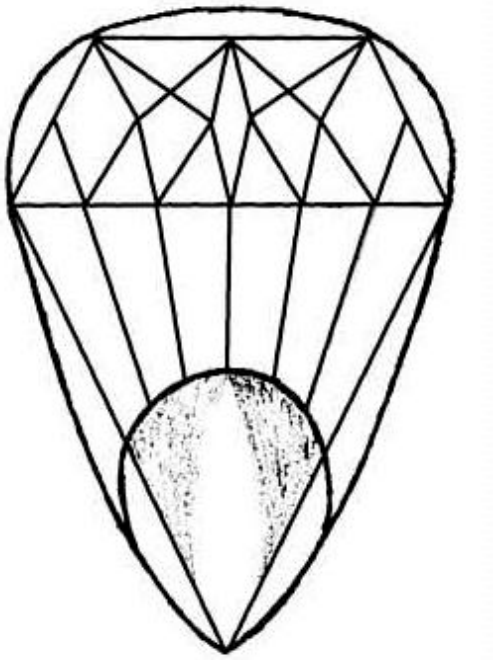
United States Department of Agriculture

Agricultural Research Service



Germplasm Enhancement of Maize

2013 GEM Cooperator Booklet

December 11th 2013

The information in this report is shared cooperatively.
The data are not published, but are presented with the understanding
that they will not be used in publications without specific consent of the public cooperator.

GEM Mission:

The mission of the GEM (Germplasm Enhancement of Maize) Project is to effectively increase the diversity of U.S. maize germplasm utilized by producers, global end-users and consumers.

The mission is achieved through collaborative efforts of USDA-ARS, public, and private research scientists by utilizing exotic, public, and proprietary maize germplasm. The resulting germplasm and associated knowledge, derived via the identification and incorporation of favorable alleles for prioritized traits from exotic sources, is shared and utilized in private and public breeding programs and ultimately contributes to increased genetic diversity of maize grown by producers and improved product performance.

In addition, the GEM project provides opportunities for training plant scientists in the enhancement and utilization of un-adapted germplasm. This contributes to the global sustainability of agricultural production, economic stability and the nutrition and well being of society.

GEM Cooperator Meeting Booklet
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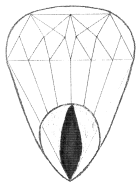 **G**ermplasm **E**nhancement of **M**aize	# Cooperator Meeting: **DATE:** **December 11, 2013** **HOUR:** **8:30 AM-12:00 PM** **LOCATION:** **Regency Ball Room D** **Hyatt Regency Hotel, Chicago**

Meeting called by: T. Hoegemeyer, Chair		
Agenda Topics		
Minutes of Dec 5, 2012	N. de Leon	8:30-8:40 AM
Elections	T. Hoegemeyer	8:40-8:50 AM
GEM Annual Reports	M. Blanco, M. Krakowsky	8:50-9:15 AM
Plot and data report	M. Shen	9:15-9:20 AM
Yield test results and new GEM releases	M. Krakowsky, M. Blanco	9:20-10:00 AM
Break		10:00-10:20 AM
A Report from the MAIZE ATLAS Project: Studies on Adaptation Across a Latitudinal Transect	Dr. Randy Wisser, University of Delaware	10:20-11:05 AM
Mining GEM's Allelic Diversity Project for Dominant Gametophytic Factors	Dr. Major Goodman, North Carolina State University	11:05-11:50 AM
Discussion		11:50-12:00 PM
Adjourn		12:00 PM

Annual Reports

2013 Annual Report of the GEM Project, Ames, IA and Raleigh, NC

GEM- Ames 2013 Highlights (Dr. Michael Blanco)

Midwest Germplasm releases and development:

- Two hundred sixty-five (265) GEM releases are now available to GEM Cooperators.
- Seven GEM lines from the Ames program are proposed for release to GEM Cooperators for the 2014 planting year. Yield data, and NIR results for protein, oil, and starch can be found on the CD and in the handout for 2013 released lines. Pedigree, race, percent exotic, heterotic background, agronomic characteristics, and NIR information are presented in Tables 1-3. Three of the releases are from accessions or lines with no previous GEM releases, one from Argentina, AR16042 (PI 516043), and two derived from CL-G1703 (later coded as CIMMYT tropical inbred CML 422).

Table 1. 2014 Ames-GEM Germplasm Releases (7)

GEM code	Pedigree	Race	Type	Country	Heterotic pattern	Grain Color	Cob Color
GEMN-0246	AR01150:N0402-B-026	Dente Blanco Rugoso	25% Temperate	Argentina	NSS	W	W
GEMN-0247	AR03056:N0902-064-001-B-B	Dentado Blanco	25% Temperate	Argentina	NSS	Y	R
GEMS-0248	AR16042:S2028-B-012-B-B	Cristalino Colorado	25% Temperate	Argentina	SS	Y	R
GEMN-0249	BR105:N1643-B-020-B-B	Composite (Suwan)	25% Tropical	Brazil	NS	Y	R
GEMS-0250	CL-G1703:S17c43-B-023-B-B	Tropical line (CIMMYT)	25% Tropical	Mexico	SS	Y	R/W
GEMS-0251	CL-G1703:S17c43-B-026-B-B	Tropical line (CIMMYT)	25% Tropical	Mexico	SS	Y	R/W
GEMN-0252	DKB844:N11b18-241-001-B-B	Hybrid-Tropical	25% Tropical	Mexico	NSS	Y	R

Table 2. Two Year NIR Trait Data of 2014 GEM-Ames Line Releases

GEM code	Pedigree	Protein*	Oil	Starch	Density
GEMN-0246	AR01150:N0402-B-026	11.88	4.60	69.35	1.312
GEMN-0247	AR03056:N0902-064-001-B-B	12.89	4.34	68.63	1.298
GEMS-0248	AR16042:S2028-B-012-B-B	13.19	3.77	69.54	1.318
GEMN-0249	BR105:N1643-B-020-B-B	14.04	3.79	68.61	1.351
GEMS-0250	CL-G1703:S17c43-B-023-B-B	12.48	3.87	69.56	1.333
GEMS-0251	CL-G1703:S17c43-B-026-B-B	11.15	4.05	70.56	1.326
GEMN-0252	DKB844:N11b18-241-001-B-B	12.30	4.69	68.75	1.308
Check	B73	12.75	4.16	68.94	1.310
Check	GEMN-0117 (protein check)	13.48	3.86	68.88	1.323
Check	GEMN-0156 (starch check)	11.03	3.32	71.90	1.346

*Whole grain composition analysis was generated using an NIR Infratech 1241 with sample transport module in Dr. Paul Scott's lab (USDA-ARS CICGRU). Samples were obtained from a bulk of at least 8 ears from self pollinated rows.

Table 3. Agronomic Traits Summary of 2014 GEM-Ames Line Releases

GEM Code	Pedigree	Days to Pollination	GDU to Pollination	Grain Color†	Grain Texture‡	Plant Height (cm)	Ear Height (cm)
GEMN-0246	AR01150:N0402-B-026	68	1376	2	7	190	90
GEMN-0247	AR03056:N0902-064-001-B-B	72	1451	3	4	190	130
GEMS-0248	AR16042:S2028-B-012-B-B	70	1413	5	4	198	75
GEMN-0249	BR105:N1643-B-020-B-B	72	1451	4	6	210	100
GEMS-0250	CL-G1703:S17c43-B-023-B-B	73	1461	6	5	210	100
GEMS-0251	CL-G1703:S17c43-B-026-B-B	72	1451	5	5	190	90
GEMN-0252	DKB844:N11b18-241-001-B-B	66*	1488*	6	6	215*	100*
Check	B73(2013)	73	1461	5	5	170	100
Check	B73 (2012)	65*	1459*			180*	80*

* Field data from 2012
† Grain color: 2=pale white, 3=very light yellow, 4=light (lemon) yellow 5=med yellow (B73), 6=dark yellow
‡ Grain texture: 4=med-deep dent, 5=med dent (B73), 6=shallow dent, 7=semi-dent (small dimple top of kernel)

2013 Research & Breeding Activities

- Approximately 400 top crosses of BC_1S_2 generation families of CUBA164xB73) x B73 and CUBA164xPHB47) x PHB47 were planted in yield trials at four locations at low, medium, and high population densities. This research is designed to provide a better understanding of the effects of exotic alleles from CUBA164, particularly for response to high plant density, and is part of an MS thesis study.
- Seventy new breeding crosses were made in the Ames nursery or shade house.
- GEM Cooperators made 13 additional breeding crosses as part of their in kind support.
- Thirteen new breeding cross populations were assigned to Cooperators for in kind support. Seventeen families of single seed descent (SSD) balanced bulks were advanced to S_2 in Ames, and three were advanced by Cooperators.
- Twenty-two populations of BC_1's were sibbed in Puerto Rico in January as a result of TSG member support. The BC_1-sib_1 generation was returned to Ames and random mated a second generation to generate the BC_1-sib_2. The random mated populations and the original BC_1's will be induced in 2014 to generate haploids, as well as advanced conventionally. This study was designed to compare the frequency of exotic alleles in doubled haploid lines developed directly from the BC_1 vs. from BC_1's random mated for generations, and similarly from conventionally derived lines.
- Ear and kernel images of 70 recommended GEM lines and their phenotypic descriptions are now posted to the GEM website.

Host Plant Resistance:

2013 disease data is reported on the GEM CD, and will be posted to our website (http://www.public.iastate.edu/~usda-gem/) in January. Pathology and entomology research collaborators from the private and public sectors screened GEM lines, top crosses, and breeding crosses for Northern Leaf Blight (NLB), Southern Leaf Blight (SLB), Goss's Wilt, Gray Leafspot (GLS), Diplodia ear rot (DIPPER), Aspergillus (aflatoxin and other mycotoxins), Corn ear worm (CEW), Fall Armyworm (FAW), and Western corn root worm (WCR). Please see the quality traits sections regarding ear mold and mycotoxin studies.

The wet spring followed by the dry summer impacted data collection and resulted in some missing plots at many locations. Appreciation is extended for the in-kind support and extensive efforts by private and public GEM Cooperators:

- DuPont/Pioneer Hi-Bred International (Bill Dolezal at Johnston, IA, and Mark Mancl at Woodland, CA). In Johnston, it was not possible to collect NLB or DIPPER data. However, at Woodland, CA, Fusarium ear rot and Head Smut were successfully evaluated.
- Professional Seed Research (Jim Dodd) for their efforts collecting data on GLS, Common Rust, SLB, and Goss's Wilt.
- 3rd Millennium Genetics (Ed and Raechel Baumgartner) for tropical insect evaluations on GEM lines in Puerto Rico which was particularly helpful to identify some material for Fall Armyworm.
- USDA-ARS-CGBRU (Xinzhi Ni) in Tifton, GA provided data for Corn ear worm (CEW), and Fall Armyworm.
- USDA-ARS-PSRU in Raleigh, NC provided data for SLB (Peter Balint-Kurti) and Fusarium ear rot (Jim Holland)
- USDA-ARS-PGRU, Columbia, MO (Bruce Hibbard) evaluated corn rootworm (CRW)
- USDA-ARS-CHPRRU, Mississippi State, MS (Paul Williams and Gary Windham) for aflatoxin in grain.
- MayAgro (GEM cooperator in Turkey) had a significant level of NLB and collected data for 38 GEM lines.
- Agriculture and Agri-Food Canada (Lana Reid) provided summaries of disease notes for GEM breeding crosses for 2011-2013 for NLB, common rust, eyespot, common smut, and Giberella ear rot.

Second year host plant resistance evaluation data (2013) will be posted to our website under "GEM Germplasm Releases and Key Traits" data for the following releases. CD data includes:

- Two additional GEM lines were identified with SLB resistance (GEMS-0223, GEMN-0239); 87 total released lines with SLB resistance for all years.
- Five additional lines were identified with GLS resistance (GEMN-0209, GEMN-0210, GEMN-0214, GEMS-0215, GEMN-0216); 31 total lines with GLS for all years.
- Two additional lines identified for Head Smut resistance (GEMN-0192 and GEMS-0219); 45 total released lines for all years.
- One additional line for Fusarium ear rot (FUSER) resistance (GEMN-0209); 36 total for all years.
- One line for Goss's Wilt resistance (GEMS-0219). This was the best line with two years of good data, and the only line identified so far for Goss's Wilt resistance.

Ames 2013 Allelic Diversity (AD) and Double Haploids (DH):

- The Iowa State University Doubled Haploid Facility continues to partner with the GEM Project on development of DH lines. Approximately 252 lines (representing ~52 races) will be jointly released by ISU and USDA-ARS in early 2014 as part of the Allelic Diversity Project. The DH lines will provide unique genetic resources for a wide variety of maize research applications.
- Approximately 15,000 pollinations (1,158 rows) were made to increase seed of the 252 DH lines to be distributed, and phenotypic information was collected at three locations.
- Approximately 237 new DH lines (DH_0) were generated in the doubling block and will be advanced to DH_1 in 2014. This was part of Andrew Smelser's thesis research to study the rate of induction and doubling with exotic germplasm from the allelic diversity project. Twenty-four new DH lines were grown in the nursery but require further increase in 2014 to produce distribution quantities.
- Self pollinations were made in 174 rows ranging from BC_1F_5 to BC_1F_6 allelic diversity project germplasm to generate the BC_1F_6 to BC_1F_7 generations. This effort is part of the GEM allelic diversity project but information will be used in various thesis research projects

Ames 2013 Yield Test, Nursery and Other Highlights:

- Approximately 10,334 plots (1,839 entries) were managed or coordinated through Ames in 2013. Among these, 490 entries (26.6%) were in 2nd year and 1,349 entries were in 1st year trials.
- Two hundred sixty-one (261) top crosses out of 1,839 entries exceeded the mean yield of the check hybrids in Midwest trials in 201**3**. Of the 261 hybrids that exceeded the mean, 186 were from first year trials, and 75 from second year trials.
- Approximately 5,075 nursery rows and 2,181 isolation rows were managed by Ames.
- One hundred new breeding crosses were observed and evaluated for breeding potential in Ames, IA, Ft. Branch, IN (AgReliant), and Memphis, TN (G&S Crop Services). Twenty-two breeding crosses (of 100

observed) had above average general appearance at more than one location and will be considered for development.

- Field Days, Publications, and Outreach: Four GEM field days were held in Ames, IA, Fargo, ND, Etter, TX, and Beijing, China. Frequent visitors over multiple days at each location resulted in more than 900 visitors. Eleven peer reviewed manuscripts and 15 presentations (seminars, posters, and other outreach) were presented by researchers and graduate students. Details of field days, publications and outreach are included at the end of this report.

Quality Traits (including grain mold/mycotoxin):

- One released line for 2013, GEMN-0249, had protein content of 14.04% (vs B73 at 12.75%)
- Seven GEM lines were converted by Ingredion to waxy (wx) and were increased in Ames in 2013. These include wx conversions of GEMN-0082, GEMN-0097, GEMS-0113, GEMS-0115, GEMN-0156, GEMN-0157, and GEMS-0161. Limited seed quantities will be available upon request pending seed availability.
- Crosses with inbred line KO679Y have shown low levels of aflatoxin in 2013 as well as 2012. Although overall aflatoxin content was low in the 2013 experiment, KO679Y and GEMS-0030/KO679Y had 2.66 ppb, and 2.58 ppb respectively. These levels were not significantly different from two resistant checks, Mp313E/Mp494 (1.86 ppb) and Mp719 (1.16 ppb). The test average aflatoxin level was 4.51 ppb, and the LSD was 1.65 ppb. The report of ARS scientists Paul Williams and Gary Windham is available on the CD.
- Five lines (Tx206, 207, 208, 209, 210) with the brown midrib (BMR) trait were released from Texas A&M AgriLife Research in Lubbock. The lines were developed from a three-way breeding cross that included GUAT209:N19 from the GEM Project crossed to a bmr_1 source from Texas A&M University.

New GEM Cooperators in 2013:

Two new private U.S. Cooperators joined the GEM Project in 2013. Trimble Genetics International, LLC will evaluate breeding crosses for adaptability and disease resistance in Guatemala and Mexico. CRD Advisors, LLC will conduct yield trials, and produce top cross seed in isolation crossing blocks.

GEM-Raleigh Highlights (Dr. Matt Krakowsky)

Germplasm releases:

While there were entries in the third-year trials EX51 and EX56 that could have merited release of the basis of yield alone, the overall combination of yield, moisture, and other agronomic traits did not warrant recommendation to GEM cooperators. These entries will be recycled in the 2014 nursery.

Germplasm development:

- Overall, there were about 1900 GEM nursery plots and 800 GEM isolation plots in Raleigh, with additional GEM-related nursery managed by Major Goodman.
- S_1 families were developed from twelve breeding crosses: BR106:(GEMN-0097), BR51501:N11a, BR51501:S11a, BR51721:S20, GUAT209:N19, PASCO14:S11, BR106:N42, BR106:S42, BR51675:D27S21, FS8B(S):S17b, NS1:(GEMN-0097), and NS1:(GEMS-0115).
- Families from six GEM breeding crosses were advanced from S_1 to S_2: CL-G1501:N15, CML312:S17d, CML341:S42, CML343:S(NS701), NC298:S42, NC300:S42, and CML420:S18.
- Eighteen GEM x GEM F_1 combinations were produced based on yield trial data.
- Fifteen new breeding crosses were developed between a tropical hybrid (ATL100 from Brazil) and four tropical inbreds (89291 from IITA-Cameroon, CML375 and CML449 from CIMMYT, and CA00370 from CIMMYT-Asia) and GEM-Ames releases (GEMS-0091, GEMN-0097, and GEMS-0113). Both groups were selected based on performance in yield trials.

Germplasm Evaluation in 2013:

- Overall, approximately 13,500 yield plots were coordinated from Raleigh, with approximately 8,400 planted in NC and the rest planted by seven cooperators at various locations throughout the Southeast and Midwest.
- Sixteen entries were evaluated at 18 locations in third-year trials (EX51 and EX56; see Yield Trials section)
- Ninety-six entries were evaluated in second-year trials, thirty-three of which will be evaluated in third-year trials in 2014.
- 225 entries were evaluated in first-year trials, approximately seventy of which will be evaluated in second-year trials in 2014.
- Evaluations of GEM releases from Raleigh and Ames were conducted in two experiments (EXP8 and EXP9) for the second year to identify lines with the best potential for use in GEM x GEM crosses. EXP8 (releases from Raleigh) was planted at locations in the southern Corn Belt and southeast, while EXP9 (releases from Ames) was planted in North Carolina and the Corn Belt. A subset of the best performing GEM lines from the 2010 and 2011 trials (EX26-EX29) were planted in the 2013 trials along with more recent releases. Ex-PVPs were included in both trials for comparisons with GEM releases (see Yield Trials section).
- One hundred and six tropical and subtropical inbreds were evaluated at seven locations in EXS4 and EXS5. These were selected from a group of 160 inbreds that were evaluated in preliminary trials in 2012 (see Yield Trials section).
- Breeding crosses were evaluated *per se* in the Raleigh nursery and data is presented in the Breeding Crosses section under 2013 Raleigh.
- Ex-PVP inbreds were evaluated by Major Goodman at five locations in North Carolina and results for four trials conducted over three (EXG2 and EXG3), two (EXA2) or one year (EXF1) will be available on the GEM website and in this booklet in Yield Trials section.

Allelic Diversity:

- There were 400 summer nursery rows dedicated to the development of F_1s and BC_1s for the Allelic Diversity project, along with 320 rows in the winter 2013/2014 nursery. Effort was made to plant some of the late-maturing accessions several weeks earlier than the rest of the winter nursery so that crosses could be made to PHB47 and PHZ51, and this appears to have been helpful for all but a handful of the very latest accessions.
- Twenty-eight BC1 families and twenty-five F_1s were completed this summer in Raleigh; eight BC_1 families and fifteen F_1s were also completed in the winter 2012/2013 nursery.

Other GEM-Raleigh recommendations:

- Based on 2013 nursery observations, some of the most promising new breeding crosses include La_Posta_SeqC7_F71-1-1-1-2 x GEMS-0113, CML494 x GEMN-0097, GEMN-0097 x CML274, GEMS-0113 x GEMS-0006, GEMN-0043 x GEMN-0104, and GEMN-0124 x GEMN-0119.
- Some of the best entries in EXP8 were GEMS-0032, GEMN-0043, GEMN-0104, GEMN-0119, GEMN-0207, GEMN-0208, and GEMN-0212. GEMN-0207 and GEMN-0208 are closely related to each other and GEMN-0212 was derived from GEMN-0104. Efforts are already underway to recycle GEMS-0032, GEMN-0043, GEMN-0104, and GEMN-0119, among others, and GEMN-0207 will be included in those efforts in 2014.
- Some of the best entries from EXP9 were GEMS-0050, GEMS-0091, GEMN-0097, GEMS-0113, GEMN-0158, GEMS-0175, GEMS-0202, GEMS-0220 and GEMS-0222. GEMN-0097 had the best value for Y/M (as it had in EX28 from 2010-2011) but displayed relatively poor standability in the 2012and 2013 Raleigh summer nurseries. Efforts are already underway to recycle GEMS-0050, GEMS-0091, GEMN-0097, GEMS-0113, GEMN-0158, and GEMS-0175, among others, and GEMS-0202, GEMS-0220 and GEMS-0222 will be included in those efforts in 2014.
- Based on limited evaluations, promising subtropical/tropical inbreds from trials EXS4 and EXS5 include FL_4BT7 (trop. x temp., used as a tester for Florida Synthetic A), 89291 and CA00370 (mentioned earlier), AC454 (origin/pedigree unknown), N3-2-3-3 (from Zimbabwe), La_Posta_Seq_C7_F71-1-1-1-2-B-B-B and its derivatives and CML105, CML295, CML438, and CML494 (from CIMMYT). La_Posta_Seq_C7_F71-1-1-1-2-B-B-B, 89291 and CA00370 have already been used to develop new breeding crosses, and the others will be crossed on to testers next year to determine if a heterotic "preference" exists in these tropical lines.
- Some of the most promising ex-PVPs based on yield trial data are DK6M502, NKW8555 and PHM57 from EXG2; Wilson 900 from EXG3; and DKF118, DK6F629 and DKMM402A from EXA2. Few of the ex-PVPs had higher yields than B73 or Mo17 in these trials, and none were significantly higher, though this is likely due to the use of relatively broad-based testers (LH132xFR1064 and LH283xLH287) that may not align completely with the heterotic patterns used by the private companies.

Public Cooperator Reports:
The GEM Project was unable to fund SCA's in 2013 due to sequestration and restrictions subsequently imposed. Although no funds were available, some of the former SCA cooperators continued research activity. Three public cooperators volunteered reports, Dr. Jay-lin Jane, Iowa State University, and Dr. Marcelo Carena, North Dakota State University, and Wenwei Xu, Texas A&M University. Their reports are below.

Development of GEM line starch to improve nutritional value and bio-fuel production
Prepared by Hanyu Yangcheng and Jay-lin Jane, Department of Food Science and Human Nutrition, Iowa State University

Specific objectives of this research project were to (1) characterize the molecular structure and starch granule formation and develop analytical methods to identify germplasm for high-digestibility and resistant starch, (2) characterize and develop utilizations of GEM line starch to improve nutritional value to humans and animals, and (3) characterize GEM line normal and waxy starch for biofuel production and to improve the yield of ethanol. During the year of 2013, we studied effects of harvest date on starch structures and properties using Ex-PVP inbred lines G80 and LH82 from seed provided by the North Central Plant Introduction Station (NCRPIS). Results showed that starch isolated from corn harvested on a later date, Oct. 25th, displayed higher gelatinization-conclusion temperatures (T_c) and smaller molecular weights of amylopectin compared to those from corn harvested on Oct. 5th. The results suggest that degradation of starch molecules occurs with delay of harvest, post-maturity.

High amylose/high oil hybrids were produced by crossing GEM high-amylose corn lines with GEM high-oil corn lines. Hybrid kernel starches were isolated and studied to reveal impacts of combining high amylose and high oil kernel traits on the starch digestive rate. Results showed that the hybrid corn starches had higher resistant starch content, and lower rapidly digestible starch content than the inbred parent line starches of high-oil corn and high-amylose corn.

Hybrid seed of four waxy lines and one normal hybrid and their respective inbred parent lines were used for an ethanol production study using a cold-fermentation process. The ethanol yields of the hybrid were similar to those of the inbred parent lines when comparisons were made on the same kernel weight basis. The starch-to-ethanol conversion rates and 100-kernel weights of the hybrid corn samples, however, were larger than those of the inbred parent lines.

The NDSU Corn Breeding and NDSU EarlyGEM Programs: Increasing the Genetic Diversity of Short-Season Corn. Prepared by Marcelo Carena, North Dakota State University
NEW SHORT-SEASON (85-90RM) NDSU EARLYGEM RELEASES

LINES: ND2024, ND2026, ND2027 (all non-SS)

New NDSU EarlyGEM populations released in 2012 are being tested in diallel and North Carolina II mating designs with North Dakota Stiff Stalk and non-stiff Stalk versions. They are also being improved with intra- and inter-population recurrent selection methods that integrate pre-breeding with cultivar development. EarlyGEM populations and lines are also being tested for value-added properties for ethanol and its bi-products utilization as well as for nutritional properties. NDSU has received fees and royalties.

Thousands of early generation EarlyGEM lines have been screened under controlled winter nursery conditions for cold and drought tolerance. Selected late generation lines have been tested in hybrid trials with GMO industry testers across over 50 public and private northern U.S. environments. Public x public non-GMO hybrid combinations are being produced in our 2013-2014 winter nursery including EarlyGEM, ex-PVP, and traditional NDSU short-season lines.

This NDSU corn breeding subproject addresses the need for increasing the genetic diversity and value-added of northern U.S. hybrids. The common and diverse gene pool will add unique genes to the corn genomes already

sequenced (e.g., B73, NAM, etc.) for all traits. Our intention is to develop a common and diverse gene pool for northern U.S. to significantly increase productivity without reaching a bottleneck in genetic diversity.

Use of GEM Germplasm for Evaluation and Development of Drought Tolerance, Corn Ear Worm Resistance, and Low Aflatoxin

Wenwei Xu, Agricultural Research and Extension Center, Texas A&M University, 1102 East FM 1294, Lubbock, TX 79403. Tel.: 806-746-4015, E-mail: we-xu@tamu.edu

This report highlights the major activities and accomplishment related to this former SCA project which is continuing research on GEM material. The objectives of this project were: (1) Select, advance, and release stress-tolerant inbred lines from GEM germplasm; (2) Evaluate GEM breeding crosses for drought and heat tolerance, corn ear worm resistance, and agronomic performance in Texas.

We evaluated about 100 testcrosses between GEM lines (developed in Lubbock) with public and licensed proprietary lines for grain yield, corn earworm (CEW) resistance, and drought tolerance in the Texas High Plains (Lubbock, Halfway, and Dumas) under well-watered and drought conditions and in the south-central Texas (College Station, Corpus Christi, Ganado, Uvalde, and Wharton). Inbred lines have been developed from ANTIGO01:N16, AR03056:N0902, BR5205:N04, CH05012:N12, CUBA117:S15, CUBA164:S20, DK888:N11, DK888:Na08f, DKXL380:S08a, FS8A(T):N11a, and GUAT209:N19 SCROGP3:N1411a., SCROGP3:N2017, and SCROP1:N1318. Four inbred lines have been licensed to a seed companies. One of our inbred lines is used as a parent line for a commercial hybrid which is currently widely grown in the southern US. In addition, we have developed the brown midrib (BMR) lines with the background of GUAT209:N19 (*bm1*) and DK888:N11 (*bm3*). Five inbred lines (Tx206, Tx207, Tx208, Tx209, and Tx210) with the *bm1*-controlled BMR trait were officially released in November, 2012 by the Texas A&M University (Xu et al., 2013). These five lines were developed from the three-way cross GUAT209:N19 x C2B105BM. GUAT209:N19 was obtained from the GEM project. The testcrosses of these BMR lines with a non-BMR tester have excellent grain and silage yield. Tx208 and Tx209 are also resistant to gray leaf spot disease. Four BMR inbred lines (*bm3*) with the background of DK888:N11 have been licensed to a seed company. In 2013, we evaluated 40 GEM breeding crosses in Lubbock and Halfway for drought and heat tolerance, corn earworm resistance, and grain yield, held a field day at Etter on August 22, and hosted a number of corn breeders from several seed companies to tour our corn breeding nursery and test plots including GEM materials.

Evaluation of 40 GEM Breeding Crosses: The 40 GEM breeding crosses and five commercial hybrids were grown in the field under well-watered conditions at Halfway and drought stressed conditions in Lubbock, Texas in 2013 (Table 1 on CD). Tests at each location used a randomized complete block design with two replications and two-row plots. Plants in the drought tolerance test in Lubbock experienced a severe hail storm damage at V-9 stage. From these field trials, we identified breeding crosses for drought and heat tolerance, CEW resistance, and *Fusarium* ear rot. BR105:S1626f99aj, BR106:N99z46, BR106:N99amT4799ba, and TZAR104:N99bb99bq had excellent grain yield under well-watered and drought conditions, resistant to CEW, and tolerant to heat stress. They are my choices for further breeding. We identified five breeding crosses having low corn earworm damage: BR105:S1626f99aj, BR106:N99amT4799ba, ((KO679Y/CUBA117:S15-101-001-B-B-B-B-B-B-B)/GEMS-0016)-B, (GEMS-0002/CUBA117:S15-101-001-B-B-B-B-B-B-B)-B, and BR106:N99z46. Four breeding crosses were resistant to *Fusarium* ear rot: BR105:S1626f99aj, BR106:N99amT4799ba, (GEMS-0002/CUBA117:S15-101-001-B-B-B-B-B-B-B)-B, and (GEMS-0126/GEMS-0002)-B. Twelve breeding crosses were sensitive to high temperature, including ATL100:N99bb99bp, BR106:S4299ah, BR106:N4299, CL-G1703:S17c43, CML373:S99y99bd, CML373:S99az99bs, (GEMS-0147/GEMS-0180)-B, (GEMS-0219/GEMN-0152)-B, (GEMS-0030/CUBA117:S15-101-001-B-B-B-B-B-B-B)-B, (H8431/((GEMS-0115/Mp717)/TZAR101))-SIB, (((26e/GEMN-097)-SIB-SIB)/GEMN-0046)-SIB, and ((KO679Y/CUBA117:S15-101-001-B-B-B-B-B-B-B)/GEMS-0016)-B (Table 1 on CD).

GEM TSG Meeting, August 13, 2013- Highlights:
The GEM Technical Steering Group (TSG) meeting was held at the Central Crops Research Station in Clayton, NC on August 13, 2013. A tour of the nurseries was hosted by Matt Krakowsky, David Marshall, Major Goodman, and Dale Dowden. Graduate students Oliver Ott, and Jill Recker also participated and presented highlights of their research. Oliver discussed screening allelic diversity project BC_1's for resistance to SLB, and Jill discussed research on teosinte introgression in B73 background for GLS and SLB disease. The tour included inbred and top cross observations of Raleigh and Ames materials, as well as new potential breeding crosses and Ex-PVP lines. Several important topics included strategies for future development of germplasm, and the role of the public sector. Four action items included 1) pursue new collaborations to obtain greater access to tropical germplasm (inbreds and tropical hybrids), or requesting that breeding crosses be made in a cooperators nursery with tropical inbreds, 2) divert more breeding effort to recycling GEM lines and less emphasis on new breeding populations, 3) develop strategies to engage the public sector to identify useful genetic segments in GEM lines, 4) study whether random mating allelic diversity BC_1's prior to selection and selfing is important when working with exotic germplasm.

PERSONNEL UPDATE:

Ames: ***USDA-ARS Plant Introduction Res. Unit***

Dr. Mike Blanco, GEM Coord. and Geneticist
GEM Technician position (Vice Smelser) vacant
Fred Engstrom, GEM Technician
Dr. Mack Shen, IT Specialist
Adam Vanous, Iowa State University, Ph.D. student
Dr. Candice Gardner, Research Leader

Raleigh: ***USDA-ARS Plant Science Res. Unit***

Dr. Matt Krakowsky, Southeast GEM Coord.
Dale Dowden, Agricultural Research Technician
Dr. Peter Balint-Kurti, Research Geneticist
Dr. Jim Holland, Maize Research Geneticist
Dr. David Marshall, Research Leader

Raleigh: ***North Carolina State University***
Oliver Ott, Graduate Student
Jill Recker, Graduate Student
Dr. Major Goodman, William Neal Reynolds Distinguished Professor

IN KIND NURSERY AND TRIAL SUPPORT MIDWEST GEM PROJECT IN 2013:

Table 4. Private In-Kind Support – Summer 2013

3rd Millennium Genetics (Puerto Rico)	Tropical insect evaluations
	Make S1's in GEMN-0178/GEMN-0140-B
	Make S1's in GEMS-0113/GEMS-0162-B
AgReliant Genetics LLC	Advance S1's to S2 in TZAR104:N99ba99bk
	Breeding cross evaluations
	Yield trials
BASF Plant Science LLC	Yield trials
Beck's Superior Hybrids, Inc.	Make S1's in CML373:S(DJ7)(GEMS-0188)
	Yield trials
Brandy Wine Seed Farms LLC	Make breeding crosses
CAAS (China)	Evaluate breeding crosses and lines for agronomic phenotypes
	Evaluate MRDV, Head Smut, Gibberella stalk rot
DKD Genetics, Inc.	Make S1's in (GEMS-0115/GEMS-0222)-B
DowAgroSciences	Top cross S2's in BR51501:N11a08bT4799ba
	Advance S1's to S2 in TZi 9:S21z99aq-B
	Yield trials
Forage Genetics	Make S1's in TZAR104:N(LH82)(GEMN-0192)

Forage Genetics	Make S1's in NS1:S(GEMS-0149)41
	Yield trials
G and S Crop Services LLC	Make new breeding crosses
	Breeding cross evaluations
Genetic Enterprises Int'l	Make breeding crosses
Illinois Foundation Seeds, Inc.	Top cross S2's in Ki21:S99al99y
	Top cross S2's in BR51501:N11a08bT4799bc
	Advance S1's to S2 in LH61/(AYA20351/GEMN-0124)-SIB-SIB
	Make breeding crosses
	Yield trials
Ingredion, Inc.	Backcross wx into GEM released lines
	Yield trials
JFS & Associates, Ltd.	Top cross S2's in CHIS740:S99x99at
	Top cross S2's in CML349:N99ao99ax
	Make breeding crosses
MayAgro (Turkey)	Make S1's in Ki21:S99al99y
	Northern leaf blight evaluations
MBS Genetics LLC	Top cross GEM lines
Monsanto	Make S1's in CML373/GEMS-0115//PHJ40
	Make S1's in CML341/GEMS-0016//LH220HT
	Top cross S2's in BR51039:N1512
	Make breeding crosses
	Yield trials
PANNAR	Yield trials
Pioneer Hi-Bred, Int.	Allelic Diversity support
	Multiple disease evaluations of GEM lines in IA and CA
Professional Seed Research	Multiple disease evaluations of GEM lines
Seed Asia (Thailand)	Breeding cross evaluations
	Disease evaluations for Downy mildew, NLB, Southern rust
SEEDirect	Yield trials
Syngenta Seeds, Inc.	Makes S1's in CML287:N99aiN11e
	Make S1's in BR51039:S99bdS11h
	Yield trials
Terrell Seed Research	Advance S1's to S2's in AR17056:S1912-B
Wyffels Hybrids	Makes S1's in Ki14:S21z42
	Yield trials

Table 5. Private In-Kind Support – Winter 2013-2014

AgReliant Genetics LLC	Top cross S2's in TZAR104:N(LH82) x GEMN-0205
Beck's Superior Hybrids, Inc.	Make S1's in ATL100:S99bd99av
Ingredion, Inc.	Backcross wx into GEM released lines
Monsanto	Top cross S2's in BR51039:N1512
	Advance S1's to S2 in CML373/GEMS-0115//PHJ40
	Advance S1's to S2 in CML341/GEMS-0016//LH220HT
Pioneer Hi-Bred, Int.	Allelic Diversity Support
Semillas Tuniche	Make S1's in Ki21:S21z99bd
Syngenta	Top cross selections from CML287:N99aiN11e Top cross selections from BR51039:S99bdS11h

Table 6. 2013 GEM Yield Trial Summary

Expt #	Material	Tester	Total	Reps	Source	Entry Yield Avg.	Check Yield Avg.	CV (%)	LSD *p*=0.05	# Above Check Avg.
131301	BR105:N99ae99ai	HC33	40	5	GEM	175.1	205.4	11.0	24.9	0
131302	BR105:N1652	HC33	50	5	GEM	160.1	190.3	12.1	25.1	2
131303	CML349:N99ap99z	HC33	60	5	GEM	150.9	180.2	11.3	21.7	0
131304	BR105:N99af99ak	HC33	60	5	GEM	165.5	188.9	12.1	25.4	2
131305	SANM126:N1241	HC33	20	5	GEM	147.2	171.8	15.4	29.9	0
131306	CML325:S1840	LH287	50	5	GEM	167.1	188.6	16.8	38.1	3
131307	DKXL370:S08b46	LH287	50	5	GEM	155.8	177.6	18.2	36.3	3
131308	PASCO14:S11a21	LH287	70	5	GEM	158.9	195.4	15.1	30.4	0
131309	BR106:S99a99k	LH287	20	5	GEM	176.8	200.1	10.0	23.3	0
131310	Retest	LH287	30	8	GEM	181.2	195.0	12.6	23.8	6
131311	Retest	HC33	40	8	GEM	166.3	193.9	10.8	18.3	0
131312	NEI9004:N0846	AGR-SS	80	6	AGR	161.0	175.4	15.8	35.7	12
131313	CML325:S1840	SGI071	30	5	IFS	164.5	248.7	9.7	22.0	0
131314	CML325:S1840	SGI079	42	5	IFS	212.1	229.5	9.0	24.7	3
131315	BR105:S21z99ah	MON-nSS	84	6	MON	191.5	197.5	8.8	22.2	26
131316	BR105:N99z11	SYG-SS	46	4	SYG	206.2	214.7	9.4	27.2	7
131317	CML341:S99y11	SYG-nSS	46	4	SYG	202.6	202.9	9.4	26.9	24
131318	Ki21:N99ap99z	R6258RMQKZ	30	6	BAS	162.9	163.6	15.5	28.8	12
131319	Ki21:N99ap99z	F0297RMQKZ	30	6	BAS	164.9	167.8	14.7	27.9	12
131320	BR105:N99z11	SYG-SS	46	4	SYG	203.6	209.7	8.3	23.9	13
131321	CML341:S99y11	SYG-nSS	46	4	SYG	207.4	209.1	10.3	30.0	16
131401	53NS1/GEMN-0178	HC33	40	5	GEM	147.9	185.2	10.7	20.7	0
131402	GEMS-0175/GEMS-0184	LH287	50	5	GEM	183.3	185.4	11.7	26.9	20
131403	(KO679Y/GEMS-0115)/GEMS-0181	LH287	30	5	GEM	175.8	181.3	11.4	25.7	6
131404	KO679Y/GEMS-0115	LH287	50	5	GEM	194.7	209.3	10.8	27.2	1
131405	PASCO14:S212612	DAS-nSS	72	6	DAS	176.2	186.8	10.0	20.8	9
131406	53NS2/GEMN-0128	MON-SS	57	6	MON	200.1	208.7	9.1	25.6	15
135201	AR16038:S99n	LH287	40	5	GEM	144.2	196.6	18.0	34.9	0
135301	CH05027:F44N46	HC33	40	5	GEM	150.1	179.7	11.7	22.6	0
135302	CH05015:N4049a	HC33	70	5	GEM	156.8	195.0	14.6	33.9	0
135401	Retest	LH287	40	8	GEM	167.0	180.3	13.6	22.7	3
136401	Retest	MBS3633	70	8	GEM	167.2	169.5	14.6	24.3	32
136402	Released Line Retest	MBS9508	40	8	GEM	157.9	177.2	12.3	19.5	1
136403	Retest	HC33	30	8	GEM	158.4	179.1	13.6	22.0	1
136404	Retest	MBS8814	40	6	GEM	187.7	189.0	11.6	25.2	17
136405	GEMxGEM	NA	60	5	GEM	143.7	163.8	11.9	24.6	4
136406	Early Retest	NA	40	5	GEM	147.1	165.2	10.0	18.9	4
136407	Released Line Retest	HC33	30	8	GEM	161.6	174.4	13.8	22.4	3
136408	BC Test	NA	30	4	GEM	151.9	165.9	15.0	33.2	3
136410	Waxy Test	NA	40	8	ING	154.8	186.7	16.1	29.2	1
40						**170.2**	**189.6**	**12.4**	**26.2**	**261**
					Total number of entries above the check means =	261.0				
					The number of the reps lost =	9.0				
					Percentage of reps lost (%) =	4.0				

PUBLICATIONS (Peer Reviewed):

Carena, M.J. 2013. Challenges and opportunities for developing maize cultivars in the public sector. Euphytica 191:165-171.

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Hallauer, A.R., and M.J. Carena. 2013. Recurrent selection in maize. Maydica 57:266-283.

Henry, W.B., Windham, G.L., Rowe, D.E., Blanco, M.H., Murray, S.C., Williams, W.P. 2013. Diallel analysis of diverse maize germplasm lines for resistance to aflatoxin accumulation. Crop Science. 53:394-402.

Junping Chen, Wenwei Xu, Jeff Velten, Zhanguo Xin, and John Stout. 2012. Characterization of maize inbred lines for drought and heat tolerance. Journal of Soil and Water Conservation 2012 67(5):354-364; doi:10.2489/jswc.67.5.354.

Romay, M., M. Millard, J. Glaubitz, J. Peiffer, K. Swarts, T. Casstevens, R. Elshire, C. Acharya, S. Mitchell, S. Flint-Garcia, M. McMullen, J. Holland, E.S. Buckler and C.A. Gardner. 2013. Comprehensive genotyping of the USA national maize inbred seed bank. Genome Biology 14:R55.

Sharma, S., and M.J. Carena. 2012. NDSU Early GEM: Increasing the Genetic Diversity of Northern U.S. Hybrids through the Development of Unique Exotic Elite Lines. Maydica. 57:34-42.

Xiao Dan Liu, Shu-Hua Li, Guo-liang Xu, Yingen Xue, Wenwei Xu*. 2012. Review of genetically modified maize. Journal of Maize Science. 20(6):1-8. (*corresponding author).

Xu, W., Marek, T., and Blanco, M. 2013. Registration of maize germplasm Tx206, Tx207, Tx208, Tx209, and Tx210. Journal of Plant Registrations. Submitted.

Yangcheng, H., Jiang, H., Blanco, M.H., Jane, J. 2013. Characterization of normal and waxy corn starch for bioethanol production. Journal of Agricultural and Food Chemistry. 61:379-386

INVITED PRESENTATIONS AND SEMINARS

Lubberstedt, T.L. Use of Doubled Haploids in the Context of Genetic Resource Exploitation. University of Kiel, Germany April 26, 2013. Seminar.

Lubberstedt, T.L. Use of Doubled Haploids in the Context of Genetic Resource Exploitation. University of Aarhus, Denmark June 6, 2013. Seminar.

Ott, O. 2013. Screening Allelic Diversity Project BC1s for Resistance to Southern Leaf Blight. GEM TSG Meeting Presentation, August 13, 2013, Raleigh, NC

Recker, J. 2013. Teosinte Introgressions in a B73 background for Gray Leaf Spot and Southern Leaf Blight Resistance. GEM TSG Meeting Presentation, August 13, 2013, Raleigh, NC

Wenwei Xu. Breeding drought tolerant corn. Plant Breeder Circle at Department of Soil and Crop Science, Texas A&M University, January 25, 2013. College Station, TX.

Wenwei Xu, S. Murray, G. Odvody, D. Lee, H. Abbas, M. Brewer, T. Isakeit, M. Krakowsky, X. Ni, B. Scully, W.P. Williams. Breeding and testing for aflatoxin resistance. 2012 AMCOE Project Results. February 26, 2013, Gaylord Palm Resort, Kissimmee, FL.

Wenwei Xu. Frontiers in US corn breeding and breeding for drought corn. Gansu Agricultural University. October 25, 2013. Lanzhou, China.

Wenwei Xu. Frontiers in US corn breeding. Nanjing Agricultural University. October 28, 2013. Nanjing, China.

Wenwei Xu. New Maize Breeding Technologies and Progress in Improving Drought Tolerance and Aflatoxin Resistance with Native Genes from Exotic Germplasm. Asian Seed Congress 2013. November 21, 2013. Kobe, Japan.

OUTREACH, PUBLIC RELATIONS AND FIELD DAYS:

Brown, C. and J. Barna. 2013. Genetic diversity holds the key to the future of sustainable agriculture and industry HARRY: A JOURNAL OF THOUGHT AND ACTION A-Maize-ing Science: Issue #2: 2013 pp 9-10. http://issuu.com/trumanstateuniversity/docs/harry_interactive_pdf_109caac1c1c782/1?e=3591832/4732734.

Burke, J., D. Bodoecker, J. Beck and M. Campbell. 2013. Creating Databases and Phylogenetic Tree Browsers to Assist in Marker-Assisted Gene Selection Studies. 2013. Student Research Conference. Kirksville, MO (*Oral Paper).*

Emery, M., M. P. Scott, J. Jane. 2013. Improving the Nutritional Quality of Maize by Altering Starch Digestibility. Seventh Annual, Norman Borlaug Lectureship Poster Competition, for Graduate and Undergraduate Students. 2013 World Food Prize ISU's Oct. 14. http://www.news.iastate.edu/news/2013/09/30/borlauglecture#sthash.57t7qBKt.dpuf.

Frazer, A., D. Franklin and M. Campbell. Analysis of Single Maize Kernels to Predict the Presence of Alleles Altering Grain Composition Using Transmittance Imagery With or Without Polarized Light . 2013 Student Research Conference. Kirksville, MO, April 20. (*Poster).*

Henriot, F. 2013. QTL detection in a BC1-DH population using multiple exotic donors. M.S. Thesis Creative Component. Iowa State University.

Shrestha , S., M. Campbell 2013. Continued studies in optimizing and implementing an '*in vitro'* method for determining genetic variation in maize starch digestion rates. TRUMAN STATE UNIVERSITY 2013 SUMMER RESEARCH SYMPOSIUM Saturday, August 24, 2013 Georgian Rooms, Student Union. http://osr.truman.edu/Symposium_Program_2013.pdf

Ames, IA GEM Project (M. Blanco) 20th Anniversary GEM Project Field Day:
September 20, 2013: More than 80 people attended the GEM 20th Anniversary Field Day. The TSG Chair Tom Hoegemeyer, University of Nebraska-Lincoln, and David Bubeck, Research Director, North America Maize Product Development, Dupont/Pioneer Hi-Bred, presented interesting perspectives on the history, origins and evolution of the GEM Project. Both individuals have been continuously involved with GEM since 1993 and spoke to the importance of this project and continuing commitment of resources to achieve objectives. Other speakers included Dr. Robert Matteri, USDA-ARS Midwest Area Director; Peter Bretting, USDA- ARS National Program 301 Leader; and Joe Colletti, Associate Dean, Iowa State University College of Agriculture & Life Sciences. Visitors toured the plot demonstrations which featured released lines from 2012 and 2013 (Raleigh and Ames), new experimental lines for potential release, doubled haploid lines, a breeding history section, and the shade house, including a population density observation for old and modern germplasm.

- More than 160 visitors from 23 countries visited the GEM demonstration plots and the NCRPIS in August-September, 2013.

Fargo, ND North Dakota State University (M. Carena) 2013 Nursery Tours:

- Over 500 US and international visitors toured summer breeding nurseries with new NDSU EarlyGEM line and population releases.

Etter, TX Texas A&M University (W. Xu) 2013 Field Day:

- August 22, 2013: Texas High Plains limited irrigation field day held for corn producers, seed companies, policy makers, consultants, and underground water conservation district. Approximately 45 visitors.

Beijing, China, Chinese Academy of Agricultural Sciences (CAAS) 2013 Field Days:

- September 25-October 9: The second international GEM Field Day was sponsored by CAAS and hosted by Dr. Tianyu Wang. One hundred-thirty-seven (137) visitors from the public and private sectors attended. Approximately 155 GEM breeding crosses, releases, and new genetic families were observed.

GEM Releases

Summary of the 7 GEM Ames Released Lines for 2014

GEM Code	Pedigree	Race	Type	Country	HET GRP	Cob color	Grain Color†	Grain Texture‡
GEMN-0246	AR01150:N0402-B-026	Dentado Blanco Rugoso	25% Temperate	Argentina	NS	White	2	7
GEMN-0247	AR03056:N0902-064-001-B-B	Dentado Blanco	25% Temperate	Argentina	NS	Red	3	4
GEMS-0248	AR16042:S2028-B-012-B-B	Cristalino Colorado	25% Temperate	Argentina	SS	Red	5	4
GEMN-0249	BR105:N1643-B-020-B-B	Composite (Suwan)	25% Tropical	Brazil	NS	Red	4	6
GEMS-0250	CL-G1703:S17c43-B-023-B-B	Tropical Line	25% Tropical	CIMMYT	SS	R & W	6	5
GEMS-0251	CL-G1703:S17c43-B-026-B-B	Tropical Line	25% Tropical	CIMMYT	SS	R & W	5	5
GEMN-0252	DKB844:N11b18-241-001-B-B	Hybrid-tropical	25% Tropical	Mexico	NS	Red	6	6

† Grain color: 2=pale white, 3=very light yellow, 4=light (lemon) yellow 5=med yellow (B73), 6=dark yellow

‡ Grain texture: 4=med-deep dent, 5=med dent (B73), 6=shallow dent, 7=semi-dent (small dimple top of kernel)

Lines *per se* Data							NIR Data 2 Year Average (2012-2013)			
GEM Code	Pedigree	Days to Pollination	GDU's to Pollination	PHT	EHT	1000k Wt (g)	Protein	Oil	Starch	Density
GEMN-0246	AR01150:N0402-B-026	68	1376	190	95	325	11.9	4.6	69.4	1.312
GEMN-0247	AR03056:N0902-064-001-B-B	72	1451	190	115	255	12.9	4.3	68.6	1.299
GEMS-0248	AR16042:S2028-B-012-B-B	70	1413	195	80	338	13.2	3.8	69.5	1.318
GEMN-0249	BR105:N1643-B-020-B-B	72	1451	210	100	264	14.0	3.8	68.6	1.351
GEMS-0250	CL-G1703:S17c43-B-023-B-B	73	1461	210	100	306	12.5	3.9	69.6	1.333
GEMS-0251	CL-G1703:S17c43-B-026-B-B	72	1451	190	90	340	11.1	4.0	70.6	1.326
GEMN-0252	DKB844:N11b18-241-001-B-B	66*	1488*			317	12.3	4.7	68.7	1.308
	B73	73	1461	170	100	238	12.7	4.2	68.9	1.310

Top Cross RM Estimated									
		x LH287		x MBS8814		x HC33		x MBS3633	
GEM Code	Pedigree	Estimated RM	Ear Ht. (cm)	Estimated RM	Ear Ht. (cm)	Estimated RM	Ear Ht. (cm)	Estimated RM	Ear Ht. (cm)
GEMN-0246	AR01150:N0402-B-026					107	120	109	120
GEMN-0247	AR03056:N0902-064-001-B-B					112	180	114	130
GEMS-0248	AR16042:S2028-B-012-B-B	114	125	116	145				
GEMN-0249	BR105:N1643-B-020-B-B					111	125	112	160
GEMS-0250	CL-G1703:S17c43-B-023-B-B	115	120	118	125				
GEMS-0251	CL-G1703:S17c43-B-026-B-B	115	125	120	140	111		114	
GEMN-0252	DKB844:N11b18-241-001-B-B						120		150
Hybrid Checks									
Check	HC33xLH287	109	110						
Check	MBS3633xMBS8814	113	125						
Check	LH200xLH262	118	140						

2014 Ames Released Lines Yield Trials

		115301 Tester: HC33 (4 Reps)								136403 Tester: HC33 (8 Reps)								136401 Tester: MBS3633 (8 Reps)							
GEM Code	Pedigree	Entry	Yield B/A	% Yield /CHK	% Moist	Y/M	TWT	% S.L.	% R.L.	Entry	Yield B/A	% Yield /CHK	% Moist	Y/M	TWT	% S.L.	% R.L.	Entry	Yield B/A	% Yield /CHK	% Moist	Y/M	TWT	% S.L.	% R.L.
GEMN-0246	AR01150:N0402-B-026	24	151.8	94.1	15.6	9.7	58.9	7.4	26.6	4	174.8	97.6	16.8	10.4	56.2	0.2	3.9	26	157.1	96.0	17.3	9.2	55.2	0.5	1.0
	HC33xLH287	66	136.7	84.7	16.5	8.4	58.4	9.5	28.2	26	165.7	92.5	18.1	9.2	56.1	0.0	3.1	64	144.7	88.4	17.6	8.3	56.3	2.6	6.4
	LH200xLH262	67	161.3	100.0	22.7	7.1	57.2	18.5	23.3	27	188.8	105.4	22.7	8.3	55.0	1.4	1.3	65	166.8	101.9	22.5	7.8	55.5	2.3	3.3
	Pioneer 31D58	68	170.7	105.7	22.0	7.8	57.4	2.8	26.4	28	191.2	106.8	21.8	8.8	57.4	1.3	1.6	66	199.5	117.7	22.1	9.3	56.9	1.0	8.1
	Pioneer 33F85	69	191.7	118.8	19.8	9.7	58.2	8.6	19.8	29	186.1	103.9	20.2	9.2	56.4	0.2	0.5	67	171.9	105.0	20.4	8.7	56.4	1.6	3.7
	Pioneer 34R65	70	146.6	90.8	17.5	8.4	59.5	8.8	26.6	30	163.7	91.4	17.7	9.3	58.0	0.0	0.4	68	164.9	100.7	17.4	9.5	57.9	1.0	1.0
	Test Entry Means		131.0	81.1	18.3	7.2	58.1	13.4	19.8		158.4	88.4	18.4	8.6	57.0	1.2	2.6		168.1	102.7	20.0	8.4	56.3	1.7	2.6
	Check Means		161.4		19.7	8.2	58.1	9.6	24.8		179.1		20.1	8.9	56.6	0.6	1.4		163.7		19.4	8.4	56.7	1.7	2.6
	CV		19.1		5.2						13.6		6.6						14.4		6.5				
	F-value		2.2		6.8						4.3		10.4						1.8		8.7				
	LSD (p=0.05)		36.4		1.4						22.0		1.2						26.2		1.4				

		115302 Tester: HC33 (3 Reps)								136403 Tester: HC33 (8 Reps)								136401 Tester: MBS3633 (8 Reps)							
GEM Code	Pedigree	Entry	Yield B/A	% Yield /CHK	% Moist	Y/M	TWT	% S.L.	% R.L.	Entry	Yield B/A	% Yield /CHK	% Moist	Y/M	TWT	% S.L.	% R.L.	Entry	Yield B/A	% Yield /CHK	% Moist	Y/M	TWT	% S.L.	% R.L.
GEMN-0247	AR03056:N0902-064-001	26	176.7	102.1	18.8	9.4	55.9	4.8	6.4	12	181.9	101.6	19.0	9.6	55.7	3.5	1.3	35	180.8	106.7	19.2	9.4	55.1	3.2	5.1
	HC33xLH287	56	146.2	84.5	16.0	9.3	58.1	6.6	11.3	26	165.7	92.5	18.1	9.2	56.1	0.0	3.1	64	144.7	88.4	17.6	8.3	56.3	2.6	6.4
	LH200xLH262	57	178.2	103.0	21.2	8.4	58.6	4.6	10.1	27	188.8	105.4	22.7	8.3	55.0	1.4	1.3	65	166.8	101.9	22.5	7.8	55.5	2.3	3.3
	Pioneer 31D58	58	173.1	100.0	20.9	8.3	57.9	11.2	10.3	28	192.3	106.0	22.4	8.6	57.4	1.4	0.4	66	199.5	117.7	22.1	9.3	56.9	1.0	8.1
	Pioneer 33F85	59	212.2	122.6	20.2	10.5	57.5	5.6	7.6	29	186.1	103.9	20.2	9.2	56.4	0.2	0.5	67	171.9	105.0	20.4	8.7	56.4	1.6	3.7
	Pioneer 34R65	60	155.6	89.9	17.6	8.8	59.3	4.3	2.7	30	163.7	91.4	17.7	9.3	58.0	0.0	0.4	68	164.9	100.7	17.4	9.5	57.9	1.0	1.0
	Test Entry Means		150.5	86.9	17.6	8.5	57.9	9.0	7.9		158.4	88.4	18.4	8.6	57.0	1.2	2.6		168.1	102.7	20.0	8.4	56.3	1.7	2.6
	Check Means		173.1		19.2	9.0	58.3	6.5	8.4		179.1		20.1	8.9	56.6	0.6	1.4		163.7		19.4	8.4	56.7	1.7	2.6
	CV		12.7		6.2						13.6		6.6						14.4		6.5				
	F-value		2.1		5.1						4.3		10.4						1.8		8.7				
	LSD (p=0.05)		31.4		1.8						22.0		1.2						26.2		1.4				

2014 Ames Released Lines Yield Trials

		115308 Tester: LH287 (5 Reps)								135401 Tester: LH287 (8 Reps)								136404 Tester: MBS8814 (6 Reps)							
GEM Code	Pedigree	Entry	Yield B/A	% Yield /CHK	% Moist	Y/M	TWT	% S.L.	% R.L.	Entry	Yield B/A	% Yield /CHK	% Moist	Y/M	TWT	% S.L.	% R.L.	Entry	Yield B/A	% Yield /CHK	% Moist	Y/M	TWT	% S.L.	% R.L.
GEMS-0248	AR16042:S2028-B-012	11	187.0	102.8	21.2	8.8	55.2	4.9	40.6	5	172.5	95.7	20.8	8.3	55.5	0.9	12.5	6	203.6	107.7	23.2	8.8	54.2	0.5	5.3
	HC33xLH287	56	191.0	105.0	18.6	10.3	56.3	4.4	47.1	36	178.6	99.1	19.2	9.3	55.4	0.9	8.0	35	163.9	86.3	20.4	8.3	55.4	0.0	18.3
	LH200xLH262	57	172.3	94.7	23.3	7.4	56.2	0.8	15.2	37	182.1	101.0	23.5	7.8	55.4	4.4	7.1	36	190.9	101.0	23.0	8.3	56.0	0.7	6.9
	Pioneer 31D58	58	188.2	103.5	21.7	8.7	56.6	2.2	21.6	38	192.1	106.6	23.0	8.4	57.4	0.7	3.2	37	200.5	106.1	23.2	8.6	57.5	0.7	2.7
	Pioneer 33F85	59	187.5	103.0	20.3	9.3	57.4	11.1	35.7	39	176.8	98.1	20.5	8.6	56.8	2.9	5.7	38	203.3	107.6	22.1	9.2	56.8	0.0	1.7
	Pioneer 34R65	60	170.8	93.9	18.6	9.2	58.0	1.9	42.8	40	171.8	95.3	18.6	9.3	58.6	0.9	3.3	39	183.9	96.9	18.3	10.0	58.4	0.3	0.9
	MBS 8814																	40	193.4	102.3	21.2	9.1	55.1	1.5	0.8
	Test Entry Means		163.6	89.9	21.3	7.7	56.0	6.4	41.3		167.0	92.6	20.7	8.1	55.1	3.0	9.7		187.7	98.3	23.0	8.1	54.0	1.0	3.5
	Check Means		182.0		20.5	8.9	56.9	4.1	32.5		180.3		20.9	8.6	56.7	1.9	5.5		189.0		21.5	8.8	56.6	0.5	5.2
	CV		17.3		5.4						13.6		6.1						11.6		5.8				
	F-value		1.3		3.6						1.9		9.0						2.6		10.6				
	LSD (p=0.05)		35.8		1.4						22.7		1.3						25.2		1.5				

		111318 Tester: DAS-SS (5 Reps)								131311 Tester: HC33 (8 Reps)								136401 Tester: MBS3633 (8 Reps)							
GEM Code	Pedigree	Entry	Yield B/A	% Yield /CHK	% Moist	Y/M	TWT	% S.L.	% R.L.	Entry	Yield B/A	% Yield /CHK	% Moist	Y/M	TWT	% S.L.	% R.L.	Entry	Yield B/A	% Yield /CHK	% Moist	Y/M	TWT	% S.L.	% R.L.
GEMN-0249	BR105:N1643-B-020	35	176.6	104.9	19.7	8.9	57.8	2.4	11.5	25	167.5	86.5	18.6	9.2	58.6	2.1	1.6	40	181.9	107.3	20.0	9.1	56.8	2.6	4.5
	HC33xLH287	5	161.5	95.9	17.4	9.5	59.1	0.6	5.2	36	192.1	99.2	17.7	10.9	56.2	0.5	4.4	64	144.7	88.4	17.6	8.3	56.3	2.6	6.4
	LH200xLH262	4	173.8	103.2	22.0	7.9	58.1	1.5	10.9	37	188.3	97.1	21.9	8.6	56.2	2.9	4.2	65	166.8	101.9	22.5	7.8	55.5	2.3	3.3
	Pioneer 31D58	3	181.9	108.1	19.7	9.2	58.7	2.1	1.2	38	220.3	113.6	21.8	10.1	57.7	1.1	3.9	66	199.5	117.7	22.1	9.3	56.9	1.0	8.1
	Pioneer 33F85	2	172.0	102.2	17.8	9.6	59.0	5.4	3.0	39	201.0	103.7	20.4	9.9	57.4	1.5	1.8	67	171.9	105.0	20.4	8.7	56.4	1.6	3.7
	Pioneer 34R65	1	152.5	90.6	18.0	8.7	59.3	4.5	2.3	40	169.2	87.3	18.0	9.4	57.9	0.0	0.6	68	164.9	100.7	17.4	9.5	57.9	1.0	1.0
	Test Entry Means		159.7	94.9	20.8	7.7	57.6	1.9	8.2		163.7	84.5	19.0	8.6	56.7	1.1	1.6		168.1	102.7	20.0	8.4	56.3	1.7	2.6
	Check Means		168.3		19.0	8.9	58.8	2.8	4.5		193.7		19.9	9.7	56.6	0.8	2.1		163.7		19.4	8.4	56.7	1.7	2.6
	CV		12.7		7.9						11.1		6.5						14.4		6.5				
	F-value		2.6		4.0						4.5		7.0						1.8		8.7				
	LSD (p=0.05)		25.4		2.0						21.6		1.4						26.2		1.4				

2014 Ames Released Lines Yield Trials

		111308 Tester: LH287 (5 Reps)								131310 Tester LH287 (8 Reps)								136404 Tester: MBS8814 (6 Reps)							
GEM Code	Pedigree	Entry	Yield B/A	% Yield /CHK	% Moist	Y/M	TWT	% S.L.	% R.L.	Entry	Yield B/A	% Yield /CHK	% Moist	Y/M	TWT	% S.L.	% R.L.	Entry	Yield B/A	% Yield /CHK	% Moist	Y/M	TWT	% S.L.	% R.L.
GEMS-0250	CL-G1703:S17c43-B-023	20	171.6	107.7	22.1	7.8	54.5	8.2	35.9	13	201.8	103.5	20.5	9.8	55.8	2.0	1.2	17	189.0	100.0	24.7	7.8	52.2	0.0	2.3
GEMS-0251	CL-G1703:S17c43-B-026	23	178.2	111.9	21.5	8.3	55.0	11.6	33.4	14	200.5	102.8	20.8	9.6	55.4	6.6	3.9	18	184.8	97.3	26.7	7.0	52.3	0.4	1.7
	HC33xLH287	66	144.6	90.8	17.8	8.2	56.7	8.2	28.6	26	184.7	94.7	17.8	10.4	56.2	2.6	2.5	35	163.9	86.3	20.4	8.3	55.4	0.0	18.3
	LH200xLH262	67	141.0	88.5	20.7	7.5	56.8	19.3	11.6	27	196.6	100.8	22.7	8.7	55.8	1.0	2.2	36	190.9	101.0	23.0	8.3	56.0	0.7	6.9
	Pioneer 31D58	68	182.2	114.3	20.6	8.9	57.7	5.1	17.2	28	219.8	112.7	21.7	10.1	58.3	0.9	0.7	37	200.5	106.1	23.2	8.6	57.5	0.7	2.7
	Pioneer 33F85	69	193.1	121.2	18.6	10.4	57.3	18.9	29.9	29	202.5	103.8	20.2	10.0	57.6	0.4	0.6	38	203.3	107.6	22.1	9.2	56.8	0.0	1.7
	Pioneer 34R65	70	135.9	85.3	18.0	7.8	59.0	7.2	6.9	30	171.4	89.5	17.9	9.6	58.3	1.0	0.2	39	183.9	96.9	18.3	10.0	58.4	0.3	0.9
	MBS 8814																	40	193.4	102.3	21.2	9.1	55.1	1.5	0.8
	Test Entry Means		156.2	98.0	20.5	7.6	55.5	12.7	33.7		181.2	92.9	19.7	9.2	55.8	2.6	4.6		187.7	98.3	23.0	8.1	54.0	1.0	3.5
	Check Means		159.4		19.1	8.3	57.5	11.7	18.8		195.0		20.0	9.7	57.2	1.2	1.2		189.0		21.5	8.8	56.6	0.5	5.2
	CV		14.1		5.9						12.6		6.6						11.6		5.8				
	F-value		1.5		3.8						3.7		8.8						2.6		10.6				
	LSD (p=0.05)		27.4		1.5						23.8		1.3						25.2		1.5				

		101321 Tester SYG-SS (4 Reps)								131311 Tester: HC33 (8 Reps)								136401 Tester: MBS3633 (8 Reps)							
GEM Code	Pedigree	Entry	Yield B/A	% Yield /CHK	% Moist	Y/M	TWT	% S.L.	% R.L.	Entry	Yield B/A	% Yield /CHK	% Moist	Y/M	TWT	% S.L.	% R.L.	Entry	Yield B/A	% Yield /CHK	% Moist	Y/M	TWT	% S.L.	% R.L.
GEMN-0252	DKB844:N11b18-241-001-B	68	173.3	104.9	14.0	12.4	61.2			31	177.1	91.3	18.9	9.4	57.3	0.0	2.8	62	176.6	104.2	19.6	9.0	56.7	1.4	3.9
	HC33xLH287	72	151.2	91.6	13.4	11.8	57.9			36	192.1	99.2	17.7	10.9	56.2	0.5	4.4	64	144.7	88.4	17.6	8.3	56.3	2.6	6.4
	LH200xLH262	73	162.1	98.1	14.8	11.5	61.9			37	188.3	97.1	21.9	8.6	56.2	2.9	4.2	65	166.8	101.9	22.5	7.8	55.5	2.3	3.3
	Pioneer 31D58	74	191.9	116.2	15.3	13.0	62.4			38	220.3	113.6	21.8	10.1	57.7	1.1	3.9	66	199.5	117.7	22.1	9.3	56.9	1.0	8.1
	Pioneer 33F85	75	185.0	112.0	13.5	14.0	58.9			39	201.0	103.7	20.4	9.9	57.4	1.5	1.8	67	171.9	105.0	20.4	8.7	56.4	1.6	3.7
	Pioneer 34R65	76	135.7	82.1	13.5	10.5	60.3			40	169.2	87.3	18.0	9.4	57.9	0.0	0.6	68	164.9	100.7	17.4	9.5	57.9	1.0	1.0
	Test Entry Means		152.1	92.1	13.9	10.9	59.6				163.7	84.5	19.0	8.6	56.7	1.1	1.6		168.1	102.7	20.0	8.4	56.3	1.7	2.6
	Check Means		165.2		14.1	11.7	60.3				193.7		19.9	9.7	56.6	0.8	2.1		163.7		19.4	8.4	56.7	1.7	2.6
	CV		13.7		5.6						11.1		6.5						14.4		6.5				
	F-value		1.4		1.8						4.5		7.0						1.8		8.7				
	LSD (p=0.05)		31.4		1.2						21.6		1.4						26.2		1.4				

GEM Germplasm Releases and Key Traits

Entry	Pedigree	Code	Race	Country	Site Released	Year Released	Prot	AA	Oil	Starch Prop.	Silage	GLS	NLB	SLB	Drought	Fumon.	Fuser	Aflatox	ASR	Diplodia	YM	Head Smut	Goss's
1	GEMS-001(PI503806xB94///B94)	**GEMS-0001**	Alazan	Peru	Ames	2001																	
2	GEMS-002 (FS8A(S):S09-43-2)	**GEMS-0002**	Mixed	USA	Ohio St.	2003								√		√	√						
3	BR52051(SE32):S17-B-023-001-B-B	GEMS-0003	Dente Amarelo	Brazil	NC	2003	√		√			√	√			√	√			√			
4	DK212T:S11-B-013-002-B-B	**GEMS-0004**	Hybrid-tropical	Thailand	NC	2003							√	√			√						
5	DK212T:S11-B-015-001-B-B	**GEMS-0005**	Hybrid-tropical	Thailand	NC	2003							√										
6	DK212T:S11-B-017-001-B-B	**GEMS-0006**	Hybrid-tropical	Thailand	NC	2003							√				√						
7	DK212T:S11-B-018-001-B-B	GEMS-0007	Hybrid-tropical	Thailand	NC	2003	√							√									
8	DK212T:S11-B-038-001-B-B	GEMS-0008	Hybrid-tropical	Thailand	NC	2003																	
9	DK212T:S11-B-040-001-B-B	**GEMS-0009**	Hybrid-tropical	Thailand	NC	2003											√						
10	DK212T:S11-B-041-002-B-B	**GEMS-0010**	Hybrid-tropical	Thailand	NC	2003																	
11	DK212T:S11-B-045-002-B-B	**GEMS-0011**	Hybrid-tropical	Thailand	NC	2003																	
12	DK888:S11-B-003-001-B-B	**GEMS-0012**	Hybrid-tropical	Thailand	NC	2003																	
13	DK888:S11-B-004-004-B-B	**GEMS-0013**	Hybrid-tropical	Thailand	NC	2003								√								√	
14	DK888:S11-B-010-001-B-B	GEMS-0014	Hybrid-tropical	Thailand	NC	2003																√	
15	DK888:S11-B-014-001-B-B	**GEMS-0015**	Hybrid-tropical	Thailand	NC	2003								√									
16	DK888:S11-B-015-003-B-B	GEMS-0016	Hybrid-tropical	Thailand	NC	2003						√	√				√						
17	DK888:S11-B-025-001-B-B	**GEMS-0017**	Hybrid-tropical	Thailand	NC	2003																	
18	DK888:S11-B-026-002-B-B	**GEMS-0018**	Hybrid-tropical	Thailand	NC	2003														√			
19	DK888:S11-B-029-001-B-B	**GEMS-0019**	Hybrid-tropical	Thailand	NC	2003						√											
20	DK888:S11-B-033-001-B-B	**GEMS-0020**	Hybrid-tropical	Thailand	NC	2003																	
21	DK888:S11-B-035-002-B-B	**GEMS-0021**	Hybrid-tropical	Thailand	NC	2003										√	√					√	
22	DK888:S11-B-035-003-B-B	GEMS-0022	Hybrid-tropical	Thailand	NC	2003																	
23	DK888:S11-B-039-002-B-B	**GEMS-0023**	Hybrid-tropical	Thailand	NC	2003																	
24	DKB830:S11-B-045-001-B-B	**GEMS-0024**	Hybrid-tropical	Mexico	NC	2003						√											
25	DKXL370:S11-B-001-002-B-B	GEMS-0025	Hybrid-tropical	Brazil	NC	2003																	
26	DKXL370:S11-B-025-001-B-B	GEMS-0027	Hybrid-tropical	Brazil	NC	2003							√					√				√	
27	DKXL370:S11-B-025-002-B-B	**GEMS-0028**	Hybrid-tropical	Brazil	NC	2003						√						√				√	
28	DKXL370:S11-B-028-001-B-B	**GEMS-0029**	Hybrid-tropical	Brazil	NC	2003							√				√						
29	DKXL380:S11-B-004-003-B-B	**GEMS-0030**	Hybrid-tropical	Brazil	NC	2003		√				√	√	√			√	√				√	
30	DKXL380:S11-B-028-001-B-B	**GEMS-0031**	Hybrid-tropical	Brazil	NC	2003	√	√					√									√	
31	DKXL380:S11-B-029-001-B-B	GEMS-0032	Hybrid-tropical	Brazil	NC	2003							√				√	√					
32	BR51403(PE001):N16-B-044-B	**GEMN-0033**	Cateto	Brazil	NC	2003				√		√											
33	BR51403(PE001):N16-B-172-B	**GEMN-0035**	Cateto	Brazil	NC	2003				√		√	√										
34	BR51403(PE001):N16-B-176-B	**GEMN-0036**	Cateto	Brazil	NC	2003				√													
35	BR51403(PE001):N16-B-181-B	**GEMN-0037**	Cateto	Brazil	NC	2003				√		√										√	
36	BR51403(PE001):N16-B-239-B	**GEMN-0039**	Cateto	Brazil	NC	2003	√			√			√										
37	BR51403(PE001):N16-B-431-B	**GEMN-0040**	Cateto	Brazil	NC	2003				√													
38	BR51403(PE001):N16-B-521-B	**GEMN-0041**	Cateto	Brazil	NC	2003				√													
39	BR51403(PE001):N16-B-705-B	**GEMN-0042**	Cateto	Brazil	NC	2003				√													
40	BR51403(PE001):N16-B-857-B	**GEMN-0043**	Cateto	Brazil	NC	2003				√													
41	CH05015:N12-20-1-B-B	GEMN-0044	Camelia	Chile	Ames	2003																	
42	CH05015:N12-140-1-B-B	GEMN-0045	Camelia	Chile	Ames	2003	√															√	
43	CH05015:N15-8-1-B-B	GEMN-0046	Camelia	Chile	Ames	2003				√													
44	UR13085:N0215-014-001	GEMN-0047	Cateto Sulino	Uruguay	Ames	2003																	
45	DKXL370:N11a20-31-1-B-B	GEMN-0048	Hybrid-tropical	Brazil	Ames	2003	√																
46	DKB844:S1601-512-1-B	GEMS-0049	Hybrid-tropical	Mexico	Ames	2003	√																
47	DKB844:S1601-517-1-B	GEMS-0050	Hybrid-tropical	Mexico	Ames	2003																	
48	CUBA164:S2008a-83-1-B	GEMS-0051	Mixed (Creole)	Cuba	Ames	2003																	
49	CUBA164:S2008a-326-1-B	GEMS-0052	Mixed (Creole)	Cuba	Ames	2003																√	
50	CUBA164:S15-192-2-B	GEMS-0053	Mixed (Creole)	Cuba	Ames	2003																	
51	AR16035:S02-450-1-B	GEMS-0054	Cristalino Colorado	Argentina	Ames	2003																√	
52	AR16035:S02-443-1-B-B	GEMS-0055	Cristalino Colorado	Argentina	Ames	2003																	
53	FS8B(T):N1809-946-1-B	GEMN-0056	Mixed	USA	Ames	2003																√	
54	AR01150:N04-545-1-B	GEMN-0057	Dent. Blanco Rugoso	Argentina	Ames	2003																	
55	AR01150:N04-696-1-B	GEMN-0058	Dent. Blanco Rugoso	Argentina	Ames	2003	√																
56	SCRO1:N1310-398-1-B	GEMN-0059	St. Croix	St. Croix	Ames	2003				√													
57	CHIS775:N1912-519-1-B-B	GEMN-0060	Tuxpeño	Mexico	Ames	2003																√	
58	AR16026:S17-10-1-B-B	GEMS-0061	Cristalino Colorado	Argentina	Ames	2003			√							√	√	√					
59	AR16026:S17-16-1-B-B	GEMS-0062	Cristalino Colorado	Argentina	Ames	2003											√						
60	CUBA164:S1511b-325-001	GEMS-0063	Mixed (Creole)	Cuba	Ames	2003	√																
61	CUBA164:S1511b-249-1-B-B	GEMS-0064	Mixed (Creole)	Cuba	Ames	2003																√	

Entry	Pedigree	Code	Race	Country	Site Released	Year Released	Prot	AA	Oil	Starch Prop.	Silage	GLS	NLB	SLB	Drought	Fumon.	Fuser	Aflatox	ASR	Diplodia	YM	Head Smut	Goss's
62	CUBA117:S1520-41-1-B-B	GEMS-0065	Argentino	Cuba	Ames	2003			√														
63	CUBA117:S1520-52-1-B-B	GEMS-0066	Argentino	Cuba	Ames	2003																	
64	GUAT209:S13 x (H99*ae* x OH43*ae*)-4-4-2-1	**GEMS-0067**	Tusón	Guatemala	Truman St	2007																	
65	AR16026:S1704-153-001	GEMS-0068	Cristalino Colorado	Argentina	Ames	2003											√					√	
66	AR16035:S19-161-001	GEMS-0069	Cristalino Colorado	Argentina	Ames	2003																√	
67	CH05015:N12-183-001	GEMN-0070	Camelia	Chile	Ames	2003															√		
68	CH05015:N15-003-001	GEMN-0071	Camelia	Chile	Ames	2003															√	√	
69	CHIS775:S1911b-439-001	GEMS-0072	Tuxpeño	Mexico	Ames	2003																√	
70	CUBA117:S15-372-001	GEMS-0073	Argentino	Cuba	Ames	2003		√						√			√					√	
71	CUBA164:S1517-163-001	GEMS-0074	Mixed (Creole)	Cuba	Ames	2003																√	
72	CUBA164:S1517-241-002	GEMS-0075	Mixed (Creole)	Cuba	Ames	2003								√									
73	DKB844:N11b-118-001	GEMN-0076	Hybrid-tropical	Mexico	Ames	2003																	
74	DKXL370:N11a20-604-001	GEMN-0077	Hybrid-tropical	Brazil	Ames	2003						√		√									
75	FS8A(S):S09-362-001	GEMS-0078	Mixed	USA	Ames	2003								√									
76	FS8B(S):S0316-802-001	GEMS-0079	Mixed	USA	Ames	2003								√								√	
77	FS8B(S):S0316-814-001	GEMS-0080	Mixed	USA	Ames	2003								√									
78	FS8B(T):N1802-382-001	GEMN-0081	Mixed	USA	Ames	2003								√									
79	FS8B(T):N1802-525-001	GEMN-0082	Mixed	USA	Ames	2003						√		√									
80	GUAT209:N1925-081-001	GEMN-0083	Tusón	Guatemala	Ames	2003		√				√										√	
81	PASCO14:S0105-198-001	GEMS-0084	Cuban yellow	Peru	Ames	2003							√										
82	UR01089:S0525-519-001	GEMS-0085	Cateto Sulino	Uruguay	Ames	2003								√								√	
83	UR10001:S1813-257-001	GEMS-0086	Dente Branco	Uruguay	Ames	2003																	
84	AR03056:N09-024-001	GEMN-0087	Dentado Blanco	Argentina	Ames	2004																	
85	AR03056:N09-182-001	GEMN-0088	Dentado Blanco	Argentina	Ames	2004						√									√		
86	AR03056:N09-191-001	GEMN-0089	Dentado Blanco	Argentina	Ames	2004																	
87	AR03056:N09-250-001	GEMN-0090	Dentado Blanco	Argentina	Ames	2004																	
88	CHIS740:S1411a-783-002	GEMS-0091	Tuxpeño/Olotillo	Mexico	Ames	2004		√														√	
89	CUBA164:S2012-444-001	GEMS-0092	Mixed (Creole)	Cuba	Ames	2004							√		√		√						
90	CUBA164:S2012-966-001	GEMS-0093	Mixed (Creole)	Cuba	Ames	2004																	
91	DKXL370:N11a20-199-002	GEMN-0094	Hybrid-tropical	Brazil	Ames	2004											√						
92	DKXL370:N11a20-234-002	GEMN-0095	Hybrid-tropical	Brazil	Ames	2004						√	√										
93	DKXL370-:N11a20-322-001	GEMN-0096	Hybrid-tropical	Brazil	Ames	2004				√											√		
94	FS8B(T):N11a-087-001	GEMN-0097	Mixed	USA	Ames	2004											√				√		
95	FS8B(T):N11a-110-001	GEMN-0098	Mixed	USA	Ames	2004											√						
96	FS8B(T):N11a-322-001	GEMN-0099	Mixed	USA	Ames	2004						√											
97	UR11003:S0302-937-001	GEMS-0100	Dente Branco	Uruguay	Ames	2004											√				√		
98	DK888:S11b-007-B-B	GEMS-0101	Hybrid-tropical	Thailand	NC	2004								√									
99	DK888:S11b-001-B	GEMS-0102	Hybrid-tropical	Thailand	NC	2004								√									
100	DK888:N11(95)-B-027-010-B-B	GEMN-0103	Hybrid-tropical	Thailand	NC	2004							√	√									
101	DK888:N11(95)-B-027-012-B-B	GEMN-0104	Hybrid-tropical	Thailand	NC	2004							√	√									
102	DK888:N11(95)-B-027-015-B-B	GEMN-0105	Hybrid-tropical	Thailand	NC	2004								√									
103	DK888:N11(95)-B-022-007-B-B	GEMN-0106	Hybrid-tropical	Thailand	NC	2004																	
104	DK888:N11(95)-B-022-012-B-B	GEMN-0107	Hybrid-tropical	Thailand	NC	2004								√									
105	DK888:N11(95)-B-027-001-B-B	GEMN-0108	Hybrid-tropical	Thailand	NC	2004								√									
106	DKXL380:N11-B-015-003-B-B	GEMN-0109	Hybrid-tropical	Brazil	NC	2004																	
107	BARBGP2:N08a18-332-001	GEMN-0110	Tusón	Barbados	Ames	2005							√									√	
108	CH05015:N1204-057-001	GEMN-0111	Camelia	Chile	Ames	2005	√	√	√								√						
109	CH05015:N1502-086-001	GEMN-0112	Camelia	Chile	Ames	2005	√							√							√	√	
110	CHIS775:S1911b-120-001	GEMS-0113	Tuxpeño	Mexico	Ames	2005	√			√				√									
111	DK212T:N11a12-191-001	GEMN-0114	Hybrid-tropical	Thailand	Ames	2005																√	
112	DKB844:S1601-073-001	GEMS-0115	Hybrid-tropical	Mexico	Ames	2005				√													
113	DKB844:S1601-003-002	GEMS-0116	Hybrid-tropical	Mexico	Ames	2005	√			√			√										
114	DREP150:N2011d-624-001	GEMN-0117	Mixed	Dom. Republic	Ames	2005	√	√						√								√	
115	UR11003:S0302-1011-001	GEMS-0118	Dente Branco	Uruguay	Ames	2005		√													√		
116	CHS775:N19-042-001-B	GEMN-0119	Tuxpeño	Mexico	NC	2005							√	√									
117	CHS775:N19-042-003-B	GEMN-0120	Tuxpeño	Mexico	NC	2005							√	√									
118	CHS775:N19-027-010-B	GEMN-0121	Tuxpeño	Mexico	NC	2005				√			√	√								√	
119	CHS775:N19-093-002-B	GEMN-0122	Tuxpeño	Mexico	NC	2005				√			√	√									
120	CHS775:N19-030-011-B	GEMN-0123	Tuxpeño	Mexico	NC	2005				√				√									
121	DK212T:N11-B-003-001-B	GEMN-0124	Hybrid-tropical	Thailand	NC	2005			√				√	√			√						
122	DK888:S11-B-029-001-B	GEMS-0125	Hybrid-tropical	Thailand	NC	2005								√									
123	DK888:S11-B-029-006-B	GEMS-0126	Hybrid-tropical	Thailand	NC	2005								√						√			
124	DK888:N11(95)-B-017-001-B	GEMN-0127	Hybrid-tropical	Thailand	NC	2005				√				√									

Entry	Pedigree	Code	Race	Country	Site Released	Year Released	Prot	AA	Oil	Starch Prop.	Silage	GLS	NLB	SLB	Drought	Fumon.	Fuser	Aflatox	ASR	Diplodia	YM	Head Smut	Goss's
125	DKXL370:N11-B-005-002-B	GEMN-0128	Hybrid-tropical	Brazil	NC	2005	√	√						√									
126	DKXL370:N11-B-005-006-B	GEMN-0129	Hybrid-tropical	Brazil	NC	2005	√						√	√									
127	DKXL370:N11-B-005-010-B	GEMN-0130	Hybrid-tropical	Brazil	NC	2005		√						√		√	√	√					
128	DKXL370:N11-B-005-011-B	GEMN-0131	Hybrid-tropical	Brazil	NC	2005	√	√	√					√									
129	DKXL370:N11-B-005-021-B	GEMN-0132	Hybrid-tropical	Brazil	NC	2005	√	√						√									
130	DKXL370:N11-B-029-002-B	GEMN-0133	Hybrid-tropical	Brazil	NC	2005	√	√					√	√									
131	DKXL380:N11-B-010-017-B	GEMN-0134	Hybrid-tropical	Brazil	NC	2005							√	√			√						
132	DKXL380:N11-B-007-025-B	GEMN-0135	Hybrid-tropical	Brazil	NC	2005			√				√	√			√						
133	DKXL380:N11-B-007-028-B	GEMN-0136	Hybrid-tropical	Brazil	NC	2005	√		√					√									
134	SCR Gp3:N14-028-003-003-B	GEMN-0137	Tusón	St. Croix	NC	2005		√						√								√	
135	AR17056:N2035-421-001	GEMN-0138	Cristalino Colorado	Argentina	Ames	2006						√	√	√									
136	AR17056:N2035-473-001	GEMN-0139	Cristalino Colorado	Argentina	Ames	2006						√	√	√									
137	BR51675:N0620-033-001	GEMN-0140	Dente Amarelo	Brazil	Ames	2006						√		√							√		
138	BR51675:N0620-053-001	GEMN-0141	Dente Amarelo	Brazil	Ames	2006								√								√	
139	BR52060:S0210-143-001	GEMS-0142	Dente Amarelo	Brazil	Ames	2006															√	√	
140	BR52060:S0210-147-001	GEMS-0143	Dente Amarelo	Brazil	Ames	2006			√												√		
141	MDI022:N2120-284-001	GEMN-0144	Cuban yellow	Peru	Ames	2006								√									
142	MDI022:N2120-333-001	GEMN-0145	Cuban yellow	Peru	Ames	2006		√															
143	NEI9004:S2818-003-001	GEMS-0146	Inbred-tropical	Thailand	Ames	2006	√															√	
144	NEI9004:S2818-025-001	GEMS-0147	Inbred-tropical	Thailand	Ames	2006	√																
145	NEI9004:S2818-376-001	GEMS-0148	Inbred-tropical	Thailand	Ames	2006	√																
146	UR05017:S0415-180-002	GEMS-0149	Semidentado Riograndense	Uruguay	Ames	2006	√															√	
147	UR05017:S0415-187-001	GEMS-0150	Semidentado Riograndense	Uruguay	Ames	2006	√																
148	CHIS775:N19-042-001-003-B-B-B-B	GEMN-0151	Tuxpeño	Mexico	NC	2006							√	√			√						
149	DK212T:N11-B-016-005-B-B-B	GEMN-0152	Hybrid-tropical	Thailand	NC	2006						√	√	√									
150	DKXL380:N11-B-007-027-B-B-B-B	GEMN-0153	Hybrid-tropical	Brazil	NC	2006								√									
151	AR13026:N08b15-016	GEMN-0154	Cristalino Colorado	Argentina	Ames	2007																	
152	AR13026:N08b15-086	GEMN-0155	Cristalino Colorado	Argentina	Ames	2007																	
153	BR51721:N2012-098-002	GEMN-0156	Dente Amarelo	Brazil	Ames	2007				√		√											
154	BR51721:N2012-164-002	GEMN-0157	Dente Amarelo	Brazil	Ames	2007				√			√										
155	BR51721:N2012-397-001	GEMN-0158	Dente Amarelo	Brazil	Ames	2007				√			√				√			√			
156	CASH:N1410-018-001	GEMN-0159	Corn Belt Dent	USA	Ames	2007															√		
157	CUBA117:S1542-037-002	GEMS-0160	Argentino	Cuba	Ames	2007	√																
158	CUBA117:S1542-057-001	GEMS-0161	Argentino	Cuba	Ames	2007	√	√	√														
159	CUBA117:S1542-057-002	GEMS-0162	Argentino	Cuba	Ames	2007	√		√								√						
160	CUBA164:S2012-456-001	GEMS-0163	Mixed (Creole)	Cuba	Ames	2007																	
161	DK212T:N11-B-003-022-B-B-B	GEMN-0164	Hybrid-tropical	Thailand	NC	2007							√	√			√						
162	DK888:N11(95)-B-022-012-026-B-B	GEMN-0165	Hybrid-tropical	Thailand	NC	2007								√			√					√	
163	DK888:N11(95)-B-027-001-008-B-B	GEMN-0166	Hybrid-tropical	Thailand	NC	2007								√			√						
164	DK888:N11(95)-B-027-001-018-B-B	GEMN-0167	Hybrid-tropical	Thailand	NC	2007								√									
165	DK888:N11(95)-B-027-001-019-B	GEMN-0168	Hybrid-tropical	Thailand	NC	2007								√									
166	DK888:N11(95)-B-027-001-027-B	GEMN-0169	Hybrid-tropical	Thailand	NC	2007								√			√						
167	DK888:N11(95)-B-027-001-030-B	GEMN-0170	Hybrid-tropical	Thailand	NC	2007								√									
168	DK888:N11(95)-B-027-001-037-B	GEMN-0171	Hybrid-tropical	Thailand	NC	2007								√									
169	DK888:N11(95)-B-027-001-040-B	GEMN-0172	Hybrid-tropical	Thailand	NC	2007								√			√						
170	DK888:N11(95)-B-027-012-009-B	GEMN-0173	Hybrid-tropical	Thailand	NC	2007							√	√			√						
171	AR17056:N2025-574-001	GEMN-0174	Cristalino Colorado	Argentina	Ames	2008	√			√			√										
172	BVIR155:S2012-029-001	GEMS-0175	Tusón	British Virgin Is.	Ames	2008	√																
173	CUBA164:S2008c-289-001	GEMS-0176	Mixed (Creole)	Cuba	Ames	2008	√															√	
174	DK888:N11a08a-395-001	GEMN-0177	Hybrid-tropical	Thailand	Ames	2008							√	√									
175	DK888:N11a08a-440-001	GEMN-0178	Hybrid-tropical	Thailand	Ames	2008								√									
176	FS8B(T):N11a08c-030-002	GEMN-0179	Mixed	USA	Ames	2008			√				√										
177	GUAT209:S1308a-047-001	GEMS-0180	Tusón	Guatemala	Ames	2008				√			√	√								√	
178	GUAT209:S1308a-068-001	GEMS-0181	Tusón	Guatemala	Ames	2008						√										√	
179	GUAT209:S1308a-084-001	GEMS-0182	Tusón	Guatemala	Ames	2008						√		√								√	
180	GUAT209:S1308a-104-001	GEMS-0183	Tusón	Guatemala	Ames	2008																√	
181	GUAT209:S1308a-120-001	GEMS-0184	Tusón	Guatemala	Ames	2008																√	
182	CUBA164:S2012-966-001-B wx	GEMS-0185	Mixed (Creole)	Cuba	Ames	2008																	
183	DKXL370:N11a20-036-002-B wx	GEMN-0186	Hybrid-tropical	Brazil	Ames	2008	√					√		√									
184	ANTIG03:N1218-056-001	GEMN-0187	Criollo	Antigua	Ames	2009																√	
185	DKXL212:S0912-012-001	GEMS-0188	Hybrid-tropical	Brazil	Ames	2009	√																
186	DKXL212:S0912-117-001	GEMS-0189	Hybrid-tropical	Brazil	Ames	2009	√																
187	PASCO14:N0424-078-001	GEMN-0190	Cuban yellow	Peru	Ames	2009																	

Entry	Pedigree	Code	Race	Country	Site Released	Year Released	Prot	AA	Oil	Starch Prop.	Silage	GLS	NLB	SLB	Drought	Fumon.	Fuser	Aflatox	ASR	Diplodia	YM	Head Smut	Goss's
188	SCROGP3:N2017-003-001	GEMN-0191	Tusón	St. Croix	Ames	2009																√	
189	SCROGP3:N2017-172-001	GEMN-0192	Tusón	St. Croix	Ames	2009			√					√								√	
190	UR11002:N0308b-086-001	GEMN-0193	Dente Branco	Uruguay	Ames	2009																	
191	DK888:N11(95)-B-027-001-011-B	GEMN-0194	Hybrid-tropical	Thailand	NC	2009						√		√									
192	DK888:N11(95)-B-027-001-015-B	GEMN-0195	Hybrid-tropical	Thailand	NC	2009						√	√	√									
193	DK888:N11(95)-B-003-001-001-B	GEMN-0196	Hybrid-tropical	Thailand	NC	2009								√									
194	DK888:N11(95)-002-021-008-B-B	GEMN-0197	Hybrid-tropical	Thailand	NC	2009							√	√									
195	DK212T:N11-040-001-007	GEMN-0198	Hybrid-tropical	Thailand	NC	2009							√	√									
196	AR16021:S0908a-039-001	GEMS-0199	Cristalino Colorado	Argentina	Ames	2010																	
197	BR105:S1612-008-001	GEMS-0200	Composite (Suwan)	Brazil	Ames	2010								√									
198	BR105:S1612-057-001	GEMS-0201	Composite (Suwan)	Brazil	Ames	2010								√									
199	BR105:S1640-128-001	GEMS-0202	Composite (Suwan)	Brazil	Ames	2010																	
200	CUBA164:S2008dF44-012-001	GEMS-0203	Mixed (Creole)	Cuba	Ames	2010																	
201	FS8A(T):N1804-006-001	GEMN-0204	Mixed	USA	Ames	2010								√									
202	GUAD05:N3215-197-001	GEMN-0205	Early Caribbean	Guadalupe	Ames	2010								√									
203	AR16035:S02-615-001-B wx	GEMS-0206	Cristalino Colorado	Argentina	Ames	2010																	
204	BR51403(PE001):N16-B-044-004-001-001C-001	GEMN-0207	Cateto	Brazil	NC	2010								√									
205	BR51403(PE001):N16-B-044-004-001-002G-003	GEMN-0208	Cateto	Brazil	NC	2010								√									
206	BR51721(RN07):N20-B-017-002	GEMN-0209	Dente Amarelo	Brazil	NC	2010						√					√						
207	CL-G1607(CML420):N11-008-001-007	GEMN-0210	CML tropical inbred	Mexico	NC	2010						√											
208	DK888:N11-B-027-012-B-007	GEMN-0212	Hybrid-tropical	Thailand	NC	2010								√			√						
209	DKXL380:N11-B-007-010-B-002	GEMN-0213	Hybrid-tropical	Brazil	NC	2010								√			√						
210	MDI022:N21-B-002-003	GEMN-0214	Cuban yellow	Peru	NC	2010						√											
211	NS1:S08-006-001-002	GEMS-0215	Inbred-tropical	Thailand	NC	2010						√											
212	PASCO14:N11b-B-001-002	GEMN-0216	Cuban Yellow	Peru	NC	2010						√											
213	DK888:N11-B-027-001-B-001	GEMN-0217	Hybrid-tropical	Thailand	NC	2010								√									
214	(CUBA164:S2012-459-001-B/GEMS-0002)-B-B-011	GEMS-0218	GEM x GEM derived	USA	Ames	2011	√							√									
215	(CUBA164:S2012-459-001-B/GEMS-0002)-B-B-031	GEMS-0219	GEM x GEM derived	USA	Ames	2011	√							√								√	√
216	(GEMS-0113/GEMS-0091)-B-058-001	GEMS-0220	GEM x GEM derived	USA	Ames	2011																	
217	BR105:N1641-159-001	GEMN-0221	Composite (Suwan)	Brazil	Ames	2011																	
218	MBRC10:S1741-B-057	GEMS-0222	Multiple Borer Composite	Mexico	Ames	2011																	
219	CUBA164:S2012-444-001-B wx	GEMS-0223	Mixed (Creole)	Cuba	Ames	2011								√									
220	BG070404:D27S42-B-014	GEMS-0224	Unclassified	Venezuela	Ames	2012																	
221	BR105:N16a16b-B-074	GEMN-0225	Composite (Suwan)	Brazil	Ames	2012																	
222	BR106:S99a99e-B-053	GEMS-0226	Composite (Tuxpeño)	Brazil	Ames	2012	√																
223	NEI9004:S2809-B-022	GEMS-0227	Inbred-tropical	Thailand	Ames	2012																	
224	NEI9004:S2809-B-025	GEMS-0228	Inbred-tropical	Thailand	Ames	2012																	
225	SANM126:N1299b-B-033	GEMN-0229	Cuban yellow	Peru	Ames	2012																	
226	CML413:N18-001-036-002	GEMN-0230	CML tropical inbred	Mexico	NC	2012																	
227	CUBA164:D27-B-017-001	GEMN-0231	Mixed (Creole)	Cuba	NC	2012																	
228	SCR_Gp3:N14-028-003-B-002	GEMN-0232	Tusón	St. Croix	NC	2012																	
229	CML329:N18-001-020-001	GEMN-0233	CML tropical inbred	Mexico	NC	2012																	
230	AR17026:S1648-B-030	GEMS-0234	Cristalino Colorado	Argentina	Ames	2013																	
231	CUBA173:S0446-B-030	GEMS-0235	Criollo/Tuson	Cuba	Ames	2013																	
232	DK212T:N11a10-B-110	GEMN-0236	Hybrid-tropical	Thailand	Ames	2013																	
233	DKXL370:S08c17c-B-008	GEMS-0237	Hybrid-tropical	Brazil	Ames	2013																	
234	NEI9004:N0803-B-027	GEMN-0238	Inbred-tropical	Thailand	Ames	2013																	
235	NEI9004:N0803-B-053	GEMN-0239	Inbred-tropical	Thailand	Ames	2013								√									
236	UR13085:S99g99u-B-023	GEMS-0240	Cateto Sulino	Uruguay	Ames	2013																	
237	UR13085:S99g99u-B-058	GEMS-0241	Cateto Sulino	Uruguay	Ames	2013																	
238	SE32(BR52051):N11c-015-004-B	GEMN-0242	Dente Amarelo	Brazil	NC	2013																	
239	CML287:S15-024-003-B	GEMS-0243	CML tropical inbred	Mexico	NC	2013																	
240	CML287:S15-027-001-B	GEMS-0244	CML tropical inbred	Mexico	NC	2013																	
241	DK888:S11b-037-018-008-B	GEMS-0245	Hybrid-tropical	Thailand	NC	2013																	
242	AR01150:N0402-B-026	GEMN-0246	Dentado Blanco Rugoso	Argentina	Ames	2014																	
243	AR03056:N0902-064-001-B-B	GEMN-0247	Dentado Blanco	Argentina	Ames	2014																	
244	AR16042:S2028-B-012-B-B	GEMS-0248	Cristalino Colorado	Argentina	Ames	2014																	
245	BR105:N1643-B-020-B-B	GEMN-0249	Composite (Suwan)	Brazil	Ames	2014																	
246	CL-G1703:S17c43-B-023-B-B	GEMS-0250	Tropical Line	CIMMYT	Ames	2014																	
247	CL-G1703:S17c43-B-026-B-B	GEMS-0251	Tropical Line	CIMMYT	Ames	2014																	
248	DKB844:N11b18-241-001-B-B	GEMN-0252	Hybrid-tropical	Mexico	Ames	2014																	
249	DKXL212:N11a-139-001-001	DE EXP	Hybrid-tropical	Brazil	UDEL	2003		√					√										
250	DE3 (DKXL212:N11a-191)	**DE3**	Hybrid-tropical	Brazil	UDEL	2002							√										

Entry	Pedigree	Code	Race	Country	Site Released	Year Released	Prot	AA	Oil	Starch Prop.	Silage	GLS	NLB	SLB	Drought	Fumon.	Fuser	Aflatox	ASR	Diplodia	YM	Head Smut	Goss's
251	DE4 (DKXL212:N11a-365)	**DE4**	Hybrid-tropical	Brazil	UDEL	2002						√	√	√									
252	DE6 (DKXL212:N11a-234)	DE6	Hybrid-tropical	Brazil	UDEL	2005	√																
253	NY212 (FS8B(T):N1802-212)	NY212	Mixed	USA	Cornell U	2009													√				
254	NY215 (FS8B(T):N1802-215)	NY215	Mixed	USA	Cornell U	2009													√				
255	NY266 (AR01150:N0406-266)	NY266	Dent. Blanco Rugoso	Argentina	Cornell U	2009													√				
256	Tx204 (AR01150:N0406)	Tx204	Dent. Blanco Rugoso	Argentina	Texas A&M	2004									√								
257	Tx205 (AR01150:N0406)	Tx205	Dent. Blanco Rugoso	Argentina	Texas A&M	2004									√								
258	W605S (AR17026:N1019)	W605S	Cristalino Colorado	Argentina	U of Wisc.	2004					√												
259	W606S (SCRO1:N1310)	W606S	St. Croix	St. Croix	U of Wisc.	2009					√												
260	W607S (BR52051:N04)	W607S	Dente Amarelo	Brazil	U of Wisc.	2009					√												
261	W608S (CH05015:N15)	W608S	Camelia	Chile	U of Wisc.	2009					√												
262	W609S (FS8B(T):N11a)	W609S	Mixed	USA	U of Wisc.	2009					√												
263	W610S (CUBA164:S2012)	W610S	Mixed (Creole)	Cuba	U of Wisc.	2009					√												
264	W615S (GEM Quality Syn. GQS C0)	W615S	Criollo/Argentino	Cuba	U of Wisc.	2013					√												
265	W616S (AR16026:S1719)	W616S	Cristalino Colorado	Argentina	U of Wisc.	2013					√												

Legend:

Agro traits = Yield, lodging, and moisture w/in 10% of check mean

Y/M = Yield moisture ratio similar to or above check mean

ECB = European corn borer tolerance

GLS = Gray leafspot resistance

MDR = Mal de Rio Cuarto virus tolerance

NLB = Northern leaf blight resistance

SLB = Southern leaf blight resistance

Fuser = Fusarium ear rot resistance

Fumonisin = Low level of fumonisin (Fusarium mycotoxin)

Aflatoxin = Low level of aflatoxin (Aspergillus mycotoxin)

ASR=Anthracnose stalk rot resistance

AAI = Amino acid index of lysine, methionine, and tryptophan

Oil = Oil content > 4.5%, Protein = Protein content > 13%, and Starch = Starch thermal property

Bolded codes are Crop Science Registered

Racial Background of 265 GEM Releases

Race	Ames Releases	NC Releases	Other Releases	Total Releases
Alazan	1	0	0	1
Argentino	6	0	0	6
Camelia	7	0	1	8
Canilla	0	0	0	0
Cateto	0	11	0	11
Cateto Sulino	4	0	0	4
Composite (Suwan)	6	0	0	6
Composite (Tuxpeño)	1	0	0	1
Corn Belt Dent	1	0	0	1
Criollo	1	0	0	1
Criollo/Argentino (CUBA164)	14	1	2	17
Criollo/Tuson (CUBA173)	1	0	0	1
Cristalino Colorado	15	0	2	17
Cuban yellow	5	2	0	7
Dent. Blanco Rugoso	3	0	3	6
Dentado Blanco	5	0	0	5
Dente Amarelo	7	3	1	11
Dente Branco	4	0	0	4
Early Caribbean	1	0	0	1
Hybrid Blanco	0	0	0	0
Hybrid-tropical	19	71	4	94
Mixed	12	0	4	16
GEM Derived*	3	0	0	3
Multiple Borer Composite	1	0	0	1
Semidentado Riograndense	2	0	0	2
Southern Dent	0	0	0	0
St. Croix	1	0	1	2
Suwan	7	1	0	8
Tropical Line	2	5	0	7
Tusón	10	2	1	13
Tuxpeño	3	6	0	9
Tuxpeño/Olotillo	1	0	0	1
Unclassified	1	0	0	1
Totals	**144**	**102**	**19**	**265**

*GEMS-0218: (CUBA164:S2012-459-001-B/GEMS-0002)-B-B-011

*GEMS-0219: (CUBA164:S2012-459-001-B/GEMS-0002)-B-B-031

*GEMS-0220: (GEMS-0113/GEMS-0091)-B-058-001

Yield Trials

EX51: Third year trial of GEM potential releases; Combined twenty-five locations in 2012 and 2013

Entry	Pedigree	Yield	Moisture	Y/M	Erect Plants	Ear Height*	Plant Height*	GLS[#]
		bu/ac	%		%	cm	cm	1-9 scale
1	BR105:S16-042-001 x LH283.LH287	175	21.5	8.1	96	117	288	6.0
2	BR105:S16-110-001 x LH287.LH283	159	20.4	7.8	96	113	286	5.9
3	BR105:S16-126-003 x LH287.LH283	158	20.8	7.6	96	101	277	5.6
4	BR105:S16-139-002 x LH287.LH283	169	21.1	8.0	95	116	290	6.2
5	BR105:S16-B-001 x LH283.LH287	166	21.4	7.8	92	108	272	5.6
6	BR105:S16-B-010 x LH283.LH287	161	20.7	7.8	94	109	272	5.9
7	BR105:S16-B-011 x LH283.LH287	162	20.3	8.0	94	112	279	6.0
8	CLG1501:S17b-B-020 x LH287.LH283	166	19.1	8.7	96	108	287	4.9
9	PAS14:S11a-003-001 xLH287.LH283	162	19.8	8.2	92	96	270	-
10	PE11(BR51501):S11a-096-001 x LH283.LH287	162	19.4	8.3	93	109	277	5.9
11	LH310 x LH283.LH287	177	19.7	9.0	97	106	272	5.7
12	LH382 x LH283.LH287	173	19.3	9.0	97	-	-	-
13	LH383 x LH283.LH287	175	19.5	8.9	98	96	272	5.3
14	Pioneer 31D58	200	20.0	10.0	99	106	277	6.5
15	Pioneer 31P41	202	20.4	9.9	98	103	275	6.0
16	DeKalb 697	186	20.2	9.2	96	115	282	5.3
17	Pioneer 31G66	198	19.8	10.0	95	110	288	5.8
18	Pioneer 33D31	171	19.1	9.0	99	97	258	6.0
19	HC33 x TR7322	155	17.5	8.9	98	102	269	4.7
20	Pioneer 33M54	185	19.3	9.6	98	95	268	5.7
	Experiment mean	173	20.0		96	110	280	6.0
	Check mean	194	19.9		97			
	LSD .05 (ENTRY x LOC)	8.3	0.5		2.8	7.0	10.0	0.6
	C. V. % (ENTRY x LOC)	9.6	5.2		5.8	5.0	3.0	8.1

***Ear and plant heights measured at five NC locations**

[#]GLS was only scored at 3 locations, and only in 2013; GLS scored on a 1 = dead to 9 = no disease scale. Experiments 51 and 56 were combined for GLS in 2013. Experiment means, CVs, and LSDs are from joint analysis.

EX56: Third year trial of GEM potential releases; Combined twenty-three locations in 2012 and 2013

Entry	Pedigree	Yield	Moisture	Y/M	Erect Plants	Ear Height*	Plant Height*	GLS[#]
		bu/ac	%		%	cm	cm	1-9 scale
1	(PHG39/Tzi8)-001-003-001-002 x LH283.LH287	164	19.4	8.4	97	109	278	6.7
2	(PHG39/Tzi8)-001-004-003-002 x LH283.LH287	168	20.5	8.2	95	95	263	6.7
3	(NC368/CML343)-001-003-002 x LH283.LH287	174	19.8	8.8	93			-
4	(NC368/CML343)-001-008-003 x LH283.LH287	180	20.6	8.8	92	113	288	6.3
5	(NC368/CML343)-001-023-001 x LH283.LH287	187	21.5	8.7	92	113	294	6.4
6	(NC368/CML373)-001-005-001 x LH283.LH287	172	21.4	8.0	94			-
7	LH310 x LH283.LH287	172	19.8	8.7	97	106	272	5.7
8	LH383 x LH283.LH287	172	19.7	8.7	97	96	272	5.3
9	NC368 x LH283.LH287	174	19.6	8.9	94	106	279	5.9
10	DK697	191	20.7	9.2	98	115	282	5.3
11	HC33 x TR7322	155	17.9	8.6	97	102	269	4.7
12	P31D58	198	20.2	9.8	99	106	277	6.5
13	P31P41	196	20.3	9.7	97	103	275	6.0
14	P33M54	180	19.4	9.3	96	95	268	5.7
	Experiment mean	177	20.0	8.8	96	110	280	6.0
	Check mean	191	20.0	9.6	98			
	LSD .05 (ENTRY x LOC)	8.4	0.5		3.2	7.0	10.0	0.6
	C. V. % (ENTRY x LOC)	8.8	4.2		6.2	5.0	3.0	8.1

***Ear and plant heights measured at five NC locations**

[#]GLS was only scored at 3 locations, and only in 2013; GLS scored on a 1 = dead to 9 = no disease scale. Experiments 51 and 56 were combined for GLS in 2013. Experiment means, CVs, and LSDs are from joint analysis.

EXP8: Second year trial of recent GEM releases and retest of good performers from EX26 and EX27 (2010-2011); Combined eighteen southeastern locations in 2012 and 2013

Entry	Pedigree	Yield	Moisture	Y/M	Erect Plants	Ear Height*	Plant Height*	GLS#
		bu/ac	%		%	cm	cm	1-9 scale
1	GEMS-0006_DK212T:S11-B-017-001-B x LH283.LH287	151	18.7	8.1	98	105	260	4.7
2	GEMS-0007_DK212T:S11-B-018-001-B x LH283.LH287	151	19.0	7.9	97	110	265	5.4
3	GEMS-0018_DK888:S11-B-026-002-B x LH283.LH287	155	19.3	8.0	97	102	265	5.6
4	GEMS-0027_DKXL370:S11-B-025-001-B x LH283.LH287	162	18.3	8.9	99	105	273	5.5
5	GEMS-0032_DKXL380:S11-B-029-001-B x LH283.LH287	**172**	20.1	8.6	98	113	272	5.6
6	GEMN-0033_BR51403(PE001):N16-B-044-B x LH132.FR1064	160	18.7	8.5	99	125	283	4.8
7	GEMN-0041_BR51403(PE001):N16-B-521-B x LH132.FR1064	159	18.0	8.9	100	112	267	4.1
8	GEMN-0043_BR51403(PE001):N16-B-857-B x LH132.FR1064	169	18.7	**9.0**	98	111	265	3.7
9	GEMN-0103_DK888:N11(95)-B-027-010-B x LH132.FR1064	161	21.3	7.5	99	109	272	5.9
10	GEMN-0104_DK888:N11(95)-B-027-012-B x LH132.FR1064	**175**	19.9	8.8	98	108	264	5.8
11	GEMN-0108_DK888:N11(95)-B-027-001-B x LH132.FR1064	**171**	20.6	8.3	97	117	268	5.1
12	GEMN-0119_CHS775:N19-042-001-B x LH132.FR1064	**170**	18.2	**9.4**	99	124	289	4.1
13	GEMN-0124_DK212T:N11-B-003-001-B x LH132.FR1064	164	20.2	8.1	99	101	258	3.8
14	GEMN-0135_DKXL380:N11-B-007-025-B x LH132.FR1064	161	19.5	8.2	98	113	270	4.7
15	GEMN-0137_SCRGp3:N14-028-003-003-B x LH132.FR1064	165	19.5	8.5	99	114	268	4.1
16	GEMN-0207_BR51403(PE001):N16-B-044-004-001-01C-001-B x LH132.FR1064	169	18.6	**9.1**	99	130	288	5.0
17	GEMN-0208_BR51403(PE001):N16-B-044-004-001-02G-003-B x LH132.FR1064	167	18.4	**9.1**	97	129	287	4.3
18	GEMN-0209_BR51721RN07:N20-B-017-002-B x LH132.FR1064	166	19.0	8.7	97	121	281	4.4
19	GEMN-0210_CL-G1607(CML420):N11-008-001-007-B x LH132.FR1064	154	20.0	7.7	99	109	274	4.5
20	GEMN-0212_DK888:N11-B-027-012-B-007-B x LH132.FR1064	**174**	19.8	8.8	99	114	268	5.4
21	GEMN-0213_DKXL380:N11-B-007-010-B-002-B x LH132.FR1064	166	19.2	8.7	98	114	277	4.6
22	GEMN-0214_MDI022:N21-B-002-003-B x LH132.FR1064	155	19.8	7.8	99	112	270	5.8
23	GEMS-0215_NS1:S08-006-001-002-B x LH283.LH287	155	19.7	7.9	95	102	252	5.4
24	GEMN-0216_PASCO14:N11b-B-001-002-B x LH132.FR1064	145	18.2	8.0	99	110	262	4.0
25	GEMN-0217_DK888:N11-B-027-001-B-001-B x LH132.FR1064	168	20.1	8.4	98	111	272	5.4
26	BR105:S16-373-008-011 x LH283.LH287	168	21.4	7.9	96	110	277	5.5

EXP8: Second year trial of recent GEM releases and retest of good performers from EX26 and EX27 (2010-2011); Combined eighteen southeastern locations in 2012 and 2013

Entry	Pedigree	Yield	Moisture	Y/M	Erect Plants	Ear Height*	Plant Height*	GLS[#]
		bu/ac	%		%	cm	cm	1-9 scale
27	Seagull 17 x LH132.FR1064	156	17.2	9.1	99	108	263	3.7
28	Mo17 x LH132.FR1064	154	17.5	8.8	99	107	265	3.8
29	NK740 x LH132.FR1064	143	17.6	8.1	99	106	249	3.6
30	PHN47 x LH132.FR1064	158	19.5	8.1	99	109	263	5.3
31	PHN47 x LH283.LH287	152	20.3	7.5	93	109	257	5.8
32	PHT55 x LH283.LH287	170	19.0	9.0	93	106	269	5.1
33	B73 x LH283.LH287	163	18.0	9.1	97	102	261	3.9
34	LH132 x LH283.LH287	155	19.1	8.1	99	98	255	4.3
35	DJ7 x LH283.LH287	152	18.0	8.5	99	102	256	4.0
36	LH310 x LH283.LH287	169	19.6	8.6	97	103	268	5.3
37	LH383 x LH283.LH287	169	19.2	8.8	99	102	262	4.8
38	LH287 x FR1064.LH132	166	18.6	8.9	99	87	248	4.8
39	LH353 x FR1064.LH132	146	17.8	8.2	99	101	258	4.1
40	LH354 x FR1064.LH132	161	17.9	9.0	100	99	263	3.5
41	Pioneer 31D58	195	19.8	9.8	99	95	256	6.1
42	Pioneer 31P41	192	19.8	9.7	100	96	258	6.0
43	DeKalb 697	183	20.3	9.0	98	114	273	5.2
44	HC33 x TR7322	152	17.4	8.7	99	101	260	4.1
	Experiment mean	163	19.1	8.5	98	108	266	4.9
	Check mean	189	19.9	9.5	99			
	LSD .05 (ENTRY x LOC)	10.4	0.6		3.0	8.0	11.0	0.7
	C. V. % (ENTRY x LOC)	10.6	5.0		5.0	5.0	3.0	11.8

***Ear and plant heights only measured in 2013, and only at the five NC locations**

[#]GLS was only scored at 3 locations, and only in 2013; GLS scored on a 1 = dead to 9 = no disease scale.

EXP9: Second year trial of recent GEM releases and retest of good performers from EX28 and EX29 (2010-2011); Combined fourteen southeastern and midwestern locations in 2012 and 2013

Entry	Pedigree	Yield	Moisture	Y/M	Erect Plants	Ear Height*	Plant Height*	GLS#
		bu/ac	%		%	cm	cm	1-9 scale
1	GEMN-0048_DKXL370:N11a20-031-001-B x LH132.FR1064	175	20.0	8.8	97	85	255	4.7
2	GEMS-0049_DKB844:S1601-512-001-B x LH283.LH287	172	20.3	8.5	96	103	280	4.9
3	GEMS-0050_DKB844:S1601-517-001-B x LH283.LH287	**188**	21.5	8.7	94	110	263	5.1
4	GEMS-0052_CUBA164:S2008a-326-1-B x LH283.LH287	173	19.6	8.8	96	93	258	5.1
5	GEMN-0058_AR01150:N04-696-001-B x LH132.FR1064	163	19.5	8.4	93	110	263	3.7
6	GEMN-0076_DKB844:N11b-118-001-B x LH132.FR1064	167	20.2	8.3	95	93	265	4.4
7	GEMS-0084_PASCO14:S0105-198-001-B x LH283.LH287	148	17.8	8.3	96	85	230	3.1
8	GEMS-0091_CHS740:S1411a-783-002-B x LH283.LH287	172	18.8	9.2	93	98	268	5.2
9	GEMN-0095_DKXL370:N11a20-234-002-B x LH132.FR1064	169	20.3	8.3	96	98	265	5.0
10	GEMN-0097_FS8B(T):N11a-087-001-B x LH132.FR1064	**176**	17.7	**9.9**	97	98	255	4.4
11	GEMS-0113_CHS775:S1911b-120-001-B x LH283.LH287	**178**	18.9	**9.4**	94	98	263	5.5
12	GEMN-0144_MDI022:N2120-284-001-B x LH132.FR1064	168	20.1	8.4	96	103	268	4.8
13	GEMN-0158_BR51721N2012-397-001-B x LH132.FR1064	**176**	18.8	**9.4**	93	105	255	3.8
14	GEMS-0175_BVIR155:S2012-029-001-B-B x LH283.LH287	**177**	18.7	**9.5**	95	103	268	4.6
15	GEMN-0178_DK888:N11a08a-440-001-B x LH132.FR1064	173	21.2	8.1	97	100	278	4.6
16	GEMS-0184_GUAT209:S1308a-120-001-B x LH283.LH287	165	21.0	7.8	95	100	253	5.4
17	GEMN-0187_ANTIG03:N1218-056-001-B x LH132.FR1064	171	19.4	8.8	97	110	285	4.3
18	GEMS-0199_AR16021:S0908a-039-001-B x LH283.LH287	163	19.4	8.4	96	93	248	4.4
19	GEMS-0200_BR105:S1612-008-001-B-B x LH283.LH287	174	20.0	8.7	95	105	280	6.0
21	GEMS-0202_BR105:S1640-128-001-B x LH283.LH287	**178**	20.4	8.7	93	108	263	4.9
22	GEMS-0203_CUBA164:S2008dF44-012-001-B-B x LH283.LH287	169	20.3	8.3	94	83	243	5.1
23	GEMN-0204_FS8A(T):N1804-006-001-B-B x LH132.FR1064	166	19.2	8.7	97	108	270	3.8
24	GEMN-0205_GUAD05:N3215-197-001-B-B x LH132.FR1064	165	20.6	8.0	96	100	255	4.2
25	GEMS-0218_(CUBA164:S2012-459-001-B/GEMS-0002)-B-B-011-B x LH283.LH287	168	19.0	8.9	94	85	228	4.8
26	GEMS-0219_(CUBA164:S2012-459-001-B/GEMS-0002)-B-B-031-B x LH283.LH287	166	18.4	9.0	95	88	240	4.9

EXP9: Second year trial of recent GEM releases and retest of good performers from EX28 and EX29 (2010-2011); Combined fourteen southeastern and midwestern locations in 2012 and 2013

Entry	Pedigree	Yield	Moisture	Y/M	Erect Plants	Ear Height*	Plant Height*	GLS#
		bu/ac	%		%	cm	cm	1-9 scale
27	GEMS-0220_(GEMS-0113/GEMS-0091)-B-058-001-B x LH283.LH287	171	19.0	9.0	95	93	245	5.9
28	GEMN-0221_BR105:N1641-159-001-B x LH132.FR1064	160	19.5	8.2	97	98	245	3.2
29	GEMS-0222_MBRC10:S1741-B-057-B x LH283.LH287	167	17.5	**9.5**	95	93	245	4.5
30	LH51 x LH132.FR1064	176	19.4	9.1	98	105	253	4.8
33	LH57 x LH132.FR1064	149	17.1	8.7	98	80	228	3.8
34	LH61 x LH132.FR1064	144	17.5	8.2	97	78	220	3.8
35	NKH8341 x LH283.LH287	153	15.7	9.7	93	83	235	4.2
36	NS701 x LH283.LH287	176	18.2	9.7	95	88	243	3.8
38	PHB47 x LH283.LH287	156	18.3	8.6	89	88	248	4.0
39	LH310 x LH283.LH287	190	20.8	9.1	96	103	270	5.6
41	LH383 x LH283.LH287	189	20.1	9.4	96	83	250	4.7
42	LH287 x LH132.FR1064	174	19.5	8.9	97	95	258	4.5
43	LH353 x LH132.FR1064	160	18.9	8.5	98	88	243	4.3
44	LH354 x LH132.FR1064	177	18.6	9.5	96	100	255	4.3
45	Pioneer 31D58	202	20.6	9.8	97	85	260	6.1
46	Pioneer 31P41	214	21.1	10.1	97	95	268	5.7
47	DeKalb 697	194	21.3	9.1	97	100	258	5.1
48	HC33 x TR7322	156	17.6	8.9	98	95	263	4.2
	Experiment mean	171	19.4	8.8	96	96	256	4.7
	Check mean	204	20.8	9.8	97	----	----	
	LSD .05 (ENTRY x LOC)	9.9	0.7		3.1	16.0	24.0	0.7
	C. V. % (ENTRY x LOC)	9.5	5.8		5.3	9.0	5.0	12.9

***Ear and plant heights only measured in 2013, and only at the one NC location**

#GLS was only scored at 3 locations, and only in 2013; GLS scored on a 1 = dead to 9 = no disease scale.

EXS4: Selected subtropical and tropical inbreds evaluated at seven locations in 2013

Entry	Pedigree	Yield	Moisture	Y/M	Erect Plants	Ear Height*	Plant Height*	GLS#
		bu/ac	%		%	cm	cm	1-9 scale
1	89291 x P33M54	192	20.7	9.3	98	125	304	5.8
2	AC454 x P33M54	184	20.2	9.1	97	123	303	5.5
3	CA00370 x P33M54	191	21.1	9.0	95	146	323	6.4
4	CA03128 x P33M54	155	19.6	7.9	98	133	300	5.6
5	CA34502 x P33M54	182	22.1	8.2	93	131	303	6.1
6	FL_4AT5 x P33M54	162	20.7	7.8	94	107	298	5.7
7	FL_4BT7 x P33M54	193	20.6	9.4	95	130	301	5.8
8	FL_Tester_A x P33M54	165	21.6	7.7	97	120	295	6.3
9	FL_Tester_B x P33M54	155	21.5	7.2	98	121	293	5.6
10	Fla2AT116 x P33M54	172	22.2	7.7	98	120	293	6.2
11	HI 35-2A x P33M54	160	20.3	7.9	96	126	280	5.9
12	Hi27 x P33M54	153	19.3	7.9	92	125	295	4.9
13	Hi29 x P33M54	158	18.9	8.4	97	120	291	4.8
14	Hi48 x P33M54	151	20.6	7.4	96	120	290	5.8
15	Hi53 x P33M54	176	19.6	9.0	92	124	300	5.8
16	Hi59 x P33M54	157	21.2	7.4	97	118	275	6.7
17	Ki 43 x P33M54	156	21.8	7.1	99	117	291	5.6
18	KS23-4 x P33M54	170	21.5	7.9	97	126	298	6.1
19	N3-2-3-3 x P33M54	183	20.1	9.1	96	136	315	6.8
20	TZI1 x P33M54	163	19.7	8.3	94	127	295	5.8
21	TZI2 x P33M54	159	21.2	7.5	96	131	311	6.5
22	TZI3 x P33M54	166	20.7	8.0	97	130	310	6.3
23	TZI4 x P33M54	162	20.8	7.8	98	137	304	6.5
24	TZI6 x P33M54	172	19.8	8.7	92	129	306	5.4
25	TZI8 x P33M54	180	23.1	7.8	97	131	308	6.6
26	TZI12 x P33M54	177	21.8	8.1	95	123	297	6.0
27	TZI26 x P33M54	180	20.0	9.0	97	123	303	5.9
28	TZEEI21 x P33M54	169	19.5	8.6	99	115	284	5.6
29	P33M54 x CR3W	153	18.2	8.4	95	132	314	5.6

EXS4: Selected subtropical and tropical inbreds evaluated at seven locations in 2013

Entry	Pedigree	Yield	Moisture	Y/M	Erect Plants	Ear Height*	Plant Height*	GLS#
		bu/ac	%		%	cm	cm	1-9 scale
30	P33M54 x D160	152	20.9	7.3	93	129	304	5.8
31	P33M54 x D187	153	19.5	7.9	96	137	302	5.1
32	P33M54 x D287	166	22.0	7.5	88	137	310	6.3
33	P33M54 x E226S	166	20.5	8.1	93	143	322	5.9
35	P33M54 x F4	175	19.7	8.9	95	104	288	6.1
36	P33M54 x F45	160	20.6	7.8	95	131	313	5.8
37	P33M54 x F47	181	20.2	8.9	95	101	285	5.5
38	P33M54 x F54	173	20.7	8.4	97	120	301	6.0
39	P33M54 x F98	162	21.6	7.5	100	119	298	6.3
40	P33M54 x F101	156	21.2	7.4	98	105	282	5.8
41	NC320 x P33M54	183	18.6	9.9	96	105	281	5.6
42	NC368 x P33M54	167	18.7	8.9	100	123	296	6.9
45	DeKalb 697	192	19.6	9.8	97	113	292	5.0
46	DKC68-04	182	19.6	9.3	100	99	272	5.3
47	HC33 x TR7322	150	17.0	8.8	99	107	280	6.1
34	Pioneer Hybrid 2088R	197	20.1	9.8	98	123	293	5.1
44	Pioneer 31D58	191	19.7	9.7	99	104	262	5.4
43	Pioneer 31P41	199	19.4	10.3	99	107	279	4.1
48	Pioneer 33M54	177	18.9	9.3	99	105	280	5.5
	Experiment mean	168	20.7	8.1	97	122	296	5.8
	Check mean	188	19.8	9.5	99			
	LSD .05 (ENTRY x LOC)	17.2	0.8		5.2	10.0	14.0	0.7
	C. V. % (ENTRY x LOC)	10.4	3.7		5.4	6.0	3.0	10.1

***Ear and plant heights measured at four NC locations**

#GLS was only scored at 3 locations, and only in 2013; GLS scored on a 1 = dead to 9 = no disease scale.

EXS5: Selected CIMMYT inbreds evaluated at seven locations in 2013

Entry	Pedigree	Yield	Moisture	Y/M	Erect Plants	Ear Height*	Plant Height*	GLS#
		bu/ac	%		%	cm	cm	1-9 scale
1	CML258 x P33M54	166	22.7	7.3	95	110	287	7.1
2	CML273 x P33M54	181	21.4	8.4	96	116	274	6.3
3	CML274 x P33M54	185	22.2	8.3	96	105	268	6.6
4	CML395 x P33M54	187	22.0	8.5	96	111	275	6.5
5	CML309 x P33M54	168	23.3	7.2	95	124	302	6.9
6	CML438 x P33M54	195	20.5	9.5	96	103	262	5.4
7	CML448 x P33M54	153	26.0	5.9	95	95	255	6.6
8	CML449 x P33M54	190	23.7	8.0	95	102	265	6.1
9	CML450 x P33M54	179	23.2	7.7	95	105	264	5.9
10	CML454 x P33M54	181	22.6	8.0	95	101	262	6.3
11	CML474 x P33M54	162	22.1	7.3	95	103	270	6.4
12	CML481 x P33M54	161	22.4	7.2	95	98	267	5.3
13	CML490 x P33M54	169	24.3	6.9	95	109	270	6.5
14	CML494 x P33M54	196	21.2	9.2	95	113	268	6.7
15	CML499 x P33M54	167	23.1	7.2	95	127	291	6.6
16	CL-04368 x P33M54	180	23.1	7.8	95	111	269	6.7
17	CLQ-RCYQ41 x P33M54	166	23.7	7.0	95	105	267	7.0
18	DTPWC8_F31-1-3-1-B*4-2 x P33M54	181	22.9	7.9	95	107	274	6.3
19	LaPoSqC7-F1801221B*3 x P33M54	171	22.1	7.7	95	102	279	6.7
20	LaPoSeqC7-F96-1111BB x P33M54	182	21.4	8.5	96	107	263	6.6
21	LaPosSeqC7-F711112B3 x P33M54	193	21.6	9.0	96	103	259	6.9
22	LaPosta_SeqC7_F64-1-1-1-1B*3 x P33M54	173	20.7	8.4	96	104	261	6.0
23	LaPosta_SeqC7_F64-1-1-1-2B*3 x P33M54	178	22.0	8.1	95	103	254	6.5
24	SPL_C7_F254-1-2-3-2-2-B*4 x P33M54	182	21.5	8.4	96	99	251	6.0
25	NEL402020 x P33M54	165	22.3	7.4	95	103	267	5.7
26	CML78 x P33M54	166	21.0	7.9	96	93	251	5.6
27	CML103 x P33M54	160	21.3	7.5	90	107	258	5.8
28	CML108 x P33M54	159	21.5	7.4	95	95	256	5.5
29	CML223 x P33M54	153	22.4	6.8	95	94	247	6.2

EXS5: Selected CIMMYT inbreds evaluated at seven locations in 2013

Entry	Pedigree	Yield	Moisture	Y/M	Erect Plants	Ear Height*	Plant Height*	GLS#
		bu/ac	%		%	cm	cm	1-9 scale
30	CML311 x P33M54	164	23.8	6.9	95	110	284	6.8
31	CML312 x P33M54	173	23.1	7.5	95	113	285	6.7
32	CML313 x P33M54	192	23.5	8.2	95	112	298	6.9
33	CML315 x P33M54	172	22.8	7.5	96	106	259	6.2
34	CML318 x P33M54	166	20.8	8.0	96	102	274	5.4
35	CML319 x P33M54	182	24.9	7.3	95	111	278	7.1
36	CML329 x P33M54	156	20.8	7.5	96	96	252	5.4
37	CML330 x P33M54	178	22.6	7.9	95	101	253	6.2
38	CML331 x P33M54	169	25.4	6.7	95	107	275	6.1
39	CML332 x P33M54	166	24.7	6.7	94	103	262	5.6
40	CML339 x P33M54	184	22.9	8.1	95	110	279	6.5
41	CML340 x P33M54	190	22.9	8.3	95	111	274	6.7
42	CML341 x P33M54	168	23.2	7.2	95	92	245	6.3
43	CML342 x P33M54	174	23.0	7.6	95	111	258	6.7
44	CML343 x P33M54	189	23.3	8.1	95	99	252	6.2
45	CML372 x P33M54	158	22.2	7.1	95	116	277	6.3
46	CML373 x P33M54	170	23.6	7.2	96	99	254	6.9
47	CML375 x P33M54	182	22.8	8.0	95	98	255	6.3
48	CML376 x P33M54	157	23.2	6.8	95	102	261	6.5
49	CML378 x P33M54	180	23.8	7.5	95	109	262	6.4
50	CML379 x P33M54	183	24.7	7.4	95	100	264	7.0
51	CML381 x P33M54	177	23.5	7.5	95	105	272	6.8
52	CML384 x P33M54	156	24.3	6.4	95	115	290	6.9
53	CML385 x P33M54	178	24.3	7.3	95	110	279	7.1
54	NC320 x P33M54	183	19.2	9.5	96	101	258	6.3
55	P33M54 x CML264	155	24.3	6.4	95	100	254	6.9
56	P33M54 x CML287	179	23.8	7.5	95	115	290	6.6
57	La_Posta_Seq_C7_F71-1-1-1-2-B-B-B-1 x P33M54	194	22.4	8.7	95	110	265	6.5
58	La_Posta_Seq_C7_F71-1-1-1-2-B-B-B-2 x P33M54	198	21.9	9.0	96	107	263	6.6

EXS5: Selected CIMMYT inbreds evaluated at seven locations in 2013

Entry	Pedigree	Yield	Moisture	Y/M	Erect Plants	Ear Height*	Plant Height*	GLS[#]
		bu/ac	%		%	cm	cm	1-9 scale
59	La_Posta_Seq_C7_F71-1-1-1-2-B-B-B-3 x P33M54	193	22.8	8.5	95	105	270	6.9
60	La_Posta_Seq_C7_F71-1-1-1-2-B-B-B-6 x P33M54	190	22.4	8.5	96	104	263	6.7
61	La_Posta_Seq_C7_F71-1-1-1-2-B-B-B-7 x P33M54	194	21.8	8.9	95	97	262	6.7
62	La_Posta_Seq_C7_F71-1-1-1-2-B-B-B-8 x P33M54	206	22.1	9.4	96	109	269	6.7
63	CML101 x P33M54	167	24.6	6.8	95	105	256	6.0
64	CML102 x P33M54	163	23.2	7.0	96	103	259	5.9
65	CML104 x P33M54	161	20.5	7.9	96	98	234	6.1
66	CML105 x P33M54	182	19.5	9.3	96	99	252	5.9
67	CML107 x P33M54	162	22.1	7.3	95	106	261	5.8
68	Pioneer 31D58	204	20.0	10.2	96	89	250	6.1
69	Pioneer 31P41	195	20.4	9.5	96	88	242	5.3
70	DKC68-04	188	20.8	9.0	96	87	224	5.6
71	HC33 x TR7322	157	17.4	9.0	97	93	243	4.4
72	Pioneer 33M54	186	19.4	9.6	96	97	257	5.6
	Experiment mean	176	22.4	7.9	95	104	264	5.8
	Check mean	193	20.0	9.7	96			
	LSD .05 (ENTRY x LOC)	17.8	1.2		1.7	12	16	0.7
	C. V. % (ENTRY x LOC)	10.3	5.7		1.9	6	3	10.1

***Ear and plant heights measured at two NC locations**

[#]GLS was only scored at 3 locations, and only in 2013; GLS scored on a 1 = dead to 9 = no disease scale.

Experiment G2: ex-PVP topcrosses evaluated at fourteen North Carolina locations (2011-2013)

Entry	Pedigree	Yield	Moisture	Y/M	Erect Plants	Root Lodging	Stalk Lodging	Ear Height	Plant Height	GLS*
		b/a	%		%	%	%	cm	cm	1-9 scale
1	CR14 x LH287.LH283	109	15.7	6.9	91	4	5	91	241	2.9
2	DK2FACC x LH287.LH283	120	16.6	7.2	92	4	4	90	252	3.3
3	DK6M502 x FR1064.LH132	135	18.2	7.4	95	3	3	106	277	3.4
4	DKHB8229 x LH287.LH283	121	17.3	7.0	92	4	4	93	257	4.6
5	DKIBB14 x LH287.LH283	110	16.1	6.8	91	4	5	93	228	3.2
6	Funk4N506 x LH287.LH283	130	17.2	7.6	91	4	5	108	280	3.1
7	L139 x FR1064.LH132	111	15.7	7.1	97	2	2	90	263	2.3
8	LH190 x LH287.LH283	118	17.3	6.8	92	4	4	101	262	4.3
9	LH192 x LH287.LH283	124	18.5	6.7	92	4	4	94	257	3.9
10	LH193 x LH287.LH283	132	17.6	7.5	96	2	2	92	258	3.7
11	LH194 x LH287.LH283	127	18.6	6.8	92	4	4	103	271	4.5
12	LH195 x LH287.LH283	132	17.9	7.4	94	3	3	101	261	4.4
13	LH196 x LH287.LH283	126	17.4	7.2	90	4	5	90	267	2.8
14	LH202 x LH287.LH283	126	16.7	7.5	92	4	4	93	256	3.0
15	LH205 x LH287.LH283	113	16.4	6.9	93	4	4	90	254	3.6
16	LH208 x LH287.LH283	120	17.1	7.0	94	3	3	99	264	3.4
17	NKW8555 x LH287.LH283	141	17.3	8.2	92	4	4	105	281	2.9
18	PHJ31 x LH287.LH283	128	18.6	6.9	90	5	5	95	270	5.3
19	PHJ33 x FR1064.LH132	129	17.1	7.5	96	2	2	111	277	3.3
20	PHJ89 x LH287.LH283	111	16.7	6.6	91	4	5	85	258	3.3
21	PHK35 x LH287.LH283	128	16.7	7.7	93	3	4	105	278	4.2
22	PHM57 x LH287.LH283	140	18.6	7.5	90	5	5	103	277	5.5
23	PHM57 x FR1064.LH132	132	17.9	7.4	94	3	3	109	275	4.3
24	PHN34 x LH287.LH283	119	17.2	6.9	90	4	6	103	269	4.3
25	PHN37 x FR1064.LH132	122	16.5	7.4	96	2	2	99	273	2.3
26	PHN73 x FR1064.LH132	119	16.2	7.3	95	3	3	101	274	3.1
27	PHN82 x LH287.LH283	119	17.9	6.6	93	3	4	91	247	3.5
28	PHN82 x FR1064.LH132	118	17.6	6.7	96	2	3	94	254	2.4
29	PHP55 x FR1064.LH132	123	16.4	7.5	95	3	3	106	273	2.8
30	PHP60 x LH287.LH283	130	18.2	7.1	88	6	6	104	274	4.6
31	PHP76 x LH123.FR1064	112	17.2	6.5	96	2	2	99	257	2.6
32	PHR62 x FR1064.LH132	119	16.9	7.0	94	3	4	108	276	3.2
33	PHR63 x LH287.LH283	131	19.0	6.9	90	5	6	96	260	3.8

Experiment G2: ex-PVP topcrosses evaluated at fourteen North Carolina locations (2011-2013)

Entry	Pedigree	Yield	Moisture	Y/M	Erect Plants	Root Lodging	Stalk Lodging	Ear Height	Plant Height	GLS*
		b/a	%		%	%	%	cm	cm	1-9 scale
34	PHR63 x FR1064.LH132	128	18.6	6.9	91	4	5	105	266	3.3
35	PHT22 x LH287.LH283	114	17.4	6.6	92	3	5	94	251	3.1
36	PHT22 x FR1064.LH132	121	17.4	7.0	94	3	3	100	263	2.3
37	PHV37 x LH287.LH283	119	16.9	7.0	91	4	5	90	263	3.8
38	PHW03 x LH287.LH283	117	17.0	6.9	92	4	4	93	266	3.5
39	PHW20 x FR1064.LH132	115	16.8	6.8	94	3	3	102	266	2.6
40	PHW43 x FR1064.LH132	119	17.0	7.0	96	2	2	92	262	2.4
41	PHW51 x LH287.LH283	118	17.2	6.9	94	3	3	100	263	4.1
42	WIL500 xLH132.LH1064	110	17.9	6.1	95	2	3	91	242	4.3
43	B73 x LH287.LH283	143	17.4	8.2	91	4	5	108	278	3.3
44	NC474 x LH287.LH283	132	18.5	7.1	92	3	4	102	270	5.4
45	Pioneer 31D58	159	18.8	8.5	97	2	2	105	277	5.3
46	DeKalb 697	156	19.0	8.2	93	3	4	117	281	4.5
47	Pioneer 33M54	152	18.4	8.3	96	2	2	102	278	4.7
48	Garst 8288	143	19.2	7.4	95	3	3	99	284	3.4
	Experiment mean	125	17.4		93	3	4	99	265	3.6
	LSD .05 (ENTRY x LOC)	8	0.5		4	2	2	5	8	0.7
	LSD .01 (ENTRY x LOC)	11	0.6		5	3	3	6	11	16.7
	C. V. % (ENTRY x LOC)	9	4		6	83	80	7	4	13.4

***GLS was only scored at 3 locations, and only in 2013; GLS scored on a 1 = dead to 9 = no disease scale. Experiments G2 and G3 were grown jointly for GLS in 2013. CVs, LSDs, and F-tests are from joint analysis.**

Experiment G3: ex-PVP topcrosses evaluated at fifteen North Carolina locations (2011-2013)

Entry	Pedigree	Yield	Moisture	Y/M	Erect Plants	Root Lodging	Stalk Lodging	Ear Height	Plant Height	GLS*
		b/a	%		%	%	%	cm	cm	1-9 scale
1	AS5707 x FR1064.LH132	129	18.4	7.0	90	5	5	108	278	2.4
2	DK78551S x FR1064.LH132	116	16.3	7.1	92	4	4	86	257	2.4
3	DKHBA1 x FR1064.LH132	120	17.8	6.7	90	5	5	101	277	3.6
4	DKMBST x FR1064.LH132	124	18.3	6.8	89	5	6	94	264	2.9
5	LH51 x FR1064.LH132	128	17.5	7.3	91	4	5	110	271	3.5
6	LH54 x FR1064.LH132	112	17.0	6.6	91	4	5	90	243	2.8
7	LH57 x FR1064.LH132	115	16.3	7.1	93	4	4	86	250	2.8
8	LH59 x FR1064.LH132	119	16.9	7.0	93	4	4	100	261	2.8
9	LH60 x FR1064.LH132	123	18.3	6.7	91	4	4	97	267	3.2
10	LH123Ht x FR1064.LH132	120	17.2	7.0	90	4	6	112	290	3.1
11	LH156 x FR1064.LH132	126	19.4	6.5	92	4	4	94	262	3.0
12	ML606 x FR1064.LH132	118	17.9	6.6	91	4	5	98	265	2.6
13	NK740 x FR1064.LH132	125	17.0	7.4	89	5	6	105	263	3.1
14	NK787 x FR1064.LH132	132	19.3	6.8	89	6	6	104	280	3.4
15	NKE8501 x FR1064.LH132	121	18.0	6.7	92	4	4	91	261	3.5
16	NKJ8606 x FR1064.LH132	120	17.8	6.7	89	4	7	100	272	3.3
17	NKS8326 x FR1064.LH132	124	16.9	7.3	91	5	5	103	275	2.4
18	PHN47 x FR1064.LH132	125	18.6	6.7	90	5	5	112	277	4.2
19	PHR32 x FR1064.LH132	125	18.3	6.8	90	5	5	104	279	3.9
20	PHR36 x FR1064.LH132	112	17.4	6.4	90	5	5	104	267	2.9
21	PHT77 x FR1064.LH132	112	16.9	6.6	90	5	5	101	273	2.2
22	PHV78 x FR1064.LH132	113	17.3	6.5	89	5	6	102	270	2.7
23	PHW65 x FR1064.LH132	122	18.1	6.7	92	4	4	99	273	2.5
24	Seagull Seventeen x FR1064.LH132	124	17.2	7.2	91	4	5	104	271	3.0
25	WIL900 x FR1064.LH132	134	18.3	7.3	92	4	4	105	265	3.7
26	WIL901 x FR1064.LH132	132	18.3	7.2	87	6	7	116	292	3.5
27	WIL903 x FR1064.LH132	120	17.9	6.7	91	4	5	108	269	3.5
28	Mo17 x FR1064.LH132	129	16.8	7.7	91	4	5	109	273	2.6
29	Pioneer 31R88	137	19.5	7.0	91	4	5	110	289	5.3
30	Pioneer 31D58	153	18.6	8.2	91	4	4	103	275	5.3
31	Pioneer 31P41	157	18.7	8.4	92	4	4	104	275	4.9
32	DeKalb 697	147	19.0	7.7	88	6	7	114	276	4.5

Experiment G3: ex-PVP topcrosses evaluated at fifteen North Carolina locations (2011-2013)

Entry	Pedigree	Yield	Moisture	Y/M	Erect Plants	Root Lodging	Stalk Lodging	Ear Height	Plant Height	GLS*
		b/a	%		%	%	%	cm	cm	1-9 scale
33	Pioneer 31G66	158	18.9	8.4	91	4	5	110	294	5.1
34	HC33 x TR7322	125	16.6	7.5	91	4	5	100	269	3.0
35	Garst 8288	135	19.3	7.0	91	4	5	98	282	3.4
	Experiment mean	127	17.9		91	4	5	102	272	3.3
	LSD .05 (ENTRY x LOC)	9	0.5		3	2	2	5	7	0.7
	LSD .01 (ENTRY x LOC)	12	0.7		4	2	2	6	9	16.7
	C.V. % (ENTRY x LOC)	10	4		5	48	51	6	3	13.4

***GLS was only scored at 3 locations, and only in 2013; GLS scored on a 1 = dead to 9 = no disease scale. Experiments G2 and G3 were grown jointly for GLS in 2013. CVs, LSDs, and F-tests are from joint analysis.**

Experiment A2: ex-PVP topcrosses evaluated at ten North Carolina locations (2012-2013)

Entry	Pedigree	Yield	Moisture	Y/M	Erect Plants	Root Lodging	Stalk Lodging	Ear Height	Plant Height	GLS*
		b/a	%		%	%	%	cm	cm	1-9 scale
1	CS608 x LH287.LH283	116	16.7	6.9	99	1	1	88	257	3.5
2	DK29MIBZ2 x FR1064.LH132	109	16.0	6.8	98	1	1	84	254	2.6
3	DK29MIBZ2 x LH287.LH283	107	15.7	6.8	98	1	2	80	238	3.3
4	DK6F629 x LH287.LH283	131	16.5	7.9	98	0	2	96	265	4.1
5	DK6M502A17 x FR1064.LH132	134	18.3	7.3	99	0	1	99	279	3.4
6	DK83IBI3 x FR1064.LH132	97	15.3	6.3	99	0	1	86	250	2.6
7	DKF118 x LH287.LH283	138	17.8	7.8	99	1	0	97	279	4.6
8	DKFBLA x LH287.LH283	98	15.5	6.3	99	0	1	78	259	3.2
9	DKLIBC4 x FR1064.LH132	112	15.7	7.1	99	0	1	85	252	2.9
10	DKLIBC4 x LH287.LH283	103	15.5	6.6	99	0	1	80	241	3.1
11	DKMBSJ x FR1064.LH132	105	16.1	6.5	100	0	0	81	262	1.8
12	DKMBUB x FR1064.LH132	129	17.5	7.4	99	1	0	93	276	3.1
13	DKMM402A x FR1064.LH132	133	16.6	8.0	99	0	1	92	277	3.0
14	ICI193 x LH287.LH283	111	14.9	7.4	98	1	1	97	254	3.3
15	ICI441 x LH287.LH283	128	17.1	7.5	98	1	1	90	268	4.9
16	ICI740 x LH287.LH283	131	17.1	7.7	99	0	1	95	276	3.6
17	ICI893 x LH287.LH283	128	17.3	7.4	97	2	1	82	256	3.8
18	LH163 x FR1064.LH132	100	15.5	6.5	100	0	0	83	254	2.1
19	LH163 x LH287.LH283	105	15.1	7.0	99	1	1	79	252	3.9
20	LH191 x LH287.LH283	129	16.8	7.7	95	2	3	89	252	4.4
21	LH209 x LH287.LH283	127	16.6	7.7	99	0	1	86	263	3.1
22	LH212HT x FR1064.LH132	125	17.0	7.4	99	0	1	101	279	3.2
23	LH213 x FR1064.LH132	124	17.3	7.2	100	0	0	94	279	4.4
24	LH214 x FR1064.LH132	125	17.0	7.4	99	0	1	94	271	3.6
25	LH215 x FR1064.LH132	119	16.8	7.1	100	0	0	96	272	2.6
26	LH222 x LH287.LH283	107	15.8	6.8	98	0	2	84	251	2.9
27	MQ305 x LH287.LH283	113	15.4	7.3	98	1	1	85	252	3.2
28	NK904 x FR1064.LH132	113	16.4	6.9	99	0	1	84	260	2.8
29	NK911 x FR1064.LH132	106	16.2	6.5	99	0	1	86	262	3.4
30	NK912 x FR1064.LH132	104	15.8	6.6	98	2	0	88	266	2.6
31	NKBCC03 x FR1064.LH132	122	16.6	7.3	99	0	0	87	266	3.6
32	OQ403 x FR1064.LH132	90	16.2	5.6	93	3	5	87	245	2.0
33	OQ403 x LH287.LH283	96	15.2	6.3	98	1	2	77	246	2.8
34	OS602 x LH287.LH283	110	15.3	7.2	99	0	1	87	259	3.9

Experiment A2: ex-PVP topcrosses evaluated at ten North Carolina locations (2012-2013)

Entry	Pedigree	Yield	Moisture	Y/M	Erect Plants	Root Lodging	Stalk Lodging	Ear Height	Plant Height	GLS*
		b/a	%		%	%	%	cm	cm	1-9 scale
35	PHBA6 x FR1064.LH132	111	16.2	6.9	100	0	0	99	295	2.6
36	PHJ65 x FR1064.LH132	127	17.9	7.1	99	1	1	100	288	4.7
37	PHJ65 x LH287.LH283	129	18.0	7.2	96	2	2	101	284	5.0
38	PHJ90 x FR1064.LH132	109	16.6	6.6	98	0	2	88	252	2.9
39	PHJ90 x LH287.LH283	109	15.9	6.9	97	1	2	84	242	2.9
40	PHK93 x FR1064.LH132	131	19.0	6.9	100	0	0	102	273	4.8
41	PHK93 x LH287.LH283	122	18.9	6.5	98	1	1	90	273	4.5
42	PHM81 x FR1064.LH132	96	16.5	5.8	95	1	4	77	228	1.8
43	PHN66 x LH287.LH283	114	16.4	7.0	99	0	1	91	262	3.1
44	PHP85 x LH287.LH283	126	18.0	7.0	96	3	1	100	279	4.7
45	PHPR5 x LH287.LH283	118	17.5	6.7	96	3	2	82	254	4.6
46	PHR30 x FR1064.LH132	111	15.6	7.1	97	1	2	91	259	2.1
47	PHR30 x LH287.LH283	121	15.8	7.7	98	0	2	93	267	3.8
48	PHR55 x FR1064.LH132	125	17.2	7.3	98	1	1	95	274	2.8
49	PHR58 x FR1064.LH132	130	17.4	7.5	98	1	1	111	295	4.0
50	PHT69 x FR1064.LH132	101	16.4	6.2	100	0	0	89	255	2.3
51	PHT69 x LH287.LH283	105	16.1	6.5	99	1	1	83	251	2.9
52	PHT73 x FR1064.LH132	97	15.3	6.3	99	1	1	85	250	2.0
53	PHV53 x FR1064.LH132	126	18.2	6.9	99	0	1	106	288	2.8
54	PHV53 x LH287.LH283	128	18.2	7.0	97	1	3	99	279	3.6
55	PHVA9 x LH287.LH283	121	16.0	7.6	98	1	1	82	266	3.7
56	PHW30 x FR1064.LH132	115	16.1	7.1	99	0	0	98	277	3.5
57	PHWG5 x FR1064.LH132	129	17.9	7.2	98	1	1	106	286	4.3
58	UAS1538 x LH287.LH283	112	16.1	7.0	98	1	1	87	259	3.7
59	WILLp215D x FR1064.LH132	110	16.6	6.6	99	1	1	94	266	2.7
60	Pioneer 31P41	158	18.2	8.7	99	0	1	99	279	5.2
61	LH200 x LH262	130	18.8	6.9	100	0	0	110	280	5.2
62	DeKalb 697	155	19.1	8.1	99	0	1	111	285	4.5
63	Pioneer 31G66	153	18.7	8.2	99	0	0	104	293	5.6
	Experiment mean	118	16.7		98	1	1	91	265	3.5
	LSD .05 (ENTRY x LOC)	11	0.6		3	2	2	6	8	0.7
	LSD .01 (ENTRY x LOC)	14	0.8		4	2	3	7	11	18.4
	C. V. % (ENTRY x LOC)	10	4		3	266	219	7	3	13.2

***GLS was only scored at 3 locations, and only in 2013; GLS scored on a 1 = dead to 9 = no disease scale. An additional hybrid was scored for GLS: P31D58 had a score of 5.81.**

Experiment F1: ex-PVP topcrosses evaluated at five North Carolina locations (2013)

		Yield	Moisture	Y/M	Erect Plants	Root Lodging	Stalk Lodging	Ear Height	Plant Height
Entry	Pedigree	b/a	%		%	%	%	cm	cm
1	PHN46 x LH132.FR1064	125	15.7	8.0	99	0	1	113	272
2	PHP38 x LH287.LH283	132	16.1	8.2	100	0	0	93	269
3	DASCQ702RC x LH132.FR1064	126	14.7	8.6	99	0	1	104	279
4	DASCQ702RC x LH287.LH283	122	14.0	8.7	94	1	5	99	270
5	DK2FADB x LH287.LH283	140	15.9	8.8	100	0	0	86	249
6	DK2MCDB x LH287.LH283	139	15.2	9.1	98	0	2	93	279
7	DK3IIH6 x LH132.FR1064	125	15.1	8.3	100	0	0	97	266
8	DK3IIH6 x LH287.LH283	123	14.4	8.5	99	0	1	96	264
9	DK8M129 x LH132.FR1064	144	15.8	9.1	99	0	1	116	293
10	DK8M129 x LH287.LH283	138	16.0	8.6	97	2	1	102	275
11	DK91IFC2 x LH132.FR1064	106	14.7	7.2	99	0	1	91	253
12	DKAQA3 x LH132.FR1064	100	15.3	6.5	99	0	1	92	244
13	DKAQA3 x LH287.LH283	117	14.2	8.2	92	0	8	90	250
14	DKMBSJ x LH132.FR1064	122	15.6	7.8	100	0	0	88	267
15	DKMBWZ x LH132.FR1064	133	16.7	8.0	100	0	0	104	271
16	DKMBWZ x LH287.LH283	127	17.1	7.4	99	0	1	93	259
17	DKMM501D x LH132.FR1064	132	16.7	7.9	99	0	1	90	262
18	DKNL001 x LH287.LH283	133	15.0	8.9	99	0	1	101	259
19	ICI581 x LH132.FR1064	123	15.1	8.1	99	1	1	93	260
20	ICI740 x LH132.FR1064	60	15.4	3.9	99	0	1	87	240
21	ICI986 x LH132.FR1064	120	16.3	7.4	100	0	0	108	264
22	ICI986 x LH287.LH283	113	15.8	7.2	98	0	2	104	255
23	L155 x LH287.LH283	106	14.6	7.3	97	0	3	90	247
24	LH164 x LH132.FR1064	106	15.2	7.0	99	0	1	90	259
25	LH164 x LH287.LH283	115	14.5	7.9	100	0	0	82	239
26	LH165 x LH132.FR1064	122	15.8	7.7	100	0	0	92	235
27	LH166 x LH132.FR1064	107	15.3	7.0	100	0	0	79	250
28	LH166 x LH287.LH283	103	15.9	6.5	96	0	4	78	242
29	LH181 x LH132.FR1064	121	15.9	7.6	100	0	0	101	274

Experiment F1: ex-PVP topcrosses evaluated at five North Carolina locations (2013)

		Yield	Moisture	Y/M	Erect Plants	Root Lodging	Stalk Lodging	Ear Height	Plant Height
Entry	Pedigree	b/a	%		%	%	%	cm	cm
30	LH184 x LH132.FR1064	121	14.6	8.3	99	0	1	98	266
31	LH197 x LH287.LH283	158	16.7	9.5	95	0	5	105	275
32	LH198 x LH287.LH283	146	15.9	9.2	100	0	0	97	267
33	LH199 x LH132.FR1064	70	16.2	4.3	99	0	1	74	219
34	LH204 x LH287.LH283	138	14.8	9.3	99	0	1	97	266
35	LH206 x LH287.LH283	128	15.8	8.1	99	0	1	90	249
36	LH210 x LH132.FR1064	135	16.3	8.3	99	0	1	110	278
37	LH216 x LH132.FR1064	128	16.0	8.0	100	0	0	100	267
38	LH223 x LH287.LH283	121	14.4	8.4	99	0	1	87	246
39	LH224 x LH132.FR1064	92	15.0	6.1	100	0	0	95	250
40	PHAW6 x LH287.LH283	120	15.5	7.7	99	0	1	93	249
41	PHBW8 x LH287.LH283	127	16.0	7.9	100	0	0	90	247
42	PHGV6 x LH132xFR1064	138	17.0	8.1	99	0	1	115	284
43	PHGW7 x LH132.FR1064	117	15.7	7.5	98	2	0	95	258
44	PHGW7 x LH287.LH283	118	15.1	7.8	97	0	2	91	246
45	PHHH9 x LH132xFR1064	120	16.9	7.1	100	0	1	97	268
46	PHHH9 x LH287.LH283	142	16.6	8.6	97	1	2	100	268
47	PHHV4 x LH132.FR1064	98	16.4	6.0	98	0	2	96	253
48	PHHV4 x LH287.LH283	133	16.1	8.3	99	0	1	97	270
49	PHJR5 x LH287.LH283	137	16.3	8.4	98	0	2	97	277
50	PHK56 x LH287.LH283	137	15.7	8.7	100	0	0	91	270
51	PHK74 x LH132.FR1064	133	15.4	8.6	99	0	1	102	264
52	PHK93 x LH132.FR1064	144	18.6	7.7	100	0	0	109	278
53	PHKE6 x LH132.FR1064	129	15.0	8.6	100	0	0	92	255
54	PHKE6 x LH287.LH283	113	15.2	7.4	99	0	1	85	248
55	PHN34 x LH132.FR1064	119	16.8	7.1	99	0	1	103	270
56	PHR31 x LH132.FR1064	135	16.2	8.3	100	0	0	99	257
57	PHT47 x LH287.LH283	133	16.5	8.1	99	0	1	99	279
58	PHT69 x LH132.FR1064	105	15.4	6.8	100	0	0	99	257

Experiment F1: ex-PVP topcrosses evaluated at five North Carolina locations (2013)

Entry	Pedigree	Yield b/a	Moisture %	Y/M	Erect Plants %	Root Lodging %	Stalk Lodging %	Ear Height cm	Plant Height cm
59	PHT69 x LH287.LH283	113	15.7	7.2	98	1	1	90	253
60	PHTM9 x LH132xFR1064	114	15.3	7.5	99	1	0	92	271
61	PHV57 x LH132.FR1064	117	16.8	7.0	99	0	1	97	251
62	PHV57 x LH287.LH283	114	16.1	7.1	96	0	4	88	242
63	PHVJ4 x LH132.FR1064	111	15.1	7.4	100	0	0	92	265
64	PHVJ4 x LH287.LH283	108	14.9	7.2	99	0	1	91	256
65	PHW17 x LH132.FR1064	81	15.7	5.2	97	1	2	96	250
66	PHW17 x LH287.LH283	132	16.4	8.0	99	0	1	95	273
67	PHW20 x LH132.FR1064	128	16.4	7.8	100	0	0	102	270
68	PHW20 x LH287.LH283	110	16.1	6.8	99	0	1	95	264
69	PHW53 x LH132.FR1064	126	16.0	7.9	100	0	0	95	257
70	PHW53 x LH287.LH283	120	15.2	7.9	99	0	1	76	237
71	PHW80 x LH132.FR1064	117	16.1	7.3	99	0	1	93	251
72	PHW80 x LH287.LH283	109	15.4	7.1	99	0	0	81	240
73	NC320 x NC368	181	17.9	10.1	97	1	2	143	313
74	LH132 x LH51	136	16.9	8.0	100	0	0	102	271
75	Pioneer Hybrid 31D58	176	17.5	10.1	100	0	0	105	278
76	Pioneer Hybrid 31P41	170	17.7	9.6	100	0	0	99	277
77	DeKalb Hybrid 697	168	17.1	9.8	99	0	1	114	284
78	B73 x LH287.LH283	151	16.1	9.4	99	0	1	106	276
79	Mo17 x FR1064.LH132	129	15.9	8.1	99	1	0	105	275
80	Pioneer Hybrid 31G66	168	18.0	9.3	100	0	0	106	288
81	Pioneer Hybrid 33M54	159	17.4	9.1	100	0	0	100	281
	Experiment mean	125	15.9		99	0	1	97	262
	LSD .05 (ENTRY x LOC)	14	0.8		3	1	3	8	10
	LSD .01 (ENTRY x LOC)	19	1		4	2	3	10	14
	C. V. % (ENTRY x LOC)	9	4		2	539	208	6	3

Ames Grain Yield Trials

131301 **Tester: HC33** **Rep: 5**

Ent.	Pedigree	Yield B/A	% Moist	Y/ M	TWT	% S.L.	% R.L.
36	Pioneer 31D58	238.1	24.9	9.6	55.6	5.0	0.0
37	Pioneer 33F85	208.2	23.0	9.1	55.6	2.1	0.3
3	BR105:N99ae99ai-B-004	201.3	23.7	8.5	53.4	4.4	1.8
1	BR105:N99ae99ai-B-002	199.7	19.4	10.3	56.2	4.0	7.7
35	LH200xLH262	197.1	25.0	7.9	54.8	1.9	3.5
16	BR105:N99ae99ai-B-039	196.8	20.9	9.4	55.5	9.9	0.6
7	BR105:N99ae99ai-B-014	196.4	21.5	9.1	56.2	4.1	3.0
34	HC33xLH287	194.4	20.7	9.4	55.0	0.6	14.1
25	BR105:N99ae99ai-B-057	192.1	20.0	9.6	56.0	2.1	0.0
9	BR105:N99ae99ai-B-021	190.8	21.2	9.0	56.4	1.1	2.2
19	BR105:N99ae99ai-B-047	190.5	21.5	8.9	54.9	0.3	0.0
38	Pioneer 34R65	189.1	20.0	9.5	57.4	1.2	0.0
26	BR105:N99ae99ai-B-058	188.6	20.9	9.0	56.7	3.7	5.3
20	BR105:N99ae99ai-B-048	188.4	22.6	8.3	55.0	1.5	15.7
6	BR105:N99ae99ai-B-013	182.4	20.1	9.1	55.8	0.5	0.0
14	BR105:N99ae99ai-B-033	182.1	20.9	8.7	55.1	2.4	0.6
10	BR105:N99ae99ai-B-024	180.1	23.3	7.7	54.8	13.0	19.1
28	BR105:N99ae99ai-B-060	179.8	19.5	9.2	56.4	0.3	6.4
24	BR105:N99ae99ai-B-055	179.6	22.0	8.2	54.0	5.7	4.3
8	BR105:N99ae99ai-B-015	176.1	19.4	9.1	55.1	7.9	1.2
	Test Entry Means	175.1	21.1	8.3	55.3	5.0	4.4
	Check Means	205.4	22.7	9.0	55.7	2.1	3.6
	CV	11.0	5.8				
	F-value	4.3	7.2				
	LSD (p=0.05)	24.9	1.6				

131302 **Tester: HC33** **Rep: 5**

Ent.	Pedigree	Yield B/A	% Moist	Y/ M	TWT	% S.L.	% R.L.
47	Pioneer 31D58	205.2	24.2	8.5	55.9	0.0	0.0
48	Pioneer 33F85	202.5	22.3	9.1	55.7	0.9	0.0
3	BR105:N1652-B-006	190.9	21.0	9.1	55.7	3.3	4.7
33	BR105:N1652-B-057	190.7	26.0	7.3	54.1	1.3	1.5
4	BR105:N1652-B-008	185.9	23.4	8.0	55.1	2.2	2.5
32	BR105:N1652-B-055	185.3	22.4	8.3	55.5	2.8	6.5
46	LH200xLH262	184.8	24.4	7.6	55.0	2.5	8.7
45	HC33xLH287	183.1	20.0	9.1	55.2	0.0	2.5
2	BR105:N1652-B-005	176.7	20.1	8.8	57.5	3.2	2.4
49	Pioneer 34R65	176.0	20.2	8.7	57.6	0.0	0.0
39	BR105:N1652-B-064	174.8	22.5	7.8	55.4	1.8	3.4
16	BR105:N1652-B-032	174.2	21.7	8.0	55.7	1.5	7.7
43	BR105:N1652-B-068	170.8	20.1	8.5	56.2	0.0	2.0
24	BR105:N1652-B-044	170.6	21.2	8.0	57.2	1.1	2.1
26	BR105:N1652-B-047	170.0	22.1	7.7	56.8	0.0	0.0
27	BR105:N1652-B-048	168.4	22.1	7.6	55.9	2.9	12.6
37	BR105:N1652-B-061	168.3	21.5	7.8	57.2	0.0	0.0
14	BR105:N1652-B-024	167.0	22.9	7.3	55.7	0.0	1.4
36	BR105:N1652-B-060	166.8	21.5	7.8	55.6	3.6	2.1
8	BR105:N1652-B-013	166.2	20.6	8.1	57.1	3.2	2.0
	Test Entry Means	160.1	21.1	7.6	56.2	2.7	3.7
	Check Means	190.3	22.2	8.6	55.9	0.7	2.2
	CV	12.1	6.6				
	F-value	3.5	5.5				
	LSD (p=0.05)	25.1	1.8				

131303 **Tester: HC33** **Rep: 5**

Ent.	Pedigree	Yield B/A	% Moist	Y/ M	TWT	% S.L.	% R.L.
58	Pioneer 31D58	206.7	23.5	8.8	55.7	0.6	0.9
59	Pioneer 33F85	181.9	22.3	8.1	55.1	2.1	0.9
57	LH200xLH262	180.0	24.5	7.4	54.6	3.5	4.7
39	CML349:N99ap99z-B-047	175.2	19.6	8.9	54.9	1.9	3.6
56	HC33xLH287	172.6	19.3	8.9	55.2	1.7	0.3
22	CML349:N99ap99z-B-025	167.9	19.6	8.6	56.5	6.0	4.6
33	CML349:N99ap99z-B-040	167.8	19.1	8.8	55.5	3.8	0.8
40	CML349:N99ap99z-B-048	167.8	19.9	8.4	55.9	2.8	3.8
4	CML349:N99ap99z-B-006	167.0	19.7	8.5	55.9	0.9	1.5
30	CML349:N99ap99z-B-037	166.1	18.9	8.8	55.6	1.6	0.9
2	CML349:N99ap99z-B-004	165.8	17.5	9.5	55.5	0.9	0.3
48	CML349:N99ap99z-B-060	164.8	17.8	9.2	55.6	1.0	1.0
49	CML349:N99ap99z-B-061	163.5	20.5	8.0	55.5	0.0	0.3
10	CML349:N99ap99z-B-012	162.4	18.8	8.6	55.7	0.9	0.3
27	CML349:N99ap99z-B-034	161.2	17.8	9.1	56.7	0.0	1.4
52	CML349:N99ap99z-B-065	160.8	18.5	8.7	56.9	0.9	0.7
25	CML349:N99ap99z-B-032	160.4	18.5	8.7	58.2	0.5	0.2
44	CML349:N99ap99z-B-053	160.3	18.1	8.9	55.7	2.3	0.9
60	Pioneer 34R65	160.0	19.2	8.3	57.8	1.1	0.3
24	CML349:N99ap99z-B-029	159.4	18.3	8.7	56.2	3.2	4.6
	Test Entry Means	150.9	19.3	7.8	56.3	1.6	1.7
	Check Means	180.2	21.8	8.3	55.7	1.8	1.4
	CV	11.3	6.2				
	F-value	3.9	6.6				
	LSD (p=0.05)	21.7	1.5				

131304 **Tester: HC33** **Rep: 5**

Ent.	Pedigree	Yield B/A	% Moist	Y/ M	TWT	% S.L.	% R.L.
53	Pioneer 31D58	209.1	26.0	8.1	54.8	2.4	0.0
52	LH200xLH262	200.7	25.4	7.9	53.8	5.0	2.0
54	Pioneer 33F85	193.2	23.2	8.3	55.1	1.6	0.3
11	BR105:N99af99ak-020-001	191.7	21.8	8.8	55.8	6.4	0.3
36	BR105:N99af99ak-101-001	189.0	22.2	8.5	56.6	4.4	1.7
13	BR105:N99af99ak-029-001	183.4	21.9	8.4	56.6	7.4	11.2
47	BR105:N99af99ak-148-001	182.3	22.8	8.0	55.5	4.6	3.1
35	BR105:N99af99ak-097-001	181.5	22.8	8.0	56.0	4.9	2.0
24	BR105:N99af99ak-056-001	180.8	22.1	8.2	55.8	6.5	0.3
37	BR105:N99af99ak-108-001	180.0	22.0	8.2	55.9	9.6	1.4
4	BR105:N99af99ak-005-001	178.6	22.5	7.9	56.8	5.9	0.3
34	BR105:N99af99ak-095-001	178.4	23.0	7.7	55.8	6.2	1.7
22	BR105:N99af99ak-050-001	178.3	22.4	7.9	56.0	0.0	3.2
8	BR105:N99af99ak-012-001	178.2	21.2	8.4	57.0	12.3	0.3
41	BR105:N99af99ak-120-001	174.7	21.7	8.1	56.5	4.7	1.4
1	BR105:N99af99ak-001-001	174.0	20.8	8.4	56.2	1.9	2.9
20	BR105:N99af99ak-043-001	173.4	21.2	8.2	56.5	3.4	0.6
55	Pioneer 34R65	173.0	20.3	8.5	57.3	0.2	1.3
48	BR105:N99af99ak-150-001	172.0	23.4	7.3	55.2	2.6	0.0
10	BR105:N99af99ak-017-001	171.5	21.6	7.9	56.8	1.4	1.3
	Test Entry Means	165.5	22.3	7.4	56.1	3.5	1.5
	Check Means	188.9	23.1	8.2	55.1	2.0	1.1
	CV	12.1	5.1				
	F-value	2.5	7.9				
	LSD (p=0.05)	25.4	1.4				

131305 **Tester: HC33** **Rep: 5**

Ent.	Pedigree	Yield B/A	% Moist	Y/M	TWT	% S.L.	% R.L.
18	Pioneer 33F85	181.7	20.5	8.9	55.6	0.6	0.0
17	Pioneer 31D58	177.6	22.3	8.0	56.4	0.9	0.0
16	LH200xLH262	175.3	23.6	7.4	54.5	7.1	1.6
15	HC33xLH287	173.7	18.4	9.5	54.7	0.0	3.3
14	SANM126:N1241-B-021	167.5	20.2	8.3	55.7	0.9	1.3
5	SANM126:N1241-B-007	155.7	21.1	7.4	56.0	6.0	1.3
1	SANM126:N1241-B-001	153.1	20.9	7.3	56.8	0.6	1.8
13	SANM126:N1241-B-020	152.4	19.4	7.9	56.4	5.3	0.0
10	SANM126:N1241-B-013	152.4	21.7	7.0	55.8	5.1	3.9
8	SANM126:N1241-B-010	151.0	22.3	6.8	55.3	1.0	2.3
19	Pioneer 34R65	151.0	17.6	8.6	57.6	0.0	0.3
9	SANM126:N1241-B-012	150.7	19.0	7.9	56.4	1.3	0.0
2	SANM126:N1241-B-002	146.4	19.1	7.7	56.0	0.3	0.9
6	SANM126:N1241-B-008	143.8	21.1	6.8	55.4	0.4	0.7
11	SANM126:N1241-B-014	142.7	19.9	7.2	55.8	1.7	0.3
12	SANM126:N1241-B-019	141.1	20.2	7.0	57.4	0.6	0.0
3	SANM126:N1241-B-003	140.4	22.0	6.4	55.3	1.7	0.3
4	SANM126:N1241-B-006	132.8	19.7	6.7	55.0	1.3	1.3
7	SANM126:N1241-B-009	130.4	20.3	6.4	58.1	1.7	0.0
	Test Entry Means	147.2	20.5	7.2	56.1	2.0	1.0
	Check Means	171.8	20.5	8.4	55.8	1.7	1.0
	CV	15.4	6.2				
	F-value	2.0	7.0				
	LSD (p=0.05)	29.9	1.6				

131306 **Tester: LH287** **Rep: 5**

Ent.	Pedigree	Yield B/A	% Moist	Y/M	TWT	% S.L.	% R.L.
41	CUBA164:S2008dT4799aj-B-002	204.5	20.6	9.9	54.9	0.0	6.7
46	Pioneer 31D58	203.5	21.1	9.6	57.6	0.6	0.5
47	Pioneer 33F85	202.8	20.4	9.9	56.7	2.3	0.5
32	CML325:S1840-B-055	199.9	20.4	9.8	55.3	0.0	16.2
45	LH200xLH262	198.4	21.4	9.3	57.1	1.3	5.9
40	CML325:S1840-B-070	191.4	19.9	9.6	54.5	0.0	20.5
27	CML325:S1840-B-048	188.0	20.6	9.1	54.2	0.0	6.0
36	CML325:S1840-B-065	187.6	19.4	9.7	54.8	0.8	11.4
43	CUBA164:S2008dT4799aj-B-070	186.0	20.8	8.9	55.4	4.1	5.1
37	CML325:S1840-B-066	182.2	19.9	9.1	55.7	3.8	16.1
34	CML325:S1840-B-061	181.8	19.2	9.5	55.1	2.0	5.7
30	CML325:S1840-B-052	181.8	19.8	9.2	56.2	0.0	21.4
28	CML325:S1840-B-049	179.9	19.4	9.3	55.2	4.1	6.0
29	CML325:S1840-B-051	177.6	19.1	9.3	55.1	0.0	9.4
4	CML325:S1840-B-004	175.3	19.1	9.2	56.2	0.0	8.7
5	CML325:S1840-B-005	175.0	20.8	8.4	54.8	0.0	27.6
21	CML325:S1840-B-042	174.4	20.7	8.4	58.4	1.3	24.6
44	HC33xLH287	174.0	19.0	9.2	55.9	0.0	11.2
10	CML325:S1840-B-021	171.9	19.3	8.9	56.2	0.7	18.4
13	CML325:S1840-B-024	170.5	19.4	8.8	54.8	1.5	13.0
	Test Entry Means	167.1	19.8	8.4	55.3	1.1	14.1
	Check Means	188.6	20.1	9.4	57.3	0.9	4.9
	CV	16.8	4.8				
	F-value	1.6	2.3				
	LSD (p=0.05)	38.1	1.3				

131307 **Tester: LH287** **Rep: 5**

Ent.	Pedigree	Yield B/A	% Moist	Y/M	TWT	% S.L.	% R.L.
48	Pioneer 31D58	208.4	22.0	9.5	57.0	2.5	7.4
49	Pioneer 33F85	196.0	20.3	9.7	57.5	0.6	0.0
9	DKXL370:S08b46-B-011	179.7	21.9	8.2	55.6	0.0	29.9
20	DKXL370:S08b46-B-031	179.1	18.3	9.8	55.0	2.7	7.9
50	Pioneer 34R65	178.0	18.2	9.8	59.1	5.9	1.5
21	DKXL370:S08b46-B-032	177.8	20.1	8.9	57.7	0.6	8.2
39	DKXL370:S08b46-B-059	175.9	23.3	7.6	54.5	0.4	6.5
35	DKXL370:S08b46-B-054	173.1	20.8	8.3	55.0	0.6	37.4
12	DKXL370:S08b46-B-015	172.5	20.6	8.4	56.3	0.3	41.0
43	DKXL370:S08b46-B-064	171.2	20.6	8.3	54.7	0.3	44.4
22	DKXL370:S08b46-B-036	170.6	20.7	8.3	55.0	2.9	35.9
42	DKXL370:S08b46-B-063	170.2	20.5	8.3	54.8	1.4	28.4
28	DKXL370:S08b46-B-046	169.2	21.8	7.8	55.0	1.0	22.3
44	DKXL370:S08b46-B-065	168.5	19.1	8.8	53.6	0.6	14.9
10	DKXL370:S08b46-B-012	167.6	19.9	8.4	54.5	2.9	13.2
18	DKXL370:S08b46-B-028	167.3	21.1	7.9	55.5	0.0	10.6
32	DKXL370:S08b46-B-051	165.9	20.3	8.2	55.2	22.1	19.8
17	DKXL370:S08b46-B-024	164.8	20.5	8.0	57.0	0.0	22.2
40	DKXL370:S08b46-B-060	164.7	18.8	8.8	54.6	0.8	27.7
7	DKXL370:S08b46-B-007	163.9	21.5	7.6	56.7	0.3	27.1
	Test Entry Means	155.8	20.3	7.7	55.6	2.8	24.2
	Check Means	177.6	20.2	8.8	57.3	2.2	12.5
	CV	18.2	6.7				
	F-value	2.0	3.7				
	LSD (p=0.05)	36.3	1.7				

131308 **Tester: LH287** **Rep: 5**

Ent.	Pedigree	Yield B/A	% Moist	Y/M	TWT	% S.L.	% R.L.
68	Pioneer 31D58	223.0	21.1	10.6	58.5	0.0	2.8
69	Pioneer 33F85	212.5	20.3	10.5	58.0	0.0	0.6
66	HC33xLH287	193.8	18.9	10.3	57.4	0.3	4.6
36	PASCO14:S11a21-B-037	191.7	19.5	9.9	56.4	0.7	22.7
34	PASCO14:S11a21-B-035	186.3	17.4	10.7	55.4	0.0	25.1
19	PASCO14:S11a21-B-020	184.7	19.5	9.5	57.4	0.6	6.6
65	PASCO14:S11a21-B-070	184.0	17.9	10.3	57.4	0.5	15.3
52	PASCO14:S11a21-B-056	180.0	19.9	9.0	56.6	0.6	37.4
53	PASCO14:S11a21-B-057	175.9	20.0	8.8	56.5	1.8	3.6
21	PASCO14:S11a21-B-022	174.9	19.1	9.2	57.5	4.1	6.3
42	PASCO14:S11a21-B-043	174.7	19.5	9.0	56.7	0.0	13.1
67	LH200xLH262	174.2	21.9	7.9	57.5	5.0	0.9
70	Pioneer 34R65	173.7	18.7	9.3	58.6	0.0	0.0
32	PASCO14:S11a21-B-033	170.8	19.0	9.0	56.6	1.7	6.5
57	PASCO14:S11a21-B-061	169.9	18.7	9.1	58.5	0.0	24.9
33	PASCO14:S11a21-B-034	168.5	19.1	8.8	56.3	2.1	2.2
22	PASCO14:S11a21-B-023	167.8	19.0	8.8	55.4	0.3	45.1
30	PASCO14:S11a21-B-031	167.8	19.0	8.8	58.1	7.1	16.0
28	PASCO14:S11a21-B-029	167.0	21.6	7.7	54.9	17.9	18.1
10	PASCO14:S11a21-B-011	166.1	19.2	8.7	57.6	15.3	20.3
	Test Entry Means	158.9	19.1	8.3	57.1	3.0	17.5
	Check Means	195.4	20.2	9.7	58.0	1.1	1.8
	CV	15.1	5.0				
	F-value	2.3	4.9				
	LSD (p=0.05)	30.4	1.2				

131309 **Tester: LH287** **Rep: 5**

Ent.	Pedigree	Yield B/A	% Moist	Y/M	TWT	% S.L.	% R.L.
18	Pioneer 31D58	218.7	21.5	10.2	58.9	0.0	4.7
19	Pioneer 33F85	207.5	20.7	10.0	57.9	0.6	4.7
17	LH200xLH262	201.8	22.7	8.9	57.6	1.5	4.7
16	HC33xLH287	199.8	17.9	11.2	57.0	0.0	8.0
13	BR106:S99a99k-080-001	188.4	17.5	10.8	57.9	1.4	5.9
1	BR106:S99a99k-003-001	188.0	19.5	9.7	57.3	0.3	1.4
11	BR106:S99a99k-056-001	185.2	19.1	9.7	55.2	0.0	9.9
2	BR106:S99a99k-013-001	184.3	17.5	10.5	56.2	1.5	4.7
10	BR106:S99a99k-054-001	181.5	18.3	9.9	56.3	0.0	8.8
4	BR106:S99a99k-033-001	180.5	19.0	9.5	57.4	0.9	4.2
5	BR106:S99a99k-045-001	180.4	18.5	9.8	59.8	0.0	2.5
15	BR106:S99a99k-093-001	175.0	18.3	9.6	57.6	2.6	6.8
9	BR106:S99a99k-053-001	174.0	18.5	9.4	55.9	0.0	5.6
20	Pioneer 34R65	172.7	17.8	9.7	59.7	0.6	5.6
8	BR106:S99a99k-050-001	172.4	18.0	9.6	55.8	0.9	20.8
7	BR106:S99a99k-049-001	170.8	18.8	9.1	55.3	0.0	2.6
12	BR106:S99a99k-057-001	169.2	19.4	8.7	55.8	2.7	4.2
14	BR106:S99a99k-085-001	168.8	20.4	8.3	56.2	0.3	5.3
6	BR106:S99a99k-048-001	168.8	17.9	9.4	57.0	0.6	1.0
3	BR106:S99a99k-014-001	165.2	19.7	8.4	55.4	2.6	13.4
	Test Entry Means	176.8	18.7	9.5	56.6	0.9	6.5
	Check Means	200.1	20.1	9.9	58.2	0.5	5.5
	CV	10.0	5.2				
	F-value	3.2	9.6				
	LSD (p=0.05)	23.3	1.3				

131310 (Retest) **Tester: LH287** **Rep: 8**

Ent.	Pedigree	Yield B/A	% Moist	Y/M	TWT	% S.L.	% R.L.
28	Pioneer 31D58	219.8	21.7	10.1	58.3	0.9	0.7
29	Pioneer 33F85	202.5	20.2	10.0	57.6	0.4	0.6
13	CL-G1703:S17c43-B-023	201.8	20.5	9.8	55.8	2.0	1.2
14	CL-G1703:S17c43-B-026	200.5	20.8	9.6	55.4	6.6	3.9
7	DKXL212:S0928-B-032	198.8	20.7	9.6	55.1	2.3	3.3
4	NEI9004:S2817c-124-001	198.3	19.3	10.3	56.3	2.1	0.7
11	CL-G1703:S17c43-B-012	197.0	20.2	9.8	55.8	0.7	3.9
27	LH200xLH262	196.6	22.7	8.7	55.8	1.0	2.2
15	CUBA164:S99n99n-B-010	195.4	20.4	9.6	55.2	1.2	2.4
12	CL-G1703:S17c43-B-013	193.2	19.8	9.7	56.2	0.8	5.2
5	DKXL212:S0928-B-002	191.3	20.2	9.5	55.0	1.1	3.9
16	CUBA164:S99n99n-B-035	188.7	20.2	9.4	56.0	1.7	10.9
23	GEMS-0143	186.1	19.0	9.8	55.1	1.4	2.6
2	NEI9004:S2817c-048-001	185.5	21.0	8.8	55.1	1.6	21.6
26	HC33xLH287	184.7	17.8	10.4	56.2	2.6	2.5
8	DKXL212:S0928-B-040	183.7	19.1	9.6	56.1	3.3	5.2
21	GEMS-0160	182.2	20.6	8.8	55.7	0.6	7.0
1	NEI9004:S2817c-047-001	182.0	19.7	9.2	56.6	5.2	2.5
6	DKXL212:S0928-B-003	181.9	18.3	10.0	57.6	0.4	5.1
10	DKXL212:S0928-B-066	180.7	18.2	9.9	58.5	1.8	0.8
	Test Entry Means	181.2	19.7	9.2	55.8	2.6	4.6
	Check Means	195.0	20.0	9.7	57.2	1.2	1.2
	CV	12.6	6.6				
	F-value	3.7	8.8				
	LSD (p=0.05)	23.8	1.3				

131311 (Retest) **Tester: HC33** **Rep: 8**

Ent.	Pedigree	Yield B/A	% Moist	Y/M	TWT	% S.L.	% R.L.
38	Pioneer 31D58	220.3	21.8	10.1	57.7	1.1	3.9
39	Pioneer 33F85	201.0	20.4	9.9	57.4	1.5	1.8
36	HC33xLH287	192.6	18.0	10.7	56.6	0.9	4.4
18	GEMN-0239	190.9	19.9	9.6	57.0	3.5	6.6
37	LH200xLH262	188.3	21.9	8.6	56.2	2.9	4.2
15	NEI9004:N0803-B-019	179.9	18.3	9.8	57.8	0.0	0.6
13	BR105:N1646-B-070	177.1	19.1	9.3	58.0	3.8	2.7
31	DKB844:N11b18-241-001-B	177.1	18.9	9.4	57.3	0.0	2.8
14	NEI9004:N0803-B-011	176.0	18.4	9.5	57.1	3.3	2.1
24	BR105:N1643-B-006	175.5	19.0	9.3	57.9	2.7	4.2
2	SCROGP3:N3215-B-013	174.5	18.1	9.7	56.4	1.6	3.4
12	BR105:N1646-B-050	173.8	19.2	9.0	57.7	1.3	0.9
23	CML329:N1546-B-053	173.5	18.4	9.4	58.8	0.2	5.9
6	CL-00331:N1834-B-023	173.4	22.3	7.8	56.3	0.8	4.2
11	BR105:N1646-B-023	173.4	18.0	9.7	57.9	2.5	3.7
27	BR105:N1643-B-039	172.7	17.9	9.7	57.6	2.7	2.1
26	BR105:N1643-B-023	171.8	18.9	9.1	56.2	1.9	5.4
22	CML329:N1546-B-017	171.2	19.7	8.7	55.9	0.9	1.7
3	SCROGP3:N3215-B-035	170.8	18.2	9.4	57.6	3.7	8.5
5	SCROGP3:N3215-B-058	170.7	18.0	9.5	57.7	1.5	1.3
	Test Entry Means	166.3	19.0	8.8	57.4	1.6	3.0
	Check Means	193.9	20.0	9.7	57.2	1.3	2.9
	CV	10.8	6.3				
	F-value	5.4	8.3				
	LSD (p=0.05)	18.3	1.2				

131312 **Tester: AGR-SS** **Rep: 4**

Ent.	Pedigree	Yield B/A	% Moist	Y/M	TWT	% S.L.	% R.L.
62	Pioneer 31D58	199.1	21.3	9.3	57.2	1.0	0.4
63	Pioneer 33F85	198.3	20.6	9.6	57.6	1.4	1.8
36	NEI9004:N0846-B-156	193.7	21.5	9.0	57.1	1.0	0.0
18	NEI9004:N0846-B-089	191.9	22.5	8.5	56.2	1.6	1.4
28	NEI9004:N0846-B-119	191.6	21.3	9.0	57.4	8.0	5.3
35	NEI9004:N0846-B-153	185.5	23.8	7.8	54.8	0.0	0.4
44	NEI9004:N0846-B-179	185.1	22.4	8.3	55.4	1.6	6.3
52	NEI9004:N0846-B-198	182.5	21.4	8.5	56.5	1.6	0.0
53	NEI9004:N0846-B-199	182.5	23.0	7.9	55.1	2.6	1.5
38	NEI9004:N0846-B-164	182.1	22.2	8.2	56.1	0.0	3.9
8	NEI9004:N0846-B-033	179.6	21.6	8.3	55.6	9.6	2.6
6	NEI9004:N0846-B-029	179.4	23.8	7.6	56.2	0.0	10.3
54	NEI9004:N0846-B-201	178.3	22.2	8.0	55.6	3.2	2.7
4	NEI9004:N0846-B-026	177.7	23.2	7.7	55.6	3.2	6.4
24	NEI9004:N0846-B-110	175.3	23.4	7.5	54.3	0.0	1.5
23	NEI9004:N0846-B-102	172.9	23.5	7.4	55.1	1.6	8.6
45	NEI9004:N0846-B-180	172.6	23.4	7.4	54.4	6.4	6.4
55	NEI9004:N0846-B-203	172.1	22.8	7.6	55.3	1.6	2.0
16	NEI9004:N0846-B-076	169.0	22.8	7.4	55.1	6.4	2.4
10	NEI9004:N0846-B-043	168.2	21.0	8.0	56.5	4.8	3.2
	Test Entry Means	161.0	22.3	7.2	55.8	5.6	3.2
	Check Means	175.4	20.3	8.6	56.8	7.8	1.5
	CV	15.8	5.7				
	F-value	1.6	3.6				
	LSD (p=0.05)	35.7	1.8				

131313 **Tester: SGI071** **Rep: 5**

Ent.	Pedigree	Yield B/A	% Moist	Y/ M	TWT	% S.L.	% R.L.
26	Pioneer 31D58	283.8	21.8	13.0	59.4	0.7	0.7
23	LH200xLH262	264.5	22.8	11.6	58.2	3.5	11.9
25	Pioneer 33F85	254.2	20.3	12.5	59.8	0.7	0.0
22	HC33xLH287	226.2	18.6	12.2	59.4	0.7	0.7
24	Pioneer 34R65	215.0	18.7	11.5	60.7	0.7	9.3
17	CML325:S1840-B-051	206.8	18.1	11.4	60.2	1.5	6.5
20	CML325:S1840-B-063	203.6	19.0	10.7	60.0	4.6	0.0
18	CML325:S1840-B-057	200.9	17.7	11.3	60.2	21.2	2.2
10	CML325:S1840-B-026	197.4	17.9	11.0	62.3	1.4	0.0
9	CML325:S1840-B-024	195.2	19.2	10.2	61.2	1.4	0.7
15	CML325:S1840-B-038	187.4	19.3	9.7	60.6	3.1	10.3
2	CML325:S1840-B-003	176.7	18.5	9.5	60.4	10.3	2.9
7	CML325:S1840-B-016	175.5	18.9	9.3	60.3	10.7	0.0
6	CML325:S1840-B-015	174.4	19.4	9.0	59.4	13.4	5.7
3	CML325:S1840-B-007	168.2	20.7	8.1	59.2	0.7	34.8
13	CML325:S1840-B-034	165.2	20.1	8.2	58.2	14.9	4.3
11	CML325:S1840-B-031	162.0	19.7	8.2	60.2	8.4	9.7
21	CML325:S1840-B-068	161.3	19.1	8.5	61.0	5.5	1.4
8	CML325:S1840-B-021	157.7	19.4	8.1	61.0	24.1	0.0
4	CML325:S1840-B-009	155.3	18.8	8.2	59.6	23.8	4.4
	Test Entry Means	164.5	19.3	8.5	60.1	12.8	5.8
	Check Means	248.7	20.4	12.2	59.5	1.3	4.5
	CV	9.7	4.7				
	F-value	31.9	8.1				
	LSD (p=0.05)	22.0	1.2				

131314 **Tester: SGI079** **Rep: 5**

Ent.	Pedigree	Yield B/A	% Moist	Y/ M	TWT	% S.L.	% R.L.
40	Pioneer 31D58	258.1	21.7	11.9	60.3	1.5	0.8
37	LH200xLH262	246.2	23.2	10.6	58.0	1.4	26.0
16	CML325:S1840-B-030	238.2	20.0	11.9	57.1	10.8	26.5
4	CML325:S1840-B-006	238.0	21.8	10.9	57.0	3.5	29.9
39	Pioneer 33F85	236.4	20.3	11.6	59.5	36.8	7.7
32	CML325:S1840-B-061	235.7	20.0	11.8	56.0	9.4	11.4
9	CML325:S1840-B-011	229.1	19.6	11.7	57.2	49.1	6.0
35	CML325:S1840-B-068	227.9	19.3	11.8	57.8	36.4	28.6
27	CML325:S1840-B-055	227.5	20.6	11.1	56.7	22.6	3.9
26	CML325:S1840-B-053	225.2	19.6	11.5	57.5	15.4	26.1
5	CML325:S1840-B-007	225.0	21.3	10.6	56.7	36.6	22.0
21	CML325:S1840-B-043	224.4	21.4	10.5	55.3	35.9	15.8
13	CML325:S1840-B-024	224.3	19.9	11.3	57.2	17.5	9.4
12	CML325:S1840-B-023	223.0	20.0	11.2	58.5	15.6	4.2
34	CML325:S1840-B-064	222.8	21.2	10.5	57.4	4.4	19.8
25	CML325:S1840-B-052	220.9	20.9	10.6	56.6	7.0	9.9
7	CML325:S1840-B-009	219.0	21.2	10.3	57.0	12.1	20.3
6	CML325:S1840-B-008	218.7	20.2	10.8	57.6	6.3	42.1
14	CML325:S1840-B-028	218.4	20.0	10.9	57.2	27.3	5.9
36	HC33xLH287	218.0	19.2	11.3	58.2	4.9	3.5
	Test Entry Means	212.1	20.3	10.5	57.1	25.6	15.7
	Check Means	229.5	20.6	11.1	59.2	8.9	12.4
	CV	9.0	3.7				
	F-value	4.5	7.9				
	LSD (p=0.05)	24.7	1.0				

131315 **Tester: MON-nSS** **Rep: 5**

Ent.	Pedigree	Yield B/A	% Moist	Y/ M	TWT	% S.L.	% R.L.
1	Pioneer 31D58	211.6	20.2	10.5	60.4	1.9	0.0
81	BR105:S21z99ah-B-147	210.6	20.2	10.4	58.6	2.6	0.0
24	BR105:S21z99ah-B-043	210.1	24.5	8.6	58.8	1.9	0.0
46	BR105:S21z99ah-B-085	207.3	21.0	9.9	59.9	0.6	0.0
71	BR105:S21z99ah-B-127	206.6	20.4	10.1	60.0	2.6	0.0
12	BR105:S21z99ah-B-008	205.7	19.9	10.3	60.6	5.2	0.0
61	BR105:S21z99ah-B-112	204.6	21.6	9.5	59.5	3.5	0.0
44	BR105:S21z99ah-B-082	204.4	21.4	9.6	60.4	0.0	0.0
33	BR105:S21z99ah-B-061	203.2	20.4	10.0	59.2	0.9	0.0
72	BR105:S21z99ah-B-129	203.2	21.5	9.4	59.4	1.3	1.2
58	BR105:S21z99ah-B-106	203.1	20.7	9.8	59.1	1.7	0.0
2	Pioneer 33F85	202.7	20.6	9.8	59.7	0.4	0.0
39	BR105:S21z99ah-B-068	202.7	20.9	9.7	59.9	2.5	0.0
36	BR105:S21z99ah-B-065	202.0	21.1	9.6	59.9	2.1	0.0
43	BR105:S21z99ah-B-077	201.9	21.2	9.5	59.6	0.9	0.0
28	BR105:S21z99ah-B-053	200.9	20.4	9.9	58.4	1.3	0.0
67	BR105:S21z99ah-B-118	200.9	23.6	8.5	58.8	0.9	0.0
42	BR105:S21z99ah-B-075	200.1	21.2	9.4	59.7	0.6	0.0
70	BR105:S21z99ah-B-126	200.0	20.3	9.9	60.8	3.2	0.0
20	BR105:S21z99ah-B-029	199.8	21.4	9.3	60.0	1.7	0.0
	Test Entry Means	191.5	21.0	9.1	59.7	3.0	0.0
	Check Means	197.5	20.2	9.8	59.4	1.0	0.0
	CV	8.8	5.5				
	F-value	1.4	5.1				
	LSD (p=0.05)	22.2	1.5				

131316 **Tester: SYG-SS** **Rep: 4**

Ent.	Pedigree	Yield B/A	% Moist	Y/ M	TWT	% S.L.	% R.L.
44	Pioneer 31D58	241.2	21.8	11.1			
23	BR105:N99z11d-066-001	232.7	19.2	12.1			
3	BR105:N99z11d-003-001	232.1	19.9	11.7			
43	Pioneer 33F85	229.3	21.6	10.6			
31	BR105:N99z11d-099-001	225.4	19.4	11.6			
6	BR105:N99z11d-015-001	222.2	20.5	10.8			
32	BR105:N99z11d-104-001	221.4	22.1	10.0			
2	BR105:N99z11d-002-001	220.8	21.0	10.5			
24	BR105:N99z11d-069-001	216.3	19.4	11.2			
45	HC33xLH287	214.8	18.4	11.7			
29	BR105:N99z11d-094-001	213.3	19.7	10.9			
10	BR105:N99z11d-028-001	213.2	17.7	12.0			
12	BR105:N99z11d-035-001	212.5	21.0	10.1			
40	BR105:N99z11d-126-001	212.2	20.1	10.5			
8	BR105:N99z11d-022-001	211.5	20.1	10.5			
34	BR105:N99z11d-106-001	211.5	20.0	10.6			
17	BR105:N99z11d-048-001	210.3	21.5	9.8			
39	BR105:N99z11d-122-001	209.4	21.7	9.6			
25	BR105:N99z11d-075-001	208.3	18.9	11.0			
30	BR105:N99z11d-098-001	207.6	20.2	10.3			
	Test Entry Means	206.2	20.2	10.2			
	Check Means	214.7	20.9	10.3			
	CV	9.4	5.6				
	F-value	1.9	4.9				
	LSD (p=0.05)	27.2	1.6				

131317 **Tester: SYG-nSS** **Rep: 4**

Ent.	Pedigree	Yield B/A	% Moist	Y/ M	TWT	% S.L.	% R.L.
12	CML341:S99y11f-058-001	228.0	20.6	11.1			
21	CML341:S99y11f-074-001	226.1	20.6	11.0			
7	CML341:S99y11f-041-001	223.9	23.3	9.6			
43	Pioneer 33F85	222.1	21.0	10.6			
24	CML341:S99y11f-089-001	218.6	21.4	10.2			
9	CML341:S99y11f-048-001	218.1	20.6	10.6			
40	CML341:S99y11f-144-001	218.1	23.3	9.4			
31	CML341:S99y11f-115-001	215.1	21.7	9.9			
25	CML341:S99y11f-093-001	212.9	23.5	9.1			
28	CML341:S99y11f-106-001	212.6	22.3	9.5			
14	CML341:S99y11f-061-001	211.3	26.0	8.1			
11	CML341:S99y11f-057-001	209.8	22.1	9.5			
33	CML341:S99y11f-118-001	207.4	23.3	8.9			
38	CML341:S99y11f-142-001	207.2	23.6	8.8			
36	CML341:S99y11f-126-001	206.1	23.8	8.7			
30	CML341:S99y11f-113-001	206.0	23.3	8.9			
44	Pioneer 31D58	205.7	23.8	8.6			
35	CML341:S99y11f-121-001	205.3	24.7	8.3			
34	CML341:S99y11f-120-001	205.3	23.8	8.6			
10	CML341:S99y11f-051-001	204.6	24.2	8.4			
	Test Entry Means	202.6	22.8	8.9			
	Check Means	202.9	21.3	9.5			
	CV	9.4	9.1				
	F-value	1.6	2.5				
	LSD (p=0.05)	26.9	2.9				

131318 **Tester: R6258RMQK2 Rep: 6**

Ent.	Pedigree	Yield B/A	% Moist	Y/ M	TWT	% S.L.	% R.L.
27	Pioneer 31D58	189.4	26.4	7.2		1.2	0.0
24	Ki21:N99ap99z-B-040	187.5	22.5	8.4		0.9	0.0
10	Ki21:N99ap99z-B-015	178.8	20.7	8.6		2.3	0.0
11	Ki21:N99ap99z-B-016	177.2	20.1	8.8		0.0	0.0
4	Ki21:N99ap99z-B-004	175.4	21.8	8.1		8.7	0.0
16	Ki21:N99ap99z-B-027	173.4	21.2	8.2		2.3	0.0
28	Pioneer 33F85	172.7	21.6	8.0		4.0	0.0
22	Ki21:N99ap99z-B-036	172.7	23.5	7.3		2.6	0.0
15	Ki21:N99ap99z-B-024	169.1	21.3	8.0		2.2	0.0
9	Ki21:N99ap99z-B-012	168.7	20.3	8.3		1.5	0.0
13	Ki21:N99ap99z-B-020	168.2	21.6	7.8		2.7	0.0
1	Ki21:N99ap99z-B-001	166.8	20.7	8.0		1.4	0.0
17	Ki21:N99ap99z-B-028	166.1	18.9	8.8		0.9	0.0
20	Ki21:N99ap99z-B-032	163.7	21.2	7.7		1.0	0.0
5	Ki21:N99ap99z-B-005	161.9	20.2	8.0		0.0	0.0
6	Ki21:N99ap99z-B-007	161.8	19.6	8.3		2.2	0.0
3	Ki21:N99ap99z-B-003	161.5	19.8	8.2		1.4	0.0
2	Ki21:N99ap99z-B-002	161.0	20.2	8.0		3.8	0.0
25	LH200xLH262	160.9	25.9	6.2		1.3	0.0
19	Ki21:N99ap99z-B-031	158.7	19.4	8.2		0.0	0.0
	Test Entry Means	162.9	20.6	7.9		1.5	0.0
	Check Means	163.6	22.2	7.4		1.7	0.0
	CV	15.5	9.4				
	F-value	1.7	6.0				
	LSD (p=0.05)	28.8	2.2				

131319 **Tester: F0297RMQK Rep: 6**

Ent.	Pedigree	Yield B/A	% Moist	Y/ M	TWT	% S.L.	% R.L.
29	Pioneer 33F85	186.2	20.3	9.2		7.6	0.0
28	Pioneer 31D58	180.3	21.9	8.2		2.2	0.0
3	Ki21:N99ap99z-B-003	179.7	18.9	9.5		0.4	0.0
14	Ki21:N99ap99z-B-020	177.3	19.6	9.0		6.6	0.0
4	Ki21:N99ap99z-B-004	176.0	20.3	8.7		3.3	0.0
1	Ki21:N99ap99z-B-001	175.1	18.5	9.5		0.8	0.0
19	Ki21:N99ap99z-B-029	172.3	18.0	9.6		0.0	0.0
16	Ki21:N99ap99z-B-024	171.6	19.6	8.7		5.0	0.0
22	Ki21:N99ap99z-B-035	171.1	18.5	9.2		0.9	0.0
23	Ki21:N99ap99z-B-036	170.2	21.6	7.9		5.0	0.0
15	Ki21:N99ap99z-B-021	170.2	20.2	8.4		0.9	0.0
17	Ki21:N99ap99z-B-027	168.9	20.2	8.4		1.4	0.0
21	Ki21:N99ap99z-B-032	168.8	20.2	8.3		0.9	0.0
9	Ki21:N99ap99z-B-010	168.3	19.4	8.7		0.5	0.0
18	Ki21:N99ap99z-B-028	167.4	18.4	9.1		0.0	0.0
25	Ki21:N99ap99z-B-040	166.3	20.2	8.2		7.8	0.0
30	Pioneer 34R65	165.9	17.4	9.5		0.4	0.0
5	Ki21:N99ap99z-B-005	165.4	19.2	8.6		1.7	0.0
8	Ki21:N99ap99z-B-009	164.3	19.5	8.4		0.4	0.0
24	Ki21:N99ap99z-B-039	163.8	18.6	8.8		1.9	0.0
	Test Entry Means	164.9	19.1	8.6		1.9	0.0
	Check Means	167.8	20.5	8.2		2.6	0.0
	CV	14.7	7.7				
	F-value	1.2	6.7				
	LSD (p=0.05)	27.9	1.7				

131320 **Tester: SYG-SS** **Rep: 4**

Ent.	Pedigree	Yield B/A	% Moist	Y/ M	TWT	% S.L.	% R.L.
43	Pioneer 33F85	227.9	20.0	11.4			
7	BR105:N99z11d-140-001	226.5	19.2	11.8			
41	SYG-SSg/SYG-nSSe	224.4	21.8	10.3			
44	Pioneer 31D58	222.2	23.9	9.3			
8	BR105:N99z11d-142-001	217.9	19.2	11.3			
33	BR105:N99z11d-225-001	215.5	21.4	10.1			
5	BR105:N99z11d-136-001	214.2	18.8	11.4			
13	BR105:N99z11d-154-001	214.2	22.2	9.6			
27	BR105:N99z11d-199-001	213.6	19.7	10.8			
23	BR105:N99z11d-184-001	212.0	17.1	12.4			
28	BR105:N99z11d-205-001	212.0	19.4	11.0			
14	BR105:N99z11d-157-001	211.7	18.9	11.2			
15	BR105:N99z11d-162-001	210.5	18.5	11.4			
36	BR105:N99z11d-233-001	210.2	20.6	10.2			
4	BR105:N99z11d-135-001	209.8	21.6	9.7			
19	BR105:N99z11d-169-001	209.7	20.3	10.3			
2	BR105:N99z11d-130-001	208.3	18.8	11.1			
32	BR105:N99z11d-220-001	207.8	19.9	10.4			
18	BR105:N99z11d-168-001	207.5	18.9	11.0			
42	Pioneer 34R65	206.5	18.0	11.5			
	Test Entry Means	203.6	20.1	10.1			
	Check Means	209.7	21.2	9.9			
	CV	8.3	7.6				
	F-value	1.4	3.1				
	LSD (p=0.05)	23.9	2.2				

131321 **Tester: SYG-nSS** **Rep: 4**

Ent.	Pedigree	Yield B/A	% Moist	Y/ M	TWT	% S.L.	% R.L.
43	Pioneer 33F85	231.5	21.5	10.8			
13	CML341:S99y11f-171-001	228.9	24.0	9.5			
28	CML341:S99y11f-194-001	224.4	21.3	10.5			
16	CML341:S99y11f-175-001	222.9	22.9	9.7			
17	CML341:S99y11f-177-001	220.2	24.1	9.1			
38	CML341:S99y11f-231-001	219.7	24.0	9.2			
2	CML341:S99y11f-151-001	219.3	23.7	9.3			
29	CML341:S99y11f-200-001	218.9	22.4	9.8			
10	CML341:S99y11f-166-001	218.8	23.6	9.3			
26	CML341:S99y11f-192-001	214.5	24.3	8.8			
23	CML341:S99y11f-189-001	213.2	24.9	8.6			
31	CML341:S99y11f-204-001	212.1	23.8	8.9			
22	CML341:S99y11f-187-001	211.0	23.3	9.0			
41	CML341:S99y11f-249-001	210.7	23.7	8.9			
3	CML341:S99y11f-152-001	210.6	24.1	8.7			
46	LH200xLH262	210.0	25.1	8.4			
15	CML341:S99y11f-174-001	209.3	19.5	10.7			
1	CML341:S99y11f-150-001	209.1	23.5	8.9			
44	Pioneer 31D58	208.6	23.4	8.9			
36	CML341:S99y11f-226-001	208.5	21.5	9.7			
	Test Entry Means	207.4	23.6	8.8			
	Check Means	209.1	22.2	9.4			
	CV	10.3	8.3				
	F-value	0.8	2.5				
	LSD (p=0.05)	30.0	2.7				

131401 **Tester: HC33** **Rep: 5**

Ent.	Pedigree	Yield B/A	% Moist	Y/ M	TWT	% S.L.	% R.L.
38	Pioneer 31D58	202.6	24.0	8.4	56.9	2.1	0.8
39	Pioneer 33F85	197.2	21.2	9.3	56.8	5.0	3.9
37	LH200xLH262	180.8	24.4	7.4	56.0	0.9	7.0
36	HC33xLH287	173.6	19.4	9.0	55.2	1.2	2.0
40	Pioneer 34R65	171.7	18.5	9.3	59.4	1.5	0.3
7	(53NS1/GEMN-0178)-SIB-B-012	167.4	17.5	9.5	56.8	1.8	0.9
25	(53NS1/GEMN-0178)-SIB-B-048	164.4	18.4	9.0	56.7	7.9	10.4
35	(53NS1/GEMN-0178)-SIB-B-068	163.0	19.4	8.4	57.8	10.8	10.6
5	(53NS1/GEMN-0178)-SIB-B-009	161.5	21.1	7.6	55.5	2.1	2.9
4	(53NS1/GEMN-0178)-SIB-B-008	159.5	18.3	8.7	56.5	1.2	0.8
14	(53NS1/GEMN-0178)-SIB-B-030	158.0	19.8	8.0	56.3	12.4	13.4
9	(53NS1/GEMN-0178)-SIB-B-021	157.3	18.5	8.5	57.3	0.9	5.6
11	(53NS1/GEMN-0178)-SIB-B-027	157.2	17.1	9.2	56.3	2.9	1.7
8	(53NS1/GEMN-0178)-SIB-B-016	156.9	18.0	8.7	58.6	1.8	4.5
33	(53NS1/GEMN-0178)-SIB-B-064	156.0	21.0	7.4	57.5	0.6	0.6
26	(53NS1/GEMN-0178)-SIB-B-049	154.1	18.0	8.6	58.4	1.2	3.7
34	(53NS1/GEMN-0178)-SIB-B-066	153.1	19.8	7.7	58.5	7.4	15.6
29	(53NS1/GEMN-0178)-SIB-B-053	152.4	18.6	8.2	56.1	0.0	2.1
32	(53NS1/GEMN-0178)-SIB-B-063	149.5	18.4	8.1	58.4	0.9	2.7
13	(53NS1/GEMN-0178)-SIB-B-029	148.9	17.7	8.4	57.1	2.2	6.7
	Test Entry Means	147.9	18.5	8.0	57.5	4.1	4.9
	Check Means	185.2	21.5	8.6	56.8	2.1	2.8
	CV	10.7	5.7				
	F-value	4.8	12.5				
	LSD (p=0.05)	20.7	1.4				

131402 (GEM Derived) **Tester: LH287** **Rep: 5**

Ent.	Pedigree	Yield B/A	% Moist	Y/ M	TWT	% S.L.	% R.L.
1	(GEMS-0175/GEMS-0184)-B-B-008	203.9	21.4	9.5	55.0	3.5	4.0
31	(GEMS-0175/GEMS-0184)-B-B-059	201.9	20.6	9.8	53.0	7.4	11.5
6	(GEMS-0175/GEMS-0184)-B-B-016	200.6	23.2	8.7	52.7	8.5	11.2
8	(GEMS-0175/GEMS-0184)-B-B-018	198.1	22.0	9.0	53.9	3.4	7.1
43	Pioneer 31D58	197.9	22.4	8.8	55.8	0.9	1.7
7	(GEMS-0175/GEMS-0184)-B-B-017	197.6	21.7	9.1	53.9	2.1	2.4
44	Pioneer 33F85	195.6	20.8	9.4	57.0	0.9	0.0
18	(GEMS-0175/GEMS-0184)-B-B-037	195.3	21.3	9.2	55.6	7.4	6.6
12	(GEMS-0175/GEMS-0184)-B-B-030	194.3	20.0	9.7	55.2	9.1	7.9
10	(GEMS-0175/GEMS-0184)-B-B-023	193.7	23.8	8.2	55.2	4.7	10.3
23	(GEMS-0175/GEMS-0184)-B-B-044	191.2	20.3	9.4	55.3	6.5	8.2
2	(GEMS-0175/GEMS-0184)-B-B-009	190.7	23.8	8.0	55.2	7.4	11.1
32	(GEMS-0175/GEMS-0184)-B-B-061	190.5	22.1	8.6	54.5	1.8	14.7
4	(GEMS-0175/GEMS-0184)-B-B-012	190.4	21.4	8.9	53.7	5.0	5.1
28	(GEMS-0175/GEMS-0184)-B-B-054	190.3	20.5	9.3	54.2	4.7	5.3
33	(GEMS-0175/GEMS-0184)-B-B-062	190.1	23.2	8.2	53.7	7.9	4.3
38	(GEMS-0175/GEMS-0184)-B-B-067	188.8	22.5	8.4	55.0	9.4	11.3
35	(GEMS-0175/GEMS-0184)-B-B-064	187.6	19.9	9.4	56.5	0.0	28.0
27	(GEMS-0175/GEMS-0184)-B-B-051	187.4	18.9	9.9	53.1	5.0	2.4
39	(GEMS-0175/GEMS-0184)-B-B-068	186.6	21.3	8.7	57.1	3.5	18.5
	Test Entry Means	183.3	21.2	8.7	54.6	6.7	8.8
	Check Means	185.4	21.0	8.8	56.5	2.0	6.1
	CV	11.7	5.2				
	F-value	1.8	7.1				
	LSD (p=0.05)	26.9	1.4				

131403 **Tester: LH287** **Rep: 5**

Ent.	Pedigree	Yield B/A	% Moist	Y/ M	TWT	% S.L.	% R.L.
23	Pioneer 31D58	199.0	22.5	8.8	56.4	0.8	0.7
1	((KO679Y/GEMS-0115)/GEMS-0181)-B-013	196.8	23.9	8.2	53.3	9.9	24.1
7	((KO679Y/GEMS-0115)/GEMS-0181)-B-022	193.5	19.7	9.8	52.7	8.2	12.7
15	((KO679Y/GEMS-0115)/GEMS-0181)-B-036	189.2	23.2	8.2	54.0	0.0	4.7
21	HC33xLH287	185.7	18.4	10.1	56.4	6.8	9.7
11	((KO679Y/GEMS-0115)/GEMS-0181)-B-026	184.8	22.7	8.1	53.1	8.5	10.4
12	((KO679Y/GEMS-0115)/GEMS-0181)-B-028	184.5	22.0	8.4	55.0	2.4	8.1
24	Pioneer 33F85	183.1	19.7	9.3	57.0	2.9	8.5
8	((KO679Y/GEMS-0115)/GEMS-0181)-B-023	182.4	21.2	8.6	52.2	3.5	3.8
17	((KO679Y/GEMS-0115)/GEMS-0181)-B-041	180.2	22.9	7.9	51.3	6.8	8.2
5	((KO679Y/GEMS-0115)/GEMS-0181)-B-019	179.9	22.2	8.1	51.9	4.1	11.6
16	((KO679Y/GEMS-0115)/GEMS-0181)-B-040	178.1	22.6	7.9	54.1	6.2	7.6
10	((KO679Y/GEMS-0115)/GEMS-0181)-B-025	177.1	18.3	9.7	53.7	5.2	9.6
3	((KO679Y/GEMS-0115)/GEMS-0181)-B-015	176.0	21.5	8.2	54.8	6.6	1.0
22	LH200xLH262	175.5	23.5	7.5	54.9	5.3	10.3
20	((KO679Y/GEMS-0115)/GEMS-0181)-B-056	175.0	22.3	7.8	53.2	4.7	31.0
2	((KO679Y/GEMS-0115)/GEMS-0181)-B-014	173.0	19.1	9.1	54.6	2.9	4.9
19	((KO679Y/GEMS-0115)/GEMS-0181)-B-048	168.7	20.5	8.2	55.1	4.1	8.8
18	((KO679Y/GEMS-0115)/GEMS-0181)-B-042	166.7	22.2	7.5	53.1	2.6	26.9
14	((KO679Y/GEMS-0115)/GEMS-0181)-B-031	166.4	23.3	7.1	52.8	3.5	2.3
	Test Entry Means	175.8	21.6	8.1	53.3	4.3	10.8
	Check Means	181.3	20.4	8.9	56.7	3.3	6.4
	CV	11.4	7.3				
	F-value	1.6	5.9				
	LSD (p=0.05)	25.7	2.0				

131404 **Tester: LH287** **Rep: 5**

Ent.	Pedigree	Yield B/A	% Moist	Y/ M	TWT	% S.L.	% R.L.
42	LH200xLH262	224.9	23.6	9.5	56.9	1.4	1.2
43	Pioneer 31D58	222.8	22.8	9.8	58.2	0.6	0.0
5	(KO679Y/GEMS-0115)-B-B-029	213.4	23.1	9.2	55.5	1.1	8.2
16	(KO679Y/GEMS-0115)-B-B-059	208.4	25.3	8.2	53.9	4.4	2.4
28	(KO679Y/GEMS-0115)-B-B-105	208.2	25.3	8.2	54.1	3.5	1.2
44	Pioneer 33F85	207.7	22.3	9.3	56.8	1.2	0.0
31	(KO679Y/GEMS-0115)-B-B-111	207.0	22.6	9.1	55.3	2.3	1.1
35	(KO679Y/GEMS-0115)-B-B-140	206.4	22.7	9.1	56.2	16.9	0.7
37	(KO679Y/GEMS-0115)-B-B-143	206.0	25.4	8.1	53.1	0.8	19.9
6	(KO679Y/GEMS-0115)-B-B-032	204.7	22.7	9.0	55.9	1.8	1.5
39	(KO679Y/GEMS-0115)-B-B-159	204.4	23.0	8.9	55.8	0.4	3.2
30	(KO679Y/GEMS-0115)-B-B-110	202.1	22.7	8.9	54.4	0.7	4.8
41	HC33xLH287	202.0	20.8	9.7	56.6	0.4	12.6
20	(KO679Y/GEMS-0115)-B-B-081	201.6	21.8	9.3	55.5	2.4	1.2
26	(KO679Y/GEMS-0115)-B-B-102	201.1	22.3	9.0	55.1	3.5	0.3
17	(KO679Y/GEMS-0115)-B-B-063	201.0	23.3	8.6	54.8	1.8	2.6
19	(KO679Y/GEMS-0115)-B-B-067	200.7	21.7	9.2	55.0	2.9	0.3
34	(KO679Y/GEMS-0115)-B-B-132	200.1	25.3	7.9	54.3	0.0	4.1
2	(KO679Y/GEMS-0115)-B-B-006	198.7	23.0	8.7	55.5	3.5	1.7
12	(KO679Y/GEMS-0115)-B-B-044	196.8	25.2	7.8	53.6	0.6	5.3
	Test Entry Means	194.7	23.7	8.2	54.7	3.4	4.1
	Check Means	209.3	21.8	9.6	57.4	0.7	3.7
	CV	10.8	5.3				
	F-value	1.3	5.5				
	LSD (p=0.05)	27.2	1.6				

131405 **Tester: DAS-nSS** **Rep: 6**

Ent.	Pedigree	Yield B/A	% Moist	Y/ M	TWT	% S.L.	% R.L.
30	PASCO14:S212612-B-029	205.9	21.4	9.6	57.4	2.8	0.0
72	Pioneer 31D58	201.0	24.9	8.1	58.2	2.8	0.0
70	Pioneer 33F85	196.7	21.5	9.2	58.1	2.8	0.0
61	PASCO14:S212612-B-066	192.8	23.4	8.2	57.5		
49	PASCO14:S212612-B-051	192.4	23.7	8.1	58.9	0.0	0.0
34	PASCO14:S212612-B-033	191.7	21.6	8.9	57.4	2.8	0.0
63	PASCO14:S212612-B-068	190.3	23.9	8.0	56.0	2.8	0.0
33	PASCO14:S212612-B-032	190.0	23.1	8.2	57.7	0.0	0.0
42	PASCO14:S212612-B-042	189.4	21.9	8.6	56.1	2.8	0.0
43	PASCO14:S212612-B-044	188.5	21.7	8.7	57.1	2.8	0.0
4	PASCO14:S212612-B-004	187.4	22.5	8.3	57.5	2.8	0.0
1	PASCO14:S212612-B-002	186.4	22.2	8.4	57.5	6.9	0.0
6	PASCO14:S212612-B-006	185.9	23.9	7.8	57.9	0.0	0.0
40	PASCO14:S212612-B-038	185.9	22.2	8.4	54.9	2.8	0.0
52	PASCO14:S212612-B-056	185.1	21.3	8.7	58.0	13.9	0.0
46	PASCO14:S212612-B-047	185.1	22.6	8.2	56.0	2.8	0.0
60	PASCO14:S212612-B-064	184.8	20.6	9.0	58.2	0.0	0.0
55	PASCO14:S212612-B-060	184.0	24.0	7.7	57.9		
68	LH200xLH262	183.7	24.5	7.5	55.4	6.9	0.0
13	PASCO14:S212612-B-014	182.4	22.1	8.3	57.7	2.8	0.0
	Test Entry Means	176.2	21.8	8.1	57.3	5.1	0.0
	Check Means	186.8	22.0	8.5	57.3	3.9	0.0
	CV	10.0	6.6				
	F-value	2.3	4.7				
	LSD (p=0.05)	20.8	1.7				

131406 **Tester: MON-SS** **Rep: 4**

Ent.	Pedigree	Yield B/A	% Moist	Y/ M	TWT	% S.L.	% R.L.
25	(53NS2/GEMN-0128)-SIB-B-027	233.3	22.2	10.5	54.8	1.5	0.0
1	Pioneer 31D58	230.6	24.2	9.5	58.0	0.0	0.0
21	(53NS2/GEMN-0128)-SIB-B-023	224.1	20.4	11.0	55.1	0.0	0.0
4	HC33xLH287	222.2	20.1	11.0	55.6	0.0	0.0
26	(53NS2/GEMN-0128)-SIB-B-029	220.3	21.3	10.4	54.5	0.0	0.0
19	(53NS2/GEMN-0128)-SIB-B-019	219.0	23.7	9.3	56.4	0.0	0.0
57	(53NS2/GEMN-0128)-SIB-B-070	218.5	19.6	11.1	55.8	2.2	0.0
23	(53NS2/GEMN-0128)-SIB-B-025	217.6	20.2	10.8	54.4	5.2	0.0
47	(53NS2/GEMN-0128)-SIB-B-058	215.1	20.6	10.5	53.5	0.7	0.0
37	(53NS2/GEMN-0128)-SIB-B-045	212.3	18.2	11.6	53.1	0.4	0.0
17	(53NS2/GEMN-0128)-SIB-B-014	211.9	23.5	9.0	55.9	0.0	0.0
32	(53NS2/GEMN-0128)-SIB-B-039	211.4	20.5	10.3	54.1	1.9	0.0
55	(53NS2/GEMN-0128)-SIB-B-067	211.1	20.7	10.2	54.9	0.0	0.0
43	(53NS2/GEMN-0128)-SIB-B-053	210.9	22.0	9.6	56.1	0.8	0.0
49	(53NS2/GEMN-0128)-SIB-B-060	210.6	21.9	9.6	54.8	1.5	0.0
28	(53NS2/GEMN-0128)-SIB-B-031	210.3	20.2	10.4	55.3	8.6	0.0
45	(53NS2/GEMN-0128)-SIB-B-056	209.4	20.1	10.4	54.7	3.0	0.0
2	Pioneer 33F85	208.2	21.7	9.6	56.5	8.9	0.0
31	(53NS2/GEMN-0128)-SIB-B-037	208.1	22.0	9.5	53.8	1.1	0.0
3	Pioneer 34R65	207.8	19.3	10.8	57.8	0.7	1.1
	Test Entry Means	200.1	20.9	9.6	55.0	2.9	0.3
	Check Means	208.7	22.0	9.5	57.0	2.6	2.2
	CV	9.1	6.3				
	F-value	2.8	6.3				
	LSD (p=0.05)	25.6	1.8				

135201 **Tester: LH287** **Rep: 5**

Ent.	Pedigree	Yield B/A	% Moist	Y/ M	TWT	% S.L.	% R.L.
37	Pioneer 33F85	212.1	21.9	9.7	56.1	0.0	17.7
35	LH200xLH262	208.5	25.1	8.3	54.4	0.3	4.4
36	Pioneer 31D58	197.4	24.6	8.0	55.7	0.0	18.7
34	HC33xLH287	191.2	20.3	9.4	54.3	15.9	19.2
26	AR16038:S99n-109-001	174.6	19.7	8.9	55.2	0.0	26.8
38	Pioneer 34R65	173.6	19.2	9.0	56.8	0.0	2.5
11	AR16038:S99n-054-001	166.2	20.5	8.1	53.9	5.1	25.0
19	AR16038:S99n-069-001	165.6	22.3	7.4	54.5	10.7	24.4
5	AR16038:S99n-024-001	163.7	22.5	7.3	54.2	5.8	8.0
12	AR16038:S99n-058-001	158.7	21.7	7.3	52.9	4.1	23.5
31	AR16038:S99n-136-001	155.0	22.8	6.8	52.4	2.5	21.6
28	AR16038:S99n-128-001	153.4	20.9	7.3	55.2	22.7	18.7
33	AR16038:S99n-139-001	152.9	21.1	7.2	54.1	2.1	45.6
17	AR16038:S99n-067-001	151.7	21.0	7.2	53.3	17.6	31.3
25	AR16038:S99n-105-001	150.6	22.0	6.9	54.4	17.0	21.8
2	AR16038:S99n-005-001	150.3	21.0	7.2	54.9	0.0	11.6
8	AR16038:S99n-043-001	150.1	20.5	7.3	53.4	7.3	12.0
1	AR16038:S99n-004-001	148.0	22.0	6.7	54.0	8.8	22.0
13	AR16038:S99n-060-001	147.5	23.7	6.2	53.5	0.0	22.7
15	AR16038:S99n-065-001	145.4	20.8	7.0	52.8	0.3	34.1
	Test Entry Means	144.2	21.4	6.7	53.9	8.8	22.9
	Check Means	196.6	22.2	8.8	55.5	3.2	12.5
	CV	18.0	7.1				
	F-value	3.3	4.6				
	LSD (p=0.05)	34.9	2.0				

135301 **Tester: HC33** **Rep: 5**

Ent.	Pedigree	Yield B/A	% Moist	Y/ M	TWT	% S.L.	% R.L.
38	Pioneer 31D58	191.5	24.0	8.0	56.1	0.0	0.0
39	Pioneer 33F85	181.1	22.0	8.2	54.9	0.6	0.6
37	LH200xLH262	178.8	25.0	7.1	53.8	2.5	7.3
36	HC33xLH287	178.0	19.5	9.1	54.5	0.5	16.4
8	CH05027:F44N46-B-036	171.9	20.6	8.3	54.4	1.9	4.1
40	Pioneer 34R65	169.1	18.4	9.2	56.6	2.0	3.0
34	CH05027:F44N46-B-125	167.9	19.3	8.7	55.1	4.5	3.0
4	CH05027:F44N46-B-014	167.5	21.3	7.9	54.7	0.8	1.7
17	CH05027:F44N46-B-064	167.4	19.8	8.4	54.1	0.3	0.8
29	CH05027:F44N46-B-105	165.4	19.4	8.5	54.7	0.6	2.1
23	CH05027:F44N46-B-080	162.6	19.7	8.3	55.2	3.6	0.8
32	CH05027:F44N46-B-116	161.9	19.4	8.3	56.2	1.3	4.3
14	CH05027:F44N46-B-058	160.7	21.4	7.5	53.0	2.7	2.4
2	CH05027:F44N46-B-009	158.5	19.9	8.0	55.3	5.4	0.7
19	CH05027:F44N46-B-071	158.3	19.6	8.1	55.5	11.3	1.4
22	CH05027:F44N46-B-075	157.1	20.8	7.6	55.9	0.5	1.6
12	CH05027:F44N46-B-050	157.1	19.6	8.0	54.6	5.2	0.8
11	CH05027:F44N46-B-046	156.5	20.9	7.5	56.2	1.3	4.0
20	CH05027:F44N46-B-072	156.5	22.4	7.0	54.7	3.3	5.9
24	CH05027:F44N46-B-092	154.7	21.3	7.3	53.8	5.1	2.2
	Test Entry Means	150.1	20.1	7.5	55.0	2.8	2.2
	Check Means	179.7	21.8	8.2	55.2	1.1	5.4
	CV	11.7	5.7				
	F-value	3.8	9.3				
	LSD (p=0.05)	22.6	1.5				

135302 **Tester: HC33** **Rep: 4**

Ent.	Pedigree	Yield B/A	% Moist	Y/ M	TWT	% S.L.	% R.L.
68	Pioneer 31D58	208.6	23.4	8.9	55.0	0.0	0.0
69	Pioneer 33F85	200.0	21.9	9.1	54.2	0.0	1.0
67	LH200xLH262	198.0	25.2	7.9	53.1	0.0	3.9
45	CH05015:N4049a-B-048	189.2	19.4	9.8	56.2	0.0	0.7
66	HC33xLH287	185.3	19.7	9.4	53.0	0.4	1.7
70	Pioneer 34R65	183.1	18.2	10.1	55.9	0.0	0.0
23	CH05015:N4049a-B-026	182.2	21.6	8.4	54.6	0.0	0.3
56	CH05015:N4049a-B-059	179.6	20.1	8.9	54.6	0.7	0.4
5	CH05015:N4049a-B-005	177.9	20.8	8.6	54.8	2.5	1.2
3	CH05015:N4049a-B-003	175.2	19.9	8.8	55.0	0.0	1.0
36	CH05015:N4049a-B-039	173.4	18.0	9.6	54.8	0.3	0.7
19	CH05015:N4049a-B-019	173.0	20.2	8.6	54.8	1.4	0.7
62	CH05015:N4049a-B-066	173.0	21.5	8.0	54.4	0.0	0.0
37	CH05015:N4049a-B-040	172.0	20.0	8.6	55.3	0.8	2.3
43	CH05015:N4049a-B-046	171.9	20.9	8.2	55.5	0.3	1.0
9	CH05015:N4049a-B-009	171.6	21.5	8.0	54.9	0.0	0.7
18	CH05015:N4049a-B-018	171.0	19.5	8.8	54.0	1.1	0.0
61	CH05015:N4049a-B-065	170.0	18.3	9.3	54.7	1.0	0.0
53	CH05015:N4049a-B-056	168.2	18.8	8.9	55.3	0.0	0.0
1	CH05015:N4049a-B-001	167.9	18.5	9.1	54.9	0.9	1.0
	Test Entry Means	156.8	19.6	8.0	55.0	0.7	1.0
	Check Means	195.0	21.7	9.0	54.2	0.1	1.3
	CV	14.6	7.7				
	F-value	2.3	3.8				
	LSD (p=0.05)	33.9	2.2				

135401 (Retest) **Tester: LH287** **Rep: 8**

Ent.	Pedigree	Yield B/A	% Moist	Y/ M	TWT	% S.L.	% R.L.
38	Pioneer 31D58	192.1	23.0	8.4	57.4	0.7	3.2
14	(GEMS-0147/GEMS-0115)-B-B-017	185.5	20.5	9.0	54.6	0.7	2.0
22	UR11003:S17h02-B-017	184.6	21.1	8.8	54.6	5.5	8.4
37	LH200xLH262	182.1	23.5	7.8	55.4	4.4	7.1
6	AR16042:S2028-B-031	180.4	20.6	8.8	55.8	3.1	7.5
32	UR13088:S0650-B-071	178.9	21.0	8.5	57.0	2.7	16.6
36	HC33xLH287	178.6	19.2	9.3	55.4	0.9	8.0
26	(GEMS-0002/GEMS-0149)-B-098-001	178.3	20.7	8.6	55.1	1.4	6.5
3	AR16021:S3115-B-026	178.1	19.6	9.1	54.9	1.5	6.1
39	Pioneer 33F85	176.8	20.5	8.6	56.8	2.9	5.7
12	(GEMS-0002/GEMS-0003)-B-B-062	174.7	19.6	8.9	55.2	0.5	16.1
24	UR11003:S17h02-B-053	174.4	21.8	8.0	54.8	0.9	8.6
11	(GEMS-0002/GEMS-0003)-B-B-046	174.4	19.6	8.9	55.0	3.8	11.2
16	(GEMS-0147/GEMS-0115)-B-B-044	174.2	22.6	7.7	53.9	0.7	4.5
4	AR16042:S2028-B-004	173.6	20.6	8.4	56.6	0.6	7.8
20	UR10001:S1802-B-047	172.9	22.3	7.8	54.6	4.6	10.4
5	AR16042:S2028-B-012	172.5	20.8	8.3	55.5	0.9	12.5
40	Pioneer 34R65	171.8	18.6	9.3	58.6	0.9	3.3
27	UR11002:S1446-038-001	171.1	20.5	8.4	55.7	0.8	14.4
7	AR16042:S2028-B-040	169.5	22.5	7.6	54.9	8.4	17.3
	Test Entry Means	167.0	20.7	8.1	55.1	3.0	9.7
	Check Means	180.3	20.9	8.6	56.7	1.9	5.5
	CV	13.6	6.1				
	F-value	1.9	9.0				
	LSD (p=0.05)	22.7	1.3				

136401 (Retest) **Tester: MBS3633** **Rep: 8**

Ent.	Pedigree	Yield B/A	% Moist	Y/ M	TWT	% S.L.	% R.L.
66	Pioneer 31D58	199.5	22.1	9.0	56.9	1.0	8.1
44	BR105:N1643-B-068	188.7	19.9	9.5	56.1	1.3	3.3
36	AR03056:N0902-083-001	185.9	19.3	9.7	55.8	2.1	2.3
30	AR13026:N08a04-054-001	184.6	19.4	9.5	55.2	1.1	4.2
17	NEI9004:N0803-B-019	184.3	20.1	9.2	57.5	1.2	1.8
10	CL-00331:N1834-B-052	182.3	20.1	9.1	55.6	1.2	0.9
40	BR105:N1643-B-020	181.9	20.0	9.1	56.8	2.6	4.5
24	AR01150:N0402-B-001	181.9	20.0	9.1	54.7	0.2	1.2
35	AR03056:N0902-064-001	180.8	19.2	9.4	55.1	3.2	5.1
59	DKB844:N11b18-098-001-B	179.1	18.7	9.6	56.1	0.6	5.0
41	BR105:N1643-B-023	178.9	20.2	8.9	56.1	3.2	3.7
21	GEMN-0239	177.6	20.3	8.8	56.3	2.8	6.0
62	DKB844:N11b18-241-001-B	176.6	19.6	9.0	56.7	1.4	3.9
42	BR105:N1643-B-039	176.4	20.0	8.8	56.0	5.6	6.6
33	AR03056:N0902-040-001	176.4	20.5	8.6	55.4	1.6	8.2
23	NEI9004:N0803-B-066	176.2	22.2	7.9	55.0	1.0	4.1
8	CL-00331:N1834-B-023	175.6	22.1	8.0	55.6	2.1	1.4
5	SCROGP3:N3215-B-035	175.0	18.5	9.5	57.1	0.3	5.0
18	NEI9004:N0803-B-039	174.9	20.7	8.5	55.9	2.5	0.4
31	AR13026:N08a04-154-001	174.7	20.6	8.5	55.2	4.1	10.2
	Test Entry Means	167.2	19.7	8.5	56.3	1.8	3.4
	Check Means	169.5	20.0	8.5	56.6	1.7	4.5
	CV	14.6	6.6				
	F-value	2.0	7.7				
	LSD (p=0.05)	24.3	1.3				

136402 (Released Line Retest) **Tester: MBS9508** **Rep: 8**

Ent.	Pedigree	Yield B/A	% Moist	Y/ M	TWT	% S.L.	% R.L.
37	Pioneer 31D58	191.5	23.2	8.3	56.9	1.3	3.1
38	Pioneer 33F85	181.8	20.7	8.8	56.1	0.6	3.9
40	MBS2655xMBS9508	181.5	19.2	9.4	56.5	0.4	3.6
28	GEMS-0226	177.3	20.8	8.5	57.2	0.7	9.7
14	GEMS-0175	175.3	20.1	8.7	56.9	1.3	2.2
35	HC33xLH287	174.5	19.3	9.1	55.3	1.0	10.2
36	LH200xLH262	173.2	23.8	7.3	54.7	9.5	18.1
16	GEMS-0180	173.2	20.4	8.5	57.8	2.7	11.0
6	GEMS-0147	172.2	20.4	8.5	56.5	5.9	6.9
20	GEMS-0184	171.4	20.3	8.5	55.8	0.6	4.3
17	GEMS-0181	169.2	20.4	8.3	57.4	0.5	9.0
18	GEMS-0182	167.4	18.2	9.2	56.2	2.1	14.1
9	GEMS-0160	165.8	19.8	8.4	57.3	3.3	7.6
26	GEMS-0202	165.1	20.0	8.3	57.3	3.3	12.6
5	GEMS-0118	164.3	17.3	9.5	58.1	2.5	1.7
19	GEMS-0183	164.2	20.4	8.0	57.0	0.6	8.4
24	GEMS-0200	161.2	19.2	8.4	56.3	6.8	6.1
39	Pioneer 34R65	160.6	18.7	8.6	57.5	0.4	5.1
11	GEMS-0162	159.4	20.1	7.9	58.0	2.0	1.9
27	GEMS-0203	159.4	19.6	8.1	56.1	2.3	10.8
	Test Entry Means	157.9	19.6	8.1	56.9	2.7	8.4
	Check Means	177.2	20.8	8.5	56.2	2.2	7.3
	CV	12.3	4.9				
	F-value	3.0	16.4				
	LSD (p=0.05)	19.5	1.0				

136403 (Retest) **Tester: HC33** **Rep: 8**

Ent.	Pedigree	Yield B/A	% Moist	Y/M	TWT	% S.L.	% R.L.
28	Pioneer 31D58	191.2	21.8	8.8	57.4	1.3	1.6
27	LH200xLH262	188.8	22.7	8.3	55.0	1.4	1.3
29	Pioneer 33F85	186.1	20.2	9.2	56.4	0.2	0.5
12	AR03056:N0902-064-001	181.9	19.0	9.6	55.7	3.5	1.3
4	AR01150:N0402-B-026	174.8	16.8	10.4	56.2	0.2	3.9
10	AR03056:N0902-040-001	174.7	19.6	8.9	54.8	2.6	1.8
8	AR13026:N08a04-154-001	174.0	19.8	8.8	56.0	1.5	18.2
11	AR03056:N0902-048-001	172.5	17.5	9.9	57.3	2.2	10.1
5	AR01150:N0402-B-035	171.2	18.5	9.2	56.0	2.2	3.6
25	GEMN-0159	170.1	18.6	9.2	55.4	0.4	0.5
9	AR03056:N0902-023-001	169.9	18.1	9.4	57.8	0.8	2.3
7	AR13026:N08a04-054-001	168.1	18.6	9.0	58.6	2.0	0.7
13	AR03056:N0902-083-001	168.0	17.6	9.6	56.1	1.4	1.6
6	AR03056:N0902a-B-002	166.0	18.7	8.9	56.4	0.9	1.4
26	HC33xLH287	165.7	18.1	9.2	56.1	0.0	3.1
30	Pioneer 34R65	163.7	17.7	9.3	58.0	0.0	0.4
20	AR16021:N2149a-B-043	163.5	19.5	8.4	60.1	0.8	0.2
3	AR01150:N0402-B-001	161.3	17.7	9.1	55.8	2.0	1.4
16	AR16021:N2149a-B-012	154.6	19.3	8.0	56.9	0.7	1.0
21	AR16021:N2149a-B-047	152.8	18.7	8.2	57.2	0.0	0.6
	Test Entry Means	158.4	18.4	8.6	57.0	1.2	2.6
	Check Means	179.1	20.1	8.9	56.6	0.6	1.4
	CV	13.6	6.6				
	F-value	4.3	10.4				
	LSD (p=0.05)	22.0	1.2				

136404 (Retest) **Tester: MBS8814** **Rep: 6**

Ent.	Pedigree	Yield B/A	% Moist	Y/M	TWT	% S.L.	% R.L.
15	UR05017:S0414-B-042	210.1	24.9	8.4	54.5	0.3	0.3
25	UR13088:S0650-B-016	206.1	23.9	8.6	53.8	0.9	11.1
13	DKXL212:S0928-B-044	205.6	22.5	9.1	54.8	0.0	0.3
19	UR11003:S17h02-B-017	205.0	22.3	9.2	52.7	1.5	3.5
6	AR16042:S2028-B-012	203.6	23.2	8.8	54.2	0.5	5.3
38	Pioneer 33F85	203.3	22.1	9.2	56.8	0.0	1.7
24	UR13088:S0650-B-005	203.0	23.0	8.8	54.3	1.3	1.5
16	UR05017:S0414-B-049	202.4	24.4	8.3	53.3	1.4	3.3
21	DKXL380:S08a15-B-060	201.9	24.4	8.3	54.0	0.2	1.1
2	NEI9004:S2817c-048-001	201.0	22.0	9.2	53.4	0.0	20.3
37	Pioneer 31D58	200.5	23.2	8.6	57.5	0.7	2.7
4	NEI9004:S2817c-124-001	200.4	22.7	8.8	53.8	0.7	1.2
22	CUBA164:S99n99n-B-035	199.6	23.1	8.7	54.9	1.2	0.4
1	NEI9004:S2817c-047-001	198.3	23.4	8.5	53.9	0.7	15.2
9	AR16042:S2030-B-022	195.2	21.8	8.9	53.6	0.7	0.8
14	(GEMS-0147/GEMS-0115)-B-B-049	193.4	22.4	8.6	53.4	0.5	4.0
40	MBS3633xMBS8814	193.4	21.2	9.1	55.1	1.5	0.8
32	CUBA164:T26bS41-006-001-B	191.9	24.6	7.8	54.2	1.7	2.6
36	LH200xLH262	190.9	23.0	8.3	56.0	0.7	6.9
29	DK888:S08a46-093	190.2	23.4	8.1	54.0	0.0	2.7
	Test Entry Means	187.7	23.0	8.1	54.0	1.0	3.5
	Check Means	189.0	21.5	8.8	56.6	0.5	5.2
	CV	11.6	5.8				
	F-value	2.6	10.6				
	LSD (p=0.05)	25.2	1.5				

136405 (GEMxGEM) **Tester: NA** **Rep: 4**

Ent.	Pedigree	Yield B/A	% Moist	Y/M	TWT	% S.L.	% R.L.
2	GEMS-0226/MBS8814	190.5	20.1	9.5	55.0	0.0	3.8
58	Pioneer 31D58	184.1	19.1	9.6	57.6	0.0	0.0
59	Pioneer 33F85	174.8	18.3	9.5	57.5	0.7	0.4
11	GEMS-0200/GEMN-0204	174.3	19.5	8.9	56.5	2.6	1.2
57	LH200xLH262	173.2	19.7	8.8	55.3	0.4	3.8
4	GEMS-0226/LH287	165.6	17.1	9.7	58.8	1.8	1.1
45	GEMN-0225/GEMS-0227	163.9	18.4	8.9	56.6	1.1	1.1
1	GEMN-0229/MBS3633	163.1	17.3	9.4	55.8	6.5	5.9
35	GEMS-0226/GEMN-0155	162.9	17.7	9.2	58.7	0.7	5.2
28	PHW52/GEMN-0097	161.4	17.2	9.4	56.5	0.4	1.1
19	GEMS-0163/GEMN-0221	156.9	17.2	9.1	58.4	0.0	0.0
37	GEMS-0203/GEMN-0190	155.6	20.0	7.8	54.5	1.0	8.4
7	GEMS-0203/GEMN-0097	153.5	18.1	8.5	53.3	1.4	4.3
34	GEMS-0162/GEMN-0178	153.3	19.3	7.9	56.7	0.0	7.7
3	GEMS-0227/MBS8814	151.0	16.9	8.9	54.5	0.7	1.4
10	GEMS-0226/GEMN-0178	150.2	21.8	6.9	56.7	0.4	3.1
9	GEMS-0200/GEMN-0178	150.0	19.3	7.8	55.4	1.1	4.3
49	GEMN-0178/GEMS-0226	149.7	22.0	6.8	54.5	0.4	1.1
56	HC33xLH287	149.5	15.7	9.5	56.5	0.4	2.1
15	GEMS-0200/GEMN-0205	148.8	19.7	7.6	54.6	0.7	1.7
	Test Entry Means	143.7	18.7	7.7	56.5	1.4	3.8
	Check Means	163.8	17.8	9.2	57.2	0.3	1.4
	CV	11.9	9.0				
	F-value	3.0	4.9				
	LSD (p=0.05)	24.6	2.4				

136406 (Early Retest) **Tester: NA** **Rep: 5**

Ent.	Pedigree	Yield B/A	% Moist	Y/ M	TWT	% S.L.	% R.L.
27	GEMN-0097/GEMS-0227	170.2	16.2	10.5	52.4	0.3	1.0
36	HC33xLH287	170.1	21.4	8.0	52.7	0.0	11.4
37	Pioneer 33F85	168.1	23.6	7.1	54.9	0.8	2.6
7	(GEMN-0140/GEMN-0097)-B-B-034/HC33	167.6	16.3	10.3	54.5	0.9	3.6
3	794/GEMN-0097	166.8	16.9	9.9	52.6	0.0	4.7
4	AR16035:S0209-B-055/LH287	165.5	18.8	8.8	54.2	0.0	1.6
19	HC33/GEMN-0098	160.8	20.1	8.0	54.8	0.0	0.7
12	PHT55/GEMN-0097	159.6	21.4	7.5	53.2	0.0	0.3
11	HC33/GEMN-0097	159.5	18.0	8.9	53.9	0.0	1.6
33	DJ7/3IIH6	159.1	15.2	10.5	54.1	0.3	0.7
38	Pioneer 34R65	157.5	21.9	7.2	55.5	0.0	0.5
26	GEMN-0221/GEMS-0227	152.8	22.1	6.9	55.2	0.0	0.6
25	GEMN-0097/3IIH6	152.7	15.7	9.7	54.0	0.0	2.2
10	GEMS-0222/GEMN-0097	152.3	17.5	8.7	53.8	0.6	4.0
29	GEMN-0221/GEMS-0227	151.0	22.2	6.8	54.6	0.0	2.0
18	G39/GEMN-0221	150.3	22.2	6.8	54.5	0.6	1.0
31	GEMN-0204/3IIH6	150.2	18.5	8.1	54.8	0.6	2.0
13	GEMS-0222/GEMN-0205	149.8	19.3	7.8	53.6	0.0	9.6
28	GEMN-0205/GEMS-0227	149.5	22.3	6.7	53.3	0.0	1.4
14	HC33/GEMN-0221	149.2	19.1	7.8	54.5	0.0	5.8
	Test Entry Means	147.1	19.3	7.6	54.2	0.2	3.2
	Check Means	165.2	22.3	7.4	54.3	0.3	4.8
	CV	10.0	8.7				
	F-value	4.6	11.2				
	LSD (p=0.05)	18.9	2.2				

136407 (Released Line Retest) **Tester: HC33** **Rep: 8**

Ent.	Pedigree	Yield B/A	% Moist	Y/ M	TWT	% S.L.	% R.L.
14	GEMN-0178	197.8	20.5	9.6	56.6	0.9	8.4
29	Pioneer 33F85	192.5	20.1	9.6	56.8	1.9	0.2
28	Pioneer 31D58	179.8	21.6	8.3	56.8	2.0	2.3
27	LH200xLH262	176.9	21.9	8.1	56.4	2.6	8.2
17	GEMN-0190	175.7	19.4	9.1	56.3	2.0	4.7
5	GEMN-0099	175.0	17.3	10.1	57.7	2.7	8.3
6	GEMN-0097	172.7	16.4	10.5	56.7	2.9	9.9
18	GEMN-0191	171.6	17.0	10.1	57.3	1.6	3.7
21	GEMN-0204	170.4	20.4	8.3	57.1	0.2	9.0
10	GEMN-0157	170.0	17.9	9.5	56.9	0.9	0.0
20	GEMN-0193	169.5	17.7	9.6	57.6	2.6	2.4
7	GEMN-0154	166.8	18.2	9.2	58.6	3.5	3.5
24	GEMN-0225	164.5	19.3	8.5	57.2	4.1	7.9
26	HC33xLH287	164.0	18.0	9.1	56.6	0.7	8.8
8	GEMN-0155	163.9	18.8	8.7	57.5	3.0	7.9
3	GEMN-0087	163.8	19.2	8.5	56.3	1.0	0.4
11	GEMN-0158	163.7	18.4	8.9	57.5	0.5	6.0
16	GEMN-0187	163.1	18.6	8.7	57.2	1.1	3.9
4	GEMN-0098	163.0	18.1	9.0	58.1	2.3	6.4
9	GEMN-0156	160.3	19.9	8.1	57.7	1.4	0.7
	Test Entry Means	161.6	18.5	8.7	57.0	2.2	4.4
	Check Means	174.4	19.9	8.8	57.1	1.6	3.9
	CV	13.8	6.1				
	F-value	3.2	14.7				
	LSD (p=0.05)	22.4	1.1				

136408 (Breeding Cross Test) **Tester: NA** **Rep: 4**

Ent.	Pedigree	Yield B/A	% Moist	Y/ M	TWT	% S.L.	% R.L.
29	Pioneer 33F85	189.1	20.2	9.4	55.3	2.9	0.8
25	CML343:S(NS701)	179.8	22.8	7.9	54.3	7.7	2.5
7	LH195/GEMS-0115	178.3	21.5	8.3	53.5	2.4	6.4
26	HC33xLH287	172.4	18.3	9.4	54.9	0.4	3.8
28	Pioneer 31D58	169.0	21.1	8.0	56.8	0.0	0.0
8	(GEMN-0097/GEMN-0178)	166.4	18.5	9.0	55.7	1.4	3.7
13	GEMN-0178/GEMN-0140	163.8	18.7	8.8	55.7	0.0	16.2
15	TZAR104:N99bb	161.4	19.2	8.4	56.8	1.7	2.1
9	(GEMN-0179/GEMN-0205)	160.9	19.4	8.3	53.5	2.6	1.1
5	GEMS-0113/GEMS-0162	159.9	20.1	7.9	55.0	1.0	5.2
10	(GEMN-0097/GEMN-0155)	157.0	18.5	8.5	54.7	1.2	5.1
16	TZAR104:N99ba	156.7	20.4	7.7	56.5	1.4	1.7
22	89291:N(PHG47)	155.0	19.7	7.9	55.4	1.4	4.1
6	GEMS-0115/GEMS-0219	154.6	20.2	7.7	55.4	2.6	17.0
23	89291:N(LH59)	154.6	22.4	6.9	53.9	2.1	6.6
14	(GEMN-0217/GEMN-0205)	154.2	21.5	7.2	54.1	4.2	6.0
27	LH200xLH262	152.8	23.9	6.4	54.7	4.3	2.7
4	(GEMS-0199/GEMS-0182)	152.6	19.3	7.9	53.8	1.8	4.2
3	(GEMS-0200/GEMS-0182)	150.6	19.9	7.6	53.4	4.5	6.3
24	89291:S(NC368)	148.7	23.5	6.3	53.4	2.0	20.1
	Test Entry Means	151.9	20.7	7.3	54.9	2.2	5.7
	Check Means	165.9	20.3	8.2	55.8	1.5	1.6
	CV	15.0	6.2				
	F-value	1.6	8.8				
	LSD (p=0.05)	33.2	1.8				

136410 (Waxy Test) **Tester: NA** **Rep: 6**

Ent.	Pedigree	Yield B/A	% Moist	Y/ M	TWT	% S.L.	% R.L.
37	Pioneer 31D58	227.7	22.8	10.0	60.0	4.4	1.8
38	Pioneer 33F85	207.0	21.7	9.6	58.5	3.3	3.0
35	LH200xLH262	196.1	23.5	8.3	57.8	2.9	5.1
18	GEMN-0178 x wxGEMS-0185 - Dent	193.6	23.3	8.3	56.8	1.8	16.8
16	wxBR51721:N2012-098-002/5/-91 x wxGEMS-0185	178.9	22.6	7.9	59.3	2.2	1.8
22	wxGEMS-0113/5/-9100 x wxGM0920/4/-01	176.7	21.4	8.3	57.7	4.7	1.8
36	HC33xLH287	175.8	19.8	8.9	58.3	3.8	11.7
2	wxGEMS-0115/3/(0304)-81 x wxUR13085:N0215-14-1-B	175.7	22.4	7.8	58.1	5.6	22.4
29	wxGEMS-0097 x wxGEMS-0113/5/-9100	167.7	20.1	8.3	59.6	2.9	1.1
12	wxGEMS-0115/5/-92 x wxGEMN-0186	167.6	23.2	7.2	56.6	3.1	10.6
9	wxGEMS-0185 x wxGEMN-0186	167.5	22.8	7.4	57.3	3.1	24.5
21	wxAR16035:S02-615-1-B x wxSCR01:N1310-509-1-B	167.4	24.7	6.8	57.0	4.6	5.9
11	wxCuba117:S1542-057-001/5/-92 x wxGEMN-0186	167.0	24.3	6.9	55.6	2.7	8.7
39	Pioneer 34R65	166.5	19.8	8.4	59.4	2.4	0.8
24	wxGEMS-0185 x wxBR51721:N2012-098-002/5/-910	164.2	22.1	7.4	58.9	3.0	3.1
5	wxINGF1 x wxBR51721:N2012-164-002/3/(0310)-82 (R)	162.5	20.4	8.0	60.6	2.3	3.5
31	GEMS-0185/GEMN-0186	162.2	24.0	6.8	56.7	4.2	20.7
23	wxGEMS-0185 x wxBR51721:N2012-098-002/5/-910	161.9	22.2	7.3	60.6	2.7	1.6
20	wxCuba117:S1542-057-001/6/-900 x wxINGM3	159.7	21.0	7.6	59.1	2.1	12.1
27	wxGEMS-0180/5/-02 x wxBR51721:N2012-098-002/5/-910	157.8	23.2	6.8	59.2	2.2	0.8
	Test Entry Means	154.8	22.1	7.0	58.5	3.9	10.0
	Check Means	186.7	21.8	8.6	58.4	3.5	6.1
	CV	16.1	5.0				
	F-value	4.2	8.4				
	LSD (p=0.05)	29.2	1.3				

2013 GEM Yield Trial Summary

Expt #	Material	Tester	Total	Reps	Source	Entry Yield Avg.	Check Yield Avg.	CV (%)	LSD (p =0.05)	# Above Check Avg.
131301	BR105:N99ae99ai	HC33	40	5	GEM	175.1	205.4	11.0	24.9	0
131302	BR105:N1652	HC33	50	5	GEM	160.1	190.3	12.1	25.1	2
131303	CML349:N99ap99z	HC33	60	5	GEM	150.9	180.2	11.3	21.7	0
131304	BR105:N99af99ak	HC33	60	5	GEM	165.5	188.9	12.1	25.4	2
131305	SANM126:N1241	HC33	20	5	GEM	147.2	171.8	15.4	29.9	0
131306	CML325:S1840	LH287	50	5	GEM	167.1	188.6	16.8	38.1	3
131307	DKXL370:S08b46	LH287	50	5	GEM	155.8	177.6	18.2	36.3	3
131308	PASCO14:S11a21	LH287	70	5	GEM	158.9	195.4	15.1	30.4	0
131309	BR106:S99a99k	LH287	20	5	GEM	176.8	200.1	10.0	23.3	0
131310	Retest	LH287	30	8	GEM	181.2	195.0	12.6	23.8	6
131311	Retest	HC33	40	8	GEM	166.3	193.9	10.8	18.3	0
131312	NEI9004:N0846	AGR-SS	80	6	AGR	161.0	175.4	15.8	35.7	12
131313	CML325:S1840	SGI071	30	5	IFS	164.5	248.7	9.7	22.0	0
131314	CML325:S1840	SGI079	42	5	IFS	212.1	229.5	9.0	24.7	3
131315	BR105:S21z99ah	MON-nSS	84	6	MON	191.5	197.5	8.8	22.2	26
131316	BR105:N99z11	SYG-SS	46	4	SYG	206.2	214.7	9.4	27.2	7
131317	CML341:S99y11	SYG-nSS	46	4	SYG	202.6	202.9	9.4	26.9	24
131318	Ki21:N99ap99z	R6258RMQKZ	30	6	BAS	162.9	163.6	15.5	28.8	12
131319	Ki21:N99ap99z	F0297RMQKZ	30	6	BAS	164.9	167.8	14.7	27.9	12
131320	BR105:N99z11	SYG-SS	46	4	SYG	203.6	209.7	8.3	23.9	13
131321	CML341:S99y11	SYG-nSS	46	4	SYG	207.4	209.1	10.3	30.0	16
131401	53NS1/GEMN-0178	HC33	40	5	GEM	147.9	185.2	10.7	20.7	0
131402	GEMS-0175/GEMS-0184	LH287	50	5	GEM	183.3	185.4	11.7	26.9	20
131403	(KO679Y/GEMS-0115)/GEMS-0181	LH287	30	5	GEM	175.8	181.3	11.4	25.7	6
131404	KO679Y/GEMS-0115	LH287	50	5	GEM	194.7	209.3	10.8	27.2	1
131405	PASCO14:S212612	DAS-nSS	72	6	DAS	176.2	186.8	10.0	20.8	9
131406	53NS2/GEMN-0128	MON-SS	57	6	MON	200.1	208.7	9.1	25.6	15
135201	AR16038:S99n	LH287	40	5	GEM	144.2	196.6	18.0	34.9	0
135301	CH05027:F44N46	HC33	40	5	GEM	150.1	179.7	11.7	22.6	0
135302	CH05015:N4049a	HC33	70	5	GEM	156.8	195.0	14.6	33.9	0
135401	Retest	LH287	40	8	GEM	167.0	180.3	13.6	22.7	3
136401	Retest	MBS3633	70	8	GEM	167.2	169.5	14.6	24.3	32
136402	Released Line Retest	MBS9508	40	8	GEM	157.9	177.2	12.3	19.5	1
136403	Retest	HC33	30	8	GEM	158.4	179.1	13.6	22.0	1
136404	Retest	MBS8814	40	6	GEM	187.7	189.0	11.6	25.2	17
136405	GEMxGEM	NA	60	5	GEM	143.7	163.8	11.9	24.6	4
136406	Early Retest	NA	40	5	GEM	147.1	165.2	10.0	18.9	4
136407	Released Line Retest	HC33	30	8	GEM	161.6	174.4	13.8	22.4	3
136408	BC Test	NA	30	4	GEM	151.9	165.9	15.0	33.2	3
136410	Waxy Test	NA	40	8	ING	154.8	186.7	16.1	29.2	1
40						**170.2**	**189.6**	**12.4**	**26.2**	**261**
					Total number of entries above the check means =	**261.0**				
					The number of the reps lost =	**9.0**				
					Percentage of reps lost (%) =	**4.0**				

GEM 99 Decode

Type	KEY:	
SS	LH132	a
NS	LH123	b
NS	DE4	c
NS	PHG35	d
SS	PHG39	e
SS	B73	f
SS	N28	g
NS	LH39	h
NS	LH38	i
SS	6103	j
SS	LH74	k
SS	G80	l
NS	LH51	m
SS	PHB47	n
NS	MDF-13D	o
NS	MBNA	p
NS	LH57	q
NS	207	r
SS	GEMS-0002	s
SS	GEMS-0006	t
SS	CUBA117:S1520-156-1-B-B	u
NS	PHZ51	v
SS	NEI9004	w
SS	PHW17	x
SS	GEMS-0115	y
NS	GEMN-0097	z

Type	KEY:	
SS	GEMS-0149	aa
NS	GEMN-0133	ab
NS	GEMN-0137	ac
SS	GEMS-0016	ad
NS	GEMN-0179	ae
NS	GEMN-0174	af
SS	790	ag
SS	GEMS-0162	ah
NS	GEMN-0155	ai
SS	GEMS-0175	aj
NS	GEMN-0156	ak
SS	DJ7	al
NS	SG17	am
NS	PHR36	an
NS	PHV63	ao
NS	LH52	ap
SS	GEMS-0163	aq
NS	PHG47	ar
NS	HBA1	as
SS	87916W	at
SS	4676A	au
SS	GEMS-0188	av
NS	GEMN-0177	aw
NS	PHT60	ax
SS	Mp717	ay
SS	794	az
NS	LH82	ba
NS	LH61	bb
NS	PHK76	bc
SS	PHJ40	bd
SS	LH202	be
NS	LH162	bf
NS	LH220HT	bg
SS	Wilson 903	bh
NS	L 139	bi
NS	GEMN-0192	bj
NS	GEMN-0205	bk
NS	GEMS-0219	bl
SS	H8431	bm
SS	PHW20	bn
SS	GEMS-0200	bo
NS	GEMN-0046	bp
NS	GEMN-0178	bq
NS	ANTIG03:N1242-B-007-B	br
SS	GEMS-0147	bs
SS	NS701	bt
NS	LH59	bu
SS	NC368	bv