USDA SOYBEAN GERMPLASM COLLECTION REPORT -- 2004

February 2005

In 2004, we distributed 23,693 seed lots from 14,691 accessions from the USDA Soybean Germplasm Collection in response to 527 requests from 245 individuals. There were 481 domestic requests (91% of the total) with a total of 22,013 seed packets representing 14,336 accessions sent to 207 researchers from 33 states. Domestically, public scientists made 363 requests and scientists with commercial companies made 118 requests. There were 1,680 seed packets of 1,541 accessions in 46 orders sent to 38 scientists in 18 countries. Twenty seed requests were made for 468 seed packets of 292 perennial *Glycine* accessions. We also sent seeds of 1,812 accessions to the National Center for Genetic Resources Preservation for backup.

We planted 2,255 four-row plots of *G. max* for seed replacement in the Collection. These plots were planted at two locations: 1,191 at Urbana and 1,064 at Stoneville. Pots of perennial *Glycine* were grown in the greenhouse in Urbana and seed was harvested from 72 accessions. Plots for pure lining new accessions were planted in Urbana, Stoneville, and Costa Rica. Approximately 62 new pure line accessions from China, Japan, South Korea, Myanmar, Taiwan, and Vietnam were added to the Collection. A group of 47 seed coat color mutants were also added to the collection.

We received seeds of five *G. max* plant introductions from Vietnam, 30 private varieties, 6 domestic cultivars, 3 germplasm releases, 5 genetic types, and 8 isolines.

All accessions added to the Collection prior to 2000 have been grown in evaluation trials. Accessions from maturity groups V to VIII were grown again last summer in Stoneville to verify some of the descriptors. Seed trait notes and chemical evaluations are still in progress. All of the data summarized to date has been added to the National Plant Germplasm GRIN database. Screening observations for resistance to bean pod mottle virus, peanut mottle virus, brown stem rot, phytophthora, soybean cyst nematode, corn earworm, and Mexican bean beetle were also added to the National Plant Germplasm GRIN database.

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 of each line. Lee 74 was increased in 2003 and PI 437654 was increased in 2004. In 2004, we responded to 20 requests and distribution more than 16,000 seeds of each line.

We currently have a graduate student who will be creating a core collection for the *G. max* collection for part of his Ph.D. thesis. We anticipate that the core collection will be completed in 12 to 18 months.

In 2003 the official papers were signed to establish cooperation with Dr. Luu Ngoc Trinh, Director of National Plant Genetic Resources Center, Vietnam Agriculture and Science Institute (VASI) to collect additional primitive soybean varieties for northern Vietnam with funds provided by the Plant Exchange Office. The agreement is in place with Mr. Truong Trong Ngon of Can Tho University. Mr. Ngon is currently working on a Ph.D. degree in South Korea so the collecting in southern and central Vietnam will be delayed until he returns in approximately a year.

We have not received approval from the Chinese Ministry of Agriculture to establish a new germplasm exchange project.

Greenhouse construction for a new ARS greenhouse to built on the University of Illinois campus was delayed because of changes that had to be made in the original design. The construction is now

underway and will be completed this spring. The final greenhouse plans includes approximately half of the space that was originally planned. The space that we will have was reduced by 25%. The new facility will allow us to shorten photoperiod with black-out curtains as well as lengthen photoperiod with lights.

We hired a new full time technical staff person, Alison Hyrkas, who will work approximately 75% on germplasm collection activities and 25% on germplasm research. Alison recently received her M.S. degree in plant breeding from North Dakota State University.

The proposed FY 06 budget would remove $45,000 from our budget that was added by Congress in 2002 as part of the multiyear plan to increase the funding of National Plant Germplasm System. This would reduce our operating budget, excluding salaries of permanent employees, by over 50%. Three quarters of the remaining funds are needed to pay the utilities of the building that houses the germplasm collection and land use fees for germplasm and research plots.

As of December 31, 2004, the Collection contained the following entries:

USDA Soybean Germplasm Collection Inventory

Annual subcollection	**Entries**
Introduced *G. max*	16767
G. soja	1116
Germplasm releases	177
Modern cultivars	502
Old cultivars	208
Private cultivars	60
All isolines	640
Genetic types	188
Annual sub-total	**19665**

Perennial species	**Entries**	**Core**
G. *arenaria*	3	3
G. *argyrea*	12	3
G. *canescens*	119	20
G. *clandestina*	83	16
G. *curvata*	6	4
G. *cyrtoloba*	44	5
G. *falcata*	25	5
G. *latifolia*	43	8
G. *latrobeana*	6	6
G. *microphylla*	32	9
G. *pescadrensis*	71	2
G. *pindanica*	1	0
G. *rubiginosa*	33	2
G. *stenophita*	25	0
G. *tabacina*	137	13
G. *tomentella*	276	21
G. sp.	1	0
Perennial subtotal	**917**	**117**

Collection total 20581

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