127". PVP 8900201.
- PI 601727. *Zea mays* L. *ssp. mays*  
Cultivar. "L 135". PVP 8900202.
- PI 601728. *Zea mays* L. *ssp. mays*  
Cultivar. "L 139". PVP 8900203.

The following were developed by Northrup, King & Company, 1500 Jackson N.E.,  
Minneapolis, Minnesota 55413, United States. Received 1989.

- PI 601729. *Zea mays* L. *ssp. mays*

Cultivar. "W8555". PVP 8900227.

The following were developed by Vilmorin S.A., France. Received 1989.

**PI 601730. *Cichorium endivia* L.**

Cultivar. "SCALA"; TRAVIATA. PVP 8900249.

The following were developed by International Seeds Inc., P.O. Box 168, Halsey, Oregon 97348, United States. Received 1989.

**PI 601731. *Festuca arundinacea* Schreb.**

Cultivar. "CAREFREE". PVP 8900259.

The following were developed by Northrup, King & Company, 1500 Jackson N.E., Minneapolis, Minnesota 55413, United States. Received 1989.

**PI 601732. *Gossypium hirsutum* L.**

Cultivar. "COKER 130". PVP 8900252.

The following were developed by Cargill Seed Company, Glyndon, Minnesota, United States. Received 1989.

**PI 601733. *Gossypium hirsutum* L.**

Cultivar. "PAYMASTER 147". PVP 8900269.

**PI 601734. *Gossypium hirsutum* L.**

Cultivar. "PAYMASTER 892". PVP 8900270.

The following were developed by Adolph Coors Brewing Co, Golden, Colorado, United States. Received 1989.

**PI 601735. *Hordeum vulgare* L. *ssp. vulgare***

Cultivar. "AC82-117-11"; IDAGOLD. PVP 8900267.

**PI 601736. *Hordeum vulgare* L. *ssp. vulgare***

Cultivar. "AC84-66-15"; GALENA. PVP 8900268.

The following were developed by Bud Antle, Inc., United States. Received 1989.

**PI 601737. *Lactuca sativa* L.**

Cultivar. "BUD 71-3". PVP 8900257.

The following were developed by New Zealand Agriseeds, Ltd., New Zealand. Received 1989.

**PI 601738. *Lolium perenne* L.**

Cultivar. "YATSYN 1". PVP 8900272.

The following were developed by Asgrow Seed Company, Kalamazoo, Michigan, United States. Received 1989.

**PI 601739. *Lycopersicon esculentum* Mill., nom. cons.**  
Cultivar. "XP 5034". PVP 8900274.

The following were developed by Rogers Brothers Seed Company, P.O. Box 4727, Boise, Idaho 83711-0727, United States. Received 1989.

**PI 601740. *Pisum sativum* L.**  
Cultivar. "NORTHSTAR". PVP 8900262.

The following were developed by D.J. Vanderhave, Postbus 1, Kapelle, Netherlands. Received 1989.

**PI 601741. *Poa pratensis* L.**  
Cultivar. "COCKTAIL". PVP 8900251.

**PI 601742. *Poa pratensis* L.**  
Cultivar. "MINSTREL". PVP 8900250.

The following were developed by Holden's Foundation Seeds, Inc., United States. Received 1989.

**PI 601743. *Sorghum bicolor* (L.) Moench**  
Cultivar. "HP150". PVP 8900256.

The following were developed by Northrup, King & Company, 1500 Jackson N.E., Minneapolis, Minnesota 55413, United States. Received 1989.

**PI 601744. *Sorghum bicolor* (L.) Moench**  
Cultivar. "R159". PVP 8900258.

The following were developed by Funk Seeds International, Inc., Bloomington, Illinois, United States. Received 1989.

**PI 601745. *Zea mays* L. ssp. *mays***  
Cultivar. "4N506". PVP 8900263.

The following were developed by Northrup, King & Company, 1500 Jackson N.E., Minneapolis, Minnesota 55413, United States. Received 1989.

**PI 601746. *Gossypium hirsutum* L.**  
Cultivar. "COKER 320". PVP 8900290.

The following were developed by Genecorp, Inc., United States. Received 1989.

- PI 601747. *Lactuca sativa* L.  
Cultivar. "MAVERICK II". PVP 8900280.
- PI 601748. *Lactuca sativa* L.  
Cultivar. "PRINCE". PVP 8900294.
- PI 601749. *Lactuca sativa* L.  
Cultivar. "RAIDER". PVP 8900281.

The following were developed by Wilbur-Ellis Company, United States. Received 1989.

- PI 601750. *Lens culinaris* Medik.  
Cultivar. "LOLITA". PVP 8900279.

The following were developed by Sluis & Groot, P.O.B. 13, Westeinde 62, Enkhuizen, North Holland 1600 AA, Netherlands. Received 1989.

- PI 601751. *Lobelia erinus* L.  
Cultivar. "HALF MOON"; P140. PVP 8900285.
- PI 601752. *Lobelia erinus* L.  
Cultivar. "MIDNIGHT MOON"; P183. PVP 8900286.

The following were developed by KWS-AG, Germany. Received 1989.

- PI 601753. *Lolium perenne* L.  
Cultivar. "STALLION". PVP 8900289.

The following were developed by Northrup, King & Company, 1500 Jackson N.E., Minneapolis, Minnesota 55413, United States. Received 1989.

- PI 601754. *Medicago sativa* L.  
Cultivar. "CROCKETT". PVP 8900278.
- PI 601755. *Medicago sativa* L.  
Cultivar. "MULTIKING 1". PVP 8900282.
- PI 601756. *Sorghum bicolor* (L.) Moench  
Cultivar. "R145". PVP 8900283.

The following were developed by John Bodger & Sons Company, United States. Received 1989.

- PI 601757. *Delphinium elatum* L.  
Cultivar. "MAGIC FOUNTAINS DARK BLUE/DARK BEE". PVP 9000001.
- PI 601758. *Delphinium elatum* L.  
Cultivar. "MAGIC FOUNTAINS LILAC PINK". PVP 9000002.

PI 601759. *Delphinium elatum* L.  
Cultivar. "MAGIC FOUNTAINS SKY BLUE". PVP 9000003.

PI 601760. *Delphinium elatum* L.  
Cultivar. "MAGIC FOUNTAINS WHITE". PVP 8900328.

The following were developed by KWS-AG, Germany. Received 1989.

PI 601761. *Festuca arundinacea* Schreb.  
Cultivar. "BONSAI". PVP 9000004.

The following were developed by Pickseed West, Inc., P.O. Box 888, 33149 Highway 99E, Tangent, Oregon 97389, United States. Received 1989.

PI 601762. *Festuca arundinacea* Schreb.  
Cultivar. "MAVERICK II". PVP 8900306.

The following were developed by International Seeds Inc., P.O. Box 168, Halsey, Oregon 97348, United States. Received 1989.

PI 601763. *Festuca arundinacea* Schreb.  
Cultivar. "RICHMOND". PVP 8900301.

The following were developed by Pickseed West, Inc., P.O. Box 888, 33149 Highway 99E, Tangent, Oregon 97389, United States. Received 1989.

PI 601764. *Festuca arundinacea* Schreb.  
Cultivar. "SHORTSTOP". PVP 8900298.

The following were developed by Genecorp, Inc., United States. Received 1989.

PI 601765. *Lactuca sativa* L.  
Cultivar. "DESERT SPRING". PVP 8900299.

The following were developed by Asgrow Seed Company, Kalamazoo, Michigan, United States. Received 1989.

PI 601766. *Lactuca sativa* L.  
Cultivar. "Enduro"; XP 5420. PVP 8900305.

The following were developed by O.M. Scott & Sons Company, Marysville, Ohio 43040, United States. Received 1989.

PI 601767. *Lolium perenne* L.  
Cultivar. "ACCOLADE". PVP 8900297.

The following were developed by Crites-Moscow Growers, Inc., 212 8th, P.O. Box 8912, Moscow, Idaho 83843, United States. Received 1989.

PI 601768. *Pisum sativum* L.  
Cultivar. "DIGNITY". PVP 8900296.

The following were developed by W. Weibull Seed Company, Landskrona, Sweden. Received 1989.

PI 601769. *Poa pratensis* L.  
Cultivar. "OPAL". PVP 9000009.

The following were developed by John Bodger & Sons Company, United States. Received 1989.

PI 601770. *Tagetes patula* L.  
Cultivar. "DISCO FLAME". PVP 8900302.

PI 601771. *Tagetes patula* L.  
Cultivar. "HERO ORANGE". PVP 8900303.

PI 601772. *Tagetes patula* L.  
Cultivar. "SAFARI YELLOW". PVP 8900304.

The following were developed by Pioneer Hi-Bred International, Inc., 6800 Pioneer Pkwy., P.O. Box 316, Johnston, Iowa 50131-0316, United States. Received 1989.

PI 601773. *Zea mays* L. *ssp. mays*  
Cultivar. "PHJ31". PVP 8900307.

PI 601774. *Zea mays* L. *ssp. mays*  
Cultivar. "PHJ33". PVP 8900308.

PI 601775. *Zea mays* L. *ssp. mays*  
Cultivar. "PHJ70". PVP 8900309.

PI 601776. *Zea mays* L. *ssp. mays*  
Cultivar. "PHJ75". PVP 8900310.

PI 601777. *Zea mays* L. *ssp. mays*  
Cultivar. "PHK35". PVP 8900311.

PI 601778. *Zea mays* L. *ssp. mays*  
Cultivar. "PHM10". PVP 8900312.

PI 601779. *Zea mays* L. *ssp. mays*  
Cultivar. "PHM57". PVP 8900313.

PI 601780. *Zea mays* L. *ssp. mays*  
Cultivar. "PHN29". PVP 8900314.



- PI 601781. *Zea mays* L. *ssp. mays*  
Cultivar. "PHN37". PVP 8900315.
- PI 601782. *Zea mays* L. *ssp. mays*  
Cultivar. "PHN73". PVP 8900316.
- PI 601783. *Zea mays* L. *ssp. mays*  
Cultivar. "PHN82". PVP 8900317.
- PI 601784. *Zea mays* L. *ssp. mays*  
Cultivar. "PHP55". PVP 8900318.
- PI 601785. *Zea mays* L. *ssp. mays*  
Cultivar. "PHP60". PVP 8900319.
- PI 601786. *Zea mays* L. *ssp. mays*  
Cultivar. "PHR62". PVP 8900320.
- PI 601787. *Zea mays* L. *ssp. mays*  
Cultivar. "PHR63". PVP 8900321.
- PI 601788. *Zea mays* L. *ssp. mays*  
Cultivar. "PHT22". PVP 8900322.
- PI 601789. *Zea mays* L. *ssp. mays*  
Cultivar. "PHV37". PVP 8900323.
- PI 601790. *Zea mays* L. *ssp. mays*  
Cultivar. "PHW03". PVP 8900324.
- PI 601791. *Zea mays* L. *ssp. mays*  
Cultivar. "PHW20". PVP 8900325.
- PI 601792. *Zea mays* L. *ssp. mays*  
Cultivar. "PHW43". PVP 8900326.

The following were developed by Rijk Zwaan Zaadteelt en Zaadhandel B.V., Meo Voto Beheer BV, De Lier, Netherlands. Received 1989.

- PI 601793. *Brassica oleracea* var. *botrytis* L.  
Cultivar. "OSTREA". PVP 9000022.

The following were developed by Pickseed West, Inc., P.O. Box 888, 33149 Highway 99E, Tangent, Oregon 97389, United States. Received 1989.

- PI 601794. *Festuca arundinacea* Schreb.  
Cultivar. "CROSSFIRE". PVP 9000035.

The following were developed by D'Arrigo Brothers Company of California, Salinas, California, United States. Received 1989.

- PI 601795. *Foeniculum vulgare* Mill.

Cultivar. "D'ARRIGO"; AB SWEET ANISE 93. PVP 9000044.

The following were developed by G & P Seed Company, Inc., United States. Received 1989.

**PI 601796. *Gossypium hirsutum* L.**  
Cultivar. "GP 74+". PVP 9000019.

The following were developed by Lubrizol dba Agrigenetics Corporation, United States. Received 1989.

**PI 601797. *Gossypium hirsutum* L.**  
Cultivar. "GSC 1093". PVP 9000032.

The following were developed by Plant Breeders 1, Inc., United States. Received 1989.

**PI 601798. *Hordeum vulgare* L. ssp. *vulgare***  
Cultivar. "SELWAY". PVP 9000026.

The following were developed by Victor Heintzberger, Bruce Church Company, 1020 Merrill Street, Salinas, California 93912, United States. Received 1989.

**PI 601799. *Lactuca sativa* L.**  
Cultivar. "PIONEER". PVP 9000024.

The following were developed by Vilmorin S.A., France. Received 1989.

**PI 601800. *Lactuca sativa* L.**  
Cultivar. "SANGRIA". PVP 8900182.

**PI 601801. *Lactuca sativa* L.**  
Cultivar. "SUDIA". PVP 8900183.

The following were developed by Victor Heintzberger, Bruce Church Company, 1020 Merrill Street, Salinas, California 93912, United States. Received 1989.

**PI 601802. *Lactuca sativa* L.**  
Cultivar. "Zenith"; Summit. PVP 9000025.

The following were developed by Asgrow Seed Company, Kalamazoo, Michigan, United States. Received 1989.

**PI 601803. *Lactuca sativa* L.**  
Cultivar. "Tiara"; XP 5614. PVP 9000029.

The following were developed by W. Brotherton Seed Company, Inc., United

States. Received 1989.

**PI 601804. *Pisum sativum* L.**  
Cultivar. "ATHENA". PVP 9000015.

The following were developed by Pickseed West, Inc., P.O. Box 888, 33149 Highway 99E, Tangent, Oregon 97389, United States. Received 1989.

**PI 601805. *Poa pratensis* L.**  
Cultivar. "ALPINE". PVP 9000041.

The following were developed by University of Florida, Florida Agr. Exp. Sta., Department of Agronomy, Gainesville, Florida 32611, United States. Received 1989.

**PI 601806. *Triticum aestivum* L., nom. cons.**  
Cultivar. "ATW 270". PVP 9000017.

**PI 601807. *Triticum aestivum* L., nom. cons.**  
Cultivar. "FLORIDA 303". PVP 9000018.

The following were developed by DeKalb-Pfizer Genetics, United States. Received 1989.

**PI 601808. *Zea mays* L. ssp. *mays***  
Cultivar. "2FACC". PVP 9000016.

The following were developed by Germinal Holdings Ltd., England, United Kingdom. Received 1990.

**PI 601809. *Festuca rubra* L.**  
Cultivar. "COUNTESS". PVP 8200080.

The following were developed by Victor Heintzberger, Bruce Church Company, 1020 Merrill Street, Salinas, California 93912, United States. Received 1990.

**PI 601810. *Lactuca sativa* L.**  
Cultivar. "RED COACH 82". PVP 8100156.

The following were developed by Northrup, King & Company, 1500 Jackson N.E., Minneapolis, Minnesota 55413, United States. Received 04/17/1990.

**PI 601811. *Hordeum vulgare* L. ssp. *vulgare***  
Cultivar. "425". PVP 8200039.

The following were collected by Leonard P. Kuck. Donated by Michael Knudson, USDA, NRCS, Plant Materials Center, 3308 University Drive, Bismarck, North Dakota 58504-7564, United States. Received 08/22/1997.

**PI 601812. *Helianthus maximilianii* Schrad.**

Wild. Maximilian Sunflower; HEMA2; ND-3651; 9008065; Ames 23867.  
Collected 09/06/1979 in South Dakota, United States. Elevation 497 m. NE 1/4 of NE 1/4 of NE 1/4, Section 10, Township 112 N, Range 76 W, in Hughes County. 0-1% slope with a northwest exposure. Pedigree - Selected from IEP in comparison with other accessions in 1983. Strong rhizomes, leaves wavy margined 4-6 inches long, gold flower.

The following were collected by J. McDermid; James Kramer. Donated by Michael Knudson, USDA, NRCS, Plant Materials Center, 3308 University Drive, Bismarck, North Dakota 58504-7564, United States. Received 08/22/1997.

**PI 601813. *Helianthus pauciflorus* Nutt.**

Wild. HEPAP2; Stiff Sunflower; ND-1396; 9047233; ND-1350; ND-1430; ND-1401; ND-1400; ND-1399; ND-1397; ND-1395; ND-1486; Ames 23868.  
Collected 09/05/1975 in North Dakota, United States. Burleigh, Dunn, Grant, Mercer, Oliver, and Slope Counties in central and western North Dakota. Pedigree - Composite of 9 accessions including: ND-1350, ND-1395, ND-1396, ND-1397, ND-1399, ND-1400, ND-1401, ND-1430, and ND-1486. Long rhizomes, leaves opposite, disk of head brown.

The following were developed by Cal F. Konzak, Washington State University, Crop Science Department, Johnson Hall 267, Pullman, Washington 99164, United States; Kimberlee Kidwell, Washington State University, 201 Johnson Hall, Pullman, Washington 99164-6420, United States. Received 03/18/1998.

**PI 601814. *Triticum aestivum* L., nom. cons.**

Cultivar. Pureline. "SCARLET"; K9200106; WA007802; NSGC 6525. Pedigree - Tifton  
3725/Walladay/3/Fielder//Bronz/Koeltz-7941s.5/5/Henry/Karn90,S.90//Burt/Onas 52/3/Lemhi 66/4/Yaktana 54A\*4//Norin 10/Brevor 14/6/Tifton  
3725/Walladay/3/Fielder//Bronz/Koeltz-7941S.5/7/Tecumseh/5/Tifton  
3725/Walladay/4/Bezostaja 1// (14x53-101)/Burt#4/3/Burt/Kenya Farmer 70136. Common-type, hard red spring wheat. Tall, awned, mid-season maturity, white straw and white glumes. Adapted for production in the semi-arid region (<14 inches average annual precipitation) of eastern Washington as a replacement for Butte 86. Superior yield potential and end-use quality compared to Butte 86 with a slightly lower test weight. High molecular weight glutenin subunits of 1(1A),7+9(1B) and 5+10(1D). Grain protein contents are similar to Butte 86 when grown in the target production region; however, grain protein contents tend to be low when planted in locations receiving more than 14 inches of precipitation. Moderately resistant to stripe rust, leaf rust and powdery mildew. Susceptible to the Hessian fly and Russian Wheat Aphid.

The following were developed by D.S. Murty, Int. Crops Res. Inst. for the Semi-Arid Tropics, No. 30, ICRISAT Phase 1 Colony, Patancheru P.O., Andhra Pradesh 500 009, India. Received 03/17/1998.

**PI 601815. *Sorghum bicolor* (L.) Moench**

Cultivar. Pureline. "ICSV 111"; KAPAALA; SPV-472. Pedigree - [(SPV 35 x

E 35-1)CS 3541]-8-1. Self-pollinated, flowers in 65-72 days, and matures in 100-110 days. Plant height between 1.6-2.1 m. Leaves horizontal to slightly drooping with white midrib. Plant color tan, panicles exerted, glumes free threshing with 25% coverage. Grains cream colored without subcoat, with thin pericarp, hard endosperm and no tannins.

**PI 601816. *Sorghum bicolor* (L.) Moench**

Cultivar. Pureline. "ICSV 400"; M 24581. Pedigree - [ICSV 112 x (IS 12611 x SC108-3)3-2-7]-8-2-2. Photoinsensitive, early maturing (100-110 days). Plant height 1.8-2.1 m, stems juicy. Leaves semi-erect with white midrib. Plant color tan, exerted panicles are semi-loose. Awns absent. Glumes free threshing, light red. Pedicellate spikelets sterile and frequently persistent. Grains cream colored caudatum type with thin pericarp and no tannins.

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