# Maize Genetics Cooperation • Stock Center

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&
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7,128 seed samples have been supplied in response to 570 requests for 2017. These include 299 requests received from 25 foreign countries. Interest in reverse genetics tools, such as the UniformMu sequence indexed stocks, remains high and steady. Presently, requests for UniformMu stocks represent approximately 60% 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, Fast-flowering mini-maize, kernel starch quality traits, plant architecture traits, and Maize Inflorescence Project EMS lines.

Approximately 5.0 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 our first crossing nursery in a timely manner; however, two subsequent weeks of unusually wet and cold weather resulted in poor germination and poor stands in large parts of the first nursery. Excellent weather during the remainder of the growing season allowed for good germination in our second nursery, as well as a normal pollination season; no supplemental irrigation was required. There were sufficient stands for a good increase in most instances; however, many lines planted in the first nursery will need to be regrown in our winter greenhouse or next summer's nursery.

Special plantings were made of several categories of stocks:

1. Plantings were made of donated stocks from the collections of Norman Best (new *na2*, *te1*, and *te1-like* alleles), David Braun (*sut1-m3* and *sut1-m4*), Brian Dilkes (*na1-5*), Doug Terrell (a new small plant trait), 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 is unlinked to *p1*. Through tests of allelism, we identified 16 new alleles at the *sh1* locus. Additional tests of allelism of stocks from our Phenotype Only collection are in progress.

3. Due to lack of personnel, we continue to provide only bare-bones curation of the A-A translocation stocks and other chromosomal aberration stocks that were previously maintained by Janet Day Jackson. In most instances, we have stopped propagating them, but we will continue to provide seeds on request until they lose viability.

4. Stocks produced from the NSF project "Regulation of maize inflorescence architecture" (see: http://www.maizegdb.org/MIP/) were grown again this summer. Approximately 250 families of M2 materials that were produced between 2006 and 2013 were grown to increase seed supplies and recover previously observed mutations; this also included previously phenotyped families that had limited seed supplies. In addition, 1,370 families of 2015 and 2016 EMS seed increase materials were grown for adult plant observation and 199 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 14,033 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 43 stocks from the "Maize CellGenomics" project (http://maize.jcvi.org/cellgenomics/). An additional 4,365 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. Work is progressing nicely on a procedure to migrate our data from MySQL to PostgreSQL, and migration of our tools will follow soon after. Once that's done, work can commence on unified tools. Maintenance continues on our web site (http://maizecoop.cropsci.uiuc.edu/).


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| Marty Sachs | Philip Stinard | Shane Zimmerman | Josh Tolbert |
| Director | Curator | Agric Sci Res Tech (Plants) | Information Tech Specialist |


## ADDITIONS TO OUR CATALOG OF STOCKS SINCE MNL90

(For a complete list of our stocks, see: http://maizegdb.org/cgi-bin/stockcatalog.cgi)

**Chromosome 1 Markers**
134D bm2-Mu-10-7049D
134G bm2-Mu-10-7067A
134H bm2-Mu-10-7067E-1
135B bm2-Mu-10-7090B
135I sut1-m3
135J sut1-m4

**Chromosome 2 Markers**
239C enr1-Fcu Inr1-Fcu r1-g(Stadler)

**Chromosome 4 Markers**
406G la1-MM115
411C bm3-MM1266
411D bm3-MM1818

**Chromosome 5 Markers**
601B rgd1-lbl1

**Chromosome 10 Markers**
X11B rel2-04Mo-A619xB73GN-114
X37O r1-cu
X37P r1 Inr1-Dil Spm

**Toolkit**

UCR-FP001 DII DEGRON-YFP event
UCR-FP002 mDII DEGRON-YFP event
UWYO-FP001 Rab2A1-CFP
UWYO-FP002 Rab2A1-YFP (Wty1 promoter)
UWYO-FP003 Rop7-YFP (C-terminal)
UWYO-FP004 Tubulin-beta-RFP (C-terminal)
UWYO-FP005 Brittle2-YFP
UWYO-FP006 Rab7-YFP
UWYO-FP007 Expansin-alpha1-YFP
UWYO-FP008 Glossy1-YFP
UWYO-FP009 Rab2A1-YFP
UWYO-FP010 Heat Shock Protein22-YFP
UWYO-FP011 Pangloss1-YFP
UWYO-FP012 Expansin-beta7-YFP
UWYO-FP013 Mre11B-YFP
UWYO-FP014 Giberellin Responsive1b-YFP
UWYO-FP015 ABA Responsive17 (Dehydrin1)-YFP
UWYO-FP016 Heat Shock Protein18-YFP
UWYO-FP017 Tangled1-YFP
UWYO-FP018 Globulin-alpha-RFP
UWYO-FP019 Tubulin-beta-CFP (N terminal)
UWYO-FP020 Tubulin-beta-RFP (N terminal)
UWYO-FP021 Expansin-alpha1-RFP
UWYO-FP022 PIP2-1 (Aquaporin)-CFP
UWYO-FP023 Fimbrin (ABD2-2xYFP)
UWYO-FP024 Rab2A1(promoter_fusion-YFP)
UWYO-FP025 Rop2-YFP
UWYO-FP026 Glossy8-RFP
UWYO-FP027 PDI-YFP (with Gateway left-over sequence)
UWYO-FP028 Rab1A-CFP (non_linker)
UWYO-FP029 Rab1A-CFP
UWYO-FP030 Dynein light chain-YFP
UWYO-FP031 PDI-YFP (Gateway left-over sequence removed)
UWYO-FP032 RanGAP-YFP
UWYO-FP033 BES1-YFP
UWYO-FP034 CSLD1-TagRFP-T
UWYO-FP035 XET-RFP
UWYO-FP036 Brick1-Cerulean
UWYO-FP037 Pan2-YFP
UWYO-FP038 Rop7-mTFP
UWYO-FP039 Xylosyltransferase-TagRFP-T
UWYO-FP040 CycD2-YFP
UWYO-FP041 ZmRMR2-YFP
UWYO-FP042 GRMZM2G141355-mTFP
UWYO-FP043 GRMZM2G128315-TagRFP-T

**Stocks Characterized Only by Phenotype:**

**adherent leaf**
6513P ad*-04HI-A632GN-165

**barren inflorescence**
6609N bif*-04MO-A619xB73GN-210
6609O bif*-04HI-Mo17GN-60

**barren stalk**
6610B ba*-04HI-A632xOh43GN-105
6610C ba*-03HI-B73xMo17GN-71
6610D ba*-03HI-B73GN-203
6610E ba*-07MO-B73xMo17GN-275

**brown midrib**
6510Q bm*-04MO-A619xB73GN-34

**clear patches**
6607Q cpc*-07IL-B73GN-346

**crossbanded leaf**
4311F cb*-06HI-B73GN-50

**defective kernel**
6702F dek*-04MO-A619xB73GN-20

**fine stripe leaf**
6511M f*-04MO-A619xB73GN-58

**glossy leaf**
5412E gl*-07IL-B73GN-507

**grainy leaf**
6606L GrNl*-SugarBuns

**indeterminate growth**
5803Q id*-N1830

**many tillers**
4209D Tlr*-N2444

**miniature kernel**
6404O mn*-04HI-A632xOh43GN-14
6408L mn*-04MO-A619xB73GN-61

**necrotic leaf**
6611H nec*-06HI-B73GN-60

**oil yellow plant**

3811Q oy*-04HI-A619xB73GN-49

**ragged leaf**
6513Q rg*-07IL-b73GN-507

**shrunken kernel**
6301D sh*-03IL-A619TR-15
6301E sh*-03IL-A619TR-16

**small plant**
6509P smp*-03HI-B73GN-371
6509Q smp*-03IL-A619TR-1097

**striate leaf**
6506N str*-07IL-B73GN-175

**tassel branch number variation**
6609P fbr*-04MO-A619xB73GN-328

**upright tassel**
6609Q upt*-04HI-A632xOh43GN-255

**viviparous kernel**
6702G vp*-05HI-A632GN-11

**white stripe leaf**
6511L wst*-05HI-A632GN-54

**white stripe leaf (iojap-like)**
6511k ij*-07IL-B73GN-428
6511N ij*-03HI-B73xMo17GN-1216

**yellow stripe leaf**
6412M ys*-03HI-B73xMo17GN-1108
6412N ys*-04HI-A632xOh43GN-274

**Additionally, we now have:**

New sequence indexed stocks (tac, tds, tdsg from Hugo Dooner)
Near Isogenic Lines (DRILs - Developed by Randall Wisser and Peter Balint-Kurti)