



## Maize Genetics Cooperation • Stock Center

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6,656 seed samples have been supplied in response to 519 requests for 2015. These include 250 requests received from 31 foreign countries. This is the fifth record-breaking year in a row for requests; and greatly exceeded the previous annual record of 459. Interest in reverse genetics tools, such as the UniformMu sequence indexed stocks, continues to grow. Presently, requests for UniformMu stocks represent more than 58% of our total requests. Other popular stock requests include the NAM RILs and other mapping populations, Ac/Ds sequence indexed stocks, Hi-II lines, haploid-inducing lines, male sterile cytoplasms, kernel starch quality traits, plant architecture traits, and Maize Inflorescence Project EMS lines.

Approximately 5.5 acres of nursery were grown this summer at the Crop Sciences Research & Education Center located at the University of Illinois. Warm, dry spring weather allowed us to plant both of our crossing nurseries a timely manner, and excellent weather during the growing season allowed for a normal pollination season; no supplemental irrigation was required. There were sufficient stands for a good increase in almost all instances; however, aquatic bird feeding due to flooding from heavy rains early during the growing season resulted in heavy losses in the adult plant observation section of one of our nurseries. Excessive moisture also seemed to result in higher rates of ear rot in susceptible genotypes, particularly B73. Moderate temperatures and low plant stress resulted in excellent yields from most pollinations.

Special plantings were made of several categories of stocks:

1. Plantings were made of donated stocks from the collections of Prem Chourey (*mn1-TP*), Andrea Gallavotti (*rte1* alleles), Sarah Hake (*wab1* and *bad1* alleles), David Jackson (*Abph2*), Katharine Petsch (*dcl4*, *rgd2*, and *rdr6* alleles), Pat Schnable (*an1*, *gl13*, *bm1*, *bm2*, and *bm3* alleles), Laurie Smith (*brk1*, *brk2*, *brk3*, *pan1*, and *pan2* alleles), Nathan Springer (*la1* alleles), Beth Thompson (*dcl1-fzt*), and others. We expect to receive additional accessions of stocks from maize geneticists within the upcoming year.
2. We are continuing to characterize enhancers of yellow endosperm color from PI accessions of orange endosperm tropical flints and are continuing collaborations to identify the specific gene products associated with previously uncharacterized (or incompletely characterized) white endosperm/albino seedling loci. We are also characterizing a colored pericarp crown variant from a GEM line that appears to be unlinked to *p1*. Through tests of allelism, we have identified new alleles at the *y1* and *y8* loci.
3. Due to lack of personnel, we continue to provide only bare-bones curation of the A-A translocation stocks that were previously maintained by Janet Day Jackson. We are continuing to grow up recent outcrosses of translocation stocks in our observation fields to score for male and female semisterility.
4. Stocks produced from the NSF project "Regulation of maize inflorescence architecture" (see: <http://www.maizegdb.org/MIP/>) were grown again this summer. Approximately 450 families of M2 materials that were produced between 2003 and 2007 were grown to increase seed supplies and recover previously observed mutations; this also included previously phenotyped families that had limited seed supplies. In addition, 2,050 families of 2013 and

2014 EMS seed increase materials were grown for adult plant observation and 126 families were screened in sand benches for seedling traits; the materials observed include mutated A619, B73 and Mo17 inbred lines, Mo17xA632 and B73xMo17 hybrid, and various other inbred lines.

5. Critical plantings of a limited number of stocks were made in our greenhouse facilities.

We currently have 12,881 UniformMu sequence indexed stocks, produced by the "Construction of comprehensive sequence indexed transposon resources for maize" project (see: <http://www.maizegdb.org/documentation/uniformmu>). We have also recently received 777 stocks from the "Mapping QTLs with Maize-Teosinte NILs" project. An additional 1,135 lines of tdsG stocks from the "Ac/Ds reverse genetics resource" project (see: <http://acdsinsertions.org>) were added to our previous collection.

Our IT Specialist has continued to make updates and improvements to our curation tools, which are used to maintain data for our collection. These tools input our public stock data directly into MaizeGDB and our local database to give maize scientists access to up-to-date information about our collection. The current tools are basically in "maintenance mode" while work continues on a new implementation of the curation tools. The new tools will hopefully be a unified system that both groups (Maize COOP and MaizeGDB) can use, including unifying databases for common information shared by both groups, which will cut down tremendously the manual manipulation of data sometimes required to make sure our databases stay in sync. Maintenance continues on our web site (<http://www.uiuc.edu/ph/www/maize>).

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