

# USDA SOYBEAN GERMPLASM COLLECTION REPORT -- 1999

February 2000

In 1999, we distributed 15731 seed lots from the USDA Soybean Germplasm Collection in response to 361 requests from 206 individuals. There were 302 domestic requests (84% of the total) with a total of 10284 seed packets representing 7074 accessions sent to 161 researchers from 34 states and Puerto Rico. Domestically, public scientists made 214 requests and scientists with commercial companies made 92 requests. There were 5420 seed packets of 5212 accessions in 55 orders sent to 46 scientists in 26 countries. We also sent seeds of 1459 accessions to the National Seed Storage Laboratory for backup.

We planted 1226 four-row plots of *G. max* for seed replacement in the Collection. These plots were planted at three locations: 852 at Urbana, 188 at Stoneville, and 186 plots in Puerto Rico. Due to the difficulty and expense of planting in Puerto Rico, one-row seed replacement plots were planted in Costa Rica in December, 1999 with 105 six-meter plots and 26 three-meter plots. A decision whether to continue to plant seed in Costa Rica will be made based on the results of this year. We added approximately 790 new pure line accessions to the Collection.

We received 31 new accessions from China, 8 new *G. max* accessions from North Korea and one cultivar from Australia. We also received seeds of 12 domestic cultivars and one germplasm release.

The second year of the general field evaluation of 446 accessions in maturity groups V through VIII, received from China in the third germplasm exchange, was planted at Stoneville. This was the first year of general evaluations for over 1000 group V accessions. This included the introductions up to PI 408345. The group V accessions from PI 416758 to PI 561398 will be planted in 2000. The second year evaluation of all *G. soja* accessions was also completed.

We grew 471 accessions in cages at Urbana and 606 accessions in two replications at Stoneville. DNA analysis of *G. soja* accessions show them to be more genetically diverse than *G. max*, but phenotypically they have less variation than *G. max*. As part of this evaluation we are looking variation in pubescence traits and leaf shape, which may be among the most variable morphological traits of the wild soybean.

Agronomic and descriptive evaluation data for over 3400 accessions including maturity groups VI through X and between PI 507.670 and PI 574.486 in groups 000 to IV is in the final editing stage before publication. We are waiting for composition data on the colored seed coat accessions before the publications can be completed.

The current perennial glycine inventory is 944 accessions in 13 species, plus two unclassified species. We presently have no accessions for *G. albicans*, *G. hirticaulis*, and *G. lactovirens*. For most accessions we have only ten seeds. Until we can increase our seed supply, Dr. Tony Brown of CSIRO in Australia has generously agreed to fill requests for perennial *Glycine* that we receive. This winter we began to increase the perennial collection starting with the Australian core collection established by Tony Brown. This includes 108 accessions in 12 of the 13 species (not including *G. pindanica*). We will also grow the one accessions of *G. pindanica* that we have. We do have a larger seed supply of 62 accessions in 8 species that were part of the collection originally established by Dick Bernard. Most of these seeds are 15 to 20 years old but the viability is probably good. One seed request was made for 11 accessions and 6 of those accessions had sufficient seed to distribute.

As of December 31, 1999, the Collection contained the following entries:

<b>Annual subcollection</b>	<b>Entries</b>	<b>Available</b>	<b>Perennial species</b>	<b>Entries</b>	<b>Available</b>
Introduced <i>G. max</i>	15,158	15037	<i>G. arenaria</i>	3	0
<i>G. soja</i>	1,104	1104	<i>G. argyrea</i>	12	0
Germplasm releases	164	152	<i>G. canescens</i>	121	1
Modern cultivars	436	435	<i>G. clandestina</i>	130	10
Old cultivars	209	207	<i>G. curvata</i>	6	0
Private cultivars	31	30	<i>G. cyrtoloba</i>	43	2
All isolines	591	580	<i>G. falcata</i>	27	2
Genetic types	<u>174</u>	<u>149</u>	<i>G. latifolia</i>	40	6
			<i>G. latrobeana</i>	10	0
			<i>G. microphylla</i>	17	2
			<i>G. pindanica</i>	1	0
Annual sub-total	17,863	17694	<i>G. tabacina</i>	239	27
Perennial sub-total	944	62	<i>G. tomentella</i>	293	12
Collection total	18,811	71756	<i>G. sp.</i>	2	0

Esther Peregrine  
 USDA Soybean Germplasm Collection  
 1101 W. Peabody Drive, Urbana, Illinois 61801