

Meeting Minutes
Soybean Germplasm Committee
February 21, 2005
St. Louis, MO

Members in Attendance: John Rupe (Chair), Glenn Bowers (Vice-Chair), Istvan Rajcan, Jeff Thompson, Larry Purcell, Randall Nelson (ex officio), Esther Peregrine (ex officio), Rusty Smith (ex officio), Philip Handley (ex officio), and Rich Wilson (ex officio).

Visitors in Attendance: Dick Bernard, Jim Heitholt, Jim Orf, Tommy Carter, Laurie Scott, Doreen Kronback, and Nick Bajjaleih.

Minutes from the 2004 meeting were approved. The agenda for the 2005 meeting, prepared by John Rupe, was also approved. Nick Bajjaleih gave a report to the committee on the development of an analytical tool for amino acid composition evaluation of germplasm. Subcommittees then broke out for separate meetings.

Acquisition Subcommittee Report
[Glenn Bowers (Chair), Randall Nelson, and Jeff Thompson]

There have been few acquisitions in the past five years. A small number of lines for Asian soybean rust (ASR) resistance or tolerance have been added to the collection, including improved germplasm lines from AVRDC. Some were selected for tolerance to ASR while others have known Rpp genes.

China -The agreement with China covering soybean germplasm exchange expired in 2000. There is an interest in acquiring lines with ASR resistance/tolerance, in addition to new sources of resistance to soybean cyst nematode.

Viet Nam – Collection efforts in Vietnam are on hold. The individual leading the efforts in the southern area of Vietnam is still in Korea studying for a Ph.D. The individual leading the collection efforts in northern Vietnam has not made any progress. Henry Nguyen and Tara VanToai will follow-up on this issue.

Other regions – Preliminary contacts have been made with curators of large soybean germplasm collections in other regions. Looking into whether these collections have any material of interest that can be obtained via a simple exchange.

Core collection - Efforts continue to identify and develop a core collection representing soybean genetic diversity. A Ph.D. student from Brazil is presently working on this project. Selecting about 10% of the collection to be included in a representative core collection is the standard goal. The challenge is to properly define subgroups and to representatively sample within each subgroup.

The purpose of the Acquisitions Subcommittee is to identify needs that are not being met by the current accessions in the collection and make other suggestions to improve the collection. This subcommittee also needs to hold the collection curator accountable. Other efforts include being an advocate for the collection and seeking financial support. Jeff Thompson agreed to develop a survey to submit to the soybean

breeding community. The purpose of the survey is to 1) determine the percentage of soybean breeders that use the collection, 2) if the collection is not used, determine why, and 3) seek suggestions to improve the collection.

Evaluation Subcommittee Report
[John Rupe (Chair), Esther Peregrine, and Rusty Smith]

Status of Pathogen Collections- The IFAFS grant supporting the proof of concept of maintaining these collections ends in September 2005. At this point, there is not a strong advocate for seeking long-term funding for the collections. Expanding the collection to include *Phakopsora pachyrhizi*, the soybean rust pathogen, would be of great value considering the diversity of this pathogen. It was suggested that a task force be formed to review the progress of the current collections and compare these collections to other collections of microorganisms like the American Type Culture Collection. A report on the grant's progress would be helpful. It was suggested that the USDA unit at Peoria, Illinois house the collections. Backing of the United Soybean Board is essential for obtaining long-term federal funding.

Germplasm Releases with 10-Year-Old Seed-Seed in the active collection is planted out every 10 years amounting to between 1,700 and 2,200 accessions per year. A list of infrequently requested germplasm releases maintained in the collection that are ten years old was compiled for consideration for placement in the long-term storage at Fort Collins, CO. If placed in long-term storage, the seed would still be available, but may not be as quickly accessed as in the active collection. There was concern about losing these lines eventually since seed are not replanted in Fort Collins. Losing lines might mean the loss of specific traits that may someday be of interest and the germplasm may be needed for genomic studies. The policy in the long-term storage facility is to have the active collection grow out lines before they are lost so there would not be any loss of germplasm. It was decided that those lines that had been requested at least five times in the last five years or had specific quality traits remain in the active collection.

Standards for Disease and Insect Screening-some progress has been made in getting all the results of recent evaluations so that not only those lines that show the trait of interest are listed, but those that did not are also listed. This should help reduce duplicate efforts by not retesting lines that were shown to be susceptible.

GRIN-There was no representative from GRIN, but Esther Peregrine says that improvements are being made, that it is getting more user friendly, but it is still difficult to search for multiple traits. Esther still provides spread sheets with more detailed information when requested.

Priority Needs-There is a need to link GRIN with SOYBASE especially to find out what has been evaluated for SSR markers. One of the problems is that SOYBASE does not use PI numbers and so exact matchups are not always possible.

Operations Subcommittee Report

New greenhouses are being built in Urbana. Seed storage at Stoneville now has a new dehumidifier allowing seed to be maintained at 50 F and low humidity. Stoneville is

also able to clean seed now. Both of these changes have greatly reduced the work at Urbana. They are still two years behind in processing seed at Urbana. A new technician was hired at Urbana who will work with new PIs and pure lines. Stoneville has grown out the 5,500 Southern accessions to confirm quality traits. They have also evaluated them for frogeye leaf spot and stem canker and Jim Ray has taken leaf samples for DNA analysis.

Enhancement Subcommittee Report
[Vince Pantalone (Chair), Larry Purcell, and Roy Scott)

There is still a lot of interest in amino acid composition in soybean, but the new frontier is allergens. Allergens affect digestibility of swine feed leading to reduced weight gain. More needs to be known about what allergens are important. Ted Hymowitz has screened the entire collection for allergens, but has not published the data.

Approximately, 770 accessions have been identified for soybean rust resistance. Pairs of breeders and pathologists in each state have been contacted to plant suitable accessions for rust evaluation. Talks are also going on with industry. The maintenance plots will be sprayed with fungicides if needed to prevent losses from rust.

Other Business

Glenn Bowers was elected as chair and Istvan Rajcan was elected as vice-chair.

Discussions were held as to how committee members could truly represent the community that they represent. Quarterly communications from each sub-committee to the whole committee and to represented groups was discussed.

Action Items

1. Assemble an e-mail list for each functional group represented on the committee. Randy will take responsibility for the Cytogenetics and Molecular Genetics representative, since that is an unfilled position.
2. Representatives for the Cytogenetics and Molecular Genetics position be filled.
3. Examine the committee by-laws. A subcommittee consisting of Randall Nelson, Istvan Rajcan, and Jeff Thompson was appointed to do so. Presently, the Soybean Germplasm Committee members are elected for a three-year term with officers serving for one year. Most other germplasm advisory committees have longer terms, up to six years with officers serving a two to three year appointment. After review and consulting the by-laws of other crop advisory committees, this subcommittee will make suggested changes to the full committee. A target date of August 2005 was set for proposing any changes to the current by-laws.
4. Esther and Randy agreed to develop a list of subcommittee roles and responsibilities.
5. Identify candidates to replace some of the current members. Several members have exceeded the three-year term defined in the current by-laws.

6. Develop a new stagger for members. The three-year election stagger, defined in the by-laws, has not been enforced in recent years.

Prepared by Glenn R. Bowers.