

USDA SOYBEAN GERMPLASM COLLECTION REPORT -- 2002

February 2003

In 2002, we distributed 21,890 seed lots from the USDA Soybean Germplasm Collection in response to 430 requests from 233 individuals. There were 374 domestic requests (86% of the total) with a total of 15,845 seed packets representing 9,538 accessions sent to 189 researchers from 34 states and Puerto Rico. Domestically, public scientists made 279 requests and scientists with commercial companies made 95 requests. There were 6,045 seed packets of 4,834 accessions in 56 orders sent to 44 scientists in 21 countries. We also sent seeds of 778 accessions to the National Center for Genetic Resources Preservation for backup.

We planted 2,030 four-row plots of *G. max* for seed replacement in the Collection. These plots were planted at three locations: 1,680 at Urbana, 118 at Stoneville, and 232 in Costa Rica. Plots for pure lining new accessions were planted in Urbana, Stoneville, and Costa Rica and approximately 45 new pure line accessions from China, Japan, South Korea, Thailand, and Vietnam were added to the Collection.

We received seeds of 9 domestic cultivars, 9 germplasm releases and 1 type.

The second year of evaluation of 850 accessions in maturity group V with introductions PI 416.758 to PI 597.389 and the second year of the remaining 503 accessions in maturity groups V to VIII were planted at Stoneville. The second year of the remaining 1,190 maturity group I to IV accessions was planted at Urbana and 496 accessions in maturity groups 000 to I were planted in Rosemount, MN. With the 2002 data, all accessions added to the collection prior to 2000 will have been evaluated, which completed a 12 year project to complete the evaluation of all of the accessions in the Collection. However, excessive rains from hurricanes delayed harvested at Stoneville for many plots in the later maturity groups and it is likely that accessions in maturity groups VI through VIII will need to be reevaluated in 2003.

Agronomic and descriptive evaluation data for 1353 accessions in Maturity Groups 000 - IV (PI 507.670 - PI 574.486) and 479 accessions in Maturity Groups IX - X (PI 163.308 - PI 567.238) are in the final editing stage before publication.

Some of the perennial *Glycine* accessions were reclassified as new species, increasing the total number of species in the collection to 16 plus one unclassified accession. We presently have no accessions of *G. albicans*, *G. aphyonota*, *G. dolichocarpa*, *G. hirticaulis*, *G. lactovirens*, *G. peratosa*, and *G. pullenii*. In 1999, we began to increase the perennial collection starting with the Australian core collection established by Tony Brown of CSIRO in Australia. There is now sufficient seed to distribute for 95% of the core collection and 92% of all perennial *Glycine* accessions and at least one accession for each species in the Collection is available. The remaining accessions needing increasing are growing in pots in the greenhouse. Digital images of most of the perennial accessions have been uploaded to GRIN. The descriptor "image" with values of "flower", "leaf", or "pod and seed" has been added in GRIN to allow searches of perennial *Glycine* accessions with images. Ten seed requests were made for 311 seed packets of 195 accessions.

We were asked by those establishing the new system for soybean cyst nematode classification to be the sole supplier of seeds for SCN typing. In 2001, we grew large increase blocks and currently have approximately 250,000 seeds of each line. In 2002, we responded to 31 requests and distribution more than 41,000 seeds of each line.

We are cooperating with Dr. Luu Ngoc Trinh, Director of National Plant Genetic Resources Center, Vietnam Agriculture and Science Institute (VASI) and Mr. Truong Trong Ngon of Can Tho University to continue collecting primitive soybean varieties with funds provided by the Plant Exchange Office. We had hoped that collecting would begin in 2002 but completing all of the agreements has taken longer than expected. The agreement is in place with the University of Can Tho and the funds have been transferred. We are still working on completing the arrangements with VASI.

Discussions were held with Qiu Lijuan of the Chinese soybean germplasm collection in Beijing in November regarding a third germplasm exchange with China. They are still very interested in participating in project that includes joint research. Approvals are currently being sought from the Chinese Ministry of Agriculture.

Greenhouse planning for a new ARS greenhouse to built on the University of Illinois campus are nearly complete. This process has been delayed because of soil problems discovered at the building site and some changes in design. We are hoping that construction will begin this spring or summer. This new facility will provide us with 4 bays which will give us with more flexibility in controlling photoperiod. Two bays are designed for growing the perennial species and two for annual species.

For the past two years we have had a full-time, temporary person working with the Collection primarily processing seeds. We will make this a full-time permanent ARS position in 2003 and will be conducting a national search for this technical support position.

As of December 31, 2002, the Collection contained the following entries:

Annual subcollection	Entries	Available
Introduced <i>G. max</i>	16605	16274
<i>G. soja</i>	1114	1113
Germplasm releases	147	147
Modern cultivars	484	479
Old cultivars	207	207
Private cultivars	31	30
All isolines	593	584
<u>Genetic types</u>	<u>179</u>	<u>175</u>
Annual sub-total	19407	19056

Perennial species	Entries	Available	Core	Core Available
<i>G. arenaria</i>	3	2	3	2
<i>G. argyrea</i>	12	12	3	3
<i>G. canescens</i>	119	108	20	20
<i>G. clandestina</i>	83	77	16	15
<i>G. curvata</i>	6	6	4	4
<i>G. cyrtoloba</i>	44	42	5	5
<i>G. falcata</i>	25	9	5	4
<i>G. latifolia</i>	43	43	8	8
<i>G. latrobeana</i>	6	4	6	4
<i>G. microphylla</i>	34	33	9	9
<i>G. pescadrensis</i>	71	71	2	2
<i>G. pindanica</i>	1	1	0	0
<i>G. rubiginosa</i>	33	27	2	2
<i>G. stenophita</i>	25	25	0	0
<i>G. tabacina</i>	135	131	13	13
<i>G. tomentella</i>	278	253	21	20
<u><i>G. sp.</i></u>	<u>1</u>	<u>1</u>	<u>0</u>	<u>0</u>
Perennial subtotal	919	845	117	111

Collection total 20326 19901

USDA Soybean Germplasm Collection
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