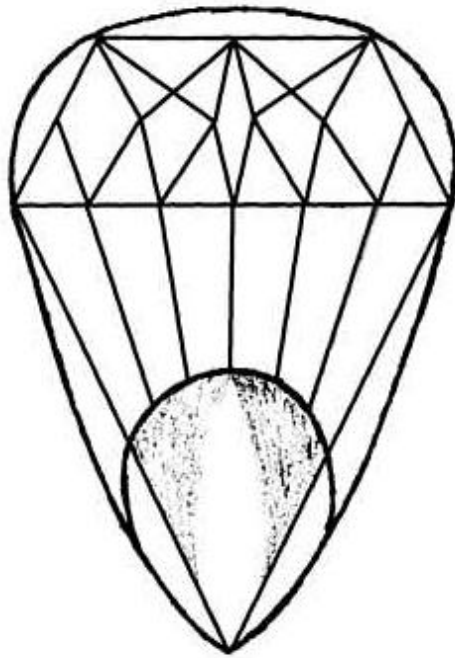


United States Department of Agriculture
Agricultural Research Service



Germplasm Enhancement of Maize

2016 GEM Cooperator Booklet

December 7th 2016

*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.

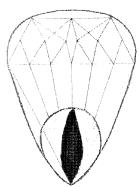
The mission is achieved through collaborative efforts of USDA-ARS, public, and private research scientists by utilizing exotic, public, and proprietary maize germplasm. The resulting germplasm and associated knowledge, derived via the identification and incorporation of favorable alleles for prioritized 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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**Germplasm
Enhancement of
Maize**

Cooperator Meeting:

DATE: December 7, 2016
HOUR: 8:30 – 12:00 AM
LOCATION: Regency Ball Room D
Hyatt Regency Hotel, Chicago

Meeting called by: W. Trevisan, GEM Technical Steering Group Chair

Agenda Topics

Welcome, and Minutes of Dec 9, 2015		8:30-8:40
Update from ASTA	Jane DeMarchi	8:40-9:00
Update on the U.S. Implementation FAO International Treaty for Plant Genetic Resources for Food and Agriculture (ITPGRFA)	Peter Bretting, Vern Long	9:00-9:20
GEM Annual Reports, YT Results, New Releases, 2017 Plans Plot and Data Report	M. Krakowsky, D. Peters	9:20-10:15
Break		10:15-10:30
Considerations about impact of use of GS and DH technologies on diversity of breeding populations	T. Hoegemeyer	10:30 – 10:50
Interactive Panel Discussion on above topic	T. Hoegemeyer, Moderator D. Bubeck D. Butruille W. Tracy J. Edwards	10:50-11:40
Election of New TSG Members	W. Trevisan	11:40-12:00

Minutes from GEM Cooperator Meeting (Dec 9th 2015) Chicago ASTA

Introduction- Walter Trevisan

Welcomed the cooperators and opened for discussions and presentations

Asked about follow-ups from last year's meeting

Minutes were not available- Tom Koch was absent.

Update from ASTA- Jane DeMarchi- Washington DC visits.

Jane stressed the importance of continued presence of GEM members. Key strength is that we continue to demonstrate unique partnership between private industry and public research. Need to continue emphasizing the successful partnership. It is important to keep reminding USDA and the Hill the importance of GEM and global corn research.

Our current approach is to have small number of people in a group. Jane urges and encourages partner organization to join and lend voices through letters and other forms of communication. Everyone has a role to play.

In January- The plan is to either provide one letter from all GEM cooperators, or ask for individual letters for support. Ask for overall funding for ARS, including GEM, not only GEM. ARS budget has not been increased in the last several years.

In order to ask for support, we need to create a more comprehensive strategy including local impact, such as employment, student education, etc.

This year's lobbying trip has been scheduled for March 14th and 15th. Breeders' participation is important, as they are experts in the field. Also, this year- GEM lobbying is combined with ASTA. There will be 3-4 priority issues addressed and GEM will be one of those priority issues.

The National Association of Plant Breeders (NABB) and Tri- society (ASA/CSA/SSA) will come at the same time, but will lobby separately.

Invite members of staff to visit the facilities and develop relationships.

GEM Going Forward Strategy- Walter Trevisan:

Development team met 6 times to develop the GEM Going Forward Plan. As discussed in August, this will not be just recommendations, but the model for going forward.

Outline: Mission, Yield targets, Development team, Process and conclusions.

Objective: To effectively increase the diversity of U.S. Maize germplasm, utilized by producers, global end-users and consumers.

GEM Released a total of 301 temperate inbreds containing 35+ exotic races. The total number of races is about 250. Some carry important traits especially multiple insect and disease resistance (such as Fusarium stalk rot). GEM Germplasm is targeting also resistance to a) Late Wilt- an important disease in Africa spreading to Europe; b) Maize Lethal Necrosis in Africa- CIMMYT and GEM Germplasm.

In 2010 we started GEM Allelic Diversity to exploit a larger number of races. March 2014- GEM release 204 doubled haploids- homozygous containing average of 25% exotic. These are available from GRIN.

What we are missing in 23 years? Need to know more about usage of germplasm by the cooperators, so we conducted a survey of use of GEM Germplasm by the cooperators.

The releases are considered as pre-breeding effort; not to be commercial level of germplasm. Walter outlined current process of Exotic Germplasm Introgression, including lines with 50% tropical (GEM Raleigh), 25% tropical from direct GEM x temperate (GEM Ames) or GEM x GEM crosses. The Development Team looked at ways to improve this process by reducing cycle time and assuring the use of good temperate and tropical germplasm, including companies' donated elite germplasm. Also discussed work in a more detailed characterization of the existing germplasm.

Exotic germplasm used for introgression: Germplasm Bank accessions, Improved Exotic Germplasm (additional to the sources that have been used to date from Asia, Africa and Latin America), Expired PVP lines and Private company's proprietary inbreds (that companies agree to donate). Cooperators are asked to contribute temperate germplasm lines not older than 11-12 years. When this is not possible, use Ex-PVP inbreds to use as donors for adaptation.

Tester choices- historically Holden's inbreds were used, recently MBS testers for Ames. For Raleigh Program it is hard to find public germplasm. Single crosses have been used in the past. Development team recommendation is to use Companies' testers in ICBs, North Carolina NCSU releases and also GEM x GEM derived lines- these should be homozygous inbreds.

Decrease of Breeding Cycle time: Ames cycle time to decrease from 8 to 6 years; Ames recycling (Elite GEM x Elite GEM) decrease cycle time to 5 years. Raleigh "Traditional GEM" plan to decrease from 14 years to 9 years.

Monsanto will donate to GEM induction, doubling and first year testing 4-6 pops.

Bottle neck: not enough winter nursery resources.

Finish Allelic Diversity project. Evaluate utilization of the DH lines.

Focus on Disease evaluation Network- Increase number of disease evaluated to cover new potential diseases: MLN, MCMV, Late Wilt; new races of existing diseases.

Effort and resource categorization: Company Tropical Elite x Gem elite 20%, Conv Gem x Gem Elite 15%, DH GEM elite x Gem Elite 25%, Traditional GEM 25%, Allelic Diversity 15%.

GEM Annual Reports 2015:

GEM Raleigh- M. Krakowsky:

Described the size of GEM Raleigh research effort including number of nursery rows and YT plots. Population structure: including GEM x GEM or GEM x Exotic crosses. This also includes Tropical Germplasm x Ames releases breeding crosses.

Allelic Diversity effort includes 99 BC families and 69 F1s in 2015. This is still a sizable effort.

Yield Trials: 5 NC locations, additional 4,300 entries grown throughout NA by public and private cooperators. All the yield and agronomic data are presented in the GEM cooperator's booklet. Matt presented the most promising new lines and their characteristics. Bringing moisture and stature down are key targets in selecting. Matt presented also summary of the 6 GEM Raleigh releases recommended for 2016.

A request from GEM Raleigh is if any party has available Harvest Mater system for measuring weight on combines. Also there is a need for 3-row 30 inch corn head for K-2 Gleaner.

GEM Ames- Candice Gardner:

Introduces Dr. Martha Willcox as new GEM Ames cooperator; starting in 2016.

Pathology trials conducted in 2015 were presented. Thanks to the cooperators for conducting these trials.

As a part of Allelic Diversity, 204 doubled haploid lines were released in 2014. They represent ~52 corn races. 22 requests were made for these up to date. January- March 2016 another set of 140 lines will be released and third set will follow after.

2015 planting was delayed because of rain.

MBs and Pioneer HY are checks used in yield trials for Ames.

Candice presented all Ames releases including their backgrounds- outlining exotic and exotic/temperate backgrounds. All the yield and agronomic data from Ames are presented in the GEM cooperator's booklet as well. All 12 individual 2015 releases were discussed. Some of the lines include white kernels. Focus on maturity, grain quality and disease resistances.

Results of 2015 GEM Survey was presented (C. Gardner):

The survey was conducted by Iowa State University, anonymous and by the third party. Survey respondent stats, comments, etc. were analyzed and presented. There were 15 responses from Public, one from an international organization.

Companies with more than 4% market share and with less than 4% market share in the US were analyzed separately. Candice presented also comments by Private Companies and Public organizations that participated to this survey.

Two US and one International respondents indicated that they have identified useful haplotypes. Organizations that are longer term cooperators contributed their germplasm to GEM. One reported successful commercialization in two products; by successfully using GEM germplasm in their breeding programs. Two of companies with <4% market share have commercialized GEM germplasm in their products; 4 identified useful haplotypes.

Walter Trevisan comment- Currently private cooperators have lowest contribution of yield trials plots for GEM Ames. Need to increase this contribution for GEM Ames.

Mack Shen: **Plot and Data Report:**

IT Report was presented including the World-Wide use of GEM-Ames web site. Top countries are: US, China, India, Turkey, France, Germany, and Brazil followed by others.

Yield Trial Data on the web include planting and harvest dates, location (county and state)....

Total yield trial plots per year vary significantly from year to year. In 1996 about 95% of yield trial plots were conducted by cooperators; now 80% are executed by GEM and only 20% by cooperators. When comparing % of entries better than checks improvement is obvious. Summary is also available in the Cooperators' booklet.

Maize Disease Update (William Dolezal):

This presentation was intended as a personal view on Maize Diseases. Last year's presentation focused on Risks and Assessments. This year's focus is on Maize Lethal Necrosis (MLN). This disease is caused by virus complex known also as MCN. It is a complex of two different viruses: Maize Chlorotic Mottle + one potyvirus (Sugar Cane Mosaic is common) Disease in Africa, also present in Asia.

Dr. Dolezal presented timelines for MCMV Worldwide from 1970s to 2014. Discussed modes of transmission, including insects/thrips, mechanical, and seed borne ways of transmission.

Many viruses will use grass, Sorghum, Sugar Cane as alternate hosts which further serve as reservoirs of future inoculum. Challenge is detecting these viruses early. Need to upgrade diagnostic capability. New PCR tests are finding up to 72% of the transmission by seed- this may be too high. Seed transmission (systemic) may be the most challenging one. Some soil transmission has been experimentally confirmed- could it be funghi transmitted?

Chromosomal C6 and C3 segments are known to increase resistance to Potyviruses.

Dr. Dolezal proposed the use of Allelic Diversity resistant DH lines that may have different segments than the C3, C6 and to start mapping populations for identifying novel resistances.

Tar Spot is another important disease increasing in Mexico, transmitted by tropical storm Bill. The movement of this storm moved some of the pathogen to the South US across Mexico border.

Black Bundle Vs. Late wilt, is another important disease that international companies may be interested in working on.

Wheat Streak Mosaic Virus (wide spread in US) is a component of Maize Lethal Necrosis Virus; High Plains Wheat Mosaic Virus and Triticum Mosaic Virus- may prevent seed movement from US to other countries.

Ongoing research is needed, new viral phytosanitary barrier.

Combining Ability and Density Response of Elite GEM Lines- Jode Edwards

Comparing combining ability of GEM lines to checks; how do GEM releases respond to density? Factorial NC Design II was used in multiple densities, with four locations per year in two years. Bayesian Hierarchical model was used for the analysis. Findings: low level of CSA, mainly GCA components.

Male and Female GEM releases had somewhat different responses to these factors. There seems to be substantial variation for yield in males and females. At least some GEM lines were close to commercial checks. Jode suggested methods to select directly and indirectly to increased density.

Germplasm Enhancement of Maize: Encountering Ways to Identify Useful Germplasm Within Maize Landraces- Martha Willcox

Key topics include: 1) Understanding of available phenotypic and genotypic variation, 2) Good Phenotypic Characterization of the Variation, 3) Managing adaptation differences.

Discussed her CIMMYT project aspects: Topcross phenotyping GWAS- seeds of discovery process); Accession per-se phenotyping, Participatory plant breeding. Martha presented an overview of Seeds of Discovery Project- Genetic basis of this study came from subset (Taba) of core collection of Maize in CIMMYT (total is 4,471 entries). She explained trial sites (36 in total) network in Mexico which CIMMYT used for GWAS project. Focus on disease, agronomic and grain quality traits.

Some of the challenges: Range of maturity (5 weeks difference), Lodging, Segregation, Diversity of Environments.

Some specific key traits and research focus (GWAS): Tar Spot Complex (multiple pathogens); Developing crosses of accessions with improved lodging resistance and Tar spot; and then release as OPV to farmers- by crossing to good CIMMYT lines; Evaluation under Low Nitrogen and recombining best S1 lines for subsequent testing; Drought Tolerance- new collection made by Mexican Government that has precise GWAS data; In Vitro Digestibility by Race of Stover.

Elections and Discussions:

No elections for TSG. Walter Welcomed Martha joining as Ames GEM coordinator.

Allelic Diversity

GEM Allelic Diversity Project

Table 1. Total AD Races by Country

Country	Races [%]	% of Total Races*	Races with Acc. ^{&}	Accessions	% of Total Acc. ^{\$}
ARGENTINA	33	8.9	27	28	7.2
BOLIVIA	39	10.5	30	33	8.4
BRAZIL	34	9.1	34	34	8.7
CHILE	18	4.8	18	18	4.6
COLOMBIA	23	6.2	23	34	8.7
COSTA RICA	3	0.8	3	3	0.8
ECUADOR	34	9.1	34	38	9.7
EL SALVADOR	1	0.3	1	1	0.3
GUATEMALA	20	5.4	19	22	5.6
MEXICO	55	14.8	53	56	14.3
PANAMA	1	0.3	1	1	0.3
PARAGUAY	7	1.9	7	7	1.8
PERU	52	14.0	51	56	14.3
UNITED STATES [#]	17	4.6	17	17	4.3
URUGUAY	4	1.1	4	4	1.0
VENEZUELA	19	5.1	19	21	5.4
WEST INDIES	12	3.2	12	18	4.6
Grand Total	372	100	353	391	100

[%] Unique races for each country; some races are represented in more than one country
* Includes only races that are listed on spreadsheet, not all races of maize
^{&} Races to which accessions have been assigned on spreadsheet; Some accessions may not be readily available from NPGS or other collections...
^{\$} Includes only accessions that are listed on spreadsheet, not all accessions of maize
[#] All of the "races" are Native American varieties that have been studied only lightly

GEM Allelic Diversity Project
Table 2. AD Completed as of October 2016

	F ₁ with PHB47	BC ₁ with PHB47	BC ₁ F ₂ [#]	BC ₁ F ₃	BC ₁ F ₄	BC ₁ F ₅	BC ₁ F ₆	DH	F ₁ with PHZ51	BC ₁ with PHZ51	BC ₁ F ₂	BC ₁ F ₃	BC ₁ F ₄	BC ₁ F ₅	BC ₁ F ₆	DH
ARGENTINA	27 races (28 acc.) [@]	27 races (28 acc.)	5	1					27 races (28 acc.)	26 races (27 acc.)	10					
BOLIVIA	30 races (33 acc.)	29 races (32 acc.)	1	5	5	2			30 races (33 acc.)	30 races (33 acc.)	7	6	6	1		
BRAZIL	34 races (34 acc.)	34 races (34 acc.)	10						34 races (34 acc.)	34 races (34 acc.)	10	2				
CHILE	16 races (16 acc.)	15 races (15 acc.)		1					15 races (15 acc.)	14 races (14 acc.)	1					
COLOMBIA	23 races (34 acc.)	23 races (34 acc.)	3	8	1				23 races (32 acc.)	22 races (31 acc.)	3	9		1		
COSTA RICA	2 races (2 acc.)	2 races (2 acc.)							2 races (2 acc.)	1 races (1 acc.)						
ECUADOR	34 races (37 acc.)	34 races (37 acc.)	9	6	1				34 races (37 acc.)	34 races (37 acc.)	10	7		1		
EL SALVADOR	1 races (1 acc.)	1 races (1 acc.)							1 races (1 acc.)	1 races (1 acc.)						
GUATEMALA	19 races (22 acc.)	19 races (22 acc.)	7	2			2		19 races (21 acc.)	19 races (21 acc.)	8	4				
MEXICO	50 races (54 acc.)	50 races (54 acc.)	9	7			1		48 races (52 acc.)	48 races (51 acc.)	12	8				
PANAMA	1 races (1 acc.)	1 races (1 acc.)							0 races (0 acc.)	0 races (0 acc.)						
PARAGUAY	7 races (7 acc.)	7 races (7 acc.)	3						7 races (7 acc.)	6 races (6 acc.)	4					
PERU	52 races (54 acc.)	52 races (54 acc.)	12	8	4				51 races (54 acc.)	47 races (50 acc.)	12	9	4			
UNITED STATES	17 races (17 acc.)	17 races (17 acc.)							17 races (17 acc.)	7 races (7 acc.)						
URUGUAY	4 races (4 acc.)	4 races (4 acc.)							4 races (4 acc.)	4 races (4 acc.)						
VENEZUELA	19 races (20 acc.)	19 races (20 acc.)	7	1					19 races (21 acc.)	19 races (21 acc.)	12	2				
WEST INDIES	12 races (18 acc.)	12 races (18 acc.)		1					12 races (16 acc.)	12 races (16 acc.)		1				
2016 TOTAL	348 races (382 acc.)	346 races (380 acc.)							343 races (374 acc.)	324 races (357 acc.)						
<i>2015 TOTAL</i>	<i>344 races (377 acc.)</i>	<i>341 races (374 acc.)</i>							<i>321 races (349 acc.)</i>	<i>288 races (311 acc.)</i>						

[@]Note that some races may be represented by more than one accession and/or are present in more than one country

[#] Does not include material in Pioneer inventory

DH0 Lines Advanced to DH1 Generation in 2016

Rec#	Pedigree
1	(PHB47/[PHB47/Argentine pop - PI217404]-(2n))-001
2	(PHB47/[PHB47/Argentine pop - PI217404]-(2n))-002
3	(PHB47/[PHB47/Argentine pop - PI217404]-(2n))-003
4	(PHB47/[PHB47/Argentine pop - PI217404]-(2n))-004
5	(PHB47/[PHB47/Argentine pop - PI217404]-(2n))-005
6	(PHB47/[PHB47/Argentine pop - PI217404]-(2n))-006
7	(PHB47/[PHB47/Argentine pop - PI217404]-(2n))-007
8	(PHB47/[PHB47/Argentine pop - PI217404]-(2n))-008
9	(PHB47/[PHB47/Argentine pop - PI217404]-(2n))-009
10	(PHB47/[PHB47/Argentine pop - PI217404]-(2n))-010
11	([Coastal Tropical Flint-BVIR 104/PHB47]/PHB47-(2n))-001
12	([Coastal Tropical Flint-BVIR 104/PHB47]/PHB47-(2n))-002
13	([Coastal Tropical Flint-BVIR 104/PHB47]/PHB47-(2n))-003
14	([Coastal Tropical Flint-BVIR 104/PHB47]/PHB47-(2n))-004
15	([Coastal Tropical Flint-BVIR 104/PHB47]/PHB47-(2n))-005
16	([Coastal Tropical Flint-BVIR 104/PHB47]/PHB47-(2n))-006
17	([PHB47/Navajo-PI218163]/PHB47-(2n))-001
18	([PHB47/Navajo-PI218163]/PHB47-(2n))-002
19	([PHB47/Navajo-PI218163]/PHB47-(2n))-003
20	([Choclero-CHZM 07 006/PHB47]/PHB47-(2n))-001
21	([Choclero-CHZM 07 006/PHB47]/PHB47-(2n))-002
22	([Choclero-CHZM 07 006/PHB47]/PHB47-(2n))-003
23	(PHB47/[PHB47/Imbricado - GUA 922]-(2n))-001
24	(PHB47/[PHB47/Imbricado - GUA 922]-(2n))-002
25	(PHB47/[PHB47/Imbricado - GUA 922]-(2n))-003
26	([Dentado blanco-ARZM 14 090/PHB47]/PHB47-(2n))-001
27	([Dentado blanco-ARZM 14 090/PHB47]/PHB47-(2n))-002
28	([Dentado blanco-ARZM 14 090/PHB47]/PHB47-(2n))-003
29	([Dentado blanco-ARZM 14 090/PHB47]/PHB47-(2n))-004
30	([Dentado blanco-ARZM 14 090/PHB47]/PHB47-(2n))-005
31	([Dentado blanco-ARZM 14 090/PHB47]/PHB47-(2n))-006
32	([Dentado blanco-ARZM 14 090/PHB47]/PHB47-(2n))-007
33	([Dentado blanco-ARZM 14 090/PHB47]/PHB47-(2n))-008
34	([Early Carribean-BVIR 139/PHB47]/PHB47-(2n))-001
35	([Early Carribean-BVIR 139/PHB47]/PHB47-(2n))-002
36	([Early Carribean-BVIR 139/PHB47]/PHB47-(2n))-003
37	([Early Carribean-BVIR 139/PHB47]/PHB47-(2n))-004
38	([Early Carribean-BVIR 139/PHB47]/PHB47-(2n))-005
39	([Early Carribean-BVIR 139/PHB47]/PHB47-(2n))-006
40	([Cuban Flint - CUB 63/PHB47]/PHB47-(2n))-001
41	([Cuban Flint - CUB 63/PHB47]/PHB47-(2n))-002
42	([Cuban Flint - CUB 63/PHB47]/PHB47-(2n))-003

DH1 Lines Advanced to DH2 Generation in 2016

Entry	Pedigree	Entry	Pedigree
1	((Arizona - LIB 16/PHB47 B)/PHB47)-(2n)-004-001	35	((PHZ51/Cacahuacintle - MEX 7)/PHZ51)-(2n)-003-001
2	((Arizona - LIB 16/PHB47 B)/PHB47)-(2n)-006-001	36	((PHZ51/Cacahuacintle - MEX 7)/PHZ51)-(2n)-004-001
3	((Arizona - LIB 16/PHB47 B)/PHB47)-(2n)-006-002	37	((PHZ51/Celaya - GTO 36)/PHZ51)-(2n)-006-001
4	((Arizona - LIB 16/PHZ51 B)/PHZ51)-(2n)-007-001	38	((PHZ51/Celaya - GTO 36)/PHZ51)-(2n)-007-001
5	((CUZCO CUZ217/PHZ51)/PHZ51)-(2n)-004-001	39	((PHZ51/Harinoso de Ocho - NAY 24)/PHZ51)-(2n)-006-001
6	((CUZCO CUZ363/PHZ51)/PHZ51)-(2n)-002-001	40	((PHZ51/Harinoso de Ocho - NAY 24)/PHZ51)-(2n)-008-001
7	((CUZCO CUZ363/PHZ51)/PHZ51)-(2n)-003-001	41	((PHZ51/Harinoso de Ocho - NAY 24)/PHZ51)-(2n)-009-001
8	((PATILLO GRANDE BOV649/PHB47)/PHB47)-(2n)-002-001	42	((PHZ51/Huancavelicano - HVC 179)/PHZ51)-(2n)-003-001
9	((PATILLO GRANDE BOV649/PHB47)/PHB47)-(2n)-004-001	43	((PHZ51/Huancavelicano - HVC 179)/PHZ51)-(2n)-004-001
10	((PATILLO GRANDE BOV649/PHB47)/PHB47)-(2n)-006-001	44	((PHZ51/San Marceño - GUA 506)/PHZ51)-(2n)-007-001
11	((PATILLO GRANDE BOV649/PHB47)/PHB47)-(2n)-008-001	45	((PHZ51/San Marceño - GUA 506)/PHZ51)-(2n)-009-001
12	((PHB47/Amagaceño - ANT 343)/PHB47)-(2n)-004-001	46	((PHZ51/San Marceño - GUA 506)/PHZ51)-(2n)-009-002
13	((PHB47/Amagaceño - ANT 343)/PHB47)-(2n)-005-001	47	((PHZ51/Tuxpeño - VER 143)/PHZ51)-(2n)-003-001
14	((PHB47/Cacahuacintle - MEX 7)/PHB47)-(2n)-003-001	48	((PHZ51/Tuxpeño - VER 143)/PHZ51)-(2n)-004-001
15	((PHB47/Cacahuacintle - MEX 7)/PHB47)-(2n)-003-002	49	((Puya Grande - VEN 651/PHB47)/PHB47)-(2n)-004-001
16	((PHB47/Celaya - GTO 36)/PHB47)-(2n)-004-001	50	((Puya Grande - VEN 651/PHZ51)/PHZ51)-(2n)-003-001
17	((PHB47/Celaya - GTO 36)/PHB47)-(2n)-005-001	51	((Puya Grande - VEN 651/PHZ51)/PHZ51)-(2n)-004-001
18	((PHB47/Celaya - GTO 36)/PHB47)-(2n)-007-001	52	((Puya Grande - VEN 651/PHZ51)/PHZ51)-(2n)-004-002
19	((PHB47/Conico - PUE 48)/PHB47)-(2n)-002-001	53	((SABANERO CUN342/PHB47)/PHB47)-(2n)-002-001
20	((PHB47/Conico - PUE 48)/PHB47)-(2n)-003-001	54	((SABANERO CUN342/PHB47)/PHB47)-(2n)-003-001
21	((PHB47/Cuzco - CUZ 217)/PHB47)-(2n)-003-001	55	((SABANERO CUN342/PHB47)/PHB47)-(2n)-003-002
22	((PHB47/Cuzco - CUZ 217)/PHB47)-(2n)-004-001	56	((SABANERO CUN342/PHZ51)/PHZ51)-(2n)-007-001
23	((PHB47/Cuzco - CUZ 217)/PHB47)-(2n)-005-001	57	((SABANERO CUN342/PHZ51)/PHZ51)-(2n)-008-001
24	((PHB47/Cuzco - CUZ 217)/PHB47)-(2n)-006-001	58	((SABANERO CUN342/PHZ51)/PHZ51)-(2n)-009-001
25	((PHB47/Cuzco Cristalino Amarillo - CUZ 363)/PHB47)-(2n)-002-001	59	((Sin Clasificación - CAU454/PHZ51)/PHZ51)-(2n)-003-001
26	((PHB47/Cuzco Cristalino Amarillo - CUZ 363)/PHB47)-(2n)-003-001	60	((Sin Clasificación - CAU454/PHZ51)/PHZ51)-(2n)-004-001
27	((PHB47/Cuzco Cristalino Amarillo - CUZ 363)/PHB47)-(2n)-004-001	61	((Sin Clasificación - CAU454/PHZ51)/PHZ51)-(2n)-005-001
28	((PHB47/Harinoso de Ocho - NAY 24)/PHB47)-(2n)-004-001	62	((Sin Clasificación - CAU454/PHZ51)/PHZ51)-(2n)-007-001
29	((PHB47/Harinoso de Ocho - NAY 24)/PHB47)-(2n)-005-001	63	((SinClass.CAU454/PHB47)/PHB47)-(2n)-004-001
30	((PHB47/San Marceño - GUA 506)/PHB47)-(2n)-003-001	64	((Tuxpeño Norteño - CHH287/PHB47 B)/PHB47)-(2n)-010-001
31	((PHB47/San Marceño - GUA 506)/PHB47)-(2n)-006-001	65	((Tuxpeño Norteño - CHH287/PHZ51)/PHZ51)-(2n)-004-001
32	((PHB47/Tuxpeño - VER 143)/PHB47)-(2n)-004-001	66	((Tuxpeño Norteño - CHH287/PHZ51)/PHZ51)-(2n)-006-001
33	((PHB47/Tuxpeño - VER 143)/PHB47)-(2n)-010-001	67	((PHB47/(PHB47/(Chillo - ECU 411)))-(2n)-001-001
34	((PHZ51/Amagaceño - ANT 343)/PHZ51)-(2n)-003-001	68	((PHB47/(PHB47/(Chillo - ECU 411)))-(2n)-005-001

Breeding Cross Observation

2016 Breeding Cross Observations - Ames-GEM, AgReliant-Ft. Brance, IN and G&S Crop

Entry	Pedigree	Pollen GDU Ames	Silk GDU Ames	Plant Health / Intactness Rating AgReliant	RL Rat Avg AgReliant	Ear Height Rating AgReliant	Ear Position at Harvest Ames	Husk Ext Ames	Husk Length G&S	Husk Tightness Ames	Husk Tightness G&S	Grain Color G&S	Grain Texture G&S	Kernel Cap Rating AgReliant	Overall Rating Ames	Overall Rating AgReliant	Harvest Notes - Ames	Harvest notes AgReliant
1	B73/Mo17	1350	1428	4	5.5	6	9	3.5	5.0	4	3.0	5.0	5.0	2		6		
2	Pioneer 33F85	1352	1365	3	7	6	5.5	5	6.0	4	4.0	5.0	5.0	6		7		
3	Pioneer 34R65	1277	1289	4	4.5	8	7	3	5.0	3.5	4.0	4.0	5.0	7		8		low ear placement
4	Pioneer 31D58	1384	1384	5	5.5	6	1.5	4.5	6.0	4.5	5.0	5.0	5.5	5		7		
5	MBS3520/MBS8814	1301	1312	6	9	5	7	3.5	4.0	4.5	4.5	4.5	4.0	1		6		some stalk lodging
6	MBS9508/MBS2655	1350	1339	4	8	5	7.5	3.5	5.0	4	5.0	5.0	5.5	5		6		
7	MBS3644/MBS5411	1301	1312	3	5.5	3	8.5	3	3.5	3.5	5.0	4.0	5.0	3		1		
8	(GEMN-0097/MSU_1)/GEMN-0155	1404	1420	5	4.5	5	2.5	4.5	5.5	5.5	6.0	5.0	5.0	2-6	5	6	High ear placement	
9	(GEMN-0097/MSU_1)/LH185	1378	1403	3	6	6	8.5	4.5	6.5	5	5.0	5.0	6.0	5	4.5	6	High ear placement	
10	(GEMN-0097/MSU_1)/PHGG7	1169	1242	2	4	5	9	5	6.0	3	5.0	1-5	4.5	3-6	3.5	4		
11	(GEMN-0097/MSU_1)/PHV53	1404	1463	5	5.5	5	7.5	4.5	6.5	5	5.5	1-5	5.0	4-6	3	7	High ear placement	
12	(MSU_1/PHN46)/LH185	1352	1416	5	8	5	8	4.5	7.0	4	5.5	5.0	5.5	4-5	3.5	6		
13	(MSU_1/PHN46)/PHN46	1446	1454	4	6	5	5.5	4	6.0	5	6.0	4.5	5.5	3-4	3	5	High ear placement	
14	(PHN46/MSU_2)/LH185	1377	1391	5	9	5	7.5	3.5	5.5	4	6.0	5.0	5.0	4-6	6	6		
15	(PHN46/MSU_2)/PHN46	1424	1454	3	8	4	6	4	5.5	5	4.5	4.5	5.0	2-6	3.5	2		
16	(GEMN-0155/MSU_2)/GEMN-0192	1323	1391	5	7	4	4	6	6.0	5.5	6.0	1-5	5.5	3-6	6	4	High ear placement	variable ear height
17	(GEMN-0155/MSU_2)/LH185	1365	1391	5	9	4	8	4	6.5	5	6.0	1-5	5.5	3-7	6.5	4		
18	(GEMN-0155/MSU_2)/PHGG7	1190	1242	3	6.5	6	8.5	4	6.5	3.5	6.0	4.0	4.0	2-7	4.5	6		
19	(GEMN-0155/MSU_2)/PHR55	1377	1403	5	6.5	4	5	3	4.0	6.5	7.0	1-5	5.5	3-6	5	4	Many barren	
20	(GEMN-0155/MSU_2)/PHV53	1391	1458	6	8.5	4	5	3	5.0	4.5	6.0	1-5	6.0	5-7	3.5	6	Early death	
21	(PHN46/(GEMN-0130/MP494))/41	1411	1408	4	7.5	5	4	3.5	5.5	5.5	6.0	5.0	5.0	3-6	6	5	High ear placement	
22	(PHN46/(GEMN-0130/MP494))/LH185	1428	1444	6	8.5	4	7	4	6.0	4.5	5.5	5.0	5.0	3-6	3	5	High ear placement	
23	(PHN46/(GEMN-0130/MP494))/PHN46	1475	1522	4	7.5	3	7	3.5	6.0	5	5.5	4.5	5.0	3-6	6	2		
24	BG002:T26aN(GEMN-0155)(GEMN-0192)	1416	1428	3	5	3	4	4.5	4.0	5.5	5.5	1-5	6.0	3-6	3.5	1	High ear placement, Long shank	
25	BG002:T26aN(GEMN-0155)(LH185)	1378	1391	5	7	4	8	3.5	6.0	4	6.0	5.0	5.5	5-7	4.5	5	Slender ear	
26	BG002:T26aN(GEMN-0155)(PHGG7)	1190	1242	2	4	5	8.5	3	5.0	3.5	5.0	1-5	6.0	6-8	5	6		
27	(CML343/GEMS-0032)/40x	1280	1301	8	6	4	2.5	3	5.0	7	7.5	5.0	5.0	3-6	5	6	Slender ear	
28	(CML343/N3-2-3-3)/40x	1411	1436	8	5.5	5	3.5	4	5.0	6	7.0	4.5	5.0	4-6	3	8	Tall, High ear placement	nice
29	(CML494 x GEMN-0097)/GEMN-0192	1436	1454	7	6	4	3	5	5.5	6	6.0	1-5	5.0	2-6	2.5	5	Very high ear placement	
30	(CML494 x GEMN-0097)/LH185	1404	1424	6	7	4	7	3	5.0	5.5	6.5	1-5	6.0	3-7	4	5	High ear placement	
31	(CML494 x GEMN-0097)/PHGG7	1203	1266	3	3.5	4	7	4	4.5	3.5	5.0	1-4	5.0	2-6	6	2		
32	(CML494 x GEMN-0097)/PHV53	1475	1576	7	5	3	2	3.5	4.0	4.5	6.0	5.0	6.5	4-6	2.5	4	High ear placement	variable ear height
33	(CML494/GEMS-0032)/40x	1499	1522	7	8	3	1.5	3.5	3.5	6.5	7.0	5.0	5.0	2-6	5	3	High ear placement	variable ear height
34	(GEMN-0097/CML449)/40x	1378	1391	8	7	3	2	6	7.0	5.5	7.0	5.0	5.0	2-7	3.5	4	High ear placement	
35	(GEMN-0097/89291)/40x	1352	1404	7	8	4	7	5	5.5	5	4.5	4.0	5.0	2-4	6	5	Very high ear placement, late RM	soft kernel texture
36	(CA00370/GEMN-0097)/40x	1444	1444	7	6	3	3	5	5.0	6	7.0	5.0	5.0	2-5	2	3	High ear placement	
37	((NKS8326/CML373)/GEMN-0097)-SIB)/41	1234	1280	1	7	5	1.5	5	4.5	6.5	5.5	5.0	6.0	4-6	3	4	High ear placement	
38	((NKS8326/CML373)/GEMN-0097)-SIB)/GEMN-0155	1408	1420	8	7	4	5	5.5	4.0	7	7.0	4.5	6.0	3-8	6	7	Late RM, Moderate ear height	
39	((NKS8326/CML373)/GEMN-0097)-SIB)/LH185	1428	1454	6	6.5	4	5	3.5	6.0	4.5	5.0	1-5	6.0	3-6	5	4		
40	((NKS8326/CML373)/GEMN-0097)-SIB)/PHGG7	1190	1242	1	5.5	5	8.5	4.5	5.0	3.5	5.0	1-5	5.0	4-8	3.5	5		
41	((NKS8326/CML373)/GEMN-0097)-SIB)/PHR55	1365	1411	3	5	5	7	3.5	4.0	5	6.5	5.0	6.0	3-6	5.5	5		

Entry	Pedigree	Pollen GDU Ames	Silk GDU Ames	Plant Health / Intactness Rating AgReliant	RL Rat Avg AgReliant	Ear Height Rating AgReliant	Ear Position at Harvest Ames	Husk Ext Ames	Husk Length G&S	Husk Tightness Ames	Husk Tightness G&S	Grain Color G&S	Grain Texture G&S	Kernel Cap Rating AgReliant	Overall Rating Ames	Overall Rating AgReliant	Harvest Notes - Ames	Harvest notes AgReliant
42	((((NKS8326/CML373)/GEMN-0097)- SIB)/PHV53	1454	1487	6	7	3	2.5	3	5.0	6	6.0	5.0	6.0	3-8	5	4	High ear placement, early death	
43	(GEMN-0097/Ki 14)/GEMN-0155	1416	1424	7	9	4	3	4.5	6.0	6	6.0	5.5	5.5	4-9	4.5	7		variable ear height
44	(GEMN-0097/Ki 14)/LH185	1391	1411	5	7	4	4	8	6.5	3	4.5	5.5	5.0	5-6	3.5	5	High ear placement	
45	(GEMN-0097/Ki 14)/PHGG7	1190	1254	3	5	7	8	3	5.0	2	5.0	4.0	5.0	5-8	6.5	8		
46	(GEMN-0097/Ki 14)/PHV53	1403	1454	7	5	3	4.5	3.5	5.0	5	6.0	5.0	6.5	6-9	3.5	5	High ear placement	variable ear height
47	(GEMN-0097/TF-2-0-T3-P74-G121)/GEMN- 0192	1315	1365	2	4	7	8.5	6	5.5	4.5	5.5	4.5	5.0	2-5	2.5	5		soft kernel texture
48	(GEMN-0097/TF-2-0-T3-P74-G121)/LH185	1312	1339	5	6.5	6	9	4	5.5	4	5.0	5.0	5.0	2-6	5	7	Very high ear placement	
49	(GEMN-0097/TF-2-0-T3-P74-G121)/PHR55	1338	1350	3	6	5	8	3	5.5	4.5	6.0	5.0	5.0	2-5	4.5	4	Early death	
50	(GEMN-0205/TF-0-0-T2-P72-G122)/GEMN- 0192	1416	1436	3	6	5	8	5.5	6.0	3.5	5.0	5.5	5.5	3-5	5.5	4		
51	(GEMN-0205/TF-0-0-T2-P72-G122)/LH185	1391	1416	2	6.5	5	9	4	5.0	3	4.5	5.0	5.0	4-6	5	4	High ear placement	stalk lodging
52	(GEMN-0205/TF-0-0-T2-P72-G122)/PHGG7	1169	1242	1	4.5	4	8.5	4	5.5	3	4.5	4.5	5.0	2-6	4	1	High ear placement	stalk lodging
53	(GEMN-0205/TF-0-0-T2-P72-G122)/PHR55	1378	1404	5	8	4	6.5	6	5.5	5	6.0	5.0	6.5	4-8	4.5	5		
54	(GEMN-0205/TF-0-0-T2-P72-G122)/PHR55	1364	1391	4	9	5	8	4	4.0	3.5	6.5	5.5	5.0	3	3	4		
55	(GEMN-0097/PHN46)/GEMN-0192	1254	1303	3	7.5	6	9	4.5	6.0	4	5.0	5.0	5.0	5-6	5	6		
56	(GEMN-0097/PHN46)/LH185	1312	1276	3	8.5	5	8.5	4.5	5.5	3.5	5.5	5.0	5.0	3-6	4	5	Watch ear height	
57	(GEMN-0097/PHN46)/PHGG7	1123	1123	1	7.5	6	9	4	5.0	3.5	5.0	4.0	5.0	5-6	3	6		poor
58	(GEMN-0097/PHN46)/PHR03	1312	1365	4	7	5	8.5	4	6.0	3	5.0	5.5	6.0	5-7	4.5	6		
59	(GEMN-0043 x GEMN-0108)/GEMN-0155	1454	1454	8	9	4	2	3.5	4.5	6	6.0	5.0	5.5	5-7	4	7		
60	(GEMN-0043 x GEMN-0108)/LH185	1454	1454	5	9	4	7	3.5	7.0	4	5.5	5.5	5.5	6	4.5	5	High ear placement	
61	(GEMN-0043 x GEMN-0108)/PHR55	1444	1444	6	9	5	4	3.5	4.0	5.5	6.5	5.0	5.5	2-6	5	6	Watch ear height	
62	(GEMN-0043 x GEMN-0108)/PHV53	1478	1502	5	9	3	2.5	3.5	4.0	5	5.0	6.0	6.0	4-6	3.5	3	Very high ear placement	
63	(GEMN-0103 x GEMN-0097)/GEMN-0192	1312	1403	3	5.5	5	8	5.5	5.0	5	5.5	5.0	4.5	3-7	6	5	Many barren	
64	(GEMN-0103 x GEMN-0097)/LH185	1372	1372	4	8.5	4	8	5	6.5	4.5	5.5	5.5	6.0	3-6	4.5	3	High ear placement	
65	(GEMN-0103 x GEMN-0097)/PHR55	1338	1365	5	6	5	5	3.5	5.0	6	6.0	5.5	6.0	4-5	6.5	6	Long husk cover	
66	(GEMN-0104 x GEMN-0187)/GEMN-0192	1391	1411	3	4.5	3	6	4	5.5	5	5.0	5.0	6.0	4-5	5.5	1		
67	(GEMN-0104 x GEMN-0187)/LH185	1391	1404	3	7	4	7.5	4.5	6.5	4.5	5.0	6.0	5.5	4-7	4.5	3	High ear placement	variable ear height
68	(GEMN-0104 x GEMN-0187)/PHGG7	1216	1242	4	5	4	7	3	5.0	4.5	5.5	5.0	6.0	3-8	4	4	High ear placement	variable ear height
69	(GEMN-0104 x GEMN-0187)/PHR03	1428	1475	5	6	4	8	3	5.0	4	6.0	5.5	6.0	3-7	4	4	High ear placement	
70	(GEMN-0104 x GEMN-0187)/PHR55	1411	1411	3	5.5	5	7.5	3	4.0	5	7.0	5.5	6.0	3-7	4	5	High ear placement	
71	(GEMN-0104 x GEMN-0187)/PHV53	1436	1466	4	5	3	6.5	4	4.5	4	6.0	6.0	6.5	3-7	2	2	Healthy, Very high ear	
72	(GEMN-0124 x GEMN-0043)/GEMN-0192	1390	1272	3	6	4	7.5	5	5.5	5	6.0	5.0	7.0	3-6	4	2	High ear placement	
73	(GEMN-0124 x GEMN-0043)/LH185	1403	1404	4	9	4	7	4.5	6.0	5	6.5	5.5	6.0	3-7	4.5	3	High ear placement	
74	(GEMN-0124 x GEMN-0043)/PHGG7	1203	1216	4	8.5	4	8	5.5	6.0	3.5	5.0	4.5	5.5	3-7	4	3		
75	(GEMN-0124 x GEMN-0043)/PHR55	1338	1365	5	9	4	6	4	4.5	5	6.5	5.0	5.5	2-5	4	3	High ear placement	
76	(GEMN-0158/ATL100)/40x	1436	1454	8	9	3	2	5	6.5	6.5	6.0	5.0	5.5	2-6	4	4	Tall, High ear, Late	some stay green
77	(GEMN-0173/KO679Y)/41	1428	1444	6	9	4	2	3	5.5	6.5	6.0	6.0	5.5	5-7	3.5	6	High ear, Late	
78	(GEMN-0173/KO679Y)/GEMN-0155	1434	1458	8	9	4	2.5	4	5.5	6	7.5	7.0	7.5	3-6	3	6	High ear placement	
79	(GEMN-0173/KO679Y)/GEMN-0192	1411	1391	8	6.5	4	8	4	5.0	5.5	7.0	5.5	5.5	2-6	3.5	7	High ear placement	
80	(GEMN-0173/KO679Y)/LH185	1416	1444	6	9	4	5.5	3.5	6.0	4.5	5.0	6.0	6.0	5-8	4.5	6		
81	(GEMN-0173/KO679Y)/PHGG7	1174	1229	2	7	4	7	3	6.5	3.5	6.0	5.5	6.0	4-6	4	2	High ear	
82	(GEMN-0173/KO679Y)/PHR55	1365	1403	7	9	4	7	3.5	3.5	5	5.0	5.0	5.5	2-6	5	5	High ear placement	variable ear height
83	(GEMN-0173/KO679Y)/PHR55	1416	1424	7	9	4	4	3	4.0	6	6.0	6.0	5.0	3-7	3.5	7		
84	(GEMN-0187/GEMN-0198)/41	1403	1411	3	8.5	5	2.5	4	5.0	5.5	5.5	5.5	5.5	3-5	4.5	4	High ear placement	
85	(GEMN-0187/GEMN-0198)/GEMN-0192	1365	1404	2	6	3	8	6	6.0	5.5	6.0	6.0	6.0	2-6	4.5	1		
86	(GEMN-0187/GEMN-0198)/LH185	1436	1424	3	6	4	8	4	5.5	4.5	5.0	5.0	5.5	3-6	3.5	2	High ear placement	
87	(GEMN-0187/GEMN-0198)/PHGG7	1203	1242	2	5	4	8.5	4.5	5.5	3.5	6.5	5.0	5.0	5-7	3	3	High ear	
88	(GEMN-0187/GEMN-0198)/PHR55	1403	1436	3	6	4	6	4.5	5.0	5	6.0	5.5	5.5	5-6	4	3		

Entry	Pedigree	Pollen GDU Ames	Silk GDU Ames	Plant Health / Intactness Rating AgReliant	RL Rat Avg AgReliant	Ear Height Rating AgReliant	Ear Position at Harvest Ames	Husk Ext Ames	Husk Length G&S	Husk Tightness Ames	Husk Tightness G&S	Grain Color G&S	Grain Texture G&S	Kernel Cap Rating AgReliant	Overall Rating Ames	Overall Rating AgReliant	Harvest Notes - Ames	Harvest notes AgReliant
89	(GEMN-0210/GEMN-0205)/41	1378	1377	4	6	6	1	2.5	4.0	6	6.0	6.0	5.5	4	4.5	6		
90	(GEMS-0113 x CML103)/GEMS-0218	1377	1377	8	8.5	4	7	5.5	5.0	6.5	7.6	1--5	6.0	6-7	4.5	7	High ear placement, White kernels	
91	(GEMS-0113 x CML103)/GEMS-0227	1377	1391	7	9	4	7	3	4.0	5.5	7.0	1--5	5.0	2-7	6	7	Fat, white ear	
92	(GEMS-0113 x CML103)/PHG39	1390	1411	7	9	3	3	4	4.5	5	6.5	1--5	6.0	5-7	6.5	4	Moderate ear height	
93	(GEMS-0113 x CML103)/PHW51	1352	1376	8	9	4	2	3.5	3.0	5	5.0	1--5	5--6	5-6	6.5	7		
94	(GEMS-0113/CML373)/40x	1378	1391	8	9	4	2	3	5.0	6.5	6.5	1--5	6.0	4-6	6.5	6		
95	(LH195/CML494)/40x	1466	1489	7	9	4	2.5	3.5	4.5	6	7.0	1--5	6.0	4-6	4	5	White kernels, High ear	
96	(GEMS-0113/La Posta Seq C7 F71-1-1-1-2)/40x	1420	1454	4	9	3	2.5	3.5	4.5	7	6.0	1--5	5.5	3-7	4.5	2	White, Low ear	
97	(La Posta Seq C7 F71-1-1-1-2/GEMS-0091)/40x	1391	1403	5	9	4	5	4.5	6.0	6	4.5	5.0	6.0	2-6	3.5	3	High ear placement	
98	La Posta Seq C7 F64-1-1-1-2:S40a	1436	1466	8	9	4	1	3	5.5	6.5	6.0	5.0	4.5	5-7	3	7	High ear placement	uniform
99	La Posta Seq C7 F64-1-1-1-2:S40b	1454	1466	9	9	4	1.5	4	4.0	7	7.0	4.0	6.0	4-6	3.5	7	High ear placement	
100	La Posta Seq C7 F71-1-1-1-2:S40a	1416	1454	7	8.5	4	3	2.5	6.5	6	5.0	5.0	5.5	4-7	3.5	6	High ear placement	
101	La Posta Seq C7 F71-1-1-1-2:S40b	1411	1444	4	8	5	5.5	2.5	6.0	7	4.5	5.0	6.0	2-5	4.5	4	High ear placement	
102	SX2788:S(794)(GEMS-0188)(GEMS-0227)	1301	1326	4	7	7	8	4	6.0	4	4.5	5.0	6.0	6-7	5	8		
103	SX2788:S(794)(GEMS-0188)(PHG39)	1377	1416	7	9	5	8	3	5.0	4.5	5.0	5.5	6.0	4-7	3.5	6	High ear placement	
104	SX2788:S(794)(GEMS-0188)(PHW51)	1278	1277	5	9	4	3	3	5.0	4.5	5.0	6.0	6.0	2-6	6.5	3		
105	SX2788:S(794)(GEMS-0188)(PHW52)	1312	1315	5	9	5	8	3.5	5.5	4.5	4.5	5.0	5.0	6-7	6	6		
106	(GEMS-0203/GEMS-0226)/GEMS-0227	1339	1341	6	9	5	8	4.5	5.0	4	6.0	5.0	6.0	4-7	5.5	6	Low ear placement	
107	(GEMS-0203/GEMS-0226)/PHG39	1377	1391	7	9	5	5.5	4.5	5.0	3.5	4.5	4.5	5.5	7-8	5.5	9		
108	(GEMS-0203/GEMS-0226)/PHW51	1403	1436	5	8	4	5	4	5.5	4.5	4.5	5.5	6.5	5-7	7	7	Low ear placement	
109	(GEMS-0203/GEMS-0226)/PHW52	1326	1350	6	7.5	5	8.5	4.5	5.0	4.5	5.5	5.0	6.5	3-8	4	7		
110	(GEMS-0227/Ki 14)/41	1372	1384	6	9	5	8.5	3.5	5.0	4.5	5.0	5.0	6.0	4-6	6.5	6	High ear placement	
111	(GEMS-0227/Ki 14)/GEMS-0218	1390	1424	7	9	4	4	5	4.5	5.5	5.5	5.5	6.0	5-8	5.5	7	High ear placement	
112	(GEMS-0227/Ki 14)/PHG39	1378	1436	7	9	3	7	4	5.0	3.5	6.0	6.0	6.0	6-8	6.5	5		
113	(GEMS-0227/Ki 14)/PHW51	1391	1454	8	9	4	2.5	3.5	4.5	5	4.5	5.5	6.0	4-8	6	7	16 kernel rows, Nice ear, Healthy	
114	(GEMS-0227/Ki 14)/PHW52	1338	1377	6	8.5	4	8	4	5.5	3.5	5.5	6.0	6.0	6-7	6	6	Low ear placement	
115	GEMS-0226/LH132	1416	1436	6	9	6	7.5	5.5	4.0	4.5	5.0	6.0	6.5	5-7	5.5	8	High ear placement	
116	GEMS-0226/LH198	1436	1446	5	9	4	6	5	6.5	5	5.5	5.5	6.0	4-6	4.5	4	High ear placement	
117	GEMS-0226/PHHB9	1478	1487	6	9	4	7.5	3.5	7.0	4	5.0	5.0	6.0	6-7	6.5	7		
118	GEMS-0226/PHK29	1446	1454	8	9	4	3	6	6.0	4.5	4.5	6.0	6.0	4-7	6.5	6	High ear placement	
119	GEMS-0226/PHP38	1454	1466	7	9	6	7.5	4.5	6.0	4	5.0	5.0	6.0	6-7	6	9	20 kernel rows	
120	(BR106:S(LH132)(PHG39)-B-053-B-B-SIB)/PHW51	1434	1420	7	9	5	5	4.5	6.0	4.5	5.0	5.0	6.0	5-7	5	8		
121	GEMS-0226/PHW52	1398	1390	8	9	5	4.5	4	5.5	5	4.5	5.0	6.0	6-8	6.5	9		
122	GEMS-0226/PHW86	1395	1430	7	9	5	5	4.5	5.5	5	4.5	5.0	6.0	4-6	4	8	High ear, Some smokey kernels	
123	GEMS-0227/LH132	1323	1323	4	9	7	8.5	5.5	6.0	4	5.0	4.5	5.5	4-7	5	7	Low ear placement	
124	GEMS-0227/LH198	1326	1339	4	7.5	6	8.5	3.5	5.0	5	5.5	4.5	5.0	5-6	7	7	Low ear placement	
125	GEMS-0227/PHP38	1308	1313	5	8	7	7.5	3.5	5.0	3.3	5.0	5.0	6.0	4-8	5	8		
126	GEMS-0227/PHW52	1315	1337	5	8	5	5.5	5	5.0	5.5	5.5	5.0	5.5	5-7	6.0	7	Low ear placement	
127	GEMS-0227/PHW86	1277	1337	5	7	6	5.5	3.5	4.0	5	5.5	4.5	5.0	4-6	5.5	7	Low ear placement	

GEM Ames legend:

Data is based on average of two reps. 1-9 Scale, 9 is best
 Ear Position at Harvest ^: 1 - upright, 9 - drooping
 Planting Date: April 26, 2016

AgReliant legend:

1-9 score, 9 is always best

G&S legend:

Husk Length: score from 1-9, 1 is very short and tip is very exposed, 5 is just covering the tip
 Husk Tightness: score from 1-9, 1 is very loose and 9 is tight with many thick husk
 Grain Color: score from 1-9, 1 is white 9 is orange/red
 Grain Texture: score from 1-9, 1 is a shrunken dent, 9 is hard flint

2016 GEM Raleigh, NC Breeding Cross Observations
Inbred x Inbred

Pedigree	Silk	Anthesis	EHT	PHT	Disease Rep1	Disease Rep2	Aspect Rep1	Aspect Rep2	Cross again?	Notes
DK F118/89291	73	72	130	284	7	7	4	4	M	Big, high ears; Root, stalk lodged
PHP38/89291	73	72	129	285	7	8	4	4	Y	Open husks, high ear placement
CML105/LH193	73	73	110	251	4.5	6.5	4	4	M	Some foliar disease, stalk rot susceptibility
CML105/LH218	77	76	119	260	6.5	7.5	4	4	M	Big, high ears
CML105/NS701	77	78	135	284	5	7.5	5	5		
CML105/PHT10	74	75	126	269	7	7.5	3	4	M	
CML105/PHW65	75	75	111	258	7	7.5	2	3	M	
DK 6F629/CML287	75	76	133	290	8	7	4	5	M	Stalk rot susceptible
DK NL001/CML287	72	72	151	295	7	7	5	5		Plant health problems
LH193/CML287	77	77	126	294	8	7.5	4	4	Y	Some stalk rot susceptibility
LH197/CML287	80	77	129	304	8	7	4	4	M	
LH202/CML287	75	74	130	311	8	8	4	4	M	
LH204/CML287	80	78	124	285	8	8	4	-	Y	
PHP38/CML287	77	77	136	294	7.5	8	4	4	Y	
CML312/DK 6F629	74	73	129	293	7.5	7.5	2	4	M	
CML312/DK NL001	74	74	131	295	8	8	5	5		Plant health problems
LH193/CML312	78	77	109	273	7	7	1.5	1.5		
CML312/LH197	77	75	125	286	7	7.5	4	4		Some stalk rot susceptibility
CML312/LH202	77	75	105	291	6.5	7.5	3	-		
CML312/LH204	78	76	115	288	8	8	2	2	Y	
CML312/PHP38	75	75	120	279	8	8	2	4	Y	
CML313/DK MM402A	81	79	123	310	8	8	4	4		
CML313/LH185	75	75	119	293	7.5	8	2	4		
PHKE6/CML313	77	77	128	288	7	7.5	4	4	M	
PHN37/CML313	75	75	125	289	8	7.5	4	4	M	
PHN46/CML313	79	78	133	296	7	8	4	4	M	
PHN73/CML313	77	76	120	296	7.5	7.5	4	4	M	
CML340/PHEG9	79	79	145	328	8	8	4	4	M	Very high ear placement
DK MM402A/CML343	77	77	103	283	7	7.5	2	2	M	
LH193/CML343	78	77	110	256	7.5	8.5	2	2		
PHP38/CML343	76	75	109	268	7	8	1	1.5		
DK 6F629/CML373	73	73	123	270	7	8	5	5		
DK F118/CML373	79	78	123	278	6.5	7.5	4	4	M	
CML373/DK NL001	72	72	118	260	7	7.5	5	5		Plant health problems
CML373/LH193	74	74	90	243	7	8	1	1.5		Some stalk rot susceptibility
CML373/LH195	75	75	100	243	8	7.5	1	1		
CML373/LH197	74	73	106	256	7	7	1.5	3		Some stalk rot susceptibility

2016 GEM Raleigh, NC Breeding Cross Observations
Inbred x Inbred

Pedigree	Silk	Anthesis	EHT	PHT	Disease Rep1	Disease Rep2	Aspect Rep1	Aspect Rep2	Cross again?	Notes
CML373/LH198	74	74	115	280	7	7	2	4		
CML373/LH202	75	74	94	248	6.5	8	2	-		
CML373/LH204	73	72	95	241	7	7.5	2	1		
PHP38/CML373	76	75	105	255	8	8	1	1		
CML375/DK HBA1	74	74	100	253	8	8.5	1.5	1		
CML375/DK MM402A	73	73	95	248	7	8	2	1.5		
CML375/LH185	69	70	94	248	7	8	1.5	3		Plant health problems
CML375/LH210	73	73	118	253	7	8	4	5	M	
CML375/PHKE6	69	69	104	239	7	7.5	2	1.5		
CML375/PHN37	67	68	98	249	7	8	1.5	5		
CML375/PHN46	71	71	108	253	7	7.5	2	2		
CML375/PHN73	69	70	113	253	8	8	4	3	M	
DK HBA1/CML395	77	77	138	300	8	8.5	4	4	Y	Very high ear placement
DK MM402A/CML395	77	77	154	320	6.5	7.5	5	5		Very high ear placement
PHKE6/CML395	75	75	119	274	5	7	5	5		High ear placement, disease susceptible
PHN37/CML395	73	73	143	308	5.5	7	4	5	M	Very high ear placement, disease susceptible
CML395/PHN46	76	76	151	299	6	7	4	5	M	Very high ear placement, disease susceptible
PHN73/CML395	72	72	129	299	6.5	7	4	5	M	
CML423/LH218	74	73	108	260	8	8	4	-	M	
PHP38/CML423	69	69	104	243	7	7.5	2	1		
LH218/CML438	77	76	114	280	8	7.5	5	-		High ear placement, stalk rot susceptibility
PHW65/CML438	71	72	120	263	7	7	2	5		Stalk rot susceptible
CML449/DK HBA1	76	76	111	264	8	7.5	4	4	Y	
CML449/DK MM402A	74	74	109	261	8	7.5	5	3		
CML449/LH185	70	70	109	255	8	7.5	2	2		
CML449/LH210	75	74	135	273	8	6.5	4	5	M	
CML449/LH213	75	75	121	283	8	7.5	3	4	Y	
CML449/LH218	78	77	115	270	8	8	4	-		
CML449/PHG47	69	70	104	251	8	7.5	2	2		
CML449/PHKE6	74	73	108	250	7	8	5	5		
CML449/PHN37	71	70	106	256	7	7	2	4	Y	
CML449/PHN46	76	75	124	261	8	8	4	4	M	
CML449/PHN73	72	71	108	256	8	7.5	2	1.5	Y	
CML449/PHW65	74	74	121	265	8	7.5	4	4	Y	
LH204/CML494	75	75	134	280	8	8	4	4	M	
PHKE6/CA00370	74	73	111	260	7	8	4	3	M	
PHN37/CA00370	69	69	113	269	7	7	5	3		Plant health problems

2016 GEM Raleigh, NC Breeding Cross Observations
Inbred x Inbred

Pedigree	Silk	Anthesis	EHT	PHT	Disease Rep1	Disease Rep2	Aspect Rep1	Aspect Rep2	Cross again?	Notes
PHN73/CA00370	71	71	126	291	8	8	4	4	M	
PHN73/CA34502	72	71	134	290	8	8	4	4	M	
La Posta Seq C7 F64-1-1-1-1-B-B-B/DK F118	79	77	140	301	7	8	4	4	M	Very high ear placement
La Posta Seq C7 F64-1-1-1-1-B-B-B/DK 6F629	71	71	120	269	6	8	5	5		
La Posta Seq C7 F64-1-1-1-1-B-B-B/DK NL001	73	72	128	270	6	7.5	5	5		Plant health problems
La Posta Seq C7 F64-1-1-1-1-B-B-B/LH193	76	75	106	253	7	7.5	1.5	1.5		
La Posta Seq C7 F64-1-1-1-1-B-B-B/LH195	77	75	119	263	7	8	4	2.5		
La Posta Seq C7 F64-1-1-1-1-B-B-B/LH198	75	73	119	271	6	7.5	5	4		
La Posta Seq C7 F64-1-1-1-1-B-B-B/LH197	75	74	138	294	7	8	5	4	Y	Very high ear placement
La Posta Seq C7 F64-1-1-1-1-B-B-B/LH202	76	74	128	275	6	8	5	-		Disease susceptible
La Posta Seq C7 F64-1-1-1-1-B-B-B/LH204	75	73	118	258	7	7.5	4	5	M	
La Posta Seq C7 F64-1-1-1-1-B-B-B/PHP38	78	78	109	260	7	8	1	4		
La Posta Sequia C7 F71-1-1-1-2-B-B-B/DK NL001	73	72	124	261	7	7.5	5	5		Stalk rot susceptible
La Posta Sequia C7 F71-1-1-1-2-B-B-B/LH193	77	75	107	262	7	7	1	2.5		Stalk rot susceptible
La Posta Sequia C7 F71-1-1-1-2-B-B-B/LH197	73	72	124	281	8	8	5	4		Stalk rot susceptible
La Posta Sequia C7 F71-1-1-1-2-B-B-B/LH202	76	75	105	255	6	8	5	-		Disease susceptible
La Posta Sequia C7 F71-1-1-1-2-B-B-B/LH204	73	73	105	250	7	8	2	2		
La Posta Seq C7 F96-1-1-1-1-B*3/LH193	75	75	105	250	7	7	1.5	2.5		Stalk rot susceptible
La Posta Seq C7 F96-1-1-1-1-B*3/PHP38	75	75	111	254	7	8	2	4		
La Posta Seq C7 F96-1-1-1-1-B*3/PHT10	77	76	125	268	8	7.5	5	4		
La Posta Seq C7 F96-1-1-1-1-B*3/PHW52	74	74	115	263	8	8	2	3		
DK HBA1/Ki21	75	75	108	252	8	8	2	2		
DK MM402A/Ki21	75	74	119	268	7	8	5	4		Stalk rot susceptible
LH185/Ki21	69	69	100	256	8	7	1	1.5		
Ki21/LH213	74	73	115	270	8	8	4	4	M	
LH218/Ki21	77	77	106	261	8	8	5	4		
PHN46/Ki21	73	72	128	258	7	8	5	4		
Ki21/PHW65	72	73	118	264	7	7.5	4	3	M	
DK 6F629/Ki43	73	73	120	259	7	7.5	4	4	M	
DK F118/Ki43	75	75	119	275	7	7.5	4	4	M	
DK HBA1/Ki43	76	76	93	238	8	7	5	2		Susceptible to herbicide damage
Ki43/DK MM402A	75	75	111	253	8	7.5	5	5		
DK NL001/Ki43	69	70	125	264	8	7	5	4		
Ki43/LH185	70	70	104	260	8	7.5	2	2		
LH193/Ki43	75	75	98	246	7	7	5	1.5		Some stalk rot susceptibility
Ki43/LH195	74	74	95	239	8	7.5	1.5	1.5		
Ki43/LH197	71	72	121	268	7	8	4	4	M	

2016 GEM Raleigh, NC Breeding Cross Observations
Inbred x Inbred

Pedigree	Silk	Anthesis	EHT	PHT	Disease Rep1	Disease Rep2	Aspect Rep1	Aspect Rep2	Cross again?	Notes
Ki43/LH198	73	73	113	268	7	7.5	4	3	M	
LH204/Ki43	73	73	105	250	8	6.5	2	4	M	
Ki43/LH210	76	76	118	265	8	8	5	5		
Ki43/PHKE6	72	72	89	235	8	8	5	2		
PHN46/Ki43	76	76	114	246	7	8	5	5		
Ki43/PHN73	77	76	121	271	8	-	5	-		
PHP38/Ki43	75	75	104	254	8	8	2.5	2.5		
NC320/LH197	74	74	118	269	3	6.5	5	5		Stalk rot, disease susceptible
PHMK0/NC320	78	76	124	280	7	8	4	4	M	
NC320/PHP38	75	75	114	256	7	7.5	2.5	5		
LH132.PHG39	73	73	95	245	5					
LH283.LH287	69	69	73	240	6					
MBS2655/MBS9508	69	69	108	253	5.5					
LH195/LH212Ht	71	71	109	271	7	8				
DK68-04	67	67	98	248	7					
P1498	67	67	95	260	7					
P1745R	71	71	120	275	8					
P2088R	71	71	118	275	8					
DK F118/LH210	75	74	136	289		6.5				
LH195/LH216	70	70	113	263		7.5				
LH195/PHN46	70	72	58	130		6				

GEM Raleigh legend:

Aspect ratings used a 1-5 scale, with 1 = best, 5 = trash.

Disease rated on a 1-9 scale, with 9 = best and 1 = dead.

2016 GEM Raleigh, NC Breeding Cross Observations
Segregating F1s

Pedigree	Silk	Anthesis	EHT	PHT	Disease Rep1	Disease Rep2	Aspect Rep1	Aspect Rep2	Cross again?	Comments
GEMS-0113/GEMS-0011	69	69	90	246	4.5	6	3	2		Some foliar disease, stalk rot susceptibility
GEMS-0011/GEMS-0200	70	70	111	264	6	6.5	1.5	4		Some foliar disease, stalk rot susceptibility
GEMS-0091/GEMS-0200	66	66	111	268	7	7	2	2		
GEMS-0227/GEMS-0091	65	66	83	249	5.5	6	2	2		Some foliar disease, stalk rot susceptibility; Too early for Raleigh
GEMS-0227/GEMS-0113	66	66	71	248	2	6	5	5		Some foliar disease, stalk rot susceptibility; Too early for Raleigh
GEMS-0027/GEMS-0227	64	65	103	279	6	6.5	2	2		Variable EHT, foliar disease susceptible
GEMS-0219/GEMS-0032	69	69	138	308	7	6.5	4	4	Y	High ear placement
GEMS-0227/GEMS-0032	70	70	101	281	6	6.5	2	2		Some foliar disease, stalk rot susceptibility
GEMS-0227/GEMS-0050	67	66	90	263	4	6	2	3		Some foliar disease, stalk rot susceptibility
GEMS-0255/GEMS-0050	70	71	123	291	6.5	7	3	5		High ear placement, some foliar disease susceptibility
GEMS-0200/GEMS-0255	71	71	119	296	8	8	4	4	M	High ear placement
GEMS-0256/GEMS-0050	70	69	116	274	6	6.5	2	3		Variable EHT, some foliar disease susceptibility
GEMS-0113/GEMS-0256	70	69	98	269	6.5	6	3	2		Some foliar disease, stalk rot susceptibility
GEMS-0113/GEMS-0258	70	69	114	283	5	5.5	4	5		Variable EHT, foliar disease and stalk rot susceptibility
GEMS-0258/GEMS-0219	68	68	133	305	7	6.5	4	5		High ear placement, some foliar disease, stalk rot susceptibility
GEMS-0220/GEMS-0258	69	69	128	301	6	6.5	4	5		High ear placement, foliar disease susceptibility
GEMS-0258/GEMS-0227	69	69	98	269	5	6.5	4	5		Foliar disease, stalk rot susceptibility
GEMS-0220/BR105:S16-(373-7)-008-011-#	68	69	124	296	6	6.5	2	3		Variable EHT
BR105:S16-(373-7)-008-011-#/GEMS-0227	67	69	112	300	6	7	4	2		Variable EHT
GEMS-0220/BR105:S16-042-001-#	71	70	115	293	4.5	5	4	5		Variable EHT, foliar disease susceptibility
BR105:S16-042-001-#/GEMS-0227	69	69	115	308	4	7.5	5	3		Variable EHT, foliar disease and stalk rot susceptibility
GEMS-0220/NC368/CML343-001-023-001-#	72	72	116	296	6	7	4	2		Variable EHT, foliar disease susceptibility
NC368/CML343-001-023-001-#/GEMS-0227	69	68.5	121	318	5.5	6.5	3	3		Variable EHT, foliar disease and stalk rot susceptibility
GEMS-0219/CML287	72	72	164	335	8	7.5	4	4	Y	High ear placement
GEMS-0220/CML287	74	73	156	325	8	8	4	4	Y	High ear placement, poor husk cover
GEMS-0227/CML287	71	71	134	323	7	7.5	4	4	Y	High ear placement
GEMS-0219/CML312	73	71	148	329	7.5	7.5	4	4	Y	High ear placement
GEMS-0220/CML312	71	71	133	326	7	8	4	4	Y	High ear placement
GEMS-0227/CML343	71	71	118	305	7.5	7.5	4	3	Y	High ear placement
GEMS-0202/CML373	71	69	125	298	8	7.5	4	4	Y	High ear placement
GEMS-0219/CML373	69	69	129	303	8	7.5	4	4	Y	High ear placement
GEMS-0220/CML373	71	70	120	294	8	8	4	4	Y	High ear placement
GEMS-0227/CML373	70	69	105	283	7.5	7.5	1.5	1.5		Variable EHT
GEMS-0227/CML494	70	70	130	308	7	7.5	4	4	Y	High ear placement
GEMS-0113/La Posta Seq C7 F64-1-1-1-1-B-B-B	71	70	128	305	8	8	4	4	Y	High ear placement
La Posta Seq C7 F64-1-1-1-1-B-B-B/GEMS-0219	71	70	146	321	8	8	4	4	Y	High ear placement
GEMS-0220/La Posta Seq C7 F64-1-1-1-1-B-B-B	71	70	140	313	8	7.5	4	4	Y	High ear placement
GEMS-0227/La Posta Seq C7 F64-1-1-1-1-B-B-B	69	69	115	300	8	8	1.5	2		Variable EHT
La Posta Sequia C7 F71-1-1-1-2-B-B-B/GEMS-0219	69	69	140	309	8	7.5	4	4	Y	High ear placement
GEMS-0227/La Posta Sequia C7 F71-1-1-1-2-B-B-B	70	70	119	309	8	7.5	4	4	Y	High ear placement

2016 GEM Raleigh, NC Breeding Cross Observations
Segregating F1s

Pedigree	Silk	Anthesis	EHT	PHT	Disease Rep1	Disease Rep2	Aspect Rep1	Aspect Rep2	Cross again?	Comments
GEMN-0043/GEMN-0135	74	73	124	294	7	7.5	4	4	M	High ear placement, stalk rot susceptibility
GEMN-0137/GEMN-0043	71	72	121	280	7	7.5	5	4		High ear placement, foliar disease and stalk rot susceptibility
GEMN-0043/GEMN-0178	71	71	120	302	7	7.5	4	4		High ear placement, stalk rot susceptibility
GEMN-0043/GEMN-0213	75	75	125	292	7	7.5	5	5		High ear placement, stalk rot susceptibility
GEMN-0043/GEMN-0232	73	73	122	282	7	7.5	4	5		Variable EHT, stalk rot susceptibility
GEMN-0242/GEMN-0043	74	73	134	318	7.5	8	5	5		High ear placement, stalk rot susceptibility
GEMN-0043/GEMN-0254	69	69	106	272	7	7	3	2		Some stalk rot susceptibility
GEMN-0257/GEMN-0043	71	71	129	293	7.5	7.5	4	4	M	High ear placement
GEMN-0043/GEMN-0259	71	71	132	304	7	7	5	5		High ear placement, stalk rot susceptibility
GEMN-0048/GEMN-0095	65	65	84	254	5.5	6	4	5		Foliar disease, stalk rot susceptibility; too early for Raleigh
GEMN-0119/GEMN-0048	73	72	124	310	7.5	8	4	4	M	High ear placement
GEMN-0048/(89291.LH59)	68	67	112	287	8	7	4	3		Variable EHT
(89291.PHG47)/GEMN-0048	68	67	117	289	7	7	3	3		
GEMN-0048/GEMN-0135	70	69	100	282	7.5	7.5	1.5	1.5		
GEMN-0137/GEMN-0048	69	69	106	275	7.5	7.5	2	2		
GEMN-0048/GEMN-0208	72	72	126	301	8	7.5	4	4	Y	High ear placement, stalk rot susceptibility
GEMN-0048/GEMN-0213	71	71	106	290	7.5	8	5	3		Variable EHT, stalk rot susceptibility
GEMN-0048/GEMN-0232	70	70	110	289	8	7	2	2		Variable EHT
GEMN-0242/GEMN-0048	71	71	113	298	8	7.5	4	2		Variable EHT, stalk rot susceptibility
GEMN-0048/GEMN-0257	71	70	111	281	8	8	1.5	2		
GEMN-0259/GEMN-0048	69	69	105	283	7.5	7	5	3		Variable EHT, stalk rot susceptibility
GEMN-0095/GEMN-0097	67	66	93	258	4.5	6	3	5		Foliar disease; too early for Raleigh
GEMN-0097/GEMN-0135	68	67	103	276	6.5	7.5	2	1.5		Variable EHT
GEMN-0137/GEMN-0097	68	67	104	278	5.5	7	3	4		Variable EHT, stalk rot susceptibility
GEMN-0097/GEMN-0213	69	69	106	288	7.5	7.5	3	1.5		Variable EHT
GEMN-0232/GEMN-0097	67	67	113	290	6.5	7	3	2	Y	Variable EHT
GEMN-0097/GEMN-0242	69	68	100	278	7	7.5	3	4		Variable EHT, stalk rot susceptibility
GEMN-0257/GEMN-0097	70	70	111	291	7	7	2	2	M	Variable EHT, stalk rot susceptibility
GEMN-0097/GEMN-0259	68	68	105	273	6.5	6.5	5	3		Stalk rot susceptibility
GEMN-0124/GEMN-0104	71	72	114	276	8	8	2.5	2.5		Variable EHT
GEMN-0104/GEMN-0137	71	72	121	290	8	8	3	4	Y	Variable EHT
GEMN-0213/GEMN-0104	76	77	135	314	8	8	4	4	M	High ear placement
GEMN-0104/GEMN-0232	72	72	140	309	8	8	4	4	Y	High ear placement
GEMN-0242/GEMN-0104	75	75	128	305	8	8	4	4		High ear placement, stalk rot susceptibility
GEMN-0104/GEMN-0254	74	74	116	285	8	8	3	3		Variable EHT, stalk rot susceptibility
GEMN-0257/GEMN-0104	75	75	136	315	8	7.5	4	4	M	High ear placement
GEMN-0104/GEMN-0259	73	73	124	310	8	7.5	5	5		High ear placement
GEMN-0213/GEMN-0137	74	74	128	320	8	8	5	4	M	High ear placement, stalk rot susceptibility
GEMN-0124/GEMN-0135	74	73	105	281	8	7.5	2	1.5		Variable EHT
GEMN-0158/GEMN-0124	68	67	104	274	8	8	3	2		Variable EHT, stalk rot susceptibility

2016 GEM Raleigh, NC Breeding Cross Observations
Segregating F1s

Pedigree	Silk	Anthesis	EHT	PHT	Disease Rep1	Disease Rep2	Aspect Rep1	Aspect Rep2	Cross again?	Comments
GEMN-0178/GEMN-0124	69	69	116	290	8	8	3	4		Variable EHT, stalk rot susceptibility
GEMN-0124/GEMN-0208	72	72	133	299	8	7.5	4	4	Y	High ear placement, stalk rot susceptibility
GEMN-0213/GEMN-0124	74	72	115	288	8	7.5	3	3		Variable EHT, stalk rot susceptibility
GEMN-0124/GEMN-0232	71	72	124	288	8	8	4	4	Y	High ear placement, stalk rot susceptibility
GEMN-0242/GEMN-0124	73	72	115	283	8	8	4		M	High ear placement
GEMN-0124/GEMN-0254	71	71	103	269	7.5	7.5	1.5	3		Stalk rot susceptibility
GEMN-0257/GEMN-0124	72	72	121	295	7.5	7.5	2	4	Y	Variable EHT
GEMN-0124/GEMN-0259	73	72	115	281	8	8	5	4		Variable EHT, stalk rot susceptibility
(89291.LH59)/GEMN-0124	67	67	117	276	7.5	7.5	5	3		High ear placement, some stalk rot susceptibility
(89291.PHG47)/GEMN-0124	67	66	119	285	8	7.5	5	5		High ear placement, some stalk rot susceptibility
GEMN-0135/GEMN-0137	74	73	111	290	8	8	2.5	2	Y	Variable EHT
GEMN-0232/GEMN-0135	74	73	121	308	8	8	4	4	Y	High ear placement
GEMN-0135/GEMN-0242	76	74	129	303	7.5	8	5	4	M	High ear placement
GEMN-0254/GEMN-0135	72	71	116	294	7	8	2	2		Variable EHT
GEMN-0135/GEMN-0257	76	74	139	320	8	7.5	4	4	Y	High ear placement
GEMN-0259/GEMN-0135	76	74	118	298	7.5	7.5	5	3		High ear placement, some stalk rot susceptibility
GEMN-0137/GEMN-0242	73	73	121	286	7	8	4	4	M	High ear placement, some stalk rot susceptibility
GEMN-0254/GEMN-0137	70	70	110	275	7.5	8	2	3		Variable EHT
GEMN-0137/GEMN-0257	73	73	145	315	8	8	4	4	Y	High ear placement
GEMN-0232/GEMN-0213	75	75	143	321	8	7.5	4	5	M	High ear placement
GEMN-0213/GEMN-0242	77	76	138	318	7	8	5	5		High ear placement, stalk rot susceptibility
GEMN-0254/GEMN-0213	74	73	126	308	7	8	5	4	M	High ear placement, stalk rot susceptibility
GEMN-0213/GEMN-0257	76	75	146	320	7.5	7	5	4	M	High ear placement, stalk rot susceptibility
GEMN-0259/GEMN-0213	78	76	149	319	8	8	5	5		High ear placement, stalk rot susceptibility
GEMN-0242/GEMN-0232	74	74	136	309	7	7.5	5	4	M	High ear placement
GEMN-0232/GEMN-0254	71	71	120	295	8	7.5	3	3	Y	Variable EHT
GEMN-0257/GEMN-0232	72	73	150	315	8	8	4	4	Y	High ear placement
GEMN-0232/GEMN-0259	72	72	128	293	8	8	5	4		High ear placement, stalk rot susceptibility
GEMN-0254/GEMN-0242	73	72	124	304	8	7.5	5	4		High ear placement, stalk rot susceptibility
GEMN-0242/GEMN-0257	74	74	140	315	7.5	8	4	4	M	High ear placement, some stalk rot susceptibility
GEMN-0259/GEMN-0242	75	73	125	301	7.5	7.5	5	4		High ear placement, stalk rot susceptibility
GEMN-0254/GEMN-0257	71	71	123	293	8	7.5	5	4	M	High ear placement
GEMN-0254/GEMN-0259	72	71	110	300	8	7.5	5	4		Stalk rot susceptibility
GEMN-0257/GEMN-0259	73	73	144	326	8	8	5	5		High ear placement
BR106:T33aN20-040-002-#/GEMN-0119	73	73	122	320	7.5	8	4	4	M	High ear placement
BR106:T33aN20-040-002-#/GEMN-0124	69	68	88	260	8	8	3	2		Stalk rot susceptibility
BR106:T33aN20-040-002-#/GEMN-0257	73	72	115	302	7.5	8	2	2		Variable EHT
GEMN-0048/CML449	70	70	126	300	7.5	7.5	4	4	Y	High ear placement
GEMN-0048/CML375	69	69	110	276	7.5	7.5	1	1.5		Variable EHT
DK HBA1/KSC10	69	67	132	300	7	7	5	4		High ear placement, foliar disease susceptibility

2016 GEM Raleigh, NC Breeding Cross Observations
Segregating F1s

Pedigree	Silk	Anthesis	EHT	PHT	Disease Rep1	Disease Rep2	Aspect Rep1	Aspect Rep2	Cross again?	Comments
(CML313.LH185)/(DK HBA1.CML422)	70	69	107	295	7.5	7.5	2.5	4		Variable EHT
(DK HBA1.CML422)/ (DK MM402A.CML395)	70	69	127	301	7	7.5	4	5		Variable EHT, stalk rot susceptibility
(DK MM402A.CML395)/ (CML422.LH185)	68	67	114	278	7	7.5	4	3		Variable EHT, stalk rot susceptibility
(CML313.DK MM402A)/(TZI8.LH57)	71	70	125	303	7.5	7.5	4	3		Variable EHT, stalk rot susceptibility
(TZI8.LH57)/(CML313.LH189Ht)	71	70	115	283	7.5	8	4	5		Stalk rot susceptibility
(89291.CML277):NS701	72	69	134	301	6.5	6.5	3	5		High ear placement, some stalk rot susceptibility, lodged
(CML277.N3-2-3-3):NS701	70	70	135	302	5.5	6.5	5	5		High ear placement, some stalk rot susceptibility, lodged
(La Posta Seq C7 F7-1-1-1-2/GEMS-0091):S40x	69	68	121	271	6.5	6.5	4	3		Variable EHT, some stalk rot susceptibility
(GEMS-0113/La Posta SeqC7 F71-1-1-1-2):S40x	71	70	142	300	7	7.5	5	4		High ear placement, some stalk rot susceptibility, lodged
(CML343/GEMS-0032):S40x	71	70	131	304	7	7.5	4	4	M	High ear placement, some stalk rot susceptibility, lodged
(CML343/N3-2-3-3):S40x	69	69	115	279	7.5	7	3.5	4	M	Stalk rot susceptibility
(GEMS-113/CML373):S40x	68	68	108	271	7	7	3	2		Stalk rot susceptibility
(LH195/CML494):S40x	69	68	116	276	7	6.5	4	3		High ear placement, some stalk rot susceptibility
(CML494/GEMS-0032):S40x	71	72	141	310	7.5	7.5	4	4	Y	High ear placement
(GEMN-0097/89291):N40x	67	67	123	306	7	7	3.5	4		Variable EHT, stalk rot susceptibility
(GEMN-0097/CML449):N40x	68	67	116	312	7.5	7	2	2		Variable EHT, some foliar disease, stalk rot susceptibility
(CA00370/GEMN-0097):N40x	69	69	124	319	7.5	7	2	2		Variable EHT, some foliar disease, stalk rot susceptibility
(GEMN-0158/ATL100):N40x	69	69	124	308	7.5	7.5	2.5	3		Variable EHT
Canilla-VEN 981:N40x	75	73	136	330	8	8	4	4	Y	High ear placement, some stalk rot susceptibility
Cubano Amarillo-UCA 12:N40x	74	72	150	336	8.5	8	4	4	Y	High ear placement, some stalk rot susceptibility
Comun-VAL 343:N40x	71	71	128	312	8	8	4	4	Y	High ear placement, some stalk rot susceptibility
La Posta Seq C7 F64-1-1-1-2:S40a	70	70	140	304	8	7.5	4	4		High ear placement
La Posta Seq C7 F64-1-1-1-2:S40b	71	69	118	271	8	7.5	4	4		High ear placement
La Posta Seq C7 F71-1-1-1-2:S40a	69	67	119	288	7.5	8	4	2		Variable/High ear placement
La Posta Seq C7 F71-1-1-1-2:S40b	70	69	124	283	7.5	8	4	4		High ear placement
LH132.PHG39	70	69	94	263	4					
LH283.LH287	63	64	75	226	7	6.5				
LH195/LH210	68	67	117	269	6.5	6.5				
LH195/LH212Ht	68	67	104	270	7.5	7				
MBS2975/MBS9703	66	66	96	253	5	6				
DK68-04	64	63	94	240	6	7				
P1498	65	64	91	254	7	7.5				
P1745R	67	67	108	281	7.5	7.5				
P2088R	68	67	100	281	7	7.5				
Pioneer 3394	67	67	108	255	5.5					

GEM Raleigh legend:

Aspect ratings used a 1-5 scale, with 1 = best, 5 = trash.
Disease rated on a 1-9 scale, with 9 = best and 1 = dead.

Annual Reports

2016 Annual Report of the GEM Project, Ames, IA and Raleigh, NC

PERSONNEL:

Ames: *USDA-ARS Plant Introduction Research*

Dr. David Peters, Ames GEM Coordinator
 Michael Peters, GEM Technician
 GEM Support Scientist (vice-Engstrom, Vacant)
 Dr. Mack Shen, IT Specialist

Adam Vanous, Iowa State University, Ph.D. student
 Dr. Candice Gardner, Research Leader

Raleigh: *USDA-ARS Plant Science Res.*

Dr. Matt Krakowsky, Southeast GEM Coordinator
 Dr. Peter Balint-Kurti, Research Geneticist
 Dr. Jim Holland, Maize Research Geneticist
 Dr. David Marshall, Research Leader

Raleigh: *North Carolina State University*

Dr. Major Goodman, William Neal
 Reynolds Distinguished Professor
 Dale Dowden, Technician

GEM- Ames 2016 Highlights (Dr. David Peters)

Midwest Germplasm releases and development:

- Two hundred ninety-five (295) GEM releases will now be available to GEM Cooperators. A total of 308 have been released, including those from our university collaborators.
- Four GEM lines from the Ames program are proposed for release to GEM Cooperators for the 2017 planting year (Table 1). Yield data, and NIR results for protein, oil, and starch can be found online and in the handout for 2017 released lines. Ear and grain characteristics are presented in Table 2, topcross maturity and ear height in Table 3, and NIR information in Table 4.
- Two of the four releases are second cycle GEM lines from GEMS-0115, derived from DKB844, a tropical hybrid from Mexico; GEMS-0147, derived from tropical inbred NEI9004 from Thailand; and GEMS-0180, derived from a Guatemalan Tusón. GEMS-0291 is the first GEM release derived from Ki21, a tropical inbred from Kasetsart University in Thailand. All new codes have respectable ear mold resistance and grain quality.
- Summary tables of testcross data are presented in the section of this book tabbed 'Released Lines.'

Table 3. 2017 Ames-GEM Germplasm Releases (4)

GEM Code	Pedigree	Race	Country	Type	Het Group
GEMS-0288	(GEMS-0147/GEMS-0115)-B-002-001-001-B	GEM Recycle	US, ne Mexico and Thailand	25% tropical exotic	SS
GEMS-0289	(GEMS-0147/GEMS-0180)-B-033-001-001-B	GEM Recycle	US, ne Mexico and Guatemala	25% tropical exotic	SS
GEMS-0290	BR52051:S172641-B-050-001-B	Dente Amarelo	Brazil	25% tropical exotic	SS
GEMS-0291	Ki21:S(DJ7)(GEMS-0115)-B-051-001-B	Tropical Hybrid	Thailand, US	25% tropical exotic	SS

Table 4. Ear and Grain Traits of the 2017 GEM-Ames Released Lines

GEM Code	Poll GDU	Cob Color	Grain color	Grain Texture
GEMS-0288	1450	White	Orange/Yellow	Semi-Flint
GEMS-0289	1380	White	Yellow	Semi-Dent
GEMS-0290	1369	Red	Yellow	Dent, Semi-Dent
GEMS-0291	1488	Red	Orange/Yellow	Dent, Semi-Dent

Table 5. Topcross Maturity of 2017 Ames-GEM Germplasm Releases

Top Cross RM & Ear Height Estimates			
		Average	
GEM Code	Pedigree	Estimated RM	Ear Height (cm)
GEMS-0288	(GEMS-0147/GEMS-0115)-B-002-001-001-B	112	120
GEMS-0289	(GEMS-0147/GEMS-0180)-B-033-001-001-B	112	150
GEMS-0290	BR52051:S172641-B-050-001-B	111	100
GEMS-0291	Ki21:S(DJ7)(GEMS-0115)-B-051-002-B	113	135
	Hybrid Checks		
	MBS3644/MBS5411	~104	110
	MBS9508/MBS2655	~107	
	34R65	~109	90
	33F85	~109	130
	31D58	~114	140

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, and are presented in Table 4.

Table 6. NIR Trait Data of 2017 GEM-Ames Line Releases

Code	Pedigree	moisture	protein	oil	starch	density
GEMS-0288	(GEMS-0147/GEMS-0115)-B-002-001-001-B	9.36	11.65	3.75	70.73	1.36
GEMS-0289	(GEMS-0147/GEMS-0180)-B-033-001-001-B	9.16	12.86	3.72	69.67	1.42
GEMS-0290	BR52051:S172641-B-050-001-B	9.24	10.55	4.34	70.71	1.31
GEMS-0291	Ki21:S(DJ7)(GEMS-0115)-B-051-002-B	9.74	11.01	3.76	71.06	1.34

New Germplasm:

- Dow AgroSciences generously agreed to make breeding crosses with elite proprietary tropical germplasm. These breeding crosses are being provided to GEM-Raleigh.
- Monsanto donated two elite proprietary SS inbred lines to the GEM Project for use in any manner. These temperate lines are derived from exotic germplasm and are of Midwestern maturity.
- AgReliant has generated nearly 400 DH lines from a breeding population, and provided the DH₀ seed to GEM-Ames.
- Monsanto has generated DH lines from GEM x GEM crosses and will provide them to GEM.
- Kasetsart University has agreed to provide tropical inbreds to the collection, and to GEM. Details are being pursued.
- Jim Brewbaker, Univ. of Hawaii, has transferred multiple HI lines to the collection, which will be increased and provided.

Sincere thanks to all for their generosity and support to help GEM advance the adaptation and performance quality of future releases!

2016 Research & Breeding Activities:

- Fifteen new breeding cross populations were sent to six Cooperators for in-kind support and to Raleigh-GEM.
- Fifty-nine families of S1 ears were advanced to S2 in Ames, and six were advanced by Cooperators. These S2s will be topcrossed in isolation blocks in 2017.
- Seventy-three S2 and S3 families were advanced to S3 or S4; these families will comprise 2017 retests.
- Putative haploid seedling plants of twenty BC₁ families were injected by the ISU Double Haploid Facility, transplanted to the GEM nursery, and potential doubled haploid plants pollinated.

Host Plant Resistance:

2016 disease data will be posted online at our website (<http://www.public.iastate.edu/~usda-gem/>) in January. Mack Shen has added all historical disease evaluation information to the PRISM database.

Pathology and entomology research collaborators from the U.S. private and public sectors screened BGEM doubled haploid lines, and GEM releases for Northern Leaf Blight (NLB), Southern Leaf Blight (SLB), Goss's Wilt, Gray Leafspot (GLS), Diplodia ear rot (DIPPER), Aspergillus (aflatoxin and other mycotoxins), and Headsmut. (Ear mold and mycotoxin studies' data will be available later this winter.)

International collaborators evaluated GEM releases for Late Wilt, agronomic traits, and ear mold.

Appreciation is extended for all in-kind support and extensive efforts by private and public GEM Cooperators:

- Misr Hytech (Egypt, Mohamed Ali Nasr Mostafa) provided late wilt disease evaluation and agronomic trait data. These data were immediately shared with cooperators and are online.
- DuPont/Pioneer Hi-Bred International (Marc Mancl at Woodland, CA) collected head smut screening data; Northern leaf blight disease development simply did not progress in central Iowa this year (Scott Heuchlin and Rick Blum).
- Professional Seed Research (Jim Dodd) for their efforts collecting data on Goss' Wilt, Eyespot, GLS, NLB, and SLB.
- USDA-ARS-PSRU in Raleigh, NC provided data for NLB, SLB (Peter Balint-Kurti) and Fusarium ear rot (Jim Holland).
- USDA-ARS-CHPRRU, Mississippi State, MS (Paul Williams and Gary Windham) evaluated aflatoxin in grain.
- USDA-ARS-PGRU, Columbia, MO provided data for Corn Rootworm evaluations for root regrowth.

Host plant resistance evaluation data will be posted to our website section for kernel trait and biotic stress data; http://www.public.iastate.edu/~usda-gem/GEM_Lab_Data/GEM_Laboratory.htm. Unfortunately, there has not been time to review 1st and 2nd year data together at the time of this report.

Ames 2016 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 204 lines (representing ~52 races) were jointly released by ISU and USDA-ARS in 2014 as part of the Allelic Diversity Project. Approximately 24 sets of these lines have been distributed to requestors, and numerous small subsets have been requested. They provide unique genetic resources for a wide variety of research applications. A new set of BGEMS will be released in 2017, pending processing and quality assurance.
- All BGEM lines were grown for observation this year, morphological data captured, and 3 plants were self-pollinated of each line to provide seed for an ISU collaborator's research grant.
- Approximately 109 new DH lines (DH₀) were advanced to DH₁ in 2015. DH₁ lines were increased (278 rows), 88 rows of previously released BGEM lines were increased, and 33 haploid lines were treated for doubling.
- Dr. Uschi Frei provided rows in her induction iso to induce 222 new BC₁'s received from Raleigh.
- We did not advance any BC₁F₇ allelic diversity project germplasm in 2016. This effort has been tabled for now.
- Please see Raleigh-GEM's report on their AD efforts, as Raleigh generates the BC₁ lines that are transferred to Ames for induction.

Ames 2016 Yield Test, Nursery and Other Highlights:

- Cooperator in-kind support contributions are detailed in Table 5.
- Approximately 16,000 plots (3,019 entries) were managed or coordinated through Ames in 2016 (An additional 2,736 plots of first year trials were generated and managed by Monsanto and Dow AgroSciences as part of their in-kind support).

Trial Type	# Entries	# Plots - Ames GEM	# Plots - Private Coops	# Plots - Raleigh GEM	Total Plots
1st Year Trials	2358	7564	4868		12432
Retest Trials	438	2015	974	279	3268
BGEM TPX Trials	189	756			756
Collaborator Exps*	490	2280			2280
Totals	3475	12615	5842	279	18736

* Includes Raleigh-GEM experiments grown in Ames and exchange plots with cooperators.

- Of the core development program, 438 entries (15.6%) were in 2nd year trials and 2,358 (84.4%) were in 1st year trials. We lost 22 test replications due to weather damage issues.
- Ninety-eight (98) top crosses out of 2,985 entries exceeded the mean yield of the check hybrids in Midwest trials in 2016. Of the 98 hybrids that exceeded the mean, 32 were from first year trials, and 66 from second year trials.
- The checks used in this year's trials include the following: MBS3520/MBS8814, MBS9508/MBS2655, and Pioneer 31D58, 31N27, 33F85, 34R65.
- As you review the yield trial information, keep in mind the nomenclature of the GEM trial naming system:
 - First two digits are the year, i.e. "15" for year 2015
 - Third digit is for homologous area (1=tropical, 5=temperate, 6=both, 7=other)
 - Fourth digit indicates percentage of exotic; 0 = mix of 25% or 50% exotic derived; 2=50% exotic; 3 = 25% exotic; 4 = other (i.e. GEM x GEM or cooperator derived germplasm);
 - Fifth digit is the testing stage (1=1st year test, 2=2nd year test, 3=other)
 - Sixth and seventh digits are sequential numbers.
 - For example: "1652102" would be a 1st year TPX trial grown in 2016, comprised of temperate 50% exotic crosses.
- Topcrosses of the 'BGEM' doubled haploid lines released in 2014 were tested in yield trials for a second year in 2016. This data will be published pending completion of the Ph.D. students' work.

Nursery and isolation rows:

- Approximately 5,645 nursery rows were pollinated
 - 3,386 selection rows
 - 1,550 various types of increase rows
 - 644 crossing block rows
 - 65 collaborator nursery rows
- 972⁺ observation rows
- 730 Ames isolation rows
- 2,516 isolation rows were contributed by MBS Genetics
- Not counted are the numerous nursery rows grown by cooperators for generating breeding crosses, S1 families, etc.

- One hundred twenty-eight new breeding crosses were observed and evaluated for breeding potential in Ames, IA, Raleigh, NC, Ft. Branch, IN (AgReliant), and Memphis, TN (G&S Crop Services). Results are presented in the section labeled 'Breeding Crosses'.

Quality Traits (including grain mold/mycotoxin):

- The newly released GEM lines were not noteworthy for protein, oil or starch traits.
- Mold and mycotoxin data will be posted as received.

New GEM Cooperators in 2016:

One new private U.S. Cooperator joined the GEM Project in 2016, Master's Choice of Anna, Illinois. Additional requests to join have been received, and will be considered early in 2017.

Collaborator in-kind support in 2016 is summarized in Table 5.

Table 7. Private In-Kind Support – Summer 2016

Collaborator	Breeding & Nursery Support	Made Top Cross	Yield Trials	Breeding Cross Obs	Disease Screening and Quality Traits
AgReliant Genetics LLC	Generated 400 DH Lines		✓	✓	
DKD Genetics	Made S1's of ((GEMN-0140/GEMN-0097)-B-B-034-B/GEMN-0205), ((GEMN-0173/KO679Y)/(GEMN-0140/GEMN-0097)-B-B-034-B)		✓		
Dow AgroSciences			✓		
DuPont-Pioneer	Made S1's of (GEMS-0227/(LH195/KO679Y)), KO679Y/LH195, KO679Y/N28				✓
GEM-Raleigh			✓	✓	✓
Genetic Enterprises International	Made S1's of ((KO679Y/GEMS-0030)/GEMS-0219)				
G & S Crop Services				✓	
Illinois Foundation Seed, Inc.			✓		
JFS & Associates	Made S1's of ((GEMN-0246/PHN18))				
KMR (Summit Genetics)			✓		
MBS Genetics		✓			
MDS			✓		
Michael Fields Ag. Inst.	Made S2's of (GEMN-0140/GEMN-0097)-B//MBRC10:N1730-B-128-B				
Misr HyTech					✓
Monsanto Company	Made S1's of (GEMS-0227/GEMS-0219), ((B126xB84)/(GEMS-0147/GEMS-0227))		✓		
Professional Seed Research					✓
Wyffels Hybrids			✓		

FIELD DAYS:

Ames, IA hosted the GEM Technical Steering Group, September 20, 2016. A special guest was Dr. Thomas Hoegemeyer, who initiated discussions on the impact of genome selection and doubled haploid technology on diversity in breeding programs. This discussion will continue at the December GEM Cooperator meetings.

Ames, IA GEM Project 2016 Field Day: Approximately 80 visitors participated in the 2016 Ames GEM Field day on September 21st, several groups of students, breeders and the general public continued to visit through mid-October, including numerous international visitors.

Beijing, China, Chinese Academy of Agricultural Sciences (CAAS) 2015 Field Days: We are aware that Dr. Tianyu Wang's work continues, and CAAS continues to work to build a GEM-China network. Information will be posted as received.

2017 Plans, Projects and Other Thoughts:

'Top Ten' Project: At the September GEM TSG meeting, a project was proposed to gain insights on the general combining ability GCA of the best GEM program releases from both GEM programs across a broad array of proprietary testers. Private sector TSG members agreed to solicit their companies' support to generate topcross seed in winter nurseries and conduct yield tests in 2017. Table 6 summarizes the selected best Ames and Raleigh released lines that are being top crossed to proprietary testers this winter by DuPont-Pioneer, Monsanto, Syngenta, AgReliant and Dow AgroSciences. No exchange of seed is necessary. Summer '17 performance data will be analyzed next fall and made available on our web site. This initiative is made possible by the generosity of the participants.

Table 8. Top Releases from the Raleigh and Ames Programs

Top GEM Ames Lines							
#	Line	HP	Background	#	Line	HP	Background
1	GEMS-0002	SS	FS8A - USA	1	GEMN-0048	NSS	DKXL370
2	GEMS-0049	SS	DKB844 - Mexico	2	GEMN-0096	NSS	DKXL370
3	GEMS-0050	SS	DKB844 - Mexico	3	GEMN-0097	NSS	FS8B
4	GEMS-0061	SS	Cristalino Colorado- Argentina	4	GEMN-0098	NSS	FS8B
5	GEMS-0066	SS	Cuba 117 - Argentino - Cuba	5	GEMN-0144	NSS	Cuban yellow - Peru
6	GEMS-0072	SS	Tuxpeno - Mexico	6	GEMN-0157	NSS	Dente Amarelo - Brazil
7	GEMS-0093	SS	Cuba 164 - Cuba	7	GEMN-0177	NSS	DK888
8	GEMS-0113	SS	Tuxpeno - Mexico	8	GEMN-0178	NSS	DK888
9	GEMS-0115	SS	DKB844 - Mexico	9	GEMN-0187	NSS	Criollo - Antigua
10	GEMS-0142	SS	Dente Amarelo - Brazil	10	GEMN-0192	NSS	Tuson - St. Croix
11	GEMS-0147	SS	NEI9004 - Thailand	11	GEMN-0225	NSS	BR105 - Suwan Comp - Brazil
12	GEMS-0200	SS	BR105 - Suwan Composite - Brazil	12	GEMN-0232	NSS	Tuson - St. Croix
13	GEMS-0219	SS	Cuba 164 - Cuba	13	GEMN-0238	NSS	NEI9004 - Thailand
14	GEMS-0220	SS	Gem x Gem				
15	GEMS-0226	SS	BR106 - Tuxpeno - Brazil				
16	GEMS-0227	SS	NEI9004 - Thailand				
17	GEMS-0235	SS	Criollo/Tuson - Cuba				
18	GEMS-0237	SS	DKXL370 - Brazil				
Top GEM Raleigh Lines							
#	Line	HP	Background	#	Line	HP	Background
1	GEMS-0027	SS	DKXL370 - Brazil	1	GEMN-0104	NSS	DK888 - Thailand
2	GEMS-0032	SS	DKXL380 - Brazil	2	GEMN-0124	NSS	DK212T - Thailand
3	GEMS-0215	SS	NS1 - Thailand	3	GEMN-0135	NSS	DKXL380 - Brazil
4	GEMS-0243	SS	CML287 - Mexico	4	GEMN-0207	NSS	BR51403 0 Cateto
5	GEMS-0245	SS	DK888 - Thailand	5	GEMN-0232	NSS	Tuson - St. Croix
6	GEMS-0255	SS	FS8B - USA	6	GEMN-0257	NSS	Tuxpeno - Mexico
7	GEMS-0258	SS	DKB830 - Mexico	7	GEMN-0270	NSS	Criollo - Antigua
8	GEMS-0274	SS	Gem x Gem	8	GEMN-0271	NSS	BR105 - Suwan Composite - Brazil
				9	GEMN-0272	NSS	Gem x Gem
				10	GEMN-0287	NSS	Gem x Gem

Ames GEM Program Goals

The Ames GEM program has identified several areas where changes are expected and planned for 2017 and beyond. Below I have outlined areas of focus for the program.

Nursery:

- Efforts to generate new breeding cross populations for the Ames program will be increased. The current stock of available germplasm will be reviewed and key germplasm identified for generation of new populations. We seek input on cooperators' interest in release of populations versus S3/S4 lines, and the balance of effort for this area.
- Increase the pollination numbers within the Ames program to accommodate the increasing testing program.
- Expand winter nursery options by exploring providers in different geographies that can support germplasm with specific adaptation requirements.

Yield Trials:

- The number of first year test entries will substantially increase in 2017 due to excellent TPX seed production by MBS Genetics' in kind support effort. The yield trial program will be increased within the second year trials in 2018.
- Yield trial locations directly managed by the Ames program will be increased to five main sites from the current four.

Disease Evaluations:

- We will seek expansion of international disease evaluation trials, especially for emerging diseases not yet endemic to the US. CIMMYT has expressed special interest in such collaboration.

Sincere thanks for the dedication and efforts of the maize community to ensure the availability of useful maize genetic diversity, and especially for their support of the GEM projects in Ames and Raleigh.

2016 Annual Report of the GEM Project

GEM-Raleigh Highlights

Germplasm releases:

- Four GEM lines from the Raleigh program are recommended for release to GEM Cooperators for 2017. Yield data can be found in this book or on the GEM website (after January 1) and additional agronomic data can be found in the table at the end of this report. Releases include one line derived from recycling of GEM releases, one from a CIMMYT inbred, and two from Dekalb tropical hybrids.

GEM code	Pedigree	Race	Country	Type	Heterotic pattern
GEMN-0292	(GEMN-0097/GEMN-0136)-B-008-#	GEM x GEM	USA/Brazil	37% Exotic	NSSS
GEMN-0293	CML341:S42-B-124-#	Tuxpeño	Mexico	50% Tropical	SSS
GEMN-0294	DKB844:S16-005-022-012-#	Hybrid-tropical	Mexico	50% Tropical	SSS
GEMS-0295	DKB830:S51-031-003-#	Hybrid-tropical	Mexico	50% Tropical	SSS

Summary of the five GEM-Raleigh Recommended Lines for 2016

GEM code	Pedigree	Days to ANT	GDU to ANT	Days to Silk	GDU to Silk	Grain color	Grain type	Cob color
GEMN-0292	(GEMN-0097/GEMN-0136)-B-008-#	73	1310	75	1355	Y	D	?
Maturity check	LH185	73	1310	74	1330			
GEMN-0293	CML341:S42-B-124-#	66	1586	66	1586	Y/W	D/SD	R/W
GEMN-0294	DKB844:S16-005-022-012-#	65	1558	64	1530	W	D/SD	W
GEMS-0295	DKB830:S51-031-003-#	67	1615	68	1644	W	D	W
Maturity check	LH195	64	1530	64	1530			

Germplasm development:

- Approximately 2000 GEM nursery plots and 1000 GEM isolation plots were grown in Clayton, NC, while 760 nursery plots were planted in Homestead, Florida in September.
- S₁ families were developed from forty breeding crosses:

GEMS-0220/CML312	(CML423.CML277):PHP38
(DTPY C9/G18)-060-001-001-001-#/LH195	(89291.CML277):PHP38
(MBR/MDR C3 AMS1/G18)-123-002-002-002-003-#/LH195	(N3-2-3-3.CML277):PHP38
G17(C34)HS208-001-002-002-002-#/DK_HBA1	(CML343.CML423):PHP38
Pool 33-128-001-001-#/DK_HBA1	(CML343.N3-2-3-3):PHP38
Ki43/GEMS-009	(CML422.CML313):LH185
FL_4BT7/DK_MM402A	GEMN-0048/ICA V-156
GEMN-0048/CML343	ICA V-156/GEMN-0097
GEMN-0048/LPS_C7_F71-1-1-1-2-B	Population 33 (IST) C2/DK_HBA1
GEMS-0220/LPS_C7_F71-1-1-1-2-B	Population 45 (IST) C2/LH195
GEMS-0220/89291	
	GEMS-0113/GEMS-0006
CL-G1501:S17b-B-020-B/GEMS-0032	GEMS-0220/GEMS-0027
CL-G1501:S17b-B-20/(NC368/CML343-001-008-003-B)	GEMN-0124/GEMN-0104
ATL100/PHP38	GEMN-0124/GEMN-0135
GEMN-0048/ATL100	GEMN-0124/GEMN-0158
(CML423.KO679Y):LH195	GEMN-0048/GEMN-0232
(N3-2-3-3.KO679Y):LH195	GEMN-0104/GEMN-0232
(CML438.KO679Y):LH195	GEMN-0048/GEMN-0257
(89291.KO679Y):LH195	GEMN-0254/GEMN-0257
(CA00370.CML423):PHN46	GEMN-0097/GEM-0048

(GEMS-0113/CML312 and (CML313.CML438):PHN46 were also attempted but no ears were harvested)

- Families from twenty-five GEM breeding crosses were advanced from S₁ to S₂:

ANTIG01:S02-B,	(GEMN-0097/CML375)-B
BR51039:N15-B,	(GEMN-0124/GEMN-0048)-B
BR51039:S15-B,	(CA00370/GEMN-0048)-B
(GEMN-0104/GEMN-0048)-B	89291:S(LH195)-B
(GEMN-0043/GEMN-0124)-B	CML277:S(LH195)-B
(GEMN-0135/GEMN-0104)-B	CML277:S(PHP38)-B
(GEMN-0124/GEMN-0095)-B	CML339:N(DK_MM402A)-B
(GEMN-0124/GEMN-0097)-B	CML339:N(LH185)-B
(GEMS-0027/GEMS-0113)-B	CML422:U(DK_HBA1)-B
(GEMS-0220/GEMS-0032)-B	CML442:S(DK_F118)-B
(GEMS-0050/CL-G1501:S17b-B-020-B)-B	CML494:S(PHP38)-B
(GEMS-0200/GEMS-0027)-B	La_Posta_Sequia_C7_F71-1-1-1-2-B*4:S(PHP38)-B
	KO679Y:S(LH195)-B

- Thirty-five new GEM x GEM combinations (Raleigh x Raleigh and Raleigh x Ames releases) were produced based on the head-to-head performance of GEM releases in yield trials.
- Fifteen new breeding crosses were developed between tropical inbreds from CIMMYT and GEM-Ames releases and ex-PVPs. Both groups were selected based on performance in yield trials.
- Development of over 150 new breeding crosses is being attempted in winter nursery, mostly combinations of exotic x temperate inbred (50% exotic), (exotic x GEM-Ames release) x temperate inbred (37% exotic), and (exotic x temperate inbred) x temperate inbred (25% exotic).

Germplasm Evaluations in 2016:

- Overall, about 12,500 yield plots were coordinated from Raleigh, with 8700 planted at five locations in NC and the rest planted by six cooperators at thirteen locations throughout the Southeast and Midwest.
- Fifty-two experimental entries were evaluated at eighteen locations in second-year trials (EX04 and EX34; see Yield Trials section and above releases). We had been conducting three years of trials before recommending new germplasm to cooperators, but beginning this year recommendations will be made on the basis of second-year trial data.
- Four hundred and twenty entries were evaluated in first-year trials, twenty-nine of which will be evaluated in second-year trials in 2017.
- Evaluations of GEM releases from Raleigh and Ames were included in EX07 and EX34 to identify lines with the best potential for use in GEM x GEM crosses; entries included GEM releases that have performed well in previous trials as well as newer entries that had not yet been evaluated in head-to-head experiments. Both trials were planted throughout the Midwest and Southeast. Summary tables are presented in the Yield Trials section of this booklet, and complete results will be available on the GEM website after January 1. Some of the best entries in EX07 were GEMN-0158, GEMN-0232, and GEMN-0272. GEMN-0097 and GEMN-0261 had below-average yields but very high values for Y/M, while some of the best entries from EX34 were GEMS-0255, GEMS-0258, GEMS-0262, and GEMS-0281 (GEMS-0227 had below-average yield but a very high value for Y/M). Recycling efforts will continue in 2017 with these lines and others.

Allelic Diversity:

- There were 380 summer nursery rows dedicated to the development of F₁s and BC₁s for the Allelic Diversity project, and 120 rows were planted in Homestead, FL for the 2016 winter nursery. Much of the effort in the winter nursery is focused on late maturing accessions.
- Twenty-eight BC₁ families and eleven F₁s were completed this summer in Raleigh; fifteen BC₁ families and thirteen F₁s were also completed in the 2015 winter nursery.

Other GEM-Raleigh recommendations:

- Based on 2016 nursery observations, some of the most promising new breeding crosses include:

CML343/PHP38	Ki21/LH185
CML373/LH193	GEMS-0227/La Posta Seq C7 F64-1-1-1-1-B-B-B
CML373/LH195	GEMN-0048/GEMN-0135
CML373/PHP38	GEMN-0097/GEMN-0135
CML373/GEMS-0227	GEMN-0124/GEMN-0135
	GEMN-0048/GEMN-0257

Requests from GEM-Raleigh

We currently use three 1970's era K2 Gleaners for harvesting yield trials, two of which have old weigh systems that are obsolete in terms of support and parts (we were able to purchase a new system for one machine this year). **We would really like to upgrade the computer systems if possible before they fail on us with "newer" systems that are still supported, and we can also use another 3-row 30" corn head for a K-2 Gleaner if anyone has one. We could also use a bulk sheller (we currently do not have one) and an individual ear sheller (ours is from the 1970's or earlier and is wearing out).**

GEM Releases

Table 9. 2017 Ames-GEM Germplasm Releases

GEM Code	Pedigree	Race	Country	Type	Het Group
GEMS-0288	(GEMS-0147/GEMS-0115)-B-002-001-001-B	GEM recycle	USA	25% Exotic	SS
GEMS-0289	(GEMS-0147/GEMS-0180)-B-033-001-001-B	GEM recycle	USA	25% Exotic	SS
GEMS-0290	BR52051:S172641-B-050-001-B	Dente Amarelo	Brazil	25% Exotic	SS
GEMS-0291	Ki21:S(DJ7)(GEMS-0115)-B-051-002-B	Tropical Inbred x GEM	Thailand	25% Exotic	SS

Table 10. Ear and Grain Traits of the 2017 GEM-Ames Released Lines

GEM Code	Poll GDU	Cob Color	Grain color	Grain Texture
GEMS-0288	1331	Red	Yellow	Dent
GEMS-0289	1410	Red	Yellow	Dent
GEMS-0290	1436	White	Yellow	Dent
GEMS-0291	1410	Red	Yellow	Dent

Table 11. Topcross Maturity of 2017 Ames-GEM Germplasm Releases

Top Cross RM & Ear Height Estimates			
		Average	
GEM Code	Pedigree	Estimated RM	Ear Height (cm)
GEMS-0288	(GEMS-0147/GEMS-0115)-B-002-001-001-B	~111	100
GEMS-0289	(GEMS-0147/GEMS-0180)-B-033-001-001-B	~110	105
GEMS-0290	BR52051:S172641-B-050-001-B	~110	120
GEMS-0291	Ki21:S(DJ7)(GEMS-0115)-B-051-002-B	~112	132
	Hybrid Checks		
	MBS9508XMBS2655	~109-110	100
	MBS3520/MBS8814	~111	130
	34R65	~109	90
	33F85	~110	130
	31D58	~114	120
	31N27	~111	110

Table 12. NIR Trait Data of 2017 GEM-Ames Line Releases

GEM Code	Pedigree	Protein	Oil	Starch	Density
GEMS-0288	(GEMS-0147/GEMS-0115)-B-002-001-001-B	11.65233	3.74634	70.72925	1.36029
GEMS-0289	(GEMS-0147/GEMS-0180)-B-033-001-001-B	12.85917	3.72419	69.67113	1.41617
GEMS-0290	BR52051:S172641-B-050-001-B	10.55024	4.3389	70.71115	1.3143
GEMS-0291	Ki21:S(DJ7)(GEMS-0115)-B-051-002-B	11.00543	3.76139	71.06252	1.3367

Table 13. GEM-Raleigh 2017 Line Releases

GEM code	Pedigree	Race	Country	Type	Heterotic pattern
GEMN-0292	(GEMN-0097/GEMN-0136)-B-008-#	GEM x GEM	USA/Brazil	37% Exotic	NSSS
GEMN-0293	CML341:S42-B-124-#	Tuxpeño	Mexico	50% Tropical	SSS
GEMN-0294	DKB844:S16-005-022-012-#	Hybrid-tropical	Mexico	50% Tropical	SSS
GEMS-0295	DKB830:S51-031-003-#	Hybrid-tropical	Mexico	50% Tropical	SSS

Table 14. Flowering and Grain Traits of GEM-Raleigh 2017 Line Releases

GEM code	Pedigree	Days to ANT	GDU to ANT	Days to Silk	GDU to Silk	Grain color	Grain type	Cob color
GEMN-0292	(GEMN-0097/GEMN-0136)-B-008-#	73	1310	75	1355	Y	D	?
Maturity check	LH185	73	1310	74	1330			
GEMN-0293	CML341:S42-B-124-#	66	1586	66	1586	Y/W	D/SD	R/W
GEMN-0294	DKB844:S16-005-022-012-#	65	1558	64	1530	W	D/SD	W
GEMS-0295	DKB830:S51-031-003-#	67	1615	68	1644	W	D	W
Maturity check	LH195	64	1530	64	1530			

Summary of Performance Data - GEMS-0288											
# Reps	Year	Experiment	Entry	Pedigree	Yield (bu/ac)	MST	Y/M	TWT	% Stand	% Skldg	SKLDG CNT
4	2015	1564203	14	(GEMS-0147/GEMS-0115)-B-002-001/LH287 Mean	199.0	19.6	10.5	55.8	94.4		
3	2015	1564203	14	% of Check Mean	106.3	107.1	99.3	95.9	104.0		
3	2014	145404	9	(GEMS-0147/GEMS-0115)-B-002-001/MBS8814 Mean Perf	205.5	23.23	8.433	53.4	84.8	5.6	4
3	2014	145404	9	% of Check Means	104.7	100.4	98.6	93.94	100.0	79.5	0
4	2014	145401	40	(GEMS-0147/GEMS-0115)-B-002-001/LH287 Mean Perf	195.1	22.9	8.6	53.7	75.0	12.1	8.0
3	2014	145401	40	% of Check Mean	97.0	104.9	92.9	91.9	100.0	2016.7	0.0
Nursery Notes:				Excellent stalks, roots, late health; intact in late October; Husk cover just to tips of ears; Large kernels, average grain quality; Stagn above average; Tassel score = 7 GEMS-0147 derived from tropical inbred NEI9004, from Thailand GEMS-0115 derived from DKB844, tropical hybrid from Mexico Headsmut: 95% NOT infested; check was 99% infested							



Summary Performance Data Means for GEMS-0289														
Reps	Year	Experiment	Entry	Pedigree	YLD (bu/ac)	MST	Y/M	TWT	% Stand	% Skldg	% Rtldg	Stand Cnt	SKLDG Cnt	RTLKG Cnt
4	2015	1564203	17	(GEMS-0147/GEMS-0180)-B-033-001/MBS8814 Mean	192.2	21.3	9.7	55	94.1	0	0	71	0	0
4	2015	1564203	17	% of Check Mean	102.7	116.1	91.2	94.5	103.7	0	0	103	0	0
4	2014	145401	24	(GEMS-0147/GEMS-0180)-B-033-001/LH287 Mean	204.7	24.4	8.5	55.3	75	0	0	66	0	0
4	2014	145401	24	% of Check Mean	101.8	111.9	91.4	94.7	100	0	0	100	0	0
4	2014	145404	10	(GEMS-0147/GEMS-0180)-B-033-001/MBS8814 Mean	209.2	26.3	7.9	53.6	84.8			68		
4	2014	145404	10	% of Check Mean	102.6	113.4	88.8	94.4	100			99		
Nursery Notes:				Below average stalks and late health, but intact in late October; Husk cover 1/12" past ear tip;										
				Roots ok; Red cob, Yellow grain; Tassel score = 7										
				GEMS-0147 is derived from tropical inbred NEI9004 from Thailand; GEMS-0180 is derived from a Guatemalan Tuson										
				Headsmut: 96% NOT infested; check was 99% infested										
				Note: Photo below is of a different S _{2:3} , but very similar to ears from the released lines. Photo of correct S _{2:3} photo was corrupted.										



Summary of Performance Data - GEMS-0290															
# Reps	Year	EXP	Entry	Pedigree	YLD (bu/ac)	MST	Y/M	TWT	% Stand	% Skldg	% Rtldg	Stand Cnt	SKLD G Cnt	RTLD G Cnt	
2	2016	1664204	25	BR52051:S172641-B-050/MBS5411 Mean	108.7	15.1	12	54.7	100			73			
4	2016	1664204	25	% of Check Mean	102	85.6	118.9	102.1	113.9		0	104			
4	2015	1514203	54	BR52051:S172641-B-050/LH287 Mean	197.1	19.2	10.7	57.2	100	5.8	2.9	72	4	2	
4	2015	1514203	54	% of Check Mean	105.3	105.8	101.1	98.7	100	367		100			
1	2014	141406	49	BR52051:S172641-B-050/LH287	166.8	16.6	10		79.55	0	0	70	0	0	
1	2014	141406	49	% of Check Mean	100.4	95.7	104		100	0		100	0		
Nursery Notes:				Fat, short ear; Excellent stalks; average roots and late health; Husk cover just past ear tips											
				Excellent grain quality; Yellow grain, White cob;											
				BR52051 is a Dente Amarelo from Brazil											
				Headsmut: 95% Not infested; check was 99% infested											



		Summary of Performance Data - GEMS-0291																
# Reps	Year	Experiment	Entry	Pedigree	YLD (bu/ac)	MST	Y/M	TWT	PLTHT	T	EARH	% Stand	% Skldg	% Rtldg	Stand Cnt	SKLD G CNT	RTLD G CNT	
1	2014	141313	51	Ki21:S(DJ7)(GEMS-0115)-B-051/SGI079	211.7	22.8	9.3	55.2				73.3	3	0	66	2	0	
	2014	141313	51	% of Check Mean	108.1	100.4	107.4	95.7				100	47	0	100	48	0	
4	2015	1514201	41	Ki21:S(DJ7)(GEMS-0115)-B-051/SGI079 Mean	155.3	17.4	9.4	56.8				95	12.6	8.4	75	9.8	6.3	
	2015	1514201	41	% of Check Mean	87	100.1	86.5	101.8				100	76.2	185.9	100	75	174	
4	2016	1664205	24	Ki21:S(DJ7)(GEMS-0115)-B-051/SGI079 Mean	183	23.5	7.8	57.3	295	125	95.2	2.45		0	61	1	0	
	2016	1664205	24	% of Check Mean	107.1	96.6	110.9	100.9	107	94	98.8	233.3			99	200		
Nursery Notes:				Large, girthy ear; ok stalks, weak on roots; Tall, hi-eared; good late health; Red grain, Red cob; Excellent grain quality; Tassel score = 8 Ki21 is a tropical inbred from Thailand, Kasetsart Universsity GEMS-0115 deerived from DK844, tropical hybrid from Mexico														
				HeadSmut: 95% not infested; check was 99% infested														



Racial Background of 301 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)	10	1	0	11
Composite (Tuxpeño)	1	0	0	1
Corn Belt Dent	1	0	0	1
Criollo	1	1	0	2
Criollo/Argentino (CUBA164)	15	1	2	18
Criollo/Tuson (CUBA173)	1	0	0	1
Cristalino Colorado	16	0	2	18
Cuban yellow	7	2	0	9
Dent. Blanco Rugoso	3	0	3	6
Dentado Blanco	5	0	0	5
Dente Amarelo	8	3	1	11
Dente Branco	5	0	0	5
Early Caribbean	1	0	0	1
Hybrid Blanco	0	0	0	0
Hybrid-tropical	24	75	4	101
Mixed	12	2	4	18
GEM Derived	8	5	0	11
Multiple Borer Composite	1	0	0	1
Semidentado Riograndense	2	0	0	2
Southern Dent	0	0	0	0
St. Croix	1	1	1	3
Suwan	11	2	0	13
Tropical Line	3	5	0	7
Tusón	10	2	1	13
Tusón/Canilla	1	0	0	1
Tuxpeño	3	8	0	10
Tuxpeño/Olotillo	2	0	0	2
Unclassified	1	0	0	1
Totals	171	119	19	309

GEM Germplasm Releases and Key Traits

Entry	Pedigree	Code	Race	Country	Site Released	Year Released	Prot	AA	Oil	Starch Prop.	Silage	Aflatox	ASR	Diplodia	Drought	Eyespot	Fumon.	Fuser	GLS	Goss's	Head Smut	NLB	SLB	YM
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												✓						

GEM Germplasm Releases and Key Traits

Entry	Pedigree	Code	Race	Country	Site Released	Year Released	Prot	AA	Oil	Starch Prop.	Silage	Aflatox	ASR	Diplodia	Drought	Eyespot	Fumon.	Fuser	GLS	Goss's	Head Smut	NLB	SLB	YM
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															✓			
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 (H99ae x OH43ae)-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	DK212T: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																✓	✓	

GEM Germplasm Releases and Key Traits

Entry	Pedigree	Code	Race	Country	Site Released	Year Released	Prot	AA	Oil	Starch Prop.	Silage	Aflatox	ASR	Diplodia	Drought	Eyespot	Fumon.	Fuser	GLS	Goss's	Head Smut	NLB	SLB	YM	
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				✓														✓	
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			✓														✓		

GEM Germplasm Releases and Key Traits

Entry	Pedigree	Code	Race	Country	Site Released	Year Released	Prot	AA	Oil	Starch Prop.	Silage	Aflatox	ASR	Diplodia	Drought	Eyespot	Fumon.	Fuser	GLS	Goss's	Head Smut	NLB	SLB	YM
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																		
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:S(LH132)(PHG39)-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:N12(LH123)-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																		

GEM Germplasm Releases and Key Traits

Entry	Pedigree	Code	Race	Country	Site Released	Year Released	Prot	AA	Oil	Starch Prop.	Silage	Aflatox	ASR	Diplodia	Drought	Eyespot	Fumon.	Fuser	GLS	Goss's	Head Smut	NLB	SLB	YM
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	NE19004:N0803-B-027	GEMN-0238	Inbred-tropical	Thailand	Ames	2013																		
235	NE19004:N0803-B-053	GEMN-0239	Inbred-tropical	Thailand	Ames	2013																	✓	
236	UR13085:S(N28)(CUBA117:S1520-156-1-B-B)-B-023	GEMS-0240	Cateto Sulino	Uruguay	Ames	2013																		
237	UR13085:S(N28)(CUBA117:S1520-156-1-B-B)-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	DK212T:S0640-034-002	GEMS-0253	Hybrid-tropical	Thailand	NC	2015																		
250	FS8B(T):N11a-225-002	GEMN-0254	Mixed	USA	NC	2015																		
251	FS8B(S):S03-133-002	GEMS-0255	Mixed	USA	NC	2015																		
252	NS1:S0834-006-002	GEMS-0256	Suwan	Thailand	NC	2015																		
253	CHIS462:N08d-013-001	GEMN-0257	Tuxpeño	Mexico	NC	2015																		
254	DKB830:S19-009-004	GEMS-0258	Hybrid-tropical	Mexico	NC	2015																		
255	SCR01:N11c-015-002	GEMN-0259	St. Croix	St. Croix	NC	2015																		
256	(GEMN-0140/GEMN-0097)-B-B-026-B-B	GEMN-0260	GEM x GEM derived	USA	Ames	2015	✓																	
257	(GEMN-0140/GEMN-0097)-B-B-027-B-B	GEMN-0261	GEM x GEM derived	USA	Ames	2015	✓																	
258	(GEMS-0147/GEMS-0180)-B-104-001-B-	GEMS-0262	GEM x GEM derived	USA	Ames	2015	✓																	
259	BR105:S1626(GEMS-0175)-B-049-B-B	GEMS-0263	Composite Suwan/Tusón	Brazil/BVIR	Ames	2015	✓									✓			✓	✓		✓	✓	
260	BR105:S1643-078-001-B-B	GEMS-0264	Composite Suwan	Brazil	Ames	2015	✓																	
261	DKXL212:S0950-B-083-B-B	GEMS-0265	Hybrid Tropical	Brazil	Ames	2015	✓									✓			✓	✓		✓	✓	
262	NE19008:N0826(GEMN-0155)-B-074-B-B	GEMN-0266	Suwan/Cristalino Colorado	Thailand/Argentina	Ames	2015	✓																	
263	NE19008:N0826(GEMN-0155)-B-095-B-B	GEMN-0267	Suwan/Cristalino Colorado	Thailand/Argentina	Ames	2015	✓																	
264	NS1:S0852-B-021-B-B	GEMS-0268	Suwan	Thailand	Ames	2015	✓							✓		✓			✓	✓		✓	✓	
265	NS1:S0852-B-054-B-B	GEMS-0269	Suwan	Thailand	Ames	2015	✓									✓			✓	✓		✓	✓	
266	ANTIG01:N16-050-002	GEMN-0270	Criollo	Antigua	NC	2016																		
267	BR105:N16-043-001	GEMN-0271	Composite (Suwan)	Brazil	NC	2016																		
268	(GEMN-0043xGEMN-0097)-B-001	GEMN-0272	GEM x GEM derived	USA	NC	2016																		
269	(GEMS-0032xGEMS-0050)-B-007	GEMS-0273	GEM x GEM derived	USA	NC	2016																		
270	(GEMS-0032xGEMS-0113)-B-004	GEMS-0274	GEM x GEM derived	USA	NC	2016																		
271	((KO679Y/GEMS-0115)/GEMS-0162)-008-001	GEMS-0275	Hybrid Tropical	S. Africa/Mexico	Ames	2016																		
272	(S3SS4/GEMS-0026)-SIB-B-003	GEMS-0276	Hybrid Tropical	Brazil	Ames	2016																		
273	(S3SS4/GEMS-0031)-SIB-B-039	GEMS-0277	Hybrid Tropical	Brazil	Ames	2016																		
274	(GEMS-0115/S49w)-B-B-036	GEMS-0278	Hybrid Tropical	Mexico	Ames	2016																		
275	(GEMS-0176/S49w)-B-B-028	GEMS-0279	Mixed (Creole)	Cuba	Ames	2016																		
276	BR52051:S172641-B-018	GEMS-0280	Dente Amarelo	Brazil	Ames	2016																		
277	BR52051:S172641-B-054	GEMS-0281	Dente Amarelo	Brazil	Ames	2016																		
278	CHIS740:S(PHW17)(87916W)-126-001	GEMS-0282	Tuxpeno/Olotillo	Chile	Ames	2016																		
279	UR11002:S1409-068-001	GEMS-0283	Dente Branco	Uruguay	Ames	2016																		
280	AR17056:S1217-B-025	GEMS-0284	Cristalino Colorado	Argentina	Ames	2016																		
281	(GEMN-0117/DKXL212:N11a-139-001-001-B-B-B-B-B)-B-B-019	GEMN-0285	Tusón/Canilla	Dom. Republic	Ames	2016																		
282	MDI022:N(PHG35)(GEMN-0097)-072-001	GEMN-0286	Cuban yellow	Peru	Ames	2016																		
283	(GEMN-0108xGEMN-0178)-B-004	GEMN-0287	GEM x GEM derived	USA	NC	2016																		
284	(GEMS-0147/GEMS-0115)-B-002-001-001-B	GEMS-0288	GEM recycle	USA	Ames	2017	✓														✓			✓

GEM Germplasm Releases and Key Traits

Entry	Pedigree	Code	Race	Country	Site Released	Year Released	Prot	AA	Oil	Starch Prop.	Silage	Aflatox	ASR	Diplodia	Drought	Eyespot	Fumon.	Fuser	GLS	Goss's	Head Smut	NLB	SLB	YM
285	(GEMS-0147/GEMS-0180)-B-033-001-001-B	GEMS-0289	GEM recycle	USA	Ames	2017	✓														✓			✓
286	BR52051:S172641-B-050-001-B	GEMS-0290	Dente Amarelo	Brazil	Ames	2017															✓	✓	✓	✓
287	Ki21:S(DJ7)(GEMS-0115)-B-051-002-B	GEMS-0291	Tropical Inbred x GEM	Thailand	Ames	2017	✓														✓		✓	✓
288	(GEMN-0097/GEMN-0136)-B-008	GEMN-0292	GEM x GEM derived	USA	NC	2017																		
289	CML341:S42-B-124	GEMS-0293	Tuxpeño	Mexico	NC	2017																		
290	DKB844:S16-005-022-012	GEMS-0294	Hybrid-tropical	Mexico	NC	2017																		
291	DKB830:S51-031-003	GEMS-0295	Hybrid-tropical	Mexico	NC	2017																		
292	DKXL212:N11a-139-001-001	DE EXP	Hybrid-tropical	Brazil	UDEL	2003		✓										✓				✓		
293	DE3 (DKXL212:N11a-191)	DE3	Hybrid-tropical	Brazil	UDEL	2002																✓		
294	DE4 (DKXL212:N11a-365)	DE4	Hybrid-tropical	Brazil	UDEL	2002													✓		✓	✓	✓	
295	DE6 (DKXL212:N11a-234)	DE6	Hybrid-tropical	Brazil	UDEL	2005	✓											✓			✓	✓	✓	
296	NY212 (FS8B(T):N1802-212)	NY212	Mixed	USA	Cornell U	2009							✓											
297	NY215 (FS8B(T):N1802-215)	NY215	Mixed	USA	Cornell U	2009							✓											
298	NY266 (AR01150:N0406-266)	NY266	Dent. Blanco Rugoso	Argentina	Cornell U	2009							✓											
299	Tx204 (AR01150:N0406)	Tx204	Dent. Blanco Rugoso	Argentina	Texas A&M	2004									✓									
300	Tx205 (AR01150:N0406)	Tx205	Dent. Blanco Rugoso	Argentina	Texas A&M	2004									✓									
301	W605S (AR17026:N1019)	W605S	Cristalino Colorado	Argentina	U of Wisc.	2004					✓													
302	W606S (SCRO1:N1310)	W606S	St. Croix	St. Croix	U of Wisc.	2009					✓													
303	W607S (BR52051:N04)	W607S	Dente Amarelo	Brazil	U of Wisc.	2009					✓													
304	W608S (CH05015:N15)	W608S	Camelia	Chile	U of Wisc.	2009					✓													
305	W609S (FS8B(T):N11a)	W609S	Mixed	USA	U of Wisc.	2009					✓													
306	W610S (CUBA164:S2012)	W610S	Mixed (Creole)	Cuba	U of Wisc.	2009					✓													
307	W615S (GEM Quality Syn. GQS C0)	W615S	Criollo/Argentino	Cuba	U of Wisc.	2013					✓													
308	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

Yield Trials

2016 GEM Raleigh Yield Trial Top Twenty Entries

Experiment 07

Tester: LH132.PHG39

		All location Means								Percent			Rating
													Gray Leaf Spot (1-9 scale, 9 = best)
Entry	Pedigree	Yield	% Yield /CHK	Variance	Moist	Yield/ Moist	Test Weight	Plant Height	Ear Height	Stalk Lodging	Root Lodging	Erect Plants	
50	Pioneer 2088R	195	1.07	1580	18.3	10.8	56.0	290	108	1	11	88	2.6
52	Pioneer 31P41	191	1.04	1626	17.9	11.0	57.3	282	106	0	13	86	3.5
49	Pioneer 1745R	188	1.03	1282	17.0	11.4	55.1	286	110	1	11	89	3.1
56	Pioneer 31G98	187	1.03	1902	16.2	11.8	57.9	304	128	1	10	89	3.5
51	Pioneer 31D58	184	1.01	1088	17.9	10.7	57.9	284	106	0	7	93	2.7
54	DeKalb 68-04	175	0.96	1247	18.3	10.2	55.8	264	105	1	7	92	2.9
48	Pioneer 1498	169	0.92	1354	17.0	10.3	56.4	264	99	0	12	88	3.1
27	GEMN-0232	164	0.90	1289	17.6	9.8	56.9	293	134	2	10	89	4.3
53	DeKalb 697	162	0.88	928	17.3	9.7	58.1	283	122	3	6	91	4.0
39	GEMN-0272	161	0.88	1036	16.9	9.7	56.2	283	114	3	13	85	1.2
31	GEMN-0257	159	0.87	857	18.5	8.9	57.4	291	124	1	8	91	2.5
42	GEMN-0287	159	0.87	1100	17.5	9.3	56.9	304	126	1	12	87	2.2
24	GEMN-0158	158	0.87	1092	16.5	9.7	58.3	299	126	2	20	78	3.3
4	(GEMN-0097/GEMN-0136)-B-008	158	0.86	779	16.4	10.0	57.2	294	119	3	11	86	2.3
35	GEMN-0266	158	0.86	614	17.6	9.2	56.4	298	121	3	12	86	2.2
6	CL-G1501:N15-B-001	157	0.86	558	18.4	8.7	57.9	307	123	3	8	90	1.7
17	GEMN-0043	157	0.86	888	17.1	9.3	56.5	290	130	2	12	86	3.3
22	GEMN-0135	156	0.86	1432	17.3	9.3	58.3	295	128	3	11	86	3.2
26	GEMN-0213	156	0.85	1518	17.8	9.0	56.2	304	126	2	8	90	4.0
23	GEMN-0137	155	0.85	945	18.0	8.7	57.3	293	127	2	11	87	4.6
Replications		15			16		8	6	6	5	9	9	3*
Test Entry Means		152			17	9.1	57	289	118	2	12	86	2.9
Check Means		183			17.4	10.8	56.8	281	109	1	10	89	3.2
Overall Means		156			17.1	9.3	57.2	288	117	2	12	87	3.0
Range		131-195			14.6-18.9	7.4-11.8	53.8-59.1	264-310	98-135	0-5	5-21	74-95	1.2-4.7
CV		10.7			5.4	12.1	2.3	3.7	7.1	161	77	11	
LSD (p=0.05)		11			0.6	0.7	0.9	7	5	2	6	6	

*GLS data collected at 3 locations with 2 reps/location

Entry	New GEM Code
4	GEMN-0292

2016 GEM Raleigh Yield Trial Top Twenty Entries

Experiment 34

Tester: LH283.LH287

		All location Means								Percent			Rating
Entry	Pedigree	Yield	% Yield /CHK	Variance	Moist	Yield/ Moist	Test Weight	Plant Height	Ear Height	Stalk Lodging	Root Lodging	Erect Plants	Gray Leaf Spot (1-9 scale, 1 = best)
77	Pioneer 2088R	191	1.08	1284	18.9	10.5	56.6	279	98	2	15	85	2.5
76	Pioneer 1745R	187	1.06	1019	17.5	11.1	55.8	281	108	0	10	90	3.1
78	Pioneer 31P41	184	1.04	1582	18.2	10.4	57.3	281	109	1	9	91	-
32	DKB830:S51-031-003	169	0.96	997	18.8	9.2	56.2	286	111	3	10	88	1.9
36	DKB844:S16-005-022-012	167	0.95	1388	18.4	9.3	56.6	282	112	2	16	83	2.2
1	BR106:G39-012-002	167	0.95	892	16.9	10.2	57.4	281	114	3	16	82	1.5
49	GEMS-0255	167	0.94	1325	17.8	9.7	56.6	279	112	3	14	84	2.3
12	CML341:S42-B-124	165	0.94	491	18.8	9.0	56.7	280	114	2	18	81	2.1
14	CML343:S42-001-010	165	0.94	1032	19.8	8.6	55.7	282	114	3	18	81	-
35	DKB844:S51-036-002	164	0.93	766	17.8	9.5	57.5	292	121	5	17	80	1.8
80	DeKalb 68-04	164	0.93	1062	18.2	9.2	56.0	258	99	0	7	93	3.5
10	CML341:S42-B-010	164	0.93	977	19.9	8.5	56.2	284	114	4	18	80	1.9
11	CML341:S42-B-111	164	0.93	820	19.4	8.6	57.0	270	115	3	17	82	2.1
20	CML343:S(NS701)-B-014	163	0.93	678	18.0	9.4	54.9	295	127	8	15	81	2.7
15	CML343:S42-001-012	163	0.92	904	19.5	8.6	56.2	282	118	2	23	75	2.1
8	CML341:S42-B-004	163	0.92	926	18.8	8.9	57.6	280	113	3	14	85	2.1
13	CML343:S42-001-009	163	0.92	1624	19.7	8.5	54.9	287	119	3	18	80	1.9
21	CML343:S(NS701)-B-019	162	0.92	607	17.2	9.7	55.9	289	119	5	14	83	2.6
17	CML343:S42-003-012	162	0.92	815	19.2	8.7	56.0	270	114	4	14	84	2.2
79	DeKalb 697	162	0.92	956	17.7	9.4	58.1	279	122	2	8	91	3.7
Replications		17			17	17	11	6	6	6	11	11	3*
Test Entry Means		154			18	9	57	276	110	3	15	83	2.4
Check Means		176			17.9	10.2	56.8	275	107	1	10	90	3.2
Overall Means		155			17.7	9.0	56.8	276	109	3	15	84	2.5
Range		137-191			15.4-19.9	7.7-11.1	54.6-58.5	254-295	94-127	0-9	6-23	73-93	1.5-3.7
CV		11.5			5.7	12.3	2.0	4.0	7.5	106	71	13	
LSD (p=0.05)		11.7			0.7	0.7	0.7	7.2	5.4	2	6.7	6.9	

*GLS data collected at 3 locations with 2 reps/location

Entry	New GEM Code
12	GEMN-0293
32	GEMN-0295
36	GEMN-0294

2016 GEM Raleigh Yield Trial Top Twenty Entries

Experiment L4

Tester: Pioneer 1498

		<i>All location Means</i>							<i>Percent</i>			<i>Rating</i>
<i>Entry</i>	<i>Pedigree</i>	<i>Yield</i>	<i>% Yield /CHK</i>	<i>Variance</i>	<i>Moist</i>	<i>Yield/ Moist</i>	<i>Plant Height</i>	<i>Ear Height</i>	<i>Stalk Lodging</i>	<i>Root Lodging</i>	<i>Erect Plants</i>	<i>Gray Leaf Spot (1-9 scale, 1 = best)</i>
44	Pioneer 31D58	182	1.08	3429	18.8	9.8	280	110	1	0	99	3.0
43	Pioneer 2088R	181	1.08	2753	18.8	9.7	274	96	1	1	98	2.9
42	Pioneer 1745R	176	1.05	2063	17.3	10.4	280	109	1	0	100	3.0
49	P31G65	171	1.02	1488	17.6	9.9	292	112	1	0	99	2.5
48	DeKalb 65-18	168	1.00	2197	18.0	9.4	232	86	0	0	100	2.6
36	P1498 x NC296	165	0.98	1170	18.6	9.1	280	121	9	0	93	1.3
41	Pioneer 1498	159	0.95	2004	16.9	9.5	248	96	3	0	97	3.3
2	P1498 x 88094	157	0.93	2431	20.3	7.8	300	128	2	3	96	1.4
13	P1498 x 89291	156	0.93	1458	18.7	8.6	296	129	10	5	86	3.1
23	P1498 x 90313	156	0.93	1665	19.2	8.3	282	123	4	0	97	1.8
10	P1498 x 89258	156	0.93	2282	21.3	7.3	301	129	5	0	96	1.5
33	P1498 x KS23-4	154	0.92	1684	20.1	7.8	299	127	0	2	98	1.3
45	DeKalb 697	153	0.91	986	17.8	8.7	273	116	4	0	97	3.7
8	P1498 x 89246	152	0.91	664	20.0	7.7	301	134	6	9	86	1.1
12	P1498 x 89274	152	0.90	2236	21.0	7.3	310	142	2	3	96	2.0
38	P1498 x NC300	151	0.90	1296	19.6	7.9	275	114	0	0	99	1.7
24	P1498 x 90323	151	0.90	2262	20.2	7.5	315	137	2	4	95	1.5
30	P1498 x Hi63	151	0.90	824	18.2	8.4	272	123	12	3	87	2.2
29	P1498 x Hi62	151	0.90	1726	20.4	7.5	276	119	3	2	96	3.0
46	DeKalb 68-04	151	0.90	1427	18.1	8.4	246	96	0	0	99	3.0
Replications		7			7	7	5	5	5	6	6	3*
Test Entry Means		144			19.7	7.5	291	127	5	3	93	2.0
Check Means		168			18.1	9.4	270	105	1	0.3	99	3.1
Overall Means		147			19.2	7.8	286	122	4	3	94	2.3
Range		127-182			16.4-21.3	6.5-10.4	232-320	86-150	0-16	0-9	82-100	1.1-3.8
CV		10.6			4.6	12.0	4	7	144	200	9	
LSD (p=0.05)		13			0.7	0.8	9	7	5	5	7	

*GLS data collected at 3 locations with 2 reps/location

2016 GEM Raleigh Yield Trial Top Twenty Entries

Experiment L5

Tester: Pioneer 1498 (unless otherwise noted)

		<i>All location Means</i>								<i>Percent</i>			<i>Rating</i>
		<i>% Yield</i>		<i>Variance</i>	<i>Moist</i>	<i>Yield/ Moist</i>	<i>Test Weight</i>	<i>Plant Height</i>	<i>Ear Height</i>	<i>Stalk Lodging</i>	<i>Root Lodging</i>	<i>Erect Plants</i>	<i>Gray Leaf Spot (1-9 scale, 1 = best)</i>
<i>Entry</i>	<i>Pedigree</i>	<i>Yield</i>	<i>/CHK</i>										
93	Pioneer2088R	183	1.06	2338	17.5	10.6	56.5	276	97	1	7	91	7.5
94	Pioneer31D58	180	1.05	2648	17.2	10.8	57.6	270	103	0	0	100	7.2
84	LaPosta_SeqC7F71-1-1-1-2-B*3	176	1.03	854	19.2	9.4	56.2	292	122	3	3	94	8.6
92	Pioneer1745R	174	1.01	1079	16.8	10.7	55.8	281	107	1	0	99	6.9
14	CML36	173	1.01	2605	20.3	9.0	57.2	317	144	4	11	86	8.0
89	CML449/P33M54	170	0.99	1155	20.8	8.3	57.7	294	129	2	5	93	8.3
75	CML373	169	0.98	1079	19.3	9.0	56.1	284	117	2	5	94	8.8
86	CML343/P33M54	166	0.96	675	19.6	8.8	57.4	289	113	4	1	96	8.6
80	CML453	164	0.96	872	21.3	8.0	55.4	299	140	3	6	92	6.9
67	CML274	164	0.96	858	18.5	9.2	54.5	302	135	1	13	86	8.1
8	CML25	164	0.95	1045	19.4	8.7	58.0	282	123	2	3	95	8.0
82	CLP-07306	163	0.95	970	20.4	8.3	56.7	321	146	2	9	89	8.3
35	CML119	162	0.94	817	20.4	8.2	55.9	310	136	5	8	88	8.4
73	CML343	162	0.94	1021	19.8	8.4	56.7	277	112	4	7	91	8.3
98	CML339/P33M54	162	0.94	1058	18.4	9.0	57.8	301	129	2	3	96	-
85	LaPosta_SeqC7F96-1-1-1-1-B*3	161	0.94	967	18.9	8.8	56.5	286	120	3	12	85	8.7
36	CML120	160	0.93	1230	20.9	7.8	56.2	292	124	1	11	89	8.6
24	CML100	159	0.92	959	17.8	9.2	57.4	275	128	9	5	87	8.0
52	CML169	158	0.92	1010	19.0	8.6	56.7	304	131	3	5	93	7.8
2	CML8	158	0.92	743	19.8	8.2	54.8	303	133	1	2	98	8.9
Replications		8			8	8	3	5	5	6	7	7	3*
Test Entry Means		145			19.1	7.8	57	286	123	3	5	93	8.1
Check Means		172			17.2	10.3	56.9	270	101	1	2	98	7.0
Overall Means		146			19.0	8.0	56.7	286	122	3	5	93	8.1
Range		117-183			15.2-21.4	6.2-10.8	52.1-61.8	239-324	95-149	0-16	0-22	73-100	6.3-9.0
CV		12.1			4.5	12.7	2.8	4.3	7.2	133	181	10	
LSD (p=0.05)		15.6			0.7	0.9	1.4	10.7	7.7	4	7.5	8.2	

*GLS data collected at 3 locations with 2 reps/location

2016 GEM Ames Yield Trial Summary

Expt #	Material	Tester	Total	Reps	Source	Entry Yield Avg.	Check Yield Avg.	Overall Yield Avg.	CV (%)	LSD (p =0.05)
1613101	ATL100:N(LH82)(GEMN-0097)	MBS2655	72	5	GEM	160.9	174.9	162.3	14.8	30.0
1613102	BR105:N(GEMN-0174)49y, BR51039:N1512	MBS2655	64	5	GEM	153.5	180.5	156.4	16.8	32.8
1613103	Ki21:N(SG17)(LH162)	MBS2655	64	5	GEM	145.0	206.3	149.8	14.2	27.3
1613104	KUI44:N(SG17)(GEMN-0192)	MBS2655	72	6	GEM	150.4	198.1	155.0	12.9	23.7
1613105	SX2788:N(LH82)(ANTIG03:N1242-B-007-B)	MBS2655	64	6	GEM	161.9	178.5	163.5	13.4	25.0
1613106	ATL100:N(LH82)(GEMN-0097)	MBS3520	61	5	GEM	166.0	193.9	168.8	13.4	32.6
1613107	BR105:N(GEMN-0174)49y, BR51039:N1512	MBS3520	56	5	GEM	144.7	196.8	150.3	15.4	32.5
1613108	Ki21:N(SG17)(LH162)	MBS3520	54	5	GEM	141.4	202.1	148.2	14.1	29.4
1613109	KUI44:N(SG17)(GEMN-0192)	MBS3520	67	5	GEM	156.4	193.4	159.7	12.5	25.2
1613110	SX2788:N(LH82)(ANTIG03:N1242-B-007-B)	MBS3520	60	5	GEM	144.0	186.6	148.3	17.8	33.5
1613111	CML373:S(DJ7)(GEMS-0188)	MBS6403	72	5	GEM	158.6	188.5	161.0	12.6	25.5
1613112	Ki21:S(DJ7)(GEMS-0115)	MBS6403	55	5	GEM	164.9	192.3	167.9	12.8	26.8
1613113	NS1:S(GEMS-0149)(PHJ40)	MBS6403	65	5	GEM	141.0	185.3	144.4	15.2	27.5
1613114	Ki 14:S21z(PHJ40)	MBS9451	95	5	GEM	164.5	201.9	167.2	10.5	24.4
1613115	NS1:S(GEMS-0149)41	MBS9451	100	5	GEM	167.6	192.3	169.3	10.7	22.7
1613116	CML341:S(DJ7)(PHJ40)	MBS9508	71	5	GEM	156.7	198.8	159.7	11.4	25.7
1613117	CML373:S(DJ7)(GEMS-0188)	MBS5411	50	6	GEM	162.0	190.2	165.4	12.5	25.9
1613118	Ki 14:S21z(PHJ40)	MBS5411	51	5	GEM	157.7	214.6	164.4	9.9	23.2
1613119	Ki21:S(DJ7)(GEMS-0115)	MBS5411	46	5	GEM	153.4	197.7	159.2	14.4	32.3
1614101	GEMS-0113/GEMS-0162	MBS9508	32	5	GEM	161.9	192.4	166.7	12.8	26.6
1614102	GEMS-0113/GEMS-0162	MBS9451	38	5	GEM	161.9	189.0	166.9	11.7	24.9
1614103	GEMS-0003/GEMS-0032	MBS9508	64	5	GEM	167.6	181.8	169.2	12.5	26.5
1614104	TZAR104:N(LH61)(ANTIG03:N1242-B-007-B)	Coop-SS	84	6	Coop	170.7	217.7	173.6	10.0	24.5
1614105	BR51039:S(PHJ40)(GEMS-0147)	Coop-nSS	84	6	Coop	176.2	217.6	178.8	9.1	22.8
1614201	Retest6	Varied	59	8	GEM	156.4	167.8	157.6	14.9	27.1
1614202	Retest7	Varied	55	8	GEM	178.7	180.8	179.0	12.1	23.1
1654101	M024-001/GEMN-0097	MBS2655	64	5	GEM	167.0	200.2	170.1	14.1	29.8
1654102	M024-001/GEMN-0097	MBS3520	67	5	GEM	153.8	197.6	157.7	16.0	31.7
1654103	LH82/KO679Y	MBS3520	87	5	GEM	155.2	193.2	157.8	13.8	27.2
1654104	LH82/KO679Y	MBS9451	108	5	GEM	153.7	203.5	156.9	10.9	21.8
1664101	GEMS-0115/GEMS-0222	MBS6403	66	5	GEM	167.8	202.3	170.5	10.7	22.6
1664102	GEMS-0219/GEMS-0227	MBS6403	60	5	GEM	175.1	189.1	176.2	9.1	20.2
1664103	H8431/((GEMS-0115/Mp717)/TZAR101)	MBS9508	77	5	GEM	157.3	183.5	159.3	16.9	33.8
1664104	GEM releases	Varied	36	4	GEM	171.5	191.4	174.8	16.3	39.8
1664105	BGEMN	MBS2655	75	4	GEM	146.5	179.4	149.2	17.2	36.1
1664106	BGEMS	MBS5411	114	4	GEM	156.9	193.6	158.8	12.1	26.9
1664107	KO679Y/GEMS-0030	Coop-nSS	144	6	Coop	167.2	204.5	170.2	8.4	16.7
1664108	GEMS-0162/GEMS-0227	Coop-nSS	144	6	Coop	177.5	211.0	180.1	7.9	16.4
1664201	Retest1	Varied	53	8	GEM	155.6	182.5	158.1	16.4	30.3
1664202	Retest2	Varied	60	8	GEM	149.6	177.0	151.9	15.8	24.1
1664203	Retest3	Varied	45	8	GEM	164.7	196.2	168.2	14.6	33.2
1664204	Retest4	Varied	55	8	GEM	172.1	180.2	172.9	17.0	33.8
1664205	Retest5	Varied	52	8	GEM	175.8	177.0	175.9	14.5	25.2
1664206	Retest8	Varied	23	4	GEM	180.2	181.1	180.4	17.1	43.9
Total: 44					Averages:	160.7	192.3	163.7	13.3	27.6

2016 GEM Ames Yield Trial Top Twenty Entries

Experiment: GEM1613101

Tester: MBS2655

		All Location Means										
<i>Entry</i>	<i>Pedigree</i>	<i>Yield B/A</i>	<i>% Yield /CHK</i>	<i>Variance</i>	<i>% Moist</i>	<i>Yield/ Moist</i>	<i>TWT</i>	<i>% S.L.</i>	<i>% R.L.</i>	<i>Plant Height</i>	<i>Ear Height</i>	<i>% Green Snap</i>
66	MBS3684/MBS9451	178.2	101.9	176.2	16.6	10.8	53.6	1.3	6.6	277	120	62.5
35	ATL100:N(LH82)(GEMN-0097)-037/MBS2655	167.1	95.5	1701.6	16.0	10.4	54.5	4.7	17.5	297	147	50.0
39	ATL100:N(LH82)(GEMN-0097)-041/MBS2655	176.4	100.8	407.0	17.0	10.4	54.2	0.5	9.3	283	120	12.5
6	ATL100:N(LH82)(GEMN-0097)-006/MBS2655	176.1	100.7	235.3	17.0	10.4	54.7	0.5	12.1	282	125	12.1
31	ATL100:N(LH82)(GEMN-0097)-033/MBS2655	176.7	101.0	196.3	17.5	10.1	53.7	0.0	7.3	292	133	25.7
5	ATL100:N(LH82)(GEMN-0097)-005/MBS2655	178.1	101.8	507.5	17.6	10.1	55.2	0.5	2.2	310	125	13.0
49	ATL100:N(LH82)(GEMN-0097)-053/MBS2655	173.1	98.9	261.8	17.2	10.1	53.8	0.0	0.8	277	120	13.1
68	Pioneer P1151	178.6	102.1	206.0	17.8	10.0	55.6	0.5	3.4	262	100	12.5
72	Pioneer 31D58	192.0	109.7	1308.2	19.2	10.0	55.9	1.5	15.0	287	115	11.9
48	ATL100:N(LH82)(GEMN-0097)-052/MBS2655	173.9	99.4	188.4	17.6	9.9	55.5	0.9	3.5	302	143	37.5
20	ATL100:N(LH82)(GEMN-0097)-021/MBS2655	175.9	100.5	700.3	17.8	9.9	56.0	1.8	16.3	293	137	25.8
38	ATL100:N(LH82)(GEMN-0097)-040/MBS2655	171.3	97.9	269.8	17.6	9.7	55.3	2.6	0.0	277	130	13.1
61	ATL100:N(LH82)(GEMN-0097)-066/MBS2655	170.6	97.5	644.4	17.5	9.7	54.0	1.9	4.5	270	103	25.4
41	ATL100:N(LH82)(GEMN-0097)-043/MBS2655	177.0	101.2	155.2	18.2	9.7	53.5	2.4	14.8	290	127	12.5
59	ATL100:N(LH82)(GEMN-0097)-064/MBS2655	169.6	96.9	220.0	17.5	9.7	54.0	2.8	17.6	277	132	11.9
70	Pioneer 33F85	178.1	101.8	226.2	18.4	9.7	55.7	0.5	4.8	260	113	25.4
69	MBS3520/MBS8814	173.7	99.3	1369.8	18.1	9.6	52.2	0.9	2.9	280	118	13.0
32	ATL100:N(LH82)(GEMN-0097)-034/MBS2655	163.9	93.7	302.7	17.1	9.6	53.9	0.0	14.6	273	118	13.2
71	Pioneer 31N27	178.4	102.0	616.9	19.2	9.3	57.4	0.5	15.7	270	110	12.9
67	MBS9508/MBS2655	145.6	83.2	933.1	17.3	8.4	55.7	1.6	2.7	280	117	12.9
Replications		5			5	5	5	3	2	1	1	1
Test Entry Means		160.9			18.0	8.9	54.5	1.5	8.6	288.0	128.7	32.7
Check Means		174.9			18.1	9.7	55.2	1.0	7.3	273.7	113.3	21.6
Overall Means		162.3			18.0	9.0	54.6	1.5	8.5	286.6	127.2	31.6
Yield Range		123.6 - 192.0										
CV		14.8			3.6							
LSD (p=0.05)		30.0			0.8							

* All trial data will be posted on the website

** Locations: Ames, Crawfordsville, Keystone, and Carroll in Iowa; and Sturgis in Kentucky

2016 GEM Ames Yield Trial Top Twenty Entries

Experiment: GEM1613102

Tester: MBS2655

		All Location Means										
Entry	Pedigree	Yield B/A	% Yield /CHK	Variance	% Moist	Yield/ Moist	TWT	% S.L.	% R.L.	Plant Height	Ear Height	% Green Snap
60	Pioneer P1151	199.1	110.3	1114.3	19.4	10.2	55.9	1.9	4.1	267	105	0.0
64	Pioneer 31D58	206.6	114.5	1561.5	20.5	10.1	57.4	7.3	4.5	287	127	0.0
58	MBS3684/MBS9451	185.4	102.7	212.4	18.5	10.0	55.2	2.9	1.5	277	117	13.2
50	BR51039:N1512-B-072/MBS2655	200.5	111.1	3394.1	20.2	9.9	56.2	3.0	5.1	300	137	13.0
36	BR105:N(GEMN-0174)49y-B-069/MBS2655	181.5	100.6	188.6	19.1	9.5	58.0	0.5	9.7	297	150	12.9
47	BR51039:N1512-B-051/MBS2655	173.9	96.4	373.6	18.7	9.3	55.0	3.0	5.7	278	123	12.9
57	BR51039:N1512-B-172/MBS2655	176.9	98.0	335.9	19.2	9.2	57.5	1.0	13.8	272	128	13.3
63	Pioneer 31N27	186.2	103.2	1166.8	20.3	9.2	58.2	1.0	22.5	282	115	12.3
7	BR105:N(GEMN-0174)49y-B-019/MBS2655	174.9	96.9	701.9	19.3	9.1	56.3	4.5	1.7	280	129	13.3
55	BR51039:N1512-B-137/MBS2655	174.5	96.7	403.2	19.4	9.0	57.0	1.5	31.3	283	127	12.5
49	BR51039:N1512-B-069/MBS2655	174.9	96.9	908.1	19.5	9.0	56.4	1.0	8.0	295	145	62.3
8	BR105:N(GEMN-0174)49y-B-021/MBS2655	165.9	91.9	614.1	18.7	8.9	58.6	8.3	0.0	298	127	37.5
56	BR51039:N1512-B-170/MBS2655	166.3	92.1	369.7	18.9	8.8	55.2	1.5	9.6	278	125	13.2
28	BR105:N(GEMN-0174)49y-B-058/MBS2655	166.1	92.1	285.7	18.9	8.8	58.0	1.5	0.0	267	108	51.0
62	Pioneer 33F85	174.0	96.4	1201.3	19.8	8.8	57.4	7.0	0.0	262	120	50.0
45	BR51039:N1512-B-038/MBS2655	177.5	98.3	1494.1	20.2	8.8	56.8	1.4	4.8	293	140	50.0
61	MBS3520/MBS8814	168.0	93.1	1765.4	19.1	8.8	53.6	1.5	1.5	287	130	62.1
42	BR105:N(GEMN-0174)49y-B-079/MBS2655	167.9	93.0	144.6	19.4	8.6	57.9	3.8	13.1	297	143	13.5
13	BR105:N(GEMN-0174)49y-B-035/MBS2655	170.0	94.2	378.0	19.8	8.6	56.2	3.3	5.0	280	135	50.0
59	MBS9508/MBS2655	144.0	79.8	417.2	18.5	7.8	57.6	2.8	5.4	297	130	24.3
Replications		5			5	5	5	3	2	1	1	1
Test Entry Means		153.5			19.6	7.8	56.6	3.1	7.7	286.7	131.2	41.9
Check Means		180.5			19.5	9.3	56.5	3.5	5.6	279.9	120.6	23.1
Overall Means		156.4			19.5	8.0	56.6	3.1	7.5	286.0	130.1	39.8
Yield Range		109.0 - 206.6										
CV		16.8			5.3							
LSD (p=0.05)		32.8			1.3							

* All trial data will be posted on the website

** Locations: Ames, Crawfordsville, Keystone, Carroll, and Red Oak in Iowa.

2016 GEM Ames Yield Trial Top Twenty Entries

Experiment: GEM1613103

Tester: MBS2655

		All Location Means										
Entry	Pedigree	Yield B/A	% Yield /CHK	Variance	% Moist	Yield/ Moist	TWT	% S.L.	% R.L.	Plant Height	Ear Height	% Green Snap
64	Pioneer 31D58	225.6	109.4	303.3	20.1	11.2	56.0	0.0	2.0	278	120	0.0
60	Pioneer P1151	216.7	105.0	399.6	18.8	11.6	55.4	1.0	0.5	263	100	0.0
62	Pioneer 33F85	201.5	97.7	1000.7	19.1	10.6	56.3	6.0	3.2	268	115	50.8
61	MBS3520/MBS8814	198.5	96.2	309.2	19.1	10.4	52.6	2.0	2.0	280	127	25.8
63	Pioneer 31N27	189.2	91.7	1017.6	19.7	9.6	56.5	5.1	26.4	273	117	0.0
47	Ki21:N(SG17)(LH162)-056-001/MBS2655	181.9	88.1	99.9	17.5	10.4	56.4	2.0	0.0	273	130	25.7
39	Ki21:N(SG17)(LH162)-046-001/MBS2655	172.6	83.7	248.0	18.3	9.4	55.8	5.4	2.9	288	133	38.2
27	Ki21:N(SG17)(LH162)-031-001/MBS2655	166.3	80.6	373.1	19.0	8.8	56.0	3.3	12.7	273	127	25.8
49	Ki21:N(SG17)(LH162)-059-001/MBS2655	165.6	80.2	505.0	18.1	9.1	54.3	7.5	23.2	313	130	25.8
28	Ki21:N(SG17)(LH162)-032-001/MBS2655	163.9	79.4	524.8	19.7	8.3	55.3	2.0	11.2	272	125	24.6
34	Ki21:N(SG17)(LH162)-038-001/MBS2655	162.4	78.7	311.3	18.1	9.0	55.3	2.0	7.4	260	117	11.9
8	Ki21:N(SG17)(LH162)-011-001/MBS2655	161.1	78.1	1180.4	17.9	9.0	56.5	1.0	2.0	267	125	75.8
31	Ki21:N(SG17)(LH162)-035-001/MBS2655	158.7	76.9	299.3	18.7	8.5	55.9	8.5	9.1	273	110	37.1
37	Ki21:N(SG17)(LH162)-043-001/MBS2655	157.6	76.4	686.5	17.4	9.1	55.5	5.1	9.5	277	132	25.8
21	Ki21:N(SG17)(LH162)-025-001/MBS2655	157.4	76.3	237.9	17.4	9.0	56.9	4.9	10.1	262	127	25.8
25	Ki21:N(SG17)(LH162)-029-001/MBS2655	157.3	76.3	731.2	18.6	8.5	54.8	0.0	48.0	283	123	24.6
43	Ki21:N(SG17)(LH162)-051-001/MBS2655	157.3	76.2	162.3	17.0	9.3	55.7	10.0	14.4	287	155	75.9
35	Ki21:N(SG17)(LH162)-040-001/MBS2655	157.2	76.2	568.6	18.6	8.5	55.3	9.3	5.0	293	160	0.0
59	MBS9508/MBS2655	155.9	75.6	399.5	18.3	8.5	56.0	4.1	7.2	282	122	13.5
19	Ki21:N(SG17)(LH162)-023-001/MBS2655	154.9	75.1	287.6	17.2	9.0	56.4	2.5	1.9	288	133	50.0
Replications		5			5	5	5	3	3	1	1	1
Test Entry Means		145.0			17.9	8.1	56.0	4.6	13.6	278.0	128.6	49.3
Check Means		206.3			19.3	10.7	55.4	2.8	6.8	272.4	115.8	15.0
Overall Means		149.8			18.1	8.3	56.0	4.4	13.1	277.5	127.6	46.0
Yield Range		114.5 - 225.6										
CV		14.2			3.3							
LSD (p=0.05)		27.3			0.8							

* All trial data will be posted on the website

** Locations: Ames, Crawfordsville, Keystone, and Carroll in Iowa; and St. Joseph in Missouri

2016 GEM Ames Yield Trial Top Twenty Entries

Experiment: GEM1613104

Tester: MBS2655

		All Location Means										
Entry	Pedigree	Yield B/A	% Yield /CHK	Variance	% Moist	Yield/ Moist	TWT	% S.L.	% R.L.	Plant Height	Ear Height	% Green Snap
70	Pioneer 33F85	222.0	112.1	891.8	19.7	11.3	56.2	0.0	11.5	268	113	11.9
72	Pioneer 31D58	221.3	111.7	625.1	19.9	11.1	55.6	3.4	7.5	272	113	0.0
68	Pioneer P1151	209.3	105.7	140.2	18.1	11.6	55.5	4.0	1.6	267	100	0.0
69	MBS3520/MBS8814	199.4	100.7	826.4	19.1	10.4	52.5	0.0	0.0	277	120	12.3
66	MBS3684/MBS9451	193.0	97.5	298.8	17.2	11.2	54.7	4.2	0.8	273	128	0.0
71	Pioneer 31N27	186.3	94.0	1756.7	18.4	10.1	56.4	6.2	17.4	285	123	50.0
42	KUI44:N(SG17)(GEMN-0192)-B-050/MBS2655	178.1	89.9	500.5	19.3	9.2	55.5	3.5	5.0	282	132	12.9
38	KUI44:N(SG17)(GEMN-0192)-B-044/MBS2655	176.1	88.9	330.9	19.2	9.2	56.0	9.4	1.5	292	148	13.2
64	KUI44:N(SG17)(GEMN-0192)-B-074/MBS2655	173.0	87.4	99.9	18.5	9.4	55.9	2.4	5.5	302	147	25.0
4	KUI44:N(SG17)(GEMN-0192)-B-005/MBS2655	171.1	86.4	178.5	17.8	9.6	55.6	2.7	0.0	272	138	87.5
40	KUI44:N(SG17)(GEMN-0192)-B-047/MBS2655	170.4	86.0	136.3	19.0	9.0	54.8	9.9	1.5	285	138	37.7
26	KUI44:N(SG17)(GEMN-0192)-B-029/MBS2655	169.4	85.5	326.1	19.7	8.6	55.0	0.8	2.7	262	120	24.6
56	KUI44:N(SG17)(GEMN-0192)-B-066/MBS2655	167.9	84.8	1059.8	18.7	9.0	54.6	3.9	11.5	295	135	25.0
55	KUI44:N(SG17)(GEMN-0192)-B-065/MBS2655	167.8	84.7	391.4	18.3	9.2	55.2	2.0	0.0	273	132	12.3
49	KUI44:N(SG17)(GEMN-0192)-B-059/MBS2655	167.7	84.7	1277.9	18.7	9.0	54.9	0.0	13.7	302	137	50.0
58	KUI44:N(SG17)(GEMN-0192)-B-068/MBS2655	167.4	84.5	137.2	19.4	8.6	55.1	2.6	4.6	290	132	25.0
30	KUI44:N(SG17)(GEMN-0192)-B-035/MBS2655	165.7	83.6	239.6	18.5	9.0	55.9	6.9	5.2	278	150	75.0
3	KUI44:N(SG17)(GEMN-0192)-B-004/MBS2655	163.1	82.4	415.4	18.8	8.7	56.1	2.8	2.9	275	132	38.2
44	KUI44:N(SG17)(GEMN-0192)-B-053/MBS2655	163.1	82.3	221.1	17.9	9.1	54.5	1.9	2.0	283	115	37.1
54	KUI44:N(SG17)(GEMN-0192)-B-064/MBS2655	162.1	81.9	641.7	19.2	8.5	54.3	4.6	6.0	285	130	50.0
Replications		6			6	6	5	4	4	1	1	1
Test Entry Means		150.4			18.4	8.2	55.4	4.4	8.1	283.8	135.7	53.8
Check Means		198.1			18.6	10.6	55.2	3.1	5.5	275.3	116.4	12.6
Overall Means		155.0			18.4	8.4	55.4	4.3	7.8	282.9	133.7	49.8
Yield Range		117.4 - 222.0										
CV		12.9			3.9							
LSD (p=0.05)		23.7			0.8							

* All trial data will be posted on the website

** Locations: Ames, Crawfordsville, Keystone, and Carroll in Iowa; St. Joseph in Missouri; and Farmersburg in Indiana

2016 GEM Ames Yield Trial Top Twenty Entries

Experiment: GEM1613105

Tester: MBS2655

		All Location Means										
Entry	Pedigree	Yield B/A	% Yield /CHK	Variance	% Moist	Yield/ Moist	TWT	% S.L.	% R.L.	Plant Height	Ear Height	% Green Snap
59	MBS3684/MBS9451	187.5	105.0	337.3	16.7	11.2	54.3	0.0	5.1	270	117	0.0
61	Pioneer P1151	193.8	108.5	432.2	18.4	10.5	55.8	0.0	3.1	258	97	6.5
62	MBS3520/MBS8814	182.1	102.0	172.4	18.5	9.9	52.1	1.1	4.0	273	108	26.7
63	Pioneer 33F85	180.2	100.9	1769.8	19.2	9.4	56.2	2.4	2.0	255	120	25.0
48	SX2788:N(LH82)(ANTIG03:N1242-B-007-B)-SIB-059/MBS2655	184.9	103.6	349.6	19.9	9.3	54.9	3.6	18.8	285	132	32.5
64	Pioneer 31N27	180.1	100.9	1033.2	19.9	9.1	56.2	1.2	28.0	270	120	6.4
58	SX2788:N(LH82)(ANTIG03:N1242-B-007-B)-SIB-070/MBS2655	169.9	95.1	254.3	18.8	9.0	56.5	1.7	8.8	265	127	6.6
12	SX2788:N(LH82)(ANTIG03:N1242-B-007-B)-SIB-016/MBS2655	177.7	99.5	172.2	19.7	9.0	53.9	1.4	4.2	283	123	25.4
25	SX2788:N(LH82)(ANTIG03:N1242-B-007-B)-SIB-030/MBS2655	175.8	98.5	583.3	19.9	8.8	54.7	0.7	8.3	268	120	6.7
24	SX2788:N(LH82)(ANTIG03:N1242-B-007-B)-SIB-029/MBS2655	166.9	93.5	335.1	18.9	8.8	54.9	4.9	33.8	292	140	25.4
53	SX2788:N(LH82)(ANTIG03:N1242-B-007-B)-SIB-064/MBS2655	171.8	96.2	1548.4	19.5	8.8	55.1	1.9	6.7	278	145	25.0
2	SX2788:N(LH82)(ANTIG03:N1242-B-007-B)-SIB-002/MBS2655	164.8	92.3	1043.7	18.9	8.7	54.0	0.7	6.1	295	140	31.3
5	SX2788:N(LH82)(ANTIG03:N1242-B-007-B)-SIB-006/MBS2655	174.2	97.6	1003.0	20.2	8.6	54.3	1.1	3.2	280	128	18.8
17	SX2788:N(LH82)(ANTIG03:N1242-B-007-B)-SIB-021/MBS2655	173.1	97.0	846.2	20.3	8.5	54.6	3.3	8.1	280	130	12.9
16	SX2788:N(LH82)(ANTIG03:N1242-B-007-B)-SIB-020/MBS2655	173.8	97.4	593.1	20.5	8.5	55.7	1.6	14.3	287	138	20.0
3	SX2788:N(LH82)(ANTIG03:N1242-B-007-B)-SIB-003/MBS2655	173.6	97.2	801.5	20.5	8.5	55.2	3.1	6.7	290	145	24.8
18	SX2788:N(LH82)(ANTIG03:N1242-B-007-B)-SIB-022/MBS2655	162.3	90.9	461.6	19.2	8.4	55.5	1.9	1.0	275	123	12.5
13	SX2788:N(LH82)(ANTIG03:N1242-B-007-B)-SIB-017/MBS2655	168.9	94.6	1503.2	20.2	8.4	56.1	1.1	14.2	273	133	37.7
43	SX2788:N(LH82)(ANTIG03:N1242-B-007-B)-SIB-054/MBS2655	170.0	95.2	252.0	20.3	8.4	54.9	1.6	4.7	287	132	6.3
60	MBS9508/MBS2655	147.6	82.7	275.4	17.7	8.3	56.0	0.0	1.1	277	123	6.3
Replications		6			6	6	5	4	3	1	1	2
Test Entry Means		161.9			20.4	7.9	55.2	2.0	9.9	279.1	130.7	24.5
Check Means		178.5			18.4	9.7	55.1	0.8	7.2	267.2	114.2	11.8
Overall Means		163.5			20.2	8.1	55.2	1.9	9.6	278.0	129.2	23.4
Yield Range		136.3 - 193.8										
CV		13.4			3.5							
LSD (p=0.05)		25.0			0.8							

* All trial data will be posted on the website

** Locations: Ames, Crawfordsville, Keystone, Carroll, and Callender in Iowa; and Farmersburg in Indiana

2016 GEM Ames Yield Trial Top Twenty Entries

Experiment: GEM1613106

Tester: MBS3520

		All Location Means										
Entry	Pedigree	Yield B/A	% Yield /CHK	Variance	% Moist	Yield/ Moist	TWT	% S.L.	% R.L.	Plant Height	Ear Height	% Green Snap
58	Pioneer P1151	210.0	108.3	1521.0	18.5	11.4	56.1	0.0	0.0	255	87	11.9
61	Pioneer 31N27	206.0	106.2	1118.8	20.3	10.1	56.7	1.4	31.9	253	102	0.0
56	MBS3684/MBS9451	204.9	105.7	980.3	17.7	11.6	53.8	1.4	1.5	267	123	25.7
39	ATL100:N(LH82)(GEMN-0097)-049/MBS3520	199.1	102.7	791.1	18.7	10.7	54.8	1.4	3.2	288	118	38.1
9	ATL100:N(LH82)(GEMN-0097)-013/MBS3520	191.7	98.9	406.3	18.8	10.2	54.9	3.0	15.5	270	118	12.5
16	ATL100:N(LH82)(GEMN-0097)-020/MBS3520	190.2	98.1	751.8	17.6	10.8	54.8	2.8	4.1	272	118	0.0
60	Pioneer 33F85	189.6	97.8	1549.3	19.4	9.8	56.1	0.0	0.9	282	113	50.0
59	MBS3520/MBS8814	189.5	97.8	326.1	19.6	9.7	52.0	0.0	2.2	272	125	13.2
38	ATL100:N(LH82)(GEMN-0097)-048/MBS3520	187.4	96.7	23.0	18.2	10.3	54.3	1.7	5.3	280	142	
20	ATL100:N(LH82)(GEMN-0097)-024/MBS3520	184.8	95.3	321.2	18.6	10.0	55.1	3.6	6.4	275	125	0.0
49	ATL100:N(LH82)(GEMN-0097)-064/MBS3520	183.2	94.5	501.3	18.9	9.7	53.8	1.5	12.3	262	118	12.3
51	ATL100:N(LH82)(GEMN-0097)-066/MBS3520	183.0	94.4	290.6	19.3	9.5	53.5	0.7	17.9	272	122	12.7
41	ATL100:N(LH82)(GEMN-0097)-052/MBS3520	181.0	93.4	217.2	18.7	9.7	56.1	0.7	13.7	262	112	24.6
36	ATL100:N(LH82)(GEMN-0097)-043/MBS3520	179.5	92.6	50.6	19.0	9.4	53.7	0.9	21.3	285	132	13.0
31	ATL100:N(LH82)(GEMN-0097)-038/MBS3520	179.3	92.5	873.6	18.0	9.9	55.6	0.9	20.7	273	120	
47	ATL100:N(LH82)(GEMN-0097)-061/MBS3520	179.1	92.4	469.3	17.8	10.0	55.8	0.0	5.7	268	105	12.9
37	ATL100:N(LH82)(GEMN-0097)-047/MBS3520	178.5	92.1	864.7	19.2	9.3	54.4	2.8	14.3	290	135	75.0
48	ATL100:N(LH82)(GEMN-0097)-063/MBS3520	178.5	92.1	1207.6	19.7	9.1	53.9	2.8	27.5	295	143	25.0
10	ATL100:N(LH82)(GEMN-0097)-014/MBS3520	178.3	92.0	735.7	20.2	8.8	54.5	2.1	16.2	288	128	50.0
21	ATL100:N(LH82)(GEMN-0097)-025/MBS3520	177.8	91.7	413.9	19.1	9.3	54.2	2.2	28.0	262	112	12.5
Replications		4			4	4	4	2	2	1	1	1
Test Entry Means		166.0			18.7	8.9	54.6	1.5	11.5	274.1	119.3	30.4
Check Means		193.9			19.1	10.2	55.0	0.9	6.4	265.7	111.3	19.1
Overall Means		168.8			18.7	9.0	54.7	1.4	11.0	273.2	118.5	29.2
Yield Range		121.5 - 210.0										
CV		13.4			3.3							
LSD (p=0.05)		32.6			0.9							

* All trial data will be posted on the website

** Locations: Ames, Crawfordsville, Keystone, and Carroll in Iowa.

2016 GEM Ames Yield Trial Top Twenty Entries

Experiment: GEM1613107

Tester: MBS3520

		All Location Means										
<i>Entry</i>	<i>Pedigree</i>	<i>Yield B/A</i>	<i>% Yield /CHK</i>	<i>Variance</i>	<i>% Moist</i>	<i>Yield/ Moist</i>	<i>TWT</i>	<i>% S.L.</i>	<i>% R.L.</i>	<i>Plant Height</i>	<i>Ear Height</i>	<i>% Green Snap</i>
56	Pioneer 31D58	219.2	111.4	1943.3	19.3	11.4	56.5	0.0	1.5	250	108	0.0
51	MBS3684/MBS9451	196.1	99.7	1153.2	17.2	11.4	53.9	1.4	0.0	257	110	0.0
54	MBS3520/MBS8814	212.3	107.9	645.6	19.2	11.1	52.0	0.0	1.4	275	122	25.7
53	Pioneer P1151	198.5	100.9	757.7	18.7	10.6	55.8	0.0	0.0	228	80	0.0
55	Pioneer 33F85	196.0	99.6	992.5	19.0	10.3	56.3	3.0	3.6	252	102	12.5
6	BR105:N(GEMN-0174)49y-B-021/MBS3520	179.9	91.4	212.3	17.9	10.0	57.6	0.0	0.0	277	110	25.8
34	BR105:N(GEMN-0174)49y-B-075/MBS3520	135.8	69.0	293.6	17.7	7.7	56.1	3.0	11.4	265	110	25.7
9	BR105:N(GEMN-0174)49y-B-029/MBS3520	170.5	86.7	113.9	18.0	9.5	56.3	1.4	25.0	280	117	25.0
5	BR105:N(GEMN-0174)49y-B-018/MBS3520	168.2	85.5	1799.9	17.9	9.4	56.4	0.0	7.6	257	103	62.1
26	BR105:N(GEMN-0174)49y-B-058/MBS3520	165.3	84.0	155.9	17.7	9.3	58.4	0.0	3.7	267	122	13.0
31	BR105:N(GEMN-0174)49y-B-069/MBS3520	169.6	86.2	687.4	18.2	9.3	58.1	0.0	8.5	255	105	0.0
27	BR105:N(GEMN-0174)49y-B-060/MBS3520	165.1	83.9	428.6	18.1	9.1	56.9	1.7	1.8	260	112	12.3
13	BR105:N(GEMN-0174)49y-B-037/MBS3520	164.7	83.7	109.6	18.4	9.0	57.7	0.0	6.2	268	117	24.6
52	MBS9508/MBS2655	158.5	80.5	870.9	17.9	8.9	56.2	0.0	0.0	262	100	36.4
39	BR51039:N1512-B-038/MBS3520	152.8	77.6	144.7	17.2	8.9	57.7	0.0	1.6	253	117	12.7
50	BR51039:N1512-B-172/MBS3520	160.2	81.4	556.7	17.8	9.0	57.1	0.0	7.1	243	103	12.9
20	BR105:N(GEMN-0174)49y-B-047/MBS3520	155.2	78.9	189.4	17.5	8.9	57.5	1.6	0.0	240	93	25.8
42	BR51039:N1512-B-068/MBS3520	159.9	81.2	1240.1	18.2	8.8	55.0	3.0	15.2	265	117	12.1
33	BR105:N(GEMN-0174)49y-B-074/MBS3520	167.7	85.2	434.5	19.4	8.6	55.3	0.0	11.3	262	105	13.2
14	BR105:N(GEMN-0174)49y-B-038/MBS3520	158.3	80.4	187.7	18.3	8.7	57.9	0.0	0.0	255	107	50.0
Replications		4			4	4	4	1	1	1	1	1
Test Entry Means		144.7			18.0	8.1	56.7	0.7	11.0	253.4	107.0	26.0
Check Means		196.8			18.5	10.6	55.1	0.7	1.1	254.0	103.7	12.4
Overall Means		150.3			18.0	8.3	56.5	0.7	10.0	253.5	106.6	24.5
Yield Range		98.2 - 219.2										
CV		15.4			3.4							
LSD (p=0.05)		32.5			0.8							

* All trial data will be posted on the website

** Locations: Ames, Crawfordsville, Keystone, and Carroll in Iowa.

2016 GEM Ames Yield Trial Top Twenty Entries

Experiment: GEM1613108

Tester: MBS3520

		All Location Means										
Entry	Pedigree	Yield B/A	% Yield /CHK	Variance	% Moist	Yield/ Moist	TWT	% S.L.	% R.L.	Plant Height	Ear Height	% Green Snap
49	MBS3684/MBS9451	215.2	106.5	326.3	16.6	13.0	54.5	1.3	0.0	275	108	12.5
51	Pioneer P1151	214.1	105.9	1641.0	17.8	12.0	55.3	2.8	0.0	248	83	0.0
54	Pioneer 31N27	217.0	107.4	55.6	18.8	11.5	56.5	0.0	7.5	272	98	11.9
53	Pioneer 33F85	205.4	101.6	677.1	18.2	11.3	56.1	0.0	0.0	258	112	38.1
52	MBS3520/MBS8814	204.0	100.9	441.5	18.3	11.1	51.8	1.5	1.6	267	110	12.7
29	Ki21:N(SG17)(LH162)-038-001/MBS3520	176.5	87.3	316.7	16.9	10.5	57.3	2.8	3.3	265	113	13.3
38	Ki21:N(SG17)(LH162)-056-001/MBS3520	158.8	78.6	207.5	15.7	10.1	57.2	1.4	8.2	267	128	13.1
40	Ki21:N(SG17)(LH162)-058-001/MBS3520	167.1	82.7	182.7	16.8	9.9	56.0	3.0	32.8	262	105	12.5
37	Ki21:N(SG17)(LH162)-055-001/MBS3520	147.4	72.9	34.9	14.8	9.9	56.4	3.0		275	118	0.0
9	Ki21:N(SG17)(LH162)-014-001/MBS3520	156.0	77.2	188.5	16.0	9.8	58.2	0.0	3.3	253	93	25.0
13	Ki21:N(SG17)(LH162)-020-001/MBS3520	162.3	80.3	111.8	16.9	9.6	56.9	4.3	0.0	155	117	13.2
12	Ki21:N(SG17)(LH162)-019-001/MBS3520	148.7	73.6	55.4	15.7	9.5	56.6	0.0	1.5	243	102	12.1
6	Ki21:N(SG17)(LH162)-011-001/MBS3520	151.8	75.1	173.3	16.0	9.5	57.0	1.4	0.0	215	100	12.1
15	Ki21:N(SG17)(LH162)-023-001/MBS3520	148.6	73.5	94.0	15.7	9.5	56.5	4.6	12.1	258	117	12.1
39	Ki21:N(SG17)(LH162)-057-001/MBS3520	148.7	73.6	636.8	15.7	9.5	59.1	0.0	11.8	258	120	38.2
31	Ki21:N(SG17)(LH162)-046-001/MBS3520	155.2	76.8	298.1	16.5	9.4	57.9	0.0	9.1	270	118	12.1
3	Ki21:N(SG17)(LH162)-005-001/MBS3520	145.0	71.7	715.8	15.4	9.4	56.7	0.0	3.2	255	110	25.4
35	Ki21:N(SG17)(LH162)-052-001/MBS3520	150.1	74.3	1268.5	16.1	9.3	57.0	6.1	20.9	275	122	62.7
1	Ki21:N(SG17)(LH162)-001-001/MBS3520	147.6	73.0	309.9	16.0	9.2	57.1	0.0	27.8	265	105	37.5
50	MBS9508/MBS2655	157.0	77.7	825.0	17.7	8.9	55.7	0.0	0.0	260	107	25.0
Replications		4			4	4	4	1	1	1	1	1
Test Entry Means		141.4			16.3	8.7	56.7	1.6	13.1	252.6	111.6	22.8
Check Means		202.1			17.9	11.3	55.0	0.9	1.5	263.3	103.0	16.7
Overall Means		148.2			16.5	9.0	56.5	1.5	11.8	253.8	110.6	22.1
Yield Range		107.6 - 217.0										
CV		14.1			3.5							
LSD (p=0.05)		29.4			0.8							

* All trial data will be posted on the website

** Locations: Ames, Crawfordsville, Keystone, and Carroll in Iowa.

2016 GEM Ames Yield Trial Top Twenty Entries

Experiment: GEM1613109

Tester: MBS3520

		All Location Means										
Entry	Pedigree	Yield B/A	% Yield /CHK	Variance	% Moist	Yield/ Moist	TWT	% S.L.	% R.L.	Plant Height	Ear Height	% Green Snap
62	MBS3684/MBS9451	195.0	100.8	177.4	17.4	11.2	55.0	0.0	4.9	285	112	0.0
40	KUI44:N(SG17)(GEMN-0192)-B-052/MBS3520	191.1	98.8	882.1	17.7	10.8	57.1	0.7	20.3	280	133	12.5
67	Pioneer 31N27	212.3	109.8	142.0	20.0	10.6	57.4	0.0	17.4	275	117	0.0
64	Pioneer P1151	201.2	104.1	233.6	19.0	10.6	56.0	0.0	1.6	270	110	6.2
48	KUI44:N(SG17)(GEMN-0192)-B-061/MBS3520	185.8	96.1	408.0	17.6	10.5	57.6	1.5	22.3	290	120	6.0
42	KUI44:N(SG17)(GEMN-0192)-B-054/MBS3520	172.7	89.3	453.2	16.7	10.4	56.7	0.0	7.3	273	115	12.5
9	KUI44:N(SG17)(GEMN-0192)-B-011/MBS3520	170.2	88.0	285.7	16.5	10.3	58.0	2.9	9.2	268	113	15.1
54	KUI44:N(SG17)(GEMN-0192)-B-067/MBS3520	184.0	95.2	192.2	17.9	10.3	56.7	1.7	5.8	293	133	14.4
52	KUI44:N(SG17)(GEMN-0192)-B-065/MBS3520	180.4	93.3	495.5	17.8	10.1	56.0	1.5	16.4	303	137	12.5
1	KUI44:N(SG17)(GEMN-0192)-B-001/MBS3520	169.4	87.6	199.4	16.7	10.1	57.6	0.8	4.3	297	137	12.7
65	MBS3520/MBS8814	190.9	98.7	473.6	19.0	10.0	53.0	0.0	1.1	288	127	12.8
45	KUI44:N(SG17)(GEMN-0192)-B-058/MBS3520	169.6	87.7	137.7	16.9	10.0	54.7	0.0	7.7	278	112	8.4
47	KUI44:N(SG17)(GEMN-0192)-B-060/MBS3520	169.6	87.7	1518.2	17.1	9.9	58.0	3.5	31.0	293	143	14.3
66	Pioneer 33F85	194.3	100.5	1438.0	19.6	9.9	57.2	0.0	0.0	283	130	17.8
58	KUI44:N(SG17)(GEMN-0192)-B-072/MBS3520	179.0	92.6	159.2	18.2	9.8	57.9	5.5	6.7	287	135	17.8
16	KUI44:N(SG17)(GEMN-0192)-B-019/MBS3520	162.4	84.0	454.4	16.7	9.7	56.9	0.0	21.6	290	135	19.8
3	KUI44:N(SG17)(GEMN-0192)-B-005/MBS3520	166.2	85.9	246.7	17.2	9.7	58.5	0.7	13.8	272	110	12.5
24	KUI44:N(SG17)(GEMN-0192)-B-029/MBS3520	179.6	92.9	112.7	18.7	9.6	57.0	0.9	6.4	262	110	12.7
41	KUI44:N(SG17)(GEMN-0192)-B-053/MBS3520	170.6	88.2	351.6	17.8	9.6	55.5	7.8	1.5	280	135	7.1
63	MBS9508/MBS2655	166.6	86.1	623.0	18.3	9.1	57.3	1.2	0.0	288	133	13.9
Replications		5			5	5	5	2	2	1	1	2
Test Entry Means		156.4			17.7	8.8	57.4	1.8	13.3	281.8	125.9	14.8
Check Means		193.4			18.9	10.2	56.0	0.2	4.1	281.5	121.5	8.5
Overall Means		159.7			17.8	9.0	57.3	1.7	12.5	281.8	125.5	14.3
Yield Range		103.7 - 212.3										
CV		12.5			3.8							
LSD (p=0.05)		25.2			0.9							

* All trial data will be posted on the website

** Locations: Ames, Crawfordsville, Keystone, and Carroll in Iowa; and Oaktown in Indiana

2016 GEM Ames Yield Trial Top Twenty Entries

Experiment: GEM1613110

Tester: MBS3520

		All Location Means										
Entry	Pedigree	Yield B/A	% Yield /CHK	Variance	% Moist	Yield/ Moist	TWT	% S.L.	% R.L.	Plant Height	Ear Height	% Green Snap
57	Pioneer P1151	203.3	108.9	1565.0	17.9	11.4	55.7	0.0	0.9	250	98	12.3
55	MBS3684/MBS9451	188.2	100.9	662.8	16.9	11.1	53.3	0.0	3.8	262	110	0.0
60	Pioneer 31D58	218.2	116.9	3198.9	20.1	10.9	56.1	0.0	5.7	275	113	12.9
58	MBS3520/MBS8814	183.7	98.4	942.9	18.2	10.1	51.7	0.0	21.0	272	118	13.0
59	Pioneer 31N27	192.0	102.9	1039.1	19.1	10.0	56.7	0.0	5.3	278	107	0.0
2	SX2788:N(LH82)(ANTIG03:N1242-B-007-B)-SIB-002/MBS3520	160.4	86.0	644.4	17.5	9.2	55.5	1.6	17.9	285	118	37.3
14	SX2788:N(LH82)(ANTIG03:N1242-B-007-B)-SIB-016/MBS3520	168.7	90.4	867.5	18.4	9.1	55.1	6.1	16.9	278	118	25.0
4	SX2788:N(LH82)(ANTIG03:N1242-B-007-B)-SIB-004/MBS3520	182.2	97.6	843.3	20.5	8.9	56.4	0.0	7.6	285	123	25.8
17	SX2788:N(LH82)(ANTIG03:N1242-B-007-B)-SIB-019/MBS3520	150.4	80.6	731.0	17.6	8.6	55.8	0.0	13.4	282	113	25.0
36	SX2788:N(LH82)(ANTIG03:N1242-B-007-B)-SIB-045/MBS3520	164.0	87.9	408.9	19.3	8.5	55.7	0.0	10.9	270	113	50.9
25	SX2788:N(LH82)(ANTIG03:N1242-B-007-B)-SIB-029/MBS3520	152.6	81.8	1326.9	18.1	8.4	55.7	1.5	14.0	277	122	13.1
47	SX2788:N(LH82)(ANTIG03:N1242-B-007-B)-SIB-060/MBS3520	166.0	88.9	1578.5	19.8	8.4	55.2	1.6	9.0	262	107	37.3
21	SX2788:N(LH82)(ANTIG03:N1242-B-007-B)-SIB-023/MBS3520	161.0	86.3	217.9	19.3	8.3	56.2	0.0	26.3	262	110	24.6
51	SX2788:N(LH82)(ANTIG03:N1242-B-007-B)-SIB-066/MBS3520	155.8	83.5	2058.4	18.7	8.3	54.5	7.6	26.9	267	113	12.7
20	SX2788:N(LH82)(ANTIG03:N1242-B-007-B)-SIB-022/MBS3520	146.3	78.4	370.2	17.6	8.3	55.9	1.4	9.0	263	108	37.3
23	SX2788:N(LH82)(ANTIG03:N1242-B-007-B)-SIB-027/MBS3520	159.0	85.2	387.5	19.2	8.3	56.6	0.0	16.9	250	107	36.9
37	SX2788:N(LH82)(ANTIG03:N1242-B-007-B)-SIB-046/MBS3520	160.6	86.1	416.2	19.6	8.2	56.9	0.0	23.6	262	100	13.2
39	SX2788:N(LH82)(ANTIG03:N1242-B-007-B)-SIB-049/MBS3520	160.2	85.8	863.1	19.7	8.1	56.5	1.5	3.7	267	115	63.2
32	SX2788:N(LH82)(ANTIG03:N1242-B-007-B)-SIB-041/MBS3520	155.3	83.2	556.0	19.2	8.1	54.3	0.0	21.1	268	115	62.5
56	MBS9508/MBS2655	134.2	71.9	1027.2	17.7	7.6	56.2	0.0	1.6	283	133	12.9
Replications		5			5	5	5	1	2	1	1	1
Test Entry Means		144.0			19.3	7.4	55.6	1.0	14.4	271.3	114.0	46.0
Check Means		186.6			18.3	10.2	54.9	0.0	6.4	270.0	113.2	8.5
Overall Means		148.3			19.2	7.7	55.5	0.9	13.6	271.2	114.0	42.3
Yield Range		108.1 - 218.2										
CV		17.8			3.6							
LSD (p=0.05)		33.5			0.9							

* All trial data will be posted on the website

** Locations: Ames, Crawfordsville, Keystone, and Carroll in Iowa; and Sturgis in Kentucky

2016 GEM Ames Yield Trial Top Twenty Entries

Experiment: GEM1613111

Tester: MBS6403

		All Location Means										
Entry	Pedigree	Yield B/A	% Yield /CHK	Variance	% Moist	Yield/ Moist	TWT	% S.L.	% R.L.	Plant Height	Ear Height	% Green Snap
25	CML373:S(DJ7)(GEMS-0188)-B-029/MBS6403	190.8	101.2	985.7	16.0	11.9	52.4	0.0	33.9	300	135	25.4
42	CML373:S(DJ7)(GEMS-0188)-B-048/MBS6403	180.2	95.6	1557.4	15.3	11.8	53.3	0.0	29.4	282	117	25.0
63	CML373:S(DJ7)(GEMS-0188)-B-072/MBS6403	181.8	96.5	324.4	15.9	11.4	54.9	0.0	0.0	275	117	11.9
69	MBS3520/MBS8814	196.1	104.1	1337.6	17.5	11.2	51.7	0.0	0.0	290	125	12.5
13	CML373:S(DJ7)(GEMS-0188)-B-016/MBS6403	175.0	92.9	1160.2	15.7	11.1	54.2	1.6	49.2	303	133	36.9
40	CML373:S(DJ7)(GEMS-0188)-B-046/MBS6403	163.2	86.6	1038.3	14.5	11.2	52.5	0.0	9.4	282	128	50.0
68	Pioneer P1151	195.6	103.8	634.5	17.6	11.1	56.1	0.0	0.0	267	102	0.0
21	CML373:S(DJ7)(GEMS-0188)-B-025/MBS6403	171.3	90.9	494.6	15.6	11.0	52.3	0.0	23.4	273	115	37.5
16	CML373:S(DJ7)(GEMS-0188)-B-020/MBS6403	165.6	87.9	1027.9	15.3	10.8	53.3	0.0	3.0	287	118	50.0
71	Pioneer 31N27	202.0	107.2	1028.3	18.6	10.9	57.1	0.0	16.2	278	118	25.0
17	CML373:S(DJ7)(GEMS-0188)-B-021/MBS6403	167.5	88.9	205.9	15.5	10.8	55.2	1.6	40.3	297	127	25.4
9	CML373:S(DJ7)(GEMS-0188)-B-012/MBS6403	162.1	86.0	698.3	15.0	10.8	54.2	1.6	13.8	280	120	12.3
48	CML373:S(DJ7)(GEMS-0188)-B-056/MBS6403	168.4	89.4	472.2	15.8	10.7	55.3	0.0	12.3	287	107	36.9
3	CML373:S(DJ7)(GEMS-0188)-B-006/MBS6403	163.3	86.6	1240.4	15.1	10.8	50.6	2.9	20.9	290	108	25.4
34	CML373:S(DJ7)(GEMS-0188)-B-040/MBS6403	172.1	91.3	310.5	16.3	10.6	53.3	1.4	15.6	300	125	50.0
14	CML373:S(DJ7)(GEMS-0188)-B-017/MBS6403	172.3	91.4	884.0	16.2	10.6	55.6	1.5	34.3	282	123	37.3
57	CML373:S(DJ7)(GEMS-0188)-B-066/MBS6403	166.6	88.4	917.0	15.5	10.7	53.9	0.0	6.1	283	108	37.9
72	Pioneer 31D58	219.1	116.3	865.4	21.5	10.2	54.9	0.0	1.6	290	117	0.0
70	Pioneer 33F85	177.5	94.2	2716.6	17.6	10.1	56.2	0.0	0.0	277	112	75.8
67	MBS9508/MBS2655	140.5	74.5	862.1	17.0	8.3	55.8	0.0	0.0	277	118	26.2
Replications		5			5	5	5	1	1	1	1	1
Test Entry Means		158.6			15.8	10.1	53.7	1.7	23.8	288.8	120.1	32.7
Check Means		188.5			18.3	10.3	55.3	0.0	3.0	279.8	115.3	23.2
Overall Means		161.0			16.0	10.1	53.8	1.6	22.0	288.0	119.7	32.0
Yield Range		132.3 - 219.1										
CV		12.6			3.6							
LSD (p=0.05)		25.5			0.7							

* All trial data will be posted on the website

** Locations: Ames, Crawfordsville, Keystone, and Carroll in Iowa; and Sturgis in Kentucky

2016 GEM Ames Yield Trial Top Twenty Entries

Experiment: GEM1613112

Tester: MBS6403

		All Location Means										
Entry	Pedigree	Yield B/A	% Yield /CHK	Variance	% Moist	Yield/ Moist	TWT	% S.L.	% R.L.	Plant Height	Ear Height	% Green Snap
33	Ki21:S(DJ7)(GEMS-0115)-050-001/MBS6403	180.9	94.1	235.9	16.1	11.2	55.9	7.4	61.5	297	137	3.1
51	Pioneer P1151	201.5	104.8	1521.8	18.0	11.2	55.6	0.0	0.0	233	90	2.9
8	Ki21:S(DJ7)(GEMS-0115)-012-001/MBS6403	182.6	94.9	575.4	16.5	11.1	54.9	0.0	7.8	277	103	3.1
55	Pioneer 31D58	222.3	115.6	1141.3	20.4	10.9	56.1	0.0	13.1	273	103	4.9
21	Ki21:S(DJ7)(GEMS-0115)-028-001/MBS6403	194.6	101.2	671.4	17.9	10.9	54.7	1.6	75.0	293	122	5.0
20	Ki21:S(DJ7)(GEMS-0115)-026-001/MBS6403	187.8	97.6	344.9	17.4	10.8	53.5	1.5	12.1	275	117	0.0
52	MBS3520/MBS8814	204.7	106.4	1543.7	19.1	10.7	53.3	0.0	100.0	295	120	53.7
43	Ki21:S(DJ7)(GEMS-0115)-062-001/MBS6403	179.7	93.4	430.1	16.9	10.6	54.5	0.0	100.0	285	115	1.7
37	Ki21:S(DJ7)(GEMS-0115)-054-001/MBS6403	180.3	93.7	199.1	17.2	10.5	55.8	0.0	7.9	250	93	11.1
31	Ki21:S(DJ7)(GEMS-0115)-047-001/MBS6403	166.4	86.5	882.3	15.9	10.4	54.1	0.0	13.1	275	102	6.6
14	Ki21:S(DJ7)(GEMS-0115)-019-001/MBS6403	176.9	92.0	339.1	17.0	10.4	54.1	1.5	100.0	292	125	0.0
2	Ki21:S(DJ7)(GEMS-0115)-003-001/MBS6403	176.1	91.6	951.0	17.0	10.3	53.1	1.4	39.1	275	107	12.5
11	Ki21:S(DJ7)(GEMS-0115)-015-001/MBS6403	178.7	92.9	299.5	17.4	10.3	54.7	1.6	12.7	262	110	7.9
1	Ki21:S(DJ7)(GEMS-0115)-001-001/MBS6403	164.2	85.4	209.7	16.1	10.2	54.6	0.0	100.0	270	118	10.5
25	Ki21:S(DJ7)(GEMS-0115)-032-001/MBS6403	182.3	94.8	461.2	18.0	10.1	55.7	0.0	17.4	267	93	0.0
38	Ki21:S(DJ7)(GEMS-0115)-056-001/MBS6403	174.5	90.8	186.7	17.3	10.1	53.7	0.0	62.5	293	128	3.1
3	Ki21:S(DJ7)(GEMS-0115)-004-001/MBS6403	184.6	96.0	1057.0	18.4	10.1	54.9	0.0	18.9	280	122	9.4
53	Pioneer 33F85	190.3	98.9	1501.9	19.2	9.9	56.4	0.0	10.8	243	97	9.2
54	Pioneer 31N27	181.0	94.1	759.6	19.6	9.3	56.7	0.0	7.6	258	103	4.5
50	MBS9508/MBS2655	154.1	80.1	521.0	17.7	8.7	56.2	0.0	5.9	275	118	3.9
Replications		5			5	5	5	1	1	1	1	1
Test Entry Means		164.9			17.3	9.5	54.5	1.2	43.6	277.4	112.8	5.5
Check Means		192.3			19.0	10.1	55.7	0.0	22.9	262.8	105.2	13.2
Overall Means		167.9			17.5	9.6	54.6	1.1	41.3	275.8	111.9	6.3
Yield Range		138.3 - 222.3										
CV		12.8			6.6							
LSD (p=0.05)		26.8			1.4							

* All trial data will be posted on the website

** Locations: Ames, Crawfordsville, and Keystone in Iowa; Norway in Kansas; and Tekamah in Nebraska

2016 GEM Ames Yield Trial Top Twenty Entries

Experiment: GEM1613113

Tester: MBS6403

		All Location Means										
Entry	Pedigree	Yield B/A	% Yield /CHK	Variance	% Moist	Yield/ Moist	TWT	% S.L.	% R.L.	Plant Height	Ear Height	% Green Snap
61	MBS3684/MBS9451	195.2	105.3	1666.6	17.7	11.0	54.2	1.5	9.1	263	112	0.0
65	Pioneer 31N27	209.1	112.9	1116.8	20.6	10.2	55.1	1.6	56.4	263	97	12.7
22	NS1:S(GEMS-0149)(PHJ40)-B-024/MBS6403	169.0	91.2	450.5	16.6	10.2	55.2	0.0	30.8	263	112	12.7
63	MBS3520/MBS8814	186.4	100.6	3964.7	19.3	9.6	52.3	0.0	27.4	253	105	12.9
32	NS1:S(GEMS-0149)(PHJ40)-B-032/MBS6403	158.7	85.7	691.6	16.6	9.5	54.8	4.5	15.3	257	117	12.3
40	NS1:S(GEMS-0149)(PHJ40)-B-040/MBS6403	162.9	87.9	283.4	17.1	9.5	56.2	0.0	55.4	277	110	0.0
25	NS1:S(GEMS-0149)(PHJ40)-B-027/MBS6403	160.3	86.5	1040.4	16.9	9.5	56.7	0.0	18.7	232	95	12.7
64	Pioneer 33F85	185.1	99.9	2193.0	19.6	9.5	55.5	1.6	18.0	250	97	12.7
37	NS1:S(GEMS-0149)(PHJ40)-B-037/MBS6403	153.0	82.6	184.8	16.6	9.2	54.3	0.0	27.6	260	113	12.7
36	NS1:S(GEMS-0149)(PHJ40)-B-035/MBS6403	162.9	87.9	203.2	17.7	9.2	54.3	0.0	59.3	263	123	12.3
23	NS1:S(GEMS-0149)(PHJ40)-B-025/MBS6403	153.5	82.8	513.7	16.8	9.2	53.9	0.0	32.0	235	80	13.1
10	NS1:S(GEMS-0149)(PHJ40)-B-010/MBS6403	147.4	79.6	840.2	16.1	9.1	54.1	0.0	13.4	248	100	25.0
16	NS1:S(GEMS-0149)(PHJ40)-B-018/MBS6403	155.1	83.7	529.4	17.0	9.1	54.5	0.0	63.9	260	112	12.9
3	NS1:S(GEMS-0149)(PHJ40)-B-002/MBS6403	158.3	85.4	789.3	17.4	9.1	54.8	2.9	40.9	267	115	13.2
31	NS1:S(GEMS-0149)(PHJ40)-B-032/MBS5411	152.2	82.1	848.1	16.9	9.0	54.1	0.0	15.5	242	103	12.1
50	NS1:S(GEMS-0149)(PHJ40)-B-047/MBS6403	140.9	76.1	339.3	15.8	8.9	54.7	1.5	30.3	253	103	12.9
19	NS1:S(GEMS-0149)(PHJ40)-B-021/MBS6403	152.1	82.1	111.8	17.1	8.9	53.6	0.0	66.7	253	97	12.7
58	NS1:S(GEMS-0149)(PHJ40)-B-057/MBS6403	159.7	86.2	827.2	18.0	8.9	56.8	0.0	61.9	250	97	12.7
7	NS1:S(GEMS-0149)(PHJ40)-B-006/MBS6403	150.4	81.2	2633.4	17.1	8.8	55.3	0.0	40.8	255	112	12.9
62	MBS9508/MBS2655	150.5	81.2	615.0	18.7	8.1	55.3	0.0	2.3	267	108	13.6
Replications		5			5	5	5	1	2	1	1	1
Test Entry Means		141.0			17.4	8.1	55.2	1.2	42.7	250.7	103.9	26.2
Check Means		185.3			19.2	9.7	54.5	0.9	22.6	259.2	103.8	10.3
Overall Means		144.4			17.6	8.2	55.2	1.2	41.1	251.4	103.8	25.0
Yield Range		113.2 - 209.1										
CV		15.2			7.9							
LSD (p=0.05)		27.5			1.7							

* All trial data will be posted on the website

** Locations: Ames, Crawfordsville, Keystone, and Carroll in Iowa; and Tekamah in Nebraska

2016 GEM Ames Yield Trial Top Twenty Entries

Experiment: GEM1613114

Tester: MBS9451

		All Location Means									
Entry	Pedigree	Yield B/A	% Yield /CHK	Variance	% Moist	Yield/ Moist	TWT	% R.L.	Plant Height	Ear Height	% Green Snap
89	MBS3684/MBS9451	209.3	103.7	235.3	18.0	11.6	53.9	23.3	272	110	0.0
91	Pioneer P1151	203.3	100.7	276.3	18.4	11.0	55.1	0.0	260	90	0.0
49	Ki 14:S21z(PHJ40)-B-053/MBS9451	199.4	98.8	59.7	18.1	11.0	53.0	0.0	248	93	12.5
94	Pioneer 31N27	209.7	103.9	1016.6	19.2	10.9	55.4	12.1	257	105	12.1
93	Pioneer 33F85	208.6	103.3	342.5	19.1	10.9	54.9	9.7	248	100	25.0
15	Ki 14:S21z(PHJ40)-B-015/MBS9451	189.1	93.7	107.9	18.1	10.4	54.5	30.4	265	110	24.6
4	Ki 14:S21z(PHJ40)-B-004/MBS9451	178.5	88.4	560.0	17.2	10.4	53.5	20.0	260	117	0.0
14	Ki 14:S21z(PHJ40)-B-014/MBS9451	172.8	85.6	256.7	16.6	10.4	54.6	11.8	257	93	0.0
95	Pioneer 31D58	210.4	104.2	1080.1	20.3	10.4	55.6	5.9	268	103	13.2
7	Ki 14:S21z(PHJ40)-B-007/MBS9451	189.5	93.9	366.7	18.5	10.3	53.1	2.9	275	113	0.0
92	MBS3520/MBS8814	192.9	95.6	1356.8	18.8	10.3	51.7	2.8	272	115	50.0
13	Ki 14:S21z(PHJ40)-B-013/MBS9451	179.8	89.1	256.7	17.6	10.2	52.7	11.1	275	117	12.7
8	Ki 14:S21z(PHJ40)-B-008/MBS9451	175.8	87.1	15.0	17.3	10.2	53.9	2.8	248	98	0.0
90	MBS9508/MBS2655	179.0	88.6	260.5	17.7	10.1	55.5	16.7	370	100	12.5
1	Ki 14:S21z(PHJ40)-B-001/MBS9451	185.9	92.1	209.2	18.4	10.1	53.9	10.0	258	100	0.0
44	Ki 14:S21z(PHJ40)-B-048/MBS9451	177.0	87.7	325.0	17.6	10.1	54.1	6.0	260	105	11.9
67	Ki 14:S21z(PHJ40)-B-074/MBS9451	174.3	86.3	438.4	17.3	10.1	52.6	10.0	262	112	0.0
52	Ki 14:S21z(PHJ40)-B-056/MBS9451	180.0	89.1	318.6	17.9	10.1	53.5	6.0	263	120	0.0
69	Ki 14:S21z(PHJ40)-B-077/MBS9451	179.0	88.6	101.9	17.8	10.0	54.4	15.9	265	112	0.0
32	Ki 14:S21z(PHJ40)-B-034/MBS9451	179.9	89.1	281.3	17.9	10.0	55.9	14.1	268	118	0.0
Replications		4			4	4	4	1	1	1	1
Test Entry Means		164.5			17.9	9.2	54.6	10.0	260.7	108.3	5.9
Check Means		201.9			18.8	10.8	54.6	10.1	278.1	103.3	16.1
Overall Means		167.2			18.0	9.3	54.6	10.0	261.9	107.9	6.6
Yield Range		127.6 - 210.4									
CV		10.5			2.6						
LSD (p=0.05)		24.4			0.6						

* All trial data will be posted on the website

** Locations: Ames, Crawfordsville, Keystone, and Carroll in Iowa.

2016 GEM Ames Yield Trial Top Twenty Entries

Experiment: GEM1613115

Tester: MBS9451

		All Location Means									
Entry	Pedigree	Yield B/A	% Yield /CHK	Variance	% Moist	Yield/ Moist	TWT	% S.L.	% R.L.	Plant Height	Ear Height
94	MBS3684/MBS9451	201.1	104.6	295.1	17.0	11.9	54.1	0.0	0.0	278	123
69	NS1:S(GEMS-0149)41-044-001/MBS9451	191.4	99.6	584.7	16.7	11.4	53.3	0.0	0.0	283	127
97	MBS3520/MBS8814	205.7	107.0	302.1	18.4	11.2	52.2	0.0	0.0	268	117
87	NS1:S(GEMS-0149)41-064-001/MBS9451	179.5	93.4	224.0	16.3	11.0	54.5	0.0	5.7	268	120
70	NS1:S(GEMS-0149)41-045-001/MBS9451	186.2	96.8	531.9	17.0	10.9	54.3	0.0	0.0	273	122
52	NS1:S(GEMS-0149)41-035-001/MBS9451	203.3	105.7	424.3	18.6	10.9	53.9	0.0	0.0	293	127
74	NS1:S(GEMS-0149)41-049-001/MBS9451	194.2	101.0	395.8	17.9	10.9	55.0	0.0	0.0	277	120
46	NS1:S(GEMS-0149)41-031-001/MBS5411	173.3	90.1	775.8	16.0	10.8	53.8	0.7	5.7	285	133
48	NS1:S(GEMS-0149)41-032-001/MBS9451	188.8	98.2	283.1	17.8	10.6	52.1	0.8	5.7	287	120
47	NS1:S(GEMS-0149)41-031-001/MBS9451	200.6	104.4	179.9	18.9	10.6	51.6	0.0	0.0	280	120
89	NS1:S(GEMS-0149)41-066-001/MBS9451	192.5	100.1	636.1	18.1	10.6	54.5	0.0	0.0	267	113
12	NS1:S(GEMS-0149)41-008-001/MBS9451	188.7	98.2	303.3	17.9	10.6	54.1	0.0	0.0	292	106
96	Pioneer P1151	187.1	97.3	308.9	17.7	10.5	55.6	0.0	0.0	258	103
56	NS1:S(GEMS-0149)41-037-001/MBS9451	185.7	96.6	384.9	17.6	10.5	55.8	0.0	5.7	283	125
45	NS1:S(GEMS-0149)41-030-001/MBS9451	185.8	96.6	173.1	17.7	10.5	52.8	5.7	0.0	273	107
76	NS1:S(GEMS-0149)41-051-001/MBS9451	191.7	99.7	396.4	18.5	10.4	55.0	0.0	0.0	278	118
100	Pioneer 31D58	209.9	109.2	422.1	21.0	10.0	56.3	0.0	0.0	282	120
98	Pioneer 33F85	197.7	102.8	1332.3	19.8	10.0	56.6	0.8	5.7	262	112
99	Pioneer 31N27	192.1	99.9	1038.3	19.7	9.7	57.4	0.0	0.0	275	113
95	MBS9508/MBS2655	152.1	79.1	411.5	17.1	8.9	56.3	0.0	0.0	272	103
Replications		5			5	5	5	2	1	1	1
Test Entry Means		167.6			18.0	9.3	54.7	1.3	2.1	280.7	117.9
Check Means		192.3			18.7	10.3	55.5	0.1	0.8	270.7	113.0
Overall Means		169.3			18.1	9.4	54.7	1.2	2.0	280.0	117.6
Yield Range		115.1 - 209.9									
CV		10.7			4.6						
LSD (p=0.05)		22.7			1.0						

* All trial data will be posted on the website

** Locations: Ames, Crawfordsville, Keystone, and Carroll in Iowa; and Decatur in Illinois

2016 GEM Ames Yield Trial Top Twenty Entries

Experiment: GEM1613116

Tester: MBS9508

		All Location Means										
Entry	Pedigree	Yield B/A	% Yield /CHK	Variance	% Moist	Yield/ Moist	TWT	% S.L.	% R.L.	Plant Height	Ear Height	% Green Snap
69	MBS3520/MBS8814	220.6	111.0	804.5	18.1	12.2	52.1	0.0	10.9	278	122	12.5
68	Pioneer P1151	200.1	100.7	734.6	17.1	11.7	56.7	0.0	0.0	257	108	12.9
64	CML341:S(DJ7)(PHJ40)-B-068/MBS9508	191.5	96.3	41.5	16.8	11.4	56.8	0.0	15.0	277	120	0.0
15	CML341:S(DJ7)(PHJ40)-B-017/MBS9508	172.6	86.8	808.8	15.2	11.4	56.6	1.5	15.6	270	130	0.0
71	Pioneer 31N27	209.5	105.4	435.0	18.7	11.2	56.2	0.0	32.3	267	113	12.9
70	Pioneer 33F85	200.2	100.7	1319.5	17.9	11.2	55.7	1.3	0.0	275	122	12.5
20	CML341:S(DJ7)(PHJ40)-B-022/MBS9508	174.4	87.7	552.3	16.1	10.9	56.7	0.0	10.3	277	125	12.1
14	CML341:S(DJ7)(PHJ40)-B-016/MBS9508	169.2	85.1	591.3	15.7	10.8	56.7	0.0	10.6	267	123	12.1
32	CML341:S(DJ7)(PHJ40)-B-036/MBS9508	173.6	87.3	91.8	16.2	10.7	57.3	1.4	16.2	273	123	25.0
65	CML341:S(DJ7)(PHJ40)-B-069/MBS5411	167.4	84.2	60.3	15.8	10.6	55.6	1.6	11.9	280	125	11.9
42	CML341:S(DJ7)(PHJ40)-B-048/MBS9508	161.0	81.0	348.8	15.3	10.5	55.0	0.0	3.3	272	130	37.7
44	CML341:S(DJ7)(PHJ40)-B-056/MBS9508	167.7	84.4	1275.7	16.0	10.5	54.3	1.4	5.0	270	117	25.0
27	CML341:S(DJ7)(PHJ40)-B-029/MBS9508	167.0	84.0	407.9	16.0	10.5	56.3	1.5	7.9	262	130	12.7
13	CML341:S(DJ7)(PHJ40)-B-015/MBS9508	173.1	87.1	798.6	16.6	10.4	57.3	0.0	7.7	280	138	50.8
38	CML341:S(DJ7)(PHJ40)-B-043/MBS9508	163.4	82.2	516.6	15.8	10.4	57.0	0.0	0.0	255	110	25.9
10	CML341:S(DJ7)(PHJ40)-B-012/MBS9508	161.3	81.1	695.4	15.6	10.4	56.5	1.5	3.2	273	138	12.9
1	CML341:S(DJ7)(PHJ40)-B-001/MBS9508	165.6	83.3	1.0	16.0	10.3	55.7	1.6	14.5	277	123	37.1
28	CML341:S(DJ7)(PHJ40)-B-032/MBS9508	162.8	81.9	83.6	15.8	10.3	57.1	0.0	8.8	262	110	24.6
18	CML341:S(DJ7)(PHJ40)-B-020/MBS9508	165.1	83.0	560.7	16.2	10.2	56.5	1.5	29.0	268	118	13.0
67	MBS9508/MBS2655	163.7	82.3	916.1	16.6	9.9	55.9	4.2	0.0	270	110	25.0
Replications		4			4	4	4	1	1	1	1	1
Test Entry Means		156.7			16.2	9.7	56.2	1.6	17.5	267.2	120.2	26.4
Check Means		198.8			17.7	11.3	55.3	1.1	8.6	269.4	115.0	15.2
Overall Means		159.7			16.3	9.8	56.2	1.6	16.8	267.3	119.8	25.4
Yield Range		125.2 - 220.6										
CV		11.4			3.1							
LSD (p=0.05)		25.7			0.7							

* All trial data will be posted on the website

** Locations: Ames, Crawfordsville, Keystone, and Carroll in Iowa.

2016 GEM Ames Yield Trial Top Twenty Entries

Experiment: GEM1613117

Tester: MBS5411

		All Location Means										
Entry	Pedigree	Yield B/A	% Yield /CHK	Variance	% Moist	Yield/ Moist	TWT	% S.L.	% R.L.	Plant Height	Ear Height	% Green Snap
50	Pioneer 31D58	227.8	119.8	429.0	19.6	11.6	55.3	0.0	13.6	290	130	0.0
37	CML373:S(DJ7)(GEMS-0188)-B-043/MBS5411	174.9	92.0	508.5	15.2	11.5	53.8	4.9	52.3	302	147	6.6
4	CML373:S(DJ7)(GEMS-0188)-B-005/MBS5411	180.2	94.7	309.1	15.8	11.4	54.1	2.5	57.8	282	123	0.0
2	CML373:S(DJ7)(GEMS-0188)-B-004/MBS5411	182.5	95.9	121.3	16.0	11.4	56.7	3.4	37.1	287	128	12.7
20	CML373:S(DJ7)(GEMS-0188)-B-025/MBS5411	177.2	93.1	155.5	15.8	11.2	53.8	1.7	5.2	288	127	12.3
41	CML373:S(DJ7)(GEMS-0188)-B-049/MBS5411	175.7	92.4	520.7	15.8	11.1	56.1	5.8	65.9	293	147	6.6
24	CML373:S(DJ7)(GEMS-0188)-B-029/MBS5411	175.7	92.4	1320.5	15.8	11.1	55.0	11.5	64.4	305	153	0.0
6	CML373:S(DJ7)(GEMS-0188)-B-006/MBS5411	169.1	88.9	248.1	15.3	11.1	53.8	5.0	42.5	305	145	6.6
12	CML373:S(DJ7)(GEMS-0188)-B-009/MBS5411	177.7	93.4	892.0	16.0	11.1	55.4	4.1	53.4	288	135	12.5
25	CML373:S(DJ7)(GEMS-0188)-B-030/MBS5411	174.4	91.7	158.5	15.8	11.0	54.9	1.7	13.3	302	135	19.9
46	Pioneer P1151	196.1	103.1	922.7	17.8	11.0	55.8	1.7	6.6	275	107	6.1
40	CML373:S(DJ7)(GEMS-0188)-B-047/MBS5411	165.8	87.2	755.0	15.1	11.0	56.1	6.5	77.1	290	143	6.6
5	CML373:S(DJ7)(GEMS-0188)-B-005/MBS5411	173.5	91.2	446.7	15.9	10.9	54.4	6.5	67.9	305	157	6.6
33	CML373:S(DJ7)(GEMS-0188)-B-039/MBS5411	168.3	88.5	809.0	15.7	10.7	56.9	4.2	31.2	283	145	10.6
21	CML373:S(DJ7)(GEMS-0188)-B-026/MBS5411	184.4	96.9	603.0	17.3	10.7	55.3	8.3	42.1	298	158	18.9
47	MBS3520/MBS8814	191.7	100.8	836.9	18.0	10.6	52.3	3.9	4.0	287	130	18.8
16	CML373:S(DJ7)(GEMS-0188)-B-012/MBS5411	179.5	94.4	254.3	16.9	10.6	55.9	0.9	30.8	287	143	19.1
49	Pioneer 31N27	193.1	101.5	238.7	18.8	10.2	56.8	2.5	41.6	273	123	6.6
48	Pioneer 33F85	181.3	95.3	859.1	18.3	9.9	56.1	1.7	27.9	303	117	31.1
45	MBS9508/MBS2655	151.3	79.6	307.9	16.9	8.9	56.3	0.9	1.7	278	137	18.6
Replications		5			5	5	24	2	2	1	1	2
Test Entry Means		162.0			16.1	10.0	55.3	6.4	46.2	291.5	138.3	12.7
Check Means		190.2			18.3	10.4	55.4	1.8	15.9	284.3	124.0	13.5
Overall Means		165.4			16.4	10.1	55.3	5.9	42.6	290.7	136.6	12.8
Yield Range		117.3 - 227.8										
CV		12.5			2.9							
LSD (p=0.05)		25.9			0.6							

* All trial data will be posted on the website

** Locations: Ames, Crawfordsville, Keystone, and Carroll in Iowa; and Farmersburg in Indiana

2016 GEM Ames Yield Trial Top Twenty Entries

Experiment: GEM1613118

Tester: MBS5411

		All Location Means										
Entry	Pedigree	Yield B/A	% Yield /CHK	Variance	% Moist	Yield/ Moist	TWT	% S.L.	% R.L.	Plant Height	Ear Height	% Green Snap
47	Pioneer P1151	220.4	102.7	250.4	17.8	12.4	55.9	0.0	0.0	267	107	0.0
51	Pioneer 31D58	243.2	113.3	223.5	19.7	12.3	55.9	0.0	25.4	277	115	0.0
49	Pioneer 33F85	221.6	103.2	567.3	18.3	12.1	56.2	0.0	0.0	258	103	24.6
50	Pioneer 31N27	222.0	103.5	1018.2	18.5	12.0	56.5	0.0	6.0	260	100	11.9
48	MBS3520/MBS8814	212.0	98.8	317.2	18.2	11.7	52.1	0.0	8.1	277	140	25.8
16	Ki 14:S21z(PHJ40)-B-027/MBS5411	176.3	82.2	593.7	15.9	11.1	55.3	0.0	18.6	262	113	50.8
45	Ki 14:S21z(PHJ40)-B-096/MBS5411	178.3	83.1	108.3	16.2	11.0	56.9	0.0	31.1	275	130	37.7
5	Ki 14:S21z(PHJ40)-B-016/MBS5411	172.1	80.2	203.9	15.8	10.9	57.4	3.9	69.7	263	123	0.0
26	Ki 14:S21z(PHJ40)-B-037/MBS5411	164.1	76.5	720.4	15.1	10.9	56.0	0.0	3.7	277	102	13.0
40	Ki 14:S21z(PHJ40)-B-065/MBS5411	168.7	78.6	656.1	15.6	10.8	56.8	0.0	4.4	270	127	25.0
2	Ki 14:S21z(PHJ40)-B-003/MBS5411	175.1	81.6	494.6	16.4	10.7	55.7	1.5	54.0	272	127	0.0
19	Ki 14:S21z(PHJ40)-B-030/MBS5411	177.8	82.9	220.8	16.7	10.6	55.2	2.9	100.0	263	118	0.0
1	Ki 14:S21z(PHJ40)-B-002/MBS5411	174.6	81.3	540.6	16.6	10.5	55.4	0.0	19.7	263	115	13.1
25	Ki 14:S21z(PHJ40)-B-036/MBS5411	167.3	78.0	192.8	16.0	10.5	57.7	1.4	24.6	275	125	12.3
11	Ki 14:S21z(PHJ40)-B-022/MBS5411	164.7	76.7	511.6	15.8	10.4	56.0	0.0	48.4	267	113	0.0
17	Ki 14:S21z(PHJ40)-B-028/MBS5411	164.5	76.6	309.2	15.8	10.4	55.6	4.1	33.8	278	133	25.0
4	Ki 14:S21z(PHJ40)-B-006/MBS5411	162.7	75.8	382.8	15.8	10.3	56.8	6.1	27.7	270	128	12.3
38	Ki 14:S21z(PHJ40)-B-062/MBS5411	162.5	75.7	606.4	15.8	10.3	55.6	0.0	27.7	258	123	36.9
30	Ki 14:S21z(PHJ40)-B-042/MBS5411	161.6	75.3	139.6	15.8	10.3	56.5	11.9	23.4	265	125	12.5
46	MBS9508/MBS2655	168.5	78.5	254.3	17.4	9.7	56.0	0.0	0.0	277	127	12.5
Replications		4			4	4	4	1	1	1	1	1
Test Entry Means		157.7			16.0	9.8	56.5	2.1	32.8	269.6	121.8	19.0
Check Means		214.6			18.3	11.7	55.4	0.0	6.6	269.3	115.3	12.5
Overall Means		164.4			16.3	10.1	56.4	1.9	29.8	269.6	121.1	18.4
Yield Range		135.8 - 243.2										
CV		9.9			2.9							
LSD (p=0.05)		23.2			0.7							

* All trial data will be posted on the website

** Locations: Ames, Crawfordsville, Keystone, and Carroll in Iowa.

2016 GEM Ames Yield Trial Top Twenty Entries

Experiment: GEM1613119

Tester: MBS5411

		All Location Means										
Entry	Pedigree	Yield B/A	% Yield /CHK	Variance	% Moist	Yield/ Moist	TWT	% S.L.	% R.L.	Plant Height	Ear Height	% Green Snap
43	MBS3520/MBS8814	212.6	107.5	583.5	17.7	12.0	51.6	0.0	11.1	282	128	12.7
19	Ki21:S(DJ7)(GEMS-0115)-033-001/MBS5411	192.6	97.4	201.3	16.0	12.0	54.3	0.0	68.5	280	133	0.0
42	Pioneer P1151	207.3	104.8	353.9	17.6	11.8	54.6	1.4	31.8	265	93	0.0
45	Pioneer 31N27	203.0	102.7	440.2	18.2	11.2	56.8	3.0	3.2	272	113	0.0
46	Pioneer 31D58	217.1	109.8	122.8	19.9	10.9	55.4	0.0	7.9	272	115	0.0
18	Ki21:S(DJ7)(GEMS-0115)-032-001/MBS5411	173.4	87.7	1136.3	16.1	10.8	54.9	0.0	18.8	280	127	12.5
13	Ki21:S(DJ7)(GEMS-0115)-027-001/MBS5411	172.7	87.3	130.7	16.2	10.6	53.2	5.0	53.1	280	143	12.5
12	Ki21:S(DJ7)(GEMS-0115)-026-001/MBS5411	170.9	86.5	227.5	16.1	10.6	53.2	0.0	6.2	293	137	0.0
28	Ki21:S(DJ7)(GEMS-0115)-043-001/MBS5411	161.4	81.6	877.3	15.2	10.6	53.5	0.0	47.8	283	125	11.9
26	Ki21:S(DJ7)(GEMS-0115)-041-001/MBS5411	171.1	86.5	700.6	16.2	10.6	53.3	8.2	71.6	322	157	11.9
22	Ki21:S(DJ7)(GEMS-0115)-036-001/MBS5411	173.0	87.5	1389.1	16.5	10.5	53.5	5.6	18.2	282	130	12.1
17	Ki21:S(DJ7)(GEMS-0115)-031-001/MBS5411	162.6	82.2	444.2	15.5	10.5	53.6	1.5	32.8	283	127	12.5
36	Ki21:S(DJ7)(GEMS-0115)-057-001/MBS5411	167.7	84.8	609.4	16.1	10.4	53.3	0.0	35.7	280	133	25.7
44	Pioneer 33F85	189.6	95.9	1431.0	18.2	10.4	55.4	0.0	0.0	263	118	38.3
33	Ki21:S(DJ7)(GEMS-0115)-053-001/MBS5411	164.8	83.4	712.9	16.1	10.2	53.1	1.4	9.7	283	115	12.9
7	Ki21:S(DJ7)(GEMS-0115)-019-001/MBS5411	165.6	83.7	811.1	16.2	10.2	54.4	3.0	0.0	290	143	12.5
1	Ki21:S(DJ7)(GEMS-0115)-001-001/MBS5411	157.0	79.4	565.8	15.4	10.2	53.9	1.6	8.1	277	132	12.9
11	Ki21:S(DJ7)(GEMS-0115)-023-001/MBS5411	173.9	88.0	662.4	17.2	10.1	53.7	4.5	11.3	283	128	12.9
37	Ki21:S(DJ7)(GEMS-0115)-058-001/MBS5411	165.3	83.6	286.3	17.1	9.7	53.6	0.0	62.1	293	145	12.1
41	MBS9508/MBS2655	156.7	79.2	264.0	17.0	9.2	55.5	0.0	0.0	259	117	11.6
Replications		4			4	4	4	1	1	1	1	1
Test Entry Means		153.4			16.3	9.4	53.3	2.5	30.5	284.8	132.4	16.3
Check Means		197.7			18.1	10.9	54.9	0.7	9.0	268.8	114.0	10.4
Overall Means		159.2			16.5	9.6	53.5	2.3	27.7	282.7	130.0	15.8
Yield Range		44.6 - 217.1										
CV		14.4			3.5							
LSD (p=0.05)		32.3			0.8							

* All trial data will be posted on the website

** Locations: Ames, Crawfordsville, Keystone, and Carroll in Iowa.

2016 GEM Ames Yield Trial Top Twenty Entries

Experiment: GEM1614101

Tester: MBS9508

		All Location Means										
Entry	Pedigree	Yield B/A	% Yield /CHK	Variance	% Moist	Yield/ Moist	TWT	% S.L.	% R.L.	Plant Height	Ear Height	% Green Snap
31	Pioneer 33F85	204.5	106.3	933.5	19.6	10.4	56.4	1.6	0.0	263	115	24.6
30	MBS3520/MBS8814	207.4	107.8	495.4	20.1	10.3	53.1	1.4	0.0	277	125	12.5
7	(GEMS-0113/GEMS-0162)-B-B-011/MBS9508	186.6	97.0	370.0	18.2	10.3	58.0	1.5	13.0	287	118	12.9
29	Pioneer P1151	191.1	99.3	279.7	18.8	10.1	56.2	2.7	0.0	252	83	12.5
32	Pioneer 31N27	202.3	105.2	427.8	20.2	10.0	56.3	0.0	1.5	255	107	0.0
20	(GEMS-0113/GEMS-0162)-B-B-027/MBS9508	179.8	93.4	657.8	18.5	9.7	58.1	0.0	4.0	277	123	12.9
10	(GEMS-0113/GEMS-0162)-B-B-014/MBS9508	179.7	93.4	515.8	18.6	9.7	58.3	0.0	5.9	268	95	
1	(GEMS-0113/GEMS-0162)-B-B-002/MBS9508	179.9	93.5	1251.4	18.6	9.7	57.7	1.4	18.2	278	128	24.6
18	(GEMS-0113/GEMS-0162)-B-B-025/MBS9508	173.1	90.0	360.8	18.1	9.6	57.3	3.4	6.4	278	105	25.5
24	(GEMS-0113/GEMS-0162)-B-B-031/MBS9508	172.6	89.7	528.7	18.1	9.5	57.4	1.5	10.9	292	118	37.0
12	(GEMS-0113/GEMS-0162)-B-B-016/MBS9508	175.4	91.2	231.6	18.8	9.3	58.0	0.0	9.7	283	115	37.7
23	(GEMS-0113/GEMS-0162)-B-B-030/MBS9508	169.6	88.1	691.9	18.2	9.3	57.6	1.5	2.9	280	112	
25	(GEMS-0113/GEMS-0162)-B-B-032/MBS9508	170.6	88.7	1064.3	18.9	9.0	57.3	2.9	10.7	290	120	12.7
22	(GEMS-0113/GEMS-0162)-B-B-029/MBS9508	170.4	88.6	247.7	19.0	9.0	58.0	0.0	7.2	277	118	12.1
21	(GEMS-0113/GEMS-0162)-B-B-028/MBS9508	162.0	84.2	687.3	18.8	8.6	57.7	4.4	1.5	268	97	13.3
17	(GEMS-0113/GEMS-0162)-B-B-024/MBS9508	160.1	83.2	271.5	18.6	8.6	58.2	1.6	9.3	258	87	12.1
9	(GEMS-0113/GEMS-0162)-B-B-013/MBS9508	166.3	86.4	10.0	19.6	8.5	57.8	0.0	16.0	297	118	12.9
3	(GEMS-0113/GEMS-0162)-B-B-004/MBS9508	158.7	82.5	650.7	18.7	8.5	58.0	0.0	15.7	270	90	50.0
28	MBS9508/MBS2655	156.7	81.4	1187.6	18.6	8.4	55.9	0.0	2.0	265	107	12.0
15	(GEMS-0113/GEMS-0162)-B-B-022/MBS9508	157.8	82.0	415.2	18.9	8.3	57.4	0.0	14.3	263	97	50.0
Replications		5			5	5	5	1	2	1	1	1
Test Entry Means		161.9			18.7	8.7	57.7	1.3	8.1	277.8	108.6	25.1
Check Means		192.4			19.5	9.9	55.6	1.1	0.7	262.4	107.4	12.3
Overall Means		166.7			18.8	8.9	57.4	1.3	7.0	275.4	108.4	21.7
Yield Range		136.2 - 207.4										
CV		12.8			2.3							
LSD (p=0.05)		26.6			0.5							

* All trial data will be posted on the website

** Locations: Ames, Crawfordsville, Keystone, and Carroll in Iowa; and Decatur in Illinois

2016 GEM Ames Yield Trial Top Twenty Entries

Experiment: GEM1614102

Tester: MBS9451

		All Location Means										
Entry	Pedigree	Yield B/A	% Yield /CHK	Variance	% Moist	Yield/ Moist	TWT	% S.L.	% R.L.	Plant Height	Ear Height	% Green Snap
32	MBS3684/MBS9451	184.3	97.5	1324.4	18.7	9.8	53.5	0.0	0.0	262	113	13.2
37	Pioneer 31N27	208.8	110.5	398.9	21.2	9.8	56.7	1.5	7.0	285	113	0.0
34	Pioneer P1151	190.4	100.8	555.6	19.7	9.7	55.3	0.0	1.4	275	112	0.0
38	Pioneer 31D58	207.8	110.0	1439.8	21.8	9.5	55.7	0.0	1.6	260	118	0.0
36	Pioneer 33F85	194.3	102.8	2015.3	20.6	9.4	55.5	3.2	3.2	252	100	25.8
25	(GEMS-0113/GEMS-0162)-B-B-060/MBS9451	183.7	97.2	100.1	19.5	9.4	54.1	1.5	0.8	280	103	13.2
8	(GEMS-0113/GEMS-0162)-B-B-043/MBS9451	174.2	92.2	1146.4	18.7	9.3	54.5	0.0	5.0	257	100	12.9
7	(GEMS-0113/GEMS-0162)-B-B-042/MBS9451	172.3	91.1	440.6	18.5	9.3	54.2	0.0	3.6	272	103	12.0
19	(GEMS-0113/GEMS-0162)-B-B-054/MBS9451	177.8	94.1	1155.5	19.5	9.1	54.5	5.4	5.3	277	103	12.3
35	MBS3520/MBS8814	185.7	98.3	694.0	20.4	9.1	51.9	1.5	2.4	270	107	38.1
4	(GEMS-0113/GEMS-0162)-B-B-039/MBS9451	172.7	91.4	451.6	19.1	9.1	54.8	2.8	0.8	253	100	12.5
11	(GEMS-0113/GEMS-0162)-B-B-046/MBS9451	168.4	89.1	962.7	18.6	9.0	52.6	0.0	3.7	255	92	25.8
27	(GEMS-0113/GEMS-0162)-B-B-062/MBS9451	172.2	91.1	637.1	19.3	8.9	53.8	0.0	12.2	285	108	12.9
1	(GEMS-0113/GEMS-0162)-B-B-036/MBS9451	170.4	90.2	672.8	19.1	8.9	52.6	3.1	1.4	287	115	25.4
14	(GEMS-0113/GEMS-0162)-B-B-049/MBS9451	167.7	88.8	1439.4	19.1	8.8	52.2	2.7	2.1	283	115	25.4
28	(GEMS-0113/GEMS-0162)-B-B-063/MBS9451	166.6	88.1	1189.4	19.0	8.8	54.2	1.4	0.0	268	108	24.6
18	(GEMS-0113/GEMS-0162)-B-B-053/MBS9451	167.6	88.7	835.2	19.2	8.7	54.4	1.4	0.8	278	118	25.0
21	(GEMS-0113/GEMS-0162)-B-B-056/MBS9451	166.9	88.3	712.9	19.2	8.7	52.7	0.0	1.5	290	120	12.9
29	(GEMS-0113/GEMS-0162)-B-B-064/MBS9451	172.1	91.1	601.7	20.0	8.6	53.8	1.5	0.0	265	105	
33	MBS9508/MBS2655	151.5	80.2	1329.3	19.3	7.9	55.2	6.7	1.4	268	110	24.3
Replications		5			5	5	5	1	2	1	1	1
Test Entry Means		161.9			19.3	8.4	53.5	1.1	4.2	270.6	106.0	25.2
Check Means		189.0			20.2	9.3	54.8	1.8	2.4	267.4	110.4	14.5
Overall Means		166.9			19.5	8.6	53.7	1.2	3.8	270.0	106.8	23.0
Yield Range		143.4 - 208.8										
CV		11.7			2.9							
LSD (p=0.05)		24.9			0.7							

* All trial data will be posted on the website

** Locations: Ames, Crawfordsville, Keystone, and Carroll in Iowa; and Atlanta in Illinois

2016 GEM Ames Yield Trial Top Twenty Entries

Experiment: GEM1614103

Tester: MBS9508

		All Location Means										
Entry	Pedigree	Yield B/A	% Yield /CHK	Variance	% Moist	Yield/ Moist	TWT	% S.L.	% R.L.	Plant Height	Ear Height	% Green Snap
27	(GEMS-0003/GEMS-0032)-B-B-068/MBS9508	185.4	102.0	297.9	17.0	10.9	56.7	0.0	6.3	270	127	13.3
60	Pioneer P1151	185.9	102.3	591.1	17.1	10.8	56.0	0.0	0.0	265	103	12.9
58	MBS3684/MBS9451	183.7	101.0	1034.5	16.9	10.8	55.2	0.0	3.0	275	123	13.2
64	Pioneer 31D58	209.4	115.2	495.1	19.4	10.8	57.1	0.0	0.0	267	118	0.0
5	(GEMS-0003/GEMS-0032)-B-B-006/MBS9508	184.0	101.2	760.9	17.2	10.7	57.0	5.0	38.9	277	127	12.1
61	MBS3520/MBS8814	191.2	105.2	731.8	18.2	10.5	53.7	1.5	0.7	265	108	25.0
49	(GEMS-0003/GEMS-0032)-B-B-092/MBS9508	185.1	101.8	371.2	17.7	10.5	55.9	3.7	7.9	267	122	25.7
17	(GEMS-0003/GEMS-0032)-B-B-022/MBS9508	184.0	101.2	598.0	17.9	10.3	55.6	3.0	11.8	283	138	12.5
63	Pioneer 31N27	190.1	104.6	127.7	18.6	10.2	56.5	1.5	3.6	275	115	13.2
39	(GEMS-0003/GEMS-0032)-B-B-081/MBS9508	191.7	105.4	67.8	18.8	10.2	55.9	4.6	13.3	287	130	12.1
10	(GEMS-0003/GEMS-0032)-B-B-011/MBS9508	164.5	90.5	497.4	16.2	10.2	56.5	6.8	4.5	273	125	12.1
57	(GEMS-0003/GEMS-0032)-B-B-102/MBS9508	187.1	102.9	113.4	18.4	10.1	56.4	3.1	2.4	272	123	0.0
16	(GEMS-0003/GEMS-0032)-B-B-020/MBS9508	175.1	96.3	387.2	17.3	10.1	55.6	1.5	8.1	287	122	13.2
26	(GEMS-0003/GEMS-0032)-B-B-067/MBS9508	171.8	94.5	665.5	17.0	10.1	56.2	0.0	6.9	265	117	13.2
52	(GEMS-0003/GEMS-0032)-B-B-095/MBS9508	180.4	99.2	457.5	18.0	10.0	55.9	3.0	23.5	283	122	12.7
36	(GEMS-0003/GEMS-0032)-B-B-078/MBS9508	179.4	98.7	537.3	17.9	10.0	56.0	4.3	10.1	283	122	13.0
35	(GEMS-0003/GEMS-0032)-B-B-077/MBS9508	173.5	95.4	471.8	17.3	10.0	55.2	2.4	9.6	297	138	0.0
43	(GEMS-0003/GEMS-0032)-B-B-085/MBS9508	177.5	97.6	855.2	17.9	9.9	56.7	7.9	16.1	277	117	0.0
62	Pioneer 33F85	166.5	91.6	1421.2	18.3	9.1	56.3	2.3	2.4	267	110	24.6
59	MBS9508/MBS2655	145.8	80.2	467.4	17.6	8.3	56.5	2.5	7.2	260	107	11.9
Replications		5			5	5	5	2	2	1	1	1
Test Entry Means		167.6			17.7	9.5	56.1	4.0	14.0	279.3	125.8	18.6
Check Means		181.8			18.0	10.1	55.9	1.1	2.4	267.7	112.0	14.4
Overall Means		169.2			17.7	9.5	56.1	3.7	12.7	278.0	124.3	17.7
Yield Range		143.8 - 209.4										
CV		12.5			3.6							
LSD (p=0.05)		26.5			0.8							

* All trial data will be posted on the website

** Locations: Ames, Crawfordsville, Keystone, and Carroll in Iowa; and El Paso in Illinois

2016 GEM Ames Yield Trial Top Twenty Entries

Experiment: GEM1614104

Tester: Coop-SS

		All Location Means								
Entry	Pedigree	Yield B/A	% Yield /CHK	Variance	% Moist	Yield/ Moist	TWT	% S.L.	% R.L.	% Green Snap
82	MBS3684/MBS9451	226.7	104.1	507.6	18.1	12.5	56.9	1.1	1.6	0.0
84	Pioneer 33F85	231.2	106.2	351.5	20.6	11.3	60.7	1.1	5.7	0.0
80	MBS3520/MBS8814	219.7	100.9	1090.1	20.8	10.5	53.7	14.6	0.0	0.0
83	Pioneer 31D58	237.6	109.2	746.3	22.9	10.4	58.0	0.5	0.0	0.0
5	TZAR104:N(LH61)(ANTIG03:N1242-B-007-B)-B-001/Coop-SS	202.4	93.0	106.4	19.7	10.3	59.7	2.0	0.0	0.0
72	TZAR104:N(LH61)(ANTIG03:N1242-B-007-B)-B-116/Coop-SS	170.9	78.5	607.9	16.9	10.1	61.3	0.0	0.0	0.0
47	TZAR104:N(LH61)(ANTIG03:N1242-B-007-B)-B-070/Coop-SS	171.3	78.7	400.9	17.1	10.0	61.1	2.5	0.0	0.0
62	TZAR104:N(LH61)(ANTIG03:N1242-B-007-B)-B-095/Coop-SS	195.7	89.9	348.5	19.8	9.9	59.8	1.0	1.6	0.0
37	TZAR104:N(LH61)(ANTIG03:N1242-B-007-B)-B-056/Coop-SS	189.5	87.1	476.2	19.4	9.8	61.2	1.0	0.8	0.0
59	TZAR104:N(LH61)(ANTIG03:N1242-B-007-B)-B-089/Coop-SS	173.9	79.9	745.0	17.9	9.7	60.4	0.5	0.8	0.0
15	TZAR104:N(LH61)(ANTIG03:N1242-B-007-B)-B-017/Coop-SS	180.1	82.7	393.3	18.6	9.7	62.7	5.5	4.9	0.0
17	TZAR104:N(LH61)(ANTIG03:N1242-B-007-B)-B-020/Coop-SS	195.1	89.6	271.7	20.4	9.6	59.4	5.6	0.8	0.0
10	TZAR104:N(LH61)(ANTIG03:N1242-B-007-B)-B-008/Coop-SS	169.9	78.1	160.6	17.9	9.5	61.1	2.0	0.8	0.0
65	TZAR104:N(LH61)(ANTIG03:N1242-B-007-B)-B-099/Coop-SS	179.3	82.4	16.4	18.9	9.5	60.7	18.1	0.0	0.0
60	TZAR104:N(LH61)(ANTIG03:N1242-B-007-B)-B-091/Coop-SS	177.0	81.3	35.7	18.7	9.5	61.7	3.4	0.8	0.0
58	TZAR104:N(LH61)(ANTIG03:N1242-B-007-B)-B-088/Coop-SS	180.6	83.0	436.3	19.2	9.4	61.2	1.5	1.6	0.0
69	TZAR104:N(LH61)(ANTIG03:N1242-B-007-B)-B-113/Coop-SS	181.3	83.3	51.2	19.4	9.3	61.2	14.8	0.0	0.0
11	TZAR104:N(LH61)(ANTIG03:N1242-B-007-B)-B-009/Coop-SS	163.6	75.1	1551.6	17.5	9.3	60.2	1.5	0.8	0.0
67	TZAR104:N(LH61)(ANTIG03:N1242-B-007-B)-B-108/Coop-SS	183.4	84.2	487.1	19.7	9.3	60.4	10.8	3.3	0.0
81	MBS9508/MBS2655	173.1	79.5	470.5	19.6	8.8	58.2	0.0	0.0	0.0
Replications		4			4	4	4	3	2	1
Test Entry Means		170.7			19.6	8.7	60.3	4.1	1.3	1.8
Check Means		217.7			20.4	10.7	57.5	3.5	1.5	0.0
Overall Means		173.6			19.7	8.8	60.1	4.0	1.3	1.7
Yield Range		144.1 - 237.6								
CV		10.0			4.4					
LSD (p=0.05)		24.5			1.2					

* All trial data will be posted on the website

** Locations: Oskaloosa in Iowa; Adair and Arenzville in Illinois; and Aurora in Nebraska

2016 GEM Ames Yield Trial Top Twenty Entries

Experiment: GEM1614105

Tester: Coop-nSS

		All Location Means								
Entry	Pedigree	Yield B/A	% Yield /CHK	Variance	% Moist	Yield/ Moist	TWT	% S.L.	% R.L.	% Green Snap
84	Pioneer 33F85	238.5	109.6	249.2	20.6	11.6	58.3	2.0	0.0	0.0
82	MBS3684/MBS9451	203.1	93.3	355.2	18.5	11.0	55.5	5.8	1.6	0.0
80	MBS3520/MBS8814	221.8	101.9	551.4	21.1	10.5	54.2	3.0	0.0	0.0
83	Pioneer 31D58	233.1	107.1	646.8	22.7	10.3	58.4	1.0	0.0	0.0
21	BR51039:S(PHJ40)(GEMS-0147)-B-026/Coop-nSS	193.0	88.7	187.7	18.8	10.3	58.3	10.1	9.7	0.0
32	BR51039:S(PHJ40)(GEMS-0147)-B-042/Coop-nSS	196.2	90.1	1116.0	19.1	10.3	58.5	11.1	1.6	0.0
48	BR51039:S(PHJ40)(GEMS-0147)-B-071/Coop-nSS	184.7	84.9	661.7	18.1	10.2	57.0	5.3	0.0	0.0
55	BR51039:S(PHJ40)(GEMS-0147)-B-091/Coop-nSS	188.6	86.7	625.8	18.5	10.2	57.6	6.3	0.0	0.0
65	BR51039:S(PHJ40)(GEMS-0147)-B-107/Coop-nSS	190.3	87.5	220.2	18.8	10.1	57.6	17.6	0.0	0.0
26	BR51039:S(PHJ40)(GEMS-0147)-B-033/Coop-nSS	189.4	87.0	229.0	18.7	10.1	56.5	3.7	0.0	0.0
39	BR51039:S(PHJ40)(GEMS-0147)-B-054/Coop-nSS	191.3	87.9	315.4	19.2	10.0	58.1	4.2	0.0	0.0
29	BR51039:S(PHJ40)(GEMS-0147)-B-036/Coop-nSS	174.5	80.2	472.7	17.6	9.9	55.9	18.3	0.0	0.0
25	BR51039:S(PHJ40)(GEMS-0147)-B-032/Coop-nSS	183.9	84.5	240.0	18.7	9.8	57.8	7.4	0.0	0.0
7	BR51039:S(PHJ40)(GEMS-0147)-B-005/Coop-nSS	191.5	88.0	187.0	19.5	9.8	58.4	2.1	1.6	0.0
66	BR51039:S(PHJ40)(GEMS-0147)-B-108/Coop-nSS	188.5	86.6	426.5	19.3	9.8	58.8	3.5	0.0	0.0
49	BR51039:S(PHJ40)(GEMS-0147)-B-072/Coop-nSS	189.6	87.1	343.7	19.4	9.8	58.3	10.6	0.0	0.0
27	BR51039:S(PHJ40)(GEMS-0147)-B-034/Coop-nSS	185.3	85.1	723.6	19.0	9.8	56.1	5.9	1.6	48.4
51	BR51039:S(PHJ40)(GEMS-0147)-B-077/Coop-nSS	188.5	86.6	173.3	19.4	9.7	58.6	2.7	1.6	0.0
79	BR51039:S(PHJ40)(GEMS-0147)-B-150/Coop-nSS	193.9	89.1	314.2	19.9	9.7	59.3	3.6	4.8	0.0
81	MBS9508/MBS2655	191.5	88.0	252.2	19.8	9.7	58.7	10.8	0.0	0.0
Replications		4			4	4	3	3	1	1
Test Entry Means		176.2			19.2	9.2	57.9	7.6	2.3	3.3
Check Means		217.6			20.5	10.6	57.0	4.5	0.3	0.0
Overall Means		178.8			19.3	9.3	57.8	7.4	2.2	3.1
Yield Range		140.1 - 238.5								
CV		9.1			3.3					
LSD (p=0.05)		22.8			0.9					

* All trial data will be posted on the website

** Locations: Oskaloosa in Iowa; Adair and Arenzville in Illinois; and Aurora in Nebraska

2016 GEM Ames Yield Trial Top Twenty Entries

Experiment: GEM1614201

Tester: Varied

		All Location Means										
Entry	Pedigree	Yield B/A	% Yield /CHK	Variance	% Moist	Yield/ Moist	TWT	% S.L.	% R.L.	Plant Height	Ear Height	% Green Snap
57	Pioneer 31D58	211.6	126.1	1977.8	19.1	11.1	55.4	0.0	6.4	277	107	12.7
17	CML341:S(GEMS-0115)(794)-B-040/MBS8814	172.3	102.7	1942.3	17.6	9.8	51.8	0.8	0.0	282	113	12.3
59	MBS3520/MBS8814	178.3	106.3	1081.1	18.6	9.6	51.7	1.6	0.0	287	104	25.0
6	CML341:S(GEMS-0115)(794)-B-008/MBS8814	174.3	103.9	895.4	17.9	9.7	53.6	0.0	1.5	288	113	0.0
15	CML341:S(GEMS-0115)(794)-B-037/MBS8814	182.3	108.6	1048.8	19.0	9.6	52.2	1.8	0.9	285	112	0.0
8	CML341:S(GEMS-0115)(794)-B-016/MBS8814	176.2	105.0	1019.9	18.6	9.5	53.0	0.0	2.7	284	116	12.9
23	CML341:S(GEMS-0115)(794)-B-063/MBS8814	167.9	100.1	1023.3	17.8	9.4	52.2	0.0	0.0	269	111	0.0
10	CML341:S(GEMS-0115)(794)-B-023/MBS8814	176.7	105.3	1693.9	18.9	9.3	51.3	0.5	7.1	269	96	12.5
25	PASCO14:S212612-B-033/MBS5411	162.6	96.9	552.4	17.4	9.4	55.2	0.5	1.9	276	114	13.0
3	CML341:S(GEMS-0115)(794)-B-002/MBS8814	179.0	106.7	1881.0	19.0	9.4	51.8	0.0	2.5	290	110	25.8
56	Pioneer 33F85	175.0	104.3	1761.8	18.8	9.3	55.6	0.0	1.6	269	99	50.8
24	CML341:S(GEMS-0115)(794)-B-064/MBS8814	182.4	108.7	1705.6	19.8	9.2	53.2	0.9	1.1	275	116	11.9
19	CML341:S(GEMS-0115)(794)-B-051/MBS8814	163.8	97.6	1258.9	17.9	9.2	52.1	1.4	9.7	273	109	0.0
58	Pioneer 31N27	170.9	101.9	1602.2	19.0	9.0	56.1	0.0	2.6	285	104	25.4
20	CML341:S(GEMS-0115)(794)-B-056/MBS8814	166.3	99.1	547.5	19.1	8.7	53.0	2.4	0.0	275	106	13.1
9	CML341:S(GEMS-0115)(794)-B-022/MBS8814	186.7	111.3	576.3	19.1	9.8	52.2	1.0	2.1	273	105	25.0
44	PASCO14:S2126h03-B-040/YSS100	162.7	97.0	377.3	18.4	8.8	55.0	0.0	0.0	280	114	25.5
12	CML341:S(GEMS-0115)(794)-B-032/MBS8814	165.2	98.5	1149.2	19.0	8.7	54.2	0.0	1.5	289	112	25.8
54	MBS9508/MBS2655	143.0	85.2	257.9	17.5	8.2	55.1	0.0	9.9	269	117	25.5
55	Pioneer 34R65	127.8	76.1	3113.5	18.1	7.1	57.2	0.0	0.9	271	91	87.5
Replications		6			6	6	5	3	3	2	2	1
Test Entry Means		156.4			19.1	8.2	53.6	1.1	4.6	286.0	114.0	27.0
Check Means		167.8			18.5	9.1	55.2	0.3	3.6	276.1	103.3	37.8
Overall Means		157.6			19.0	8.3	53.8	1.0	4.5	285.0	112.9	28.1
Yield Range		126.7 - 211.6										
CV		14.9			6.6							
LSD (p=0.05)		27.1			1.4							

* All trial data will be posted on the website

** Locations: Ames, Crawfordsville, Keystone, and Carroll in Iowa; Lewiston in North Carolina; and Sturgis in Kentucky

2016 GEM Ames Yield Trial Top Twenty Entries

Experiment: GEM1614202

Tester: Varied

		All Location Means										
Entry	Pedigree	Yield B/A	% Yield /CHK	Variance	% Moist	Yield/ Moist	TWT	% S.L.	% R.L.	Plant Height	Ear Height	% Green Snap
54	Pioneer 31N27	200.6	110.9	644.5	20.3	9.9	56.9	0.0	23.3	277	104	25.7
4	(NEI9004:S2809-B-061-B-B/GEMS-0003)-B-B-007/MBS8814	189.7	104.9	2135.7	19.6	9.7	53.1	2.0	17.3	298	119	38.0
7	(NEI9004:S2809-B-061-B-B/GEMS-0003)-B-B-012/MBS8814	197.1	109.1	1022.0	20.6	9.6	53.8	0.7	5.0	299	141	13.1
53	Pioneer 31D58	204.8	113.3	1718.7	21.5	9.5	56.2	1.2	17.9	287	108	13.2
55	MBS3520/MBS8814	185.5	102.6	2113.0	20.1	9.2	51.7	0.7	9.0	281	109	25.0
8	(NEI9004:S2809-B-061-B-B/GEMS-0003)-B-B-014/MBS8814	181.9	100.6	575.5	19.5	9.3	53.1	2.2	5.5	283	118	25.5
9	(NEI9004:S2809-B-061-B-B/GEMS-0003)-B-B-015/MBS8814	196.5	108.7	1140.1	22.0	8.9	52.6	2.5	16.2	287	109	0.0
5	(NEI9004:S2809-B-061-B-B/GEMS-0003)-B-B-008/MBS8814	186.5	103.2	918.8	20.9	8.9	53.7	0.0	7.5	284	110	13.2
6	(NEI9004:S2809-B-061-B-B/GEMS-0003)-B-B-011/MBS8814	186.0	102.9	1014.5	20.8	8.9	53.5	2.2	6.3	279	118	25.9
37	NEI9008:S17a26h40-B-033/MBS8814	190.4	105.3	1075.7	21.6	8.8	52.9	1.2	17.7	302	125	0.0
13	(NEI9004:S2809-B-061-B-B/GEMS-0003)-B-B-040/MBS8814	174.9	96.8	1138.5	20.0	8.7	54.0	1.4	5.1	291	119	25.0
52	Pioneer 33F85	174.2	96.3	3194.8	20.3	8.6	56.6	2.4	12.7	275	104	75.9
16	(NEI9004:S2809-B-061-B-B/GEMS-0003)-B-B-052/MBS8814	187.2	103.5	733.0	21.3	8.8	55.4	0.9	14.7	284	129	0.0
15	(NEI9004:S2809-B-061-B-B/GEMS-0003)-B-B-049/MBS8814	182.2	100.8	862.8	20.9	8.7	53.5	2.3	6.8	301	123	0.0
17	(NEI9004:S2809-B-061-B-B/GEMS-0003)-B-B-055/MBS8814	184.9	102.3	1322.6	21.7	8.5	52.1	2.7	8.3	299	121	13.0
51	Pioneer 34R65	164.2	90.8	1339.9	19.1	8.6	57.7	0.0	17.4	271	90	75.7
1	(NEI9004:S2809-B-061-B-B/GEMS-0003)-B-B-002/MBS8814	195.7	108.2	1144.8	22.6	8.6	53.1	1.2	23.9	287	123	12.9
10	(NEI9004:S2809-B-061-B-B/GEMS-0003)-B-B-026/MBS8814	198.1	109.6	2036.7	23.0	8.6	52.0	2.1	4.0	288	122	0.0
21	(NEI9004:S2809-B-061-B-B/GEMS-0003)-B-B-068/MBS8814	190.6	105.5	932.6	22.0	8.7	53.7	0.0	10.6	276	128	0.0
50	MBS9508/MBS2655	155.4	85.9	2909.4	19.2	8.1	56.5	0.0	7.8	284	112	26.3
Replications		7			7	7	6	2	2	2	2	1
Test Entry Means		178.7			21.9	8.2	52.9	1.4	11.2	285.4	119.5	27.4
Check Means		180.8			20.1	9.0	55.9	0.7	14.7	279.0	104.3	40.3
Overall Means		179.0			21.7	8.3	53.2	1.3	11.5	284.7	117.9	28.9
Yield Range		153.5 - 204.8										
CV		12.1			6.0							
LSD (p=0.05)		23.1			1.4							

* All trial data will be posted on the website

** Locations: Ames, Crawfordsville, Keystone, and Carroll in Iowa; Lewiston in North Carolina; Norway in Kansas; and Decatur in Illinois

2016 GEM Ames Yield Trial Top Twenty Entries

Experiment: GEM1654101

Tester: MBS2655

		All Location Means										
Entry	Pedigree	Yield B/A	% Yield /CHK	Variance	% Moist	Yield/ Moist	TWT	% S.L.	% R.L.	Plant Height	Ear Height	% Green Snap
61	Pioneer P1151	223.2	111.5	308.8	17.5	12.7	56.3	0.0	49.6	257	108	3.1
26	(M024-001/GEMN-0097)-B-B-031/MBS2655	194.2	97.0	498.8	15.7	12.3	55.5	0.0	28.0	265	118	3.3
59	MBS3684/MBS9451	191.3	95.6	962.1	16.0	12.0	55.6	0.0	7.7	265	120	8.5
64	Pioneer 31N27	218.9	109.3	585.8	18.5	11.9	56.6	0.0	24.3	263	118	11.1
57	(M024-001/GEMN-0097)-B-B-069/MBS2655	189.6	94.7	395.1	16.1	11.8	56.4	0.0	75.0	255	110	4.7
46	(M024-001/GEMN-0097)-B-B-053/MBS2655	189.1	94.5	1322.3	16.2	11.7	55.2	1.5	37.0	278	113	10.9
63	Pioneer 33F85	210.5	105.2	1202.9	18.0	11.7	56.7	0.0	49.9	263	118	6.0
62	MBS3520/MBS8814	202.3	101.1	1659.5	17.7	11.5	53.4	1.6	20.0	282	123	24.2
5	(M024-001/GEMN-0097)-B-B-005/MBS2655	189.0	94.4	471.9	16.9	11.2	55.1	0.0	44.4	270	107	11.7
19	(M024-001/GEMN-0097)-B-B-022/MBS2655	177.5	88.7	841.4	16.0	11.1	56.6	0.0	30.1	255	110	15.1
22	(M024-001/GEMN-0097)-B-B-026/MBS2655	181.3	90.6	1002.4	16.3	11.1	55.4	0.0	30.3	268	113	9.4
3	(M024-001/GEMN-0097)-B-B-003/MBS2655	179.3	89.6	608.4	16.1	11.1	55.3	0.0	26.9	258	113	5.8
40	(M024-001/GEMN-0097)-B-B-047/MBS2655	176.0	87.9	255.7	15.9	11.1	54.3	1.5	53.7	257	110	1.6
9	(M024-001/GEMN-0097)-B-B-009/MBS2655	181.9	90.9	674.5	16.4	11.1	55.9	0.0	43.8	258	110	8.3
29	(M024-001/GEMN-0097)-B-B-034/MBS2655	176.2	88.0	192.9	16.0	11.0	55.5	1.6	21.1	265	113	7.3
35	(M024-001/GEMN-0097)-B-B-042/MBS2655	174.2	87.0	1320.5	15.9	11.0	54.5	0.0	39.1	262	117	13.6
16	(M024-001/GEMN-0097)-B-B-018/MBS2655	179.4	89.6	433.1	16.4	10.9	55.8	0.0	32.4	252	100	11.5
49	(M024-001/GEMN-0097)-B-B-057/MBS2655	182.1	91.0	1964.0	17.0	10.7	54.4	0.0	44.0	253	117	24.2
55	(M024-001/GEMN-0097)-B-B-066/MBS2655	188.0	93.9	1391.3	17.8	10.6	54.4	0.0	21.2	265	123	14.3
60	MBS9508/MBS2655	154.9	77.4	1343.3	17.4	8.9	57.2	0.0	21.0	282	110	0.0
Replications		5			5	5	5	1	2	1	1	1
Test Entry Means		167.0			16.6	10.1	55.3	0.5	41.2	257.9	109.9	27.9
Check Means		200.2			17.5	11.4	56.0	0.3	28.7	268.7	116.2	8.8
Overall Means		170.1			16.6	10.2	55.4	0.5	40.0	258.9	110.5	25.8
Yield Range		128.0 - 223.2										
CV		14.1			7.4							
LSD (p=0.05)		29.8			1.5							

* All trial data will be posted on the website

** Locations: Ames, Crawfordsville, and Keystone in Iowa; El Paso in Illinois; and Tekamah in Nebraska

2016 GEM Ames Yield Trial Top Twenty Entries

Experiment: GEM1654102

Tester: MBS3520

		All Location Means										
Entry	Pedigree	Yield B/A	% Yield /CHK	Variance	% Moist	Yield/ Moist	TWT	% S.L.	% R.L.	Plant Height	Ear Height	% Green Snap
62	MBS3684/MBS9451	205.4	104.0	750.5	16.4	12.6	54.5	0.0	21.7	273	108	12.8
64	Pioneer P1151	215.7	109.2	54.5	18.8	11.5	55.2	0.0	26.3	265	95	2.4
67	Pioneer 31N27	214.6	108.6	563.2	19.3	11.1	56.2	0.0	25.8	268	110	6.8
40	(M024-001/GEMN-0097)-B-B-049/MBS3520	189.3	95.8	1103.0	17.1	11.1	54.0	0.0	32.8	268	113	13.5
65	MBS3520/MBS8814	205.5	104.0	2576.4	18.9	10.9	52.2	0.0	18.2	283	112	13.6
11	(M024-001/GEMN-0097)-B-B-014/MBS3520	176.1	89.1	454.2	16.4	10.7	53.9	0.0	36.0	267	103	17.6
6	(M024-001/GEMN-0097)-B-B-009/MBS3520	175.8	89.0	348.6	16.9	10.4	55.5	0.0	30.3	272	103	18.1
36	(M024-001/GEMN-0097)-B-B-043/MBS3520	195.5	99.0	611.0	18.9	10.4	55.6	0.0	23.5	287	120	12.7
28	(M024-001/GEMN-0097)-B-B-035/MBS3520	179.8	91.0	540.9	17.4	10.3	55.5	0.0	29.7	265	107	15.5
38	(M024-001/GEMN-0097)-B-B-046/MBS3520	168.5	85.3	591.0	16.8	10.0	55.4	0.0	45.1	253	95	12.0
66	Pioneer 33F85	187.5	94.9	1201.2	18.7	10.0	56.0	0.0	37.7	262	110	31.9
21	(M024-001/GEMN-0097)-B-B-026/MBS3520	173.4	87.8	1500.9	17.5	9.9	54.2	0.0	14.9	277	113	12.2
1	(M024-001/GEMN-0097)-B-B-001/MBS3520	160.1	81.0	322.4	16.2	9.9	54.5	1.8	23.2	258	95	14.5
52	(M024-001/GEMN-0097)-B-B-061/MBS3520	156.8	79.4	4667.1	16.1	9.7	53.8	0.0	41.1	277	113	46.6
23	(M024-001/GEMN-0097)-B-B-029/MBS3520	157.4	79.7	375.2	16.2	9.7	55.5	0.0	33.8	257	98	16.4
41	(M024-001/GEMN-0097)-B-B-050/MBS3520	156.4	79.1	575.8	16.2	9.7	54.1	0.0	28.0	260	100	18.4
25	(M024-001/GEMN-0097)-B-B-031/MBS3520	162.3	82.2	559.9	16.8	9.7	54.4	0.0	54.4	260	98	11.3
46	(M024-001/GEMN-0097)-B-B-055/MBS3520	162.4	82.2	3813.6	16.9	9.6	54.9	0.0	9.7	285	113	51.7
53	(M024-001/GEMN-0097)-B-B-062/MBS3520	155.6	78.8	2312.3	17.2	9.0	52.7	1.6	26.3	267	107	46.6
63	MBS9508/MBS2655	156.7	79.3	962.6	17.4	9.0	54.3	0.0	36.1	278	115	29.0
Replications		5			5	5	5	1	3	1	1	2
Test Entry Means		153.8			17.2	9.0	54.4	0.3	33.3	270.1	107.5	32.7
Check Means		197.6			18.2	10.8	54.8	0.0	27.6	271.5	108.3	16.1
Overall Means		157.7			17.3	9.1	54.5	0.3	32.8	270.2	107.6	30.9
Yield Range		121.4 - 215.7										
CV		16.0			7.9							
LSD (p=0.05)		31.7			1.7							

* All trial data will be posted on the website

** Locations: Ames, Crawfordsville, Keystone, and Carroll in Iowa; and Tekamah in Nebraska

2016 GEM Ames Yield Trial Top Twenty Entries

Experiment: GEM1654103

Tester: MBS3520

		All Location Means										
<i>Entry</i>	<i>Pedigree</i>	<i>Yield B/A</i>	<i>% Yield /CHK</i>	<i>Variance</i>	<i>% Moist</i>	<i>Yield/ Moist</i>	<i>TWT</i>	<i>% S.L.</i>	<i>% R.L.</i>	<i>Plant Height</i>	<i>Ear Height</i>	<i>% Green Snap</i>
82	MBS3684/MBS9451	213.0	110.3	126.0	17.1	12.5	54.5	0.0	81.1	275	116	0.0
84	Pioneer P1151	201.3	104.2	724.5	18.5	10.9	55.0	0.0	81.6	257	90	2.3
87	Pioneer 31N27	217.5	112.6	701.6	20.1	10.8	55.9	0.0	37.5	268	111	3.9
86	Pioneer 33F85	203.0	105.1	1109.4	18.9	10.7	55.7	1.4	30.6	257	108	28.1
30	(LH82/KO679Y)-B-B-035/MBS3520	178.4	92.4	161.8	18.0	9.9	55.0	3.1	75.4	273	125	20.9
34	(LH82/KO679Y)-B-B-039/MBS3520	168.8	87.4	387.1	17.2	9.8	57.0	1.5	87.7	263	102	7.2
71	(LH82/KO679Y)-B-B-087/MBS3520	172.3	89.2	679.7	17.7	9.8	54.7	4.2	40.7	278	100	14.8
45	(LH82/KO679Y)-B-B-052/MBS3520	162.6	84.2	135.5	16.7	9.7	56.3	0.0	63.3	258	102	12.9
54	(LH82/KO679Y)-B-B-066/MBS3520	166.1	86.0	281.4	17.2	9.7	55.1	3.0	68.7	260	108	10.2
65	(LH82/KO679Y)-B-B-081/MBS3520	170.2	88.1	144.9	17.7	9.6	55.9	1.4	64.8	252	113	1.5
51	(LH82/KO679Y)-B-B-060/MBS3520	162.7	84.3	418.2	17.0	9.6	54.8	0.0	42.2	235	98	14.8
85	MBS3520/MBS8814	172.6	89.4	3123.3	18.2	9.5	53.0	0.0	87.7	270	110	62.9
64	(LH82/KO679Y)-B-B-080/MBS3520	169.9	88.0	277.8	17.9	9.5	55.4	0.0	42.6	267	107	10.2
33	(LH82/KO679Y)-B-B-038/MBS3520	161.2	83.5	57.1	17.1	9.4	55.0	0.0	87.5	260	115	10.5
42	(LH82/KO679Y)-B-B-049/MBS3520	172.3	89.2	171.5	18.3	9.4	55.4	0.0	30.0	262	114	10.8
27	(LH82/KO679Y)-B-B-030/MBS3520	156.8	81.2	191.6	16.7	9.4	56.0	0.0	81.2	235	90	6.3
1	(LH82/KO679Y)-B-B-002/MBS3520	165.1	85.5	42.0	17.7	9.3	55.7	1.7	32.3	245	95	12.7
37	(LH82/KO679Y)-B-B-042/MBS3520	167.2	86.5	151.0	17.9	9.3	55.3	0.0	48.2	267	100	8.3
17	(LH82/KO679Y)-B-B-018/MBS3520	167.1	86.5	1428.4	18.5	9.1	54.9	0.0	75.4	252	103	14.8
83	MBS9508/MBS2655	151.5	78.4	851.0	17.8	8.5	55.7	3.3	62.3	275	108	24.5
Replications		5			5	5	5	1	2	1	1	2
Test Entry Means		155.2			18.1	8.6	55.5	2.3	57.0	256.5	105.7	15.7
Check Means		193.2			18.4	10.5	55.0	0.8	63.4	267.0	107.2	20.3
Overall Means		157.8			18.2	8.7	55.4	2.2	57.4	257.3	105.8	15.9
Yield Range		88.9 - 217.5										
CV		13.8			6.3							
LSD (p=0.05)		27.2			1.4							

* All trial data will be posted on the website

** Locations: Ames, Crawfordsville, Keystone, and Carroll in Iowa; and Tekamah in Nebraska

2016 GEM Ames Yield Trial Top Twenty Entries

Experiment: GEM1654104

Tester: MBS9451

		All Location Means										
Entry	Pedigree	Yield B/A	% Yield /CHK	Variance	% Moist	Yield/ Moist	TWT	% S.L.	% R.L.	Plant Height	Ear Height	% Green Snap
102	MBS3684/MBS9451	207.4	101.9	607.7	18.2	11.4	54.8	0.0	62.7	262	112	8.3
104	Pioneer P1151	214.8	105.6	822.4	19.2	11.2	55.8	0.0	37.7	260	100	1.5
108	Pioneer 31D58	236.5	116.3	221.2	21.3	11.1	56.4	0.0	27.1	263	103	6.3
105	MBS3520/MBS8814	200.4	98.5	785.2	19.3	10.4	53.2	0.0	37.5	255	107	10.6
106	Pioneer 33F85	199.0	97.8	990.0	20.1	9.9	56.3	0.0	19.1	258	110	6.2
77	(LH82/KO679Y)-B-B-077/MBS9451	173.3	85.2	101.9	17.9	9.7	54.8	0.0	33.0	248	100	0.0
107	Pioneer 31N27	193.3	95.0	1054.0	20.1	9.6	56.8	2.9	12.5	265	107	9.2
49	(LH82/KO679Y)-B-B-049/MBS9451	177.0	87.0	255.8	18.7	9.5	54.6	0.0	44.4	242	103	0.0
103	MBS9508/MBS2655	172.8	84.9	72.4	18.3	9.4	56.2	0.0	25.5	242	97	0.0
64	(LH82/KO679Y)-B-B-064/MBS9451	169.7	83.4	454.3	18.2	9.3	56.1	4.3	43.0	253	100	3.1
30	(LH82/KO679Y)-B-B-030/MBS9451	167.5	82.3	28.7	18.1	9.2	55.6	1.4	25.4	228	93	0.0
69	(LH82/KO679Y)-B-B-069/MBS9451	169.8	83.4	519.4	18.4	9.2	54.2	0.0	21.9	230	93	0.0
48	(LH82/KO679Y)-B-B-048/MBS9451	178.0	87.5	36.4	19.4	9.2	54.3	0.0	8.7	245	98	0.0
35	(LH82/KO679Y)-B-B-035/MBS9451	161.6	79.4	503.4	17.6	9.2	53.8	0.0	11.7	257	122	0.0
25	(LH82/KO679Y)-B-B-025/MBS9451	161.3	79.3	923.0	17.8	9.1	54.8	0.0	31.4	233	85	0.0
55	(LH82/KO679Y)-B-B-055/MBS9451	168.7	82.9	718.6	18.8	9.0	55.5	0.0	23.8	253	107	6.3
52	(LH82/KO679Y)-B-B-052/MBS9451	161.0	79.1	385.3	18.0	8.9	56.1	0.0	36.0	272	113	6.3
79	(LH82/KO679Y)-B-B-079/MBS9451	168.9	83.0	72.7	18.9	8.9	54.8	0.0	24.0	232	92	0.0
100	(LH82/KO679Y)-B-B-103/MBS9451	162.7	80.0	134.4	18.2	8.9	56.2	0.0	68.9	248	95	5.9
9	(LH82/KO679Y)-B-B-009/MBS9451	165.9	81.5	496.8	18.6	8.9	55.3	0.0	69.1	240	93	13.6
Replications		5			5	5	5	1	2	1	1	1
Test Entry Means		153.7			18.9	8.1	54.8	1.4	34.3	244.7	99.5	3.0
Check Means		203.5			19.5	10.4	55.6	0.4	31.7	257.9	105.1	6.0
Overall Means		156.9			18.9	8.3	54.8	1.4	34.1	245.6	99.9	3.2
Yield Range		118.3 - 236.5										
CV		10.9			4.4							
LSD (p=0.05)		21.8			1.0							

* All trial data will be posted on the website

** Locations: Ames, Crawfordsville, and Keystone in Iowa; Geneseo in Illinois; and Tekamah in Nebraska

2016 GEM Ames Yield Trial Top Twenty Entries

Experiment: GEM1664101

Tester: MBS6403

		All Location Means										
Entry	Pedigree	Yield B/A	% Yield /CHK	Variance	% Moist	Yield/ Moist	TWT	% S.L.	% R.L.	Plant Height	Ear Height	% Green Snap
62	MBS3684/MBS9451	210.8	104.2	220.4	16.3	12.9	54.7	0.0	1.5	268	110	11.9
15	(GEMS-0115/GEMS-0222)-B-B-016/MBS6403	179.5	88.7	415.9	14.2	12.7	52.1	0.0	6.8	252	98	12.1
25	(GEMS-0115/GEMS-0222)-B-B-030/MBS6403	182.6	90.2	303.9	14.6	12.5	53.0	0.0	3.5	258	113	0.0
28	(GEMS-0115/GEMS-0222)-B-B-033/MBS6403	192.5	95.1	563.0	15.4	12.5	55.0	0.9	11.0	268	95	12.2
44	(GEMS-0115/GEMS-0222)-B-B-054/MBS6403	183.3	90.6	420.7	14.7	12.4	53.0	0.8	4.5	272	92	0.0
64	Pioneer P1151	216.9	107.2	170.7	17.5	12.4	55.8	0.0	0.0	250	110	0.0
4	(GEMS-0115/GEMS-0222)-B-B-005/MBS6403	179.9	88.9	334.5	14.5	12.4	53.6	0.0	7.6	267	87	12.1
8	(GEMS-0115/GEMS-0222)-B-B-009/MBS6403	189.0	93.4	1098.3	15.3	12.4	52.8	0.0	5.2	253	92	12.1
14	(GEMS-0115/GEMS-0222)-B-B-015/MBS6403	180.2	89.1	795.3	14.6	12.3	53.1	0.7	14.0	282	107	0.0
65	MBS3520/MBS8814	220.1	108.8	837.8	17.9	12.3	52.2	0.0	0.0	258	120	0.0
51	(GEMS-0115/GEMS-0222)-B-B-061/MBS6403	180.7	89.3	409.4	14.8	12.2	53.5	2.9	3.4	255	98	0.0
47	(GEMS-0115/GEMS-0222)-B-B-057/MBS6403	184.8	91.4	484.0	15.2	12.1	53.1	0.0	14.2	293	110	11.9
58	(GEMS-0219/GEMS-0227)-B-001/MBS5411	184.8	91.4	98.6	15.3	12.1	54.5	0.0	12.3	265	127	12.3
60	(GEMS-0219/GEMS-0227)-B-003/MBS5411	177.0	87.5	53.1	14.8	12.0	55.2	0.0	3.6	268	117	25.7
40	(GEMS-0115/GEMS-0222)-B-B-050/MBS6403	171.7	84.9	297.4	14.5	11.9	53.6	2.9	4.7	250	105	0.0
59	(GEMS-0219/GEMS-0227)-B-002/MBS5411	185.4	91.6	201.0	15.7	11.8	56.8	0.0	11.4	272	107	0.0
27	(GEMS-0115/GEMS-0222)-B-B-032/MBS6403	182.8	90.3	220.8	15.6	11.7	54.7	0.7	8.4	260	103	0.0
10	(GEMS-0115/GEMS-0222)-B-B-011/MBS6403	180.3	89.1	287.9	15.4	11.7	54.7	0.0	33.4	265	102	0.0
66	Pioneer 33F85	209.0	103.3	1292.1	18.4	11.4	56.5	0.0	1.5	257	100	37.7
63	MBS9508/MBS2655	154.8	76.5	1709.2	16.6	9.3	56.3	1.2	0.0	265	122	24.1
Replications		5			5	5	5	2	2	1	1	1
Test Entry Means		167.8			15.1	11.1	53.6	1.0	12.7	259.1	102.4	12.2
Check Means		202.3			17.3	11.7	55.1	0.2	0.6	259.6	112.4	14.8
Overall Means		170.5			15.2	11.2	53.7	0.9	11.7	259.1	103.2	12.2
Yield Range		145.5 - 220.1										
CV		10.7			3.0							
LSD (p=0.05)		22.6			0.6							

* All trial data will be posted on the website

** Locations: Ames, Crawfordsville, Keystone, Carroll, and Callender in Iowa.

2016 GEM Ames Yield Trial Top Twenty Entries

Experiment: GEM1664102

Tester: MBS6403

		All Location Means										
Entry	Pedigree	Yield B/A	% Yield /CHK	Variance	% Moist	Yield/ Moist	TWT	% S.L.	% R.L.	Plant Height	Ear Height	% Green Snap
14	(GEMS-0219/GEMS-0227)-B-015/MBS6403	198.0	104.7	379.9	15.0	13.2	54.8	0.0	17.1	165	88	0.0
40	(GEMS-0219/GEMS-0227)-B-042/MBS6403	181.7	96.1	375.5	13.9	13.1	55.1	0.0	9.2	252	102	0.0
42	(GEMS-0219/GEMS-0227)-B-044/MBS6403	188.5	99.7	374.2	14.5	13.0	56.5	0.0	10.4	260	93	0.0
49	(GEMS-0219/GEMS-0227)-B-053/MBS6403	192.3	101.7	467.8	14.9	12.9	55.7	0.0	9.4	262	115	0.0
9	(GEMS-0219/GEMS-0227)-B-009/MBS6403	185.0	97.8	119.4	14.5	12.7	56.3	0.0	18.5	272	115	0.0
52	(GEMS-0219/GEMS-0227)-B-056/MBS6403	181.7	96.1	285.5	14.4	12.6	56.0	0.0	24.6	260	92	12.3
5	(GEMS-0219/GEMS-0227)-B-005/MBS6403	176.1	93.1	388.6	14.2	12.4	54.3	2.9	1.4	268	95	0.0
55	(GEMS-0219/GEMS-0227)-B-060/MBS6403	175.6	92.8	904.9	14.2	12.3	55.1	1.4	21.5	247	87	0.0
22	(GEMS-0219/GEMS-0227)-B-023/MBS6403	178.7	94.5	735.5	14.5	12.3	55.4	0.0	37.9	255	93	37.9
48	(GEMS-0219/GEMS-0227)-B-052/MBS6403	180.2	95.3	287.9	14.7	12.3	55.7	0.0	39.7	268	110	13.2
29	(GEMS-0219/GEMS-0227)-B-030/MBS6403	169.6	89.7	526.5	13.8	12.3	54.1	0.0	21.9	253	93	0.0
38	(GEMS-0219/GEMS-0227)-B-040/MBS6403	175.7	92.9	160.7	14.3	12.3	56.6	4.8	10.0	253	92	0.0
46	(GEMS-0219/GEMS-0227)-B-050/MBS6403	184.8	97.7	283.1	15.1	12.2	56.3	0.0	22.7	242	93	0.0
35	(GEMS-0219/GEMS-0227)-B-037/MBS6403	177.5	93.9	429.4	14.6	12.2	55.5	0.0	37.3	257	92	11.9
33	(GEMS-0219/GEMS-0227)-B-035/MBS6403	184.4	97.5	217.8	15.2	12.1	56.8	0.0	34.5	265	103	12.1
57	Pioneer P1151	196.7	104.0	337.7	16.8	11.7	56.7	0.0	3.0	247	105	11.9
58	MBS3520/MBS8814	208.3	110.1	799.6	18.0	11.6	52.4	0.0	6.9	265	110	12.5
59	Pioneer 33F85	193.5	102.3	1855.6	17.7	10.9	56.9	0.0	0.0	253	102	37.9
60	Pioneer 31N27	185.2	97.9	931.4	18.1	10.2	57.8	0.0	3.1	255	87	12.5
56	MBS9508/MBS2655	162.0	85.7	597.1	16.6	9.7	57.5	0.0	64.3	272	103	11.9
Replications		5			5	5	5	1	1	1	1	1
Test Entry Means		175.0			14.9	11.7	55.5	0.3	23.5	255.4	98.5	7.3
Check Means		189.1			17.5	10.8	56.3	0.0	15.5	258.4	101.4	17.3
Overall Means		176.2			15.1	11.6	55.6	0.3	22.8	255.6	98.7	8.0
Yield Range		155.9 - 208.3										
CV		9.1			3.5							
LSD (p=0.05)		20.2			0.7							

* All trial data will be posted on the website

** Locations: Ames, Crawfordsville, Keystone, and Carroll in Iowa; and Norway in Kansas

2016 GEM Ames Yield Trial Top Twenty Entries

Experiment: GEM1664103

Tester: MBS9508

		All Location Means										
Entry	Pedigree	Yield B/A	% Yield /CHK	Variance	% Moist	Yield/ Moist	TWT	% S.L.	% R.L.	Plant Height	Ear Height	% Green Snap
73	Pioneer P1151	194.9	106.2	576.0	17.9	10.9	55.3	0.0	11.8	273	112	0.0
3	(H8431/((GEMS-0115/Mp717)/TZAR101))-SIB-B-005/MBS9508	186.0	101.3	1462.5	17.5	10.6	55.4	7.3	52.0	275	123	12.9
76	Pioneer 31N27	199.4	108.7	1514.3	19.1	10.4	57.0	0.0	8.5	262	118	0.0
50	(H8431/((GEMS-0115/Mp717)/TZAR101))-SIB-B-045/MBS9508	176.4	96.1	354.9	17.0	10.4	56.3	0.0	38.1	295	135	25.7
6	(H8431/((GEMS-0115/Mp717)/TZAR101))-SIB-B-008/MBS9508	179.9	98.0	1319.4	17.4	10.4	56.3	0.8	23.0	300	147	50.0
32	(H8431/((GEMS-0115/Mp717)/TZAR101))-SIB-B-032/MBS9508	170.9	93.1	317.0	16.8	10.2	56.6	3.5	16.4	288	132	25.9
55	(H8431/((GEMS-0115/Mp717)/TZAR101))-SIB-B-048/MBS5411	167.2	91.1	1066.5	16.4	10.2	55.4	3.1	26.1	298	130	37.7
38	(H8431/((GEMS-0115/Mp717)/TZAR101))-SIB-B-036/MBS9508	177.6	96.8	1548.3	17.5	10.2	56.4	0.0	33.1	280	128	13.2
13	(H8431/((GEMS-0115/Mp717)/TZAR101))-SIB-B-015/MBS9508	176.7	96.3	251.1	17.4	10.2	55.9	0.0	2.6	277	120	12.1
33	(H8431/((GEMS-0115/Mp717)/TZAR101))-SIB-B-033/MBS9508	182.8	99.6	1215.0	18.0	10.2	56.8	0.8	13.5	273	120	0.0
15	(H8431/((GEMS-0115/Mp717)/TZAR101))-SIB-B-018/MBS9508	165.3	90.1	1123.1	16.4	10.1	56.2	4.9	0.9	287	130	50.8
39	(H8431/((GEMS-0115/Mp717)/TZAR101))-SIB-B-037/MBS9508	178.4	97.2	1295.5	17.8	10.0	56.6	6.7	43.8	270	142	25.0
77	Pioneer 31D58	204.2	111.3	625.8	20.4	10.0	56.1	0.0	0.8	277	120	12.5
53	(H8431/((GEMS-0115/Mp717)/TZAR101))-SIB-B-047/MBS5411	164.6	89.7	906.0	16.7	9.8	55.2	4.4	36.9	297	143	11.9
26	(H8431/((GEMS-0115/Mp717)/TZAR101))-SIB-B-029/MBS5411	158.6	86.4	955.0	16.3	9.7	56.5	2.4	33.5	287	115	25.8
75	Pioneer 33F85	184.9	100.8	1852.2	19.1	9.7	56.6	0.0	17.9	290	140	50.7
40	(H8431/((GEMS-0115/Mp717)/TZAR101))-SIB-B-038/MBS9508	178.8	97.4	1184.9	18.5	9.7	56.9	2.8	7.9	277	117	0.0
60	(H8431/((GEMS-0115/Mp717)/TZAR101))-SIB-B-054/MBS9508	172.5	94.0	786.5	18.2	9.5	57.5	7.3	42.8	283	123	12.9
74	MBS3520/MBS8814	172.5	94.0	552.5	18.7	9.2	52.6	6.0	21.3	277	123	12.9
72	MBS9508/MBS2655	145.2	79.1	852.0	17.1	8.5	55.6	8.8	36.1	273	122	12.2
Replications		5			5	5	5	2	2	1	1	1
Test Entry Means		157.3			17.6	8.9	56.2	3.5	31.5	285.7	128.5	32.6
Check Means		183.5			18.7	9.8	55.5	2.5	16.0	275.3	122.5	14.7
Overall Means		159.3			17.7	9.0	56.2	3.4	30.3	284.9	128.0	31.3
Yield Range		131.5 - 204.2										
CV		16.9			5.4							
LSD (p=0.05)		33.8			1.2							

* All trial data will be posted on the website

** Locations: Ames, Crawfordsville, Keystone, and Carroll in Iowa; and Champaign in Illinois

2016 GEM Ames Yield Trial Top Twenty Entries

Experiment: GEM1664104

Tester: Varied

		All Location Means										
Entry	Pedigree	Yield B/A	% Yield /CHK	Variance	% Moist	Yield/ Moist	TWT	% S.L.	% R.L.	Plant Height	Ear Height	% Green Snap
3	BR52051:S172641-B-011-B/MBS8814	212.4	111.0	734.7	19.0	11.2	52.3	0.0	12.3	288	150	13.2
33	Pioneer P1151	211.8	110.6	1108.2	17.9	11.8	55.3	0.0	38.2	268	113	0.0
32	Pioneer 31N27	210.8	110.1	338.0	19.1	11.0	56.2	0.0	32.2	273	110	11.9
2	(NEI9004:S2809-B-061-B-B/GEMS-0003)-B-B-052/MBS8814	207.3	108.3	186.4	20.6	10.1	55.0	5.9	11.4	273	140	0.0
4	CML341:S(GEMS-0115)(794)-B-032/MBS8814	203.1	106.1	191.9	19.2	10.6	53.8	0.0	19.3	285	145	0.0
34	MBS3520/MBS8814	202.6	105.9	1552.4	18.5	10.9	51.7	0.0	19.1	292	118	0.0
20	TZi 9:S21z(GEMS-0163)-B-054-001/MBS8814	200.7	104.8	482.6	18.6	10.8	53.5	0.0	25.0	277	140	12.1
31	Pioneer 33F85	200.1	104.5	3441.5	18.6	10.8	56.5	1.5	20.5	275	110	75.0
10	MBS2655/(53NS2/GEMN-0128)-SIB-B-029	186.7	97.5	3439.0	18.1	10.3	53.1	1.4	31.8	292	135	61.9
1	(53SS4/GEMS-0031)-SIB-B-010-B/MBS8814	185.5	96.9	3685.0	17.3	10.7	54.3	0.0	37.7	278	133	0.0
36	MBS3644/MBS5411	178.1	93.0	146.7	15.5	11.5	54.7	0.0	32.9	278	127	25.9
21	BGEM-0044-S/MBS5411	174.6	91.2	89.0	16.5	10.6	55.9	3.1	42.2	288	127	12.5
19	TZi 9:S21z(GEMS-0163)-B-040-001/MBS8814	170.3	89.0	953.3	18.0	9.5	52.1	0.0	15.0	282	138	50.0
8	MBS2655/(GEMN-0140/GEMN-0097)-B-B-034-B	169.9	88.8	2769.4	15.9	10.7	54.1	0.0	38.7	282	117	63.1
28	BGEM-0220-S/MBS5411	167.1	87.3	528.6	15.2	11.0	54.4	0.0	38.3	282	122	12.5
7	DKXL370:S08b46-B-031-B/MBS5411	165.2	86.3	123.4	15.1	11.0	54.4	0.0	30.9	270	130	12.5
26	BGEM-0080-S/MBS5411	157.3	82.2	233.2	15.4	10.2	52.7	0.0	36.7	278	110	13.0
29	BGEM-0233-S/MBS5411	151.0	78.9	260.9	15.1	10.0	55.7	8.8	68.0	288	123	12.1
22	BGEM-0080-S/MBS5411	150.1	78.4	915.6	15.0	10.0	52.3	0.0	49.7	280	120	11.8
35	MBS9508/MBS2655	145.1	75.8	397.3	17.5	8.3	55.3	0.0	22.0	263	112	13.6
Replications		4			4	4	4	1	2	1	1	1
Test Entry Means		171.5			17.6	9.7	54.3	1.7	31.8	279.4	128.7	22.9
Check Means		191.4			17.8	10.7	54.9	0.3	27.5	274.8	115.0	21.1
Overall Means		174.8			17.6	9.9	54.4	1.4	31.1	278.7	126.4	22.6
Yield Range		138.7 - 212.4										
CV		16.3			5.8							
LSD (p=0.05)		39.8			1.4							

* All trial data will be posted on the website

** Locations: Ames, Crawfordsville, Keystone, and Carroll in Iowa.

2016 GEM Ames Yield Trial Top Twenty Entries

Experiment: GEM1664105

Tester: MBS2655

		All Location Means										
<i>Entry</i>	<i>Pedigree</i>	<i>Yield B/A</i>	<i>% Yield /CHK</i>	<i>Variance</i>	<i>% Moist</i>	<i>Yield/ Moist</i>	<i>TWT</i>	<i>% S.L.</i>	<i>% R.L.</i>	<i>Plant Height</i>	<i>Ear Height</i>	<i>% Green Snap</i>
72	Pioneer 31D58	229.4	127.8	1319.5	19.1	12.0	56.1	0.0	13.1	280	103	0.0
73	Pioneer 33F85	201.5	112.3	1717.7	17.5	11.5	55.4	0.0	19.5	278	110	11.9
7	BGEM-0276-N/MBS2655	187.9	104.7	468.9	16.8	11.2	56.2	6.1	0.0	308	137	
15	BGEM-0063-N/MBS2655	174.1	97.0	87.7	15.9	10.9	56.7	0.0	13.8	325	153	25.0
13	BGEM-0045-N/MBS2655	172.7	96.2	599.0	15.8	10.9	55.5	7.5	46.7	303	150	12.9
22	BGEM-0109-N/MBS2655	165.6	92.3	306.3	15.2	10.9	55.2	0.0	20.3	267	137	12.9
36	BGEM-0185-N/MBS2655	159.5	88.9	602.6	14.8	10.8	55.5	0.0	25.0	280	117	25.0
74	Pioneer 34R65	173.6	96.7	1611.1	16.2	10.7	57.0	0.0	12.5	268	107	62.5
70	PHB47/MBS5411	157.0	87.5	516.2	14.7	10.7	55.3	3.0	52.1	275	115	25.8
9	BGEM-0235-N/MBS2655	186.8	104.1	615.2	17.6	10.6	56.2	0.0	27.9	298	133	12.1
6	BGEM-0190-N/MBS2655	171.0	95.3	296.1	16.2	10.6	56.2	0.0	14.9	273	127	25.4
20	BGEM-0089-N/MBS2655	168.5	93.9	70.6	16.0	10.6	57.6	2.0	6.3	272	110	13.2
49	BGEM-0152-N/MBS2655	159.2	88.7	537.1	15.3	10.4	54.7	0.0	33.3	297	130	12.9
23	BGEM-0103-N/MBS2655	167.6	93.4	21.3	16.4	10.2	56.9	0.0	7.3	295	137	0.0
5	BGEM-0122-N/MBS2655	157.0	87.5	1199.0	15.4	10.2	56.9	0.0	25.4	283	117	50.8
55	BGEM-0209-N/MBS2655	157.4	87.7	862.4	15.6	10.1	57.3	0.0	19.9	282	81	50.0
58	BGEM-0202-N/MBS2655	173.5	96.7	165.8	17.2	10.1	57.9	0.0	13.0	278	137	12.9
1	PHB47/PHZ51	147.2	82.0	420.0	14.6	10.1	56.5	0.0	68.7	288	127	13.2
71	PHZ51/MBS2655	157.8	87.9	179.6	16.3	9.7	56.3	2.3	5.9	290	137	25.4
75	MBS9508/MBS2655	157.4	87.7	240.5	16.9	9.3	56.3	0.0	27.4	285	110	38.1
Replications		4			4	4	4	1	2	1	1	1
Test Entry Means		146.5			16.4	8.9	55.8	1.4	26.7	291.1	129.8	34.5
Check Means		179.4			16.8	10.7	56.0	0.9	21.7	279.3	113.7	27.3
Overall Means		149.2			16.4	9.1	55.8	1.4	26.3	290.2	128.5	33.4
Yield Range		94.7 - 229.4										
CV		17.2			5.7							
LSD (p=0.05)		36.1			1.3							

* All trial data will be posted on the website

** Locations: Ames, Crawfordsville, Keystone, and Carroll in Iowa.

2016 GEM Ames Yield Trial Top Twenty Entries

Experiment: GEM1664106

Tester: MBS5411

		All Location Means										
Entry	Pedigree	Yield B/A	% Yield /CHK	Variance	% Moist	Yield/ Moist	TWT	% S.L.	% R.L.	Plant Height	Ear Height	% Green Snap
84	BGEM-0112-S/MBS5411	192.6	99.5	201.3	14.4	13.4	54.9	0.0	37.7	288	120	12.5
85	BGEM-0115-S/MBS5411	198.2	102.4	224.5	14.8	13.4	54.9	1.4	43.9	277	113	0.0
114	MBS3684/MBS9451	211.6	109.3	330.5	16.0	13.2	54.4	0.0	17.2	287	122	0.0
59	BGEM-0158-S/MBS5411	210.3	108.6	333.9	16.1	13.1	56.9	6.3	57.6	310	133	0.0
86	BGEM-0116-S/MBS5411	188.8	97.6	482.0	14.5	13.0	54.5	2.6	39.0	277	117	0.0
111	Pioneer 31D58	241.4	124.7	399.9	18.8	12.8	55.9	0.0	12.7	282	117	0.0
83	BGEM-0111-S/MBS5411	183.8	94.9	179.3	14.4	12.8	54.2	2.9	53.4	283	120	0.0
65	BGEM-0165-S/MBS5411	176.8	91.4	167.5	14.0	12.7	54.2	0.0	31.2	292	133	12.9
108	BGEM-0252-S/MBS5411	181.3	93.7	56.2	14.8	12.3	54.6	0.0	67.4	293	127	25.0
102	BGEM-0220-S/MBS5411	176.2	91.0	198.7	14.4	12.3	54.7	0.0	48.3	290	125	12.3
87	BGEM-0118-S/MBS5411	179.8	92.9	15.2	14.7	12.3	54.5	0.0	41.1	288	123	0.0
39	BGEM-0060-S/MBS5411	173.8	89.8	868.9	14.4	12.1	54.6	1.5	55.4	305	140	12.5
47	BGEM-0080-S/MBS5411	176.7	91.3	391.1	14.6	12.1	53.1	0.0	52.3	285	115	25.7
4	BGEM-0044-S/MBS5411	174.5	90.2	885.3	14.5	12.1	55.1	4.3	55.1	293	127	12.5
100	BGEM-0217-S/MBS5411	177.1	91.5	703.4	14.9	11.9	55.8	0.0	43.3	282	117	0.0
112	Pioneer 33F85	202.7	104.7	3923.7	17.1	11.9	56.2	1.4	30.2	272	110	62.1
109	PHB47/MBS5411	172.8	89.3	63.3	14.7	11.7	55.0	0.0	53.8	280	112	12.1
1	PHB47/MBS5411	154.7	79.9	396.2	14.3	10.8	55.1	2.9	68.0	273	97	13.2
113	Pioneer 34R65	172.6	89.2	3301.6	16.1	10.7	57.2	0.0	31.5	273	100	62.0
110	PHZ51/MBS2655	160.3	82.8	392.2	15.3	10.5	56.1	0.0	37.9	287	132	0.0
Replications		4			4	4	4	1	2	1	1	1
Test Entry Means		156.9			14.8	10.6	55.3	2.0	56.1	285.6	120.4	11.9
Check Means		193.6			16.3	11.8	55.8	0.2	30.5	280.2	115.5	22.7
Overall Means		158.8			14.8	10.7	55.3	1.9	54.7	285.3	120.2	12.5
Yield Range		102.5 - 241.4										
CV		12.1			2.5							
LSD (p=0.05)		26.9			0.5							

* All trial data will be posted on the website

** Locations: Ames, Crawfordsville, Keystone, and Carroll in Iowa.

2016 GEM Ames Yield Trial Top Twenty Entries

Experiment: GEM1664107

Tester: Coop-nSS

		All Location Means					
<i>Entry</i>	<i>Pedigree</i>	<i>Yield B/A</i>	<i>% Yield /CHK</i>	<i>Variance</i>	<i>% Moist</i>	<i>Yield/ Moist</i>	<i>TWT</i>
141	MBS3684/MBS9451	197.4	96.5	178.7	18.5	10.7	56.2
140	MBS3684/MBS9451	193.6	94.7	386.8	18.3	10.6	56.3
1	Pioneer 33F85	219.9	107.5	108.2	21.5	10.2	57.4
4	Pioneer 31D58	237.2	116.0	604.5	23.6	10.1	57.9
3	Pioneer 33F85	210.8	103.1	224.9	21.2	9.9	57.5
139	MBS3520/MBS8814	214.3	104.8	351.9	21.8	9.8	53.5
138	MBS3520/MBS8814	214.1	104.7	674.8	22.7	9.5	52.9
5	Pioneer 31D58	226.2	110.6	898.9	24.1	9.4	57.4
143	MBS9508/MBS2655	172.2	84.2	413.4	19.7	8.8	58.0
98	(KO679Y/GEMS-0030)-115-001/Coop-nSS	191.1	93.4	298.3	22.3	8.6	58.0
13	(KO679Y/GEMS-0030)-018-001/Coop-nSS	199.7	97.6	377.5	23.9	8.4	56.6
15	(KO679Y/GEMS-0030)-002-001/Coop-nSS	184.2	90.1	370.6	22.2	8.3	58.9
142	MBS9508/MBS2655	159.4	77.9	678.0	20.1	8.0	57.7
48	(KO679Y/GEMS-0030)-047-001/Coop-nSS	175.8	85.9	416.2	22.3	7.9	58.5
132	(KO679Y/GEMS-0030)-162-001/Coop-nSS	184.2	90.1	304.9	23.6	7.8	57.6
108	(KO679Y/GEMS-0030)-126-001/Coop-nSS	186.0	90.9	545.7	23.9	7.8	56.8
53	(KO679Y/GEMS-0030)-055-001/Coop-nSS	179.9	88.0	187.3	23.4	7.7	55.9
16	(KO679Y/GEMS-0030)-003-001/Coop-nSS	179.4	87.7	382.8	23.5	7.6	58.1
23	(KO679Y/GEMS-0030)-015-001/Coop-nSS	177.7	86.9	778.2	23.4	7.6	57.2
128	(KO679Y/GEMS-0030)-157-001/Coop-nSS	184.4	90.1	252.9	24.5	7.5	57.0
Replications		6			6	6	6
Test Entry Means		167.2			24.9	6.7	56.7
Check Means		204.5			20.9	9.8	56.3
Overall Means		170.2			24.0	7.1	56.7
Yield Range		129.3 - 237.2					
CV		8.4			5.4		
LSD (p=0.05)		16.7			1.5		

* All trial data will be posted on the website

** Locations: Holdrege, Henderson, and David City in Nebraska; Nroway in Kansas; and Corning and Atlantic in Iowa.

2016 GEM Ames Yield Trial Top Twenty Entries

Experiment: GEM1664108

Tester: Coop-nSS

		All Location Means					
<i>Entry</i>	<i>Pedigree</i>	<i>Yield B/A</i>	<i>% Yield /CHK</i>	<i>Variance</i>	<i>% Moist</i>	<i>Yield/ Moist</i>	<i>TWT</i>
140	MBS3684/MBS9451	215.1	101.9	201.6	18.1	11.9	56.1
141	MBS3684/MBS9451	208.3	98.7	139.1	18.2	11.4	55.8
91	(GEMS-0162/GEMS-0227)-016-001/Coop-nSS	194.2	92.0	178.7	18.4	10.6	58.7
130	(GEMS-0162/GEMS-0227)-044-001/Coop-nSS	196.8	93.3	137.2	18.4	10.7	58.4
69	(GEMS-0162/GEMS-0227)-004-001/Coop-nSS	198.5	94.1	357.6	18.9	10.5	59.5
110	(GEMS-0162/GEMS-0227)-032-001/Coop-nSS	200.2	94.9	162.2	19.2	10.4	60.3
109	(GEMS-0162/GEMS-0227)-030-002/Coop-nSS	190.5	90.3	254.2	18.2	10.5	58.4
131	(GEMS-0162/GEMS-0227)-045-001/Coop-nSS	206.3	97.8	172.8	19.9	10.4	57.2
135	(GEMS-0162/GEMS-0227)-046-001/Coop-nSS	201.8	95.7	77.7	19.6	10.3	59.4
81	(GEMS-0162/GEMS-0227)-011-002/Coop-nSS	190.5	90.3	262.3	18.5	10.3	57.9
1	Pioneer 33F85	210.8	99.9	354.8	20.6	10.2	57.8
129	(GEMS-0162/GEMS-0227)-043-002/Coop-nSS	200.5	95.0	147.5	19.7	10.2	58.5
4	Pioneer 31D58	235.7	111.7	389.1	23.1	10.2	58.1
3	Pioneer 33F85	216.4	102.6	291.8	21.2	10.2	57.5
93	(GEMS-0162/GEMS-0227)-016-003/Coop-nSS	186.5	88.4	129.4	19.0	9.8	58.7
5	Pioneer 31D58	234.9	111.3	318.5	24.1	9.8	57.8
138	MBS3520/MBS8814	219.8	104.2	142.3	22.2	9.9	53.5
143	MBS9508/MBS2655	179.1	84.9	223.6	18.9	9.5	58.5
139	MBS3520/MBS8814	207.5	98.3	1720.3	21.5	9.7	53.3
142	MBS9508/MBS2655	182.4	86.5	131.9	19.4	9.4	56.8
Replications		6			6	6	6
Test Entry Means		177.5			22.1	8.0	57.8
Check Means		211.0			20.8	10.2	56.5
Overall Means		180.1			21.9	8.2	57.6
Yield Range		132.3 - 235.7					
CV		7.9			5.4		
LSD (p=0.05)		16.4			1.4		

* All trial data will be posted on the website

** Locations: Holdrege, Henderson, and David City in Nebraska; Norway in Kansas; and Corning and Atlatic in Iowa.

2016 GEM Ames Yield Trial Top Twenty Entries

Experiment: GEM1664201

Tester: Varied

		All Location Means										
Entry	Pedigree	Yield B/A	% Yield /CHK	Variance	% Moist	Yield/ Moist	TWT	% S.L.	% R.L.	Plant Height	Ear Height	% Green Snap
37	Ki21:N(LH52)(GEMN-0097)-B-024/MBS3520	184.6	101.2	955.5	17.0	10.8	53.4	1.2	25.3	289	115	12.3
49	MBS3684/MBS9451	188.0	103.0	1323.9	17.4	10.8	54.1	0.8	19.9	282	105	13.2
52	Pioneer 31D58	208.4	114.2	1908.1	19.4	10.8	56.4	0.0	17.2	288	112	0.0
4	(GEMN-0140/GEMN-0097)-B-B-070/MBS3520	167.1	91.6	1843.2	16.1	10.4	53.5	3.0	30.5	289	113	75.4
24	CHOCLERO:N(LH123)(GEMN-0097)-B-069/HC33	169.8	93.1	1377.8	16.6	10.2	56.1	3.4	12.8	307	114	0.0
27	Ki21:N(LH52)(GEMN-0097)-B-001/MBS3520	165.7	90.8	1551.2	16.2	10.2	55.1	0.0	34.2	294	109	11.9
47	Ki21:N(LH52)(GEMN-0097)-B-040/MBS2655	173.6	95.1	958.3	17.0	10.2	55.3	2.4	31.7	291	125	12.9
41	Ki21:N(LH52)(GEMN-0097)-B-028/MBS3520	171.0	93.7	690.2	17.0	10.0	56.1	1.3	35.5	294	114	12.3
23	BR105:N(PHG35)(LH39)-006-001/HC33	170.9	93.6	743.4	17.1	10.0	59.0	14.0	15.2	297	129	25.4
46	Ki21:N(LH52)(GEMN-0097)-B-035/MBS2655	165.2	90.5	423.1	16.7	9.9	54.7	10.5	14.0	264	110	12.9
29	Ki21:N(LH52)(GEMN-0097)-B-003/MBS3520	159.7	87.5	511.6	16.2	9.8	54.9	1.5	14.2	294	113	25.6
50	MBS9508/MBS2655	165.7	90.8	792.9	16.9	9.8	56.5	5.3	28.2	288	111	26.1
45	Ki21:N(LH52)(GEMN-0097)-B-032/MBS3520	166.4	91.2	527.3	17.0	9.8	55.2	3.7	23.6	274	118	25.8
53	Pioneer 31N27	183.6	100.6	1633.9	18.9	9.7	56.6	0.0	30.9	282	100	25.0
40	Ki21:N(LH52)(GEMN-0097)-B-028/MBS2655	165.8	90.9	605.9	17.1	9.7	55.4	2.4	21.5	285	113	25.8
33	Ki21:N(LH52)(GEMN-0097)-B-015/MBS2655	175.1	96.0	450.5	18.2	9.6	54.1	1.0	19.7	290	120	25.8
9	(GEMN-0192/GEMN-0152)-B-B-009/MBS3520	175.2	96.0	597.2	18.3	9.6	53.9	0.0	26.4	284	106	24.5
51	Pioneer 34R65	166.5	91.3	485.1	17.6	9.5	57.3	2.3	16.7	264	85	50.0
44	Ki21:N(LH52)(GEMN-0097)-B-032/MBS2655	169.0	92.6	888.4	17.9	9.5	53.9	2.6	33.8	279	110	25.8
32	Ki21:N(LH52)(GEMN-0097)-B-012/MBS2655	153.6	84.2	1240.9	17.4	8.8	54.3	3.0	10.1	274	111	37.7
Replications		6			6	6	5	2	3	2	2	1
Test Entry Means		155.6			17.3	9.0	54.8	2.8	25.6	291.9	114.2	36.5
Check Means		182.5			18.0	10.1	56.2	1.7	22.6	280.4	102.5	22.9
Overall Means		158.1			17.4	9.1	55.0	2.7	25.3	290.8	113.1	35.2
Yield Range		118.8 - 208.4										
CV		16.4			5.3							
LSD (p=0.05)		30.3			1.0							

* All trial data will be posted on the website

** Locations: Ames, Crawfordsville, Keystone, and Carroll in Iowa; Lewiston in North Carolina; and El Paso in Illinois.

2016 GEM Ames Yield Trial Top Twenty Entries

Experiment: GEM1664202

Tester: Varied

		All Location Means										
Entry	Pedigree	Yield B/A	% Yield /CHK	Variance	% Moist	Yield/ Moist	TWT	% S.L.	% R.L.	Plant Height	Ear Height	% Green Snap
58	MBS3520/MBS8814	193.7	109.4	1616.6	19.3	10.1	53.6	0.6	5.5	289	114	12.3
59	Pioneer 31D58	205.5	116.1	2089.5	20.8	9.9	56.2	1.9	8.9	288	108	13.0
33	BR105:N1612-B-052/MBS3520	167.6	94.6	1182.4	17.9	9.3	55.1	3.3	15.9	268	104	11.9
4	(LH61/(26e/GEMN-0124))-SIB-SIB-SIB-019/MBS3520	174.9	98.8	874.1	18.8	9.3	54.3	0.4	17.4	277	99	0.0
26	BR105:N1612-B-035/MBS3520	158.9	89.7	239.5	17.9	8.9	55.0	6.3	8.1	297	121	25.0
29	BR105:N1612-B-042/MBS3520	175.5	99.1	548.8	19.9	8.8	56.2	2.2	20.6	282	113	11.9
60	Pioneer 31N27	175.1	98.9	1877.4	19.9	8.8	56.9	6.6	11.9	279	101	63.3
12	(LH61/(26e/GEMN-0124))-SIB-SIB-SIB-062/MBS3520	162.6	91.9	566.2	18.8	8.7	56.3	2.5	15.2	295	124	12.8
36	BR105:N1612-B-066/MBS3520	157.2	88.8	1035.5	18.2	8.6	56.3	3.8	10.0	291	119	51.0
23	BR105:N1612-B-027/MBS3520	160.1	90.4	429.4	18.6	8.6	56.0	3.0	10.7	303	124	25.9
5	(LH61/(26e/GEMN-0124))-SIB-SIB-SIB-024/MBS3520	164.0	92.6	264.7	19.2	8.6	56.0	3.3	4.2	289	115	25.5
57	Pioneer 34R65	156.0	88.1	1074.0	18.4	8.5	57.5	1.9	5.2	281	105	62.9
14	ANTIG01:N16(DE4)-(2n)-162/HC33	162.2	91.6	878.2	19.2	8.5	56.2	2.7	12.5	291	119	50.0
18	BR105:N1612-B-004/MBS3520	169.9	96.0	877.7	20.4	8.3	56.1	3.0	9.5	282	110	12.7
56	MBS9508/MBS2655	154.8	87.5	89.0	18.7	8.3	56.3	5.4	12.5	280	99	38.5
39	BR105:N1652-B-006/MBS3520	170.5	96.3	1704.8	20.7	8.2	55.6	6.3	12.5	287	119	24.5
28	BR105:N1612-B-038/MBS3520	149.4	84.4	688.6	18.1	8.2	54.6	1.5	10.5	274	100	25.9
17	BR105:N1612-B-003/MBS3520	163.5	92.4	613.6	20.2	8.1	55.4	3.9	16.0	280	117	12.5
42	BR51501:N11a08bT47(LH61)-B-010/MBS3520	153.3	86.6	551.6	18.9	8.1	55.5	2.8	17.3	279	112	13.2
30	BR105:N1612-B-047/MBS3520	152.9	86.3	589.7	18.9	8.1	55.8	0.7	13.2	304	127	37.3
Replications		8			8	8	7	4	5	2	2	1
Test Entry Means		149.6			19.4	7.7	55.5	3.1	16.3	285.6	112.8	33.4
Check Means		177.0			19.4	9.1	56.1	3.3	8.8	283.3	105.2	38.0
Overall Means		151.9			19.4	7.8	55.5	3.1	15.7	285.4	112.2	33.8
Yield Range		125.2 - 205.5										
CV		15.8			7.3							
LSD (p=0.05)		24.1			1.4							

* All trial data will be posted on the website

** Locations: Ames, Crawfordsville, Keystone, Carroll, and Callender in Iowa; Lewiston in North Carolina; Gas City in Indiana; and Norway in Kansas

2016 GEM Ames Yield Trial Top Twenty Entries

Experiment: GEM1664203

Tester: Varied

		All Location Means										
Entry	Pedigree	Yield B/A	% Yield /CHK	Variance	% Moist	Yield/ Moist	TWT	% S.L.	% R.L.	Plant Height	Ear Height	% Green Snap
44	Pioneer 31D58	244.3	124.5	67.6	20.9	11.7	55.9	1.5	20.1	280	113	0.0
45	Pioneer 31N27	207.1	105.6	1659.1	19.4	10.7	56.7	0.0	43.6	280	103	12.1
41	MBS9508/MBS2655	186.8	95.2	478.3	17.8	10.5	55.7	0.0	12.5	277	107	25.0
32	BR51501:N11a08bT47(GEMN-0155)-B-041/MBS3520	209.8	106.9	991.8	20.1	10.4	54.1	0.0	27.8	315	145	0.0
8	((LH82/KO679Y)/GEMN-0205)-B-B-026/MBS3520	197.3	100.5	1908.7	19.6	10.1	54.8	1.7	47.9	287	130	0.0
7	((LH82/KO679Y)/GEMN-0205)-B-B-022/MBS3520	197.3	100.6	654.5	19.7	10.0	52.6	1.7	15.9	268	115	0.0
29	BR51501:N11a08bT47(GEMN-0155)-B-018/MBS3520	185.7	94.6	349.1	18.6	10.0	54.5	0.0	34.4	283	122	24.6
9	((LH82/KO679Y)/GEMN-0205)-B-B-028/MBS3520	177.1	90.3	128.6	17.7	10.0	53.4	0.0	36.0	273	117	26.1
33	BR51501:N11a08bT47(GEMN-0155)-B-046/MBS3520	180.7	92.1	145.4	18.4	9.8	53.4	0.0	25.6	277	108	13.6
43	Pioneer 33F85	185.2	94.4	1527.8	19.3	9.6	55.8	0.0	31.5	282	120	50.8
17	((LH82/KO679Y)/GEMN-0205)-B-B-063/MBS3520	184.0	93.8	563.9	19.2	9.6	55.0	0.0	12.9	260	112	0.0
15	((LH82/KO679Y)/GEMN-0205)-B-B-060/MBS3520	184.2	93.9	750.4	19.6	9.4	55.9	0.0	45.0	300	130	12.9
34	BR51501:N11a08bT47(GEMN-0155)-B-051/MBS3520	197.5	100.6	1667.8	21.3	9.3	54.1	0.0	40.7	310	142	12.9
4	((LH82/KO679Y)/GEMN-0205)-B-B-011/MBS3520	167.2	85.2	2180.4	18.2	9.2	55.3	2.0	65.8	282	117	12.9
2	((LH82/KO679Y)/GEMN-0205)-B-B-003/MBS3520	182.7	93.1	115.6	20.0	9.1	55.4	0.0	21.2	208	120	24.6
12	((LH82/KO679Y)/GEMN-0205)-B-B-041/MBS3520	174.8	89.1	511.3	19.2	9.1	53.7	6.0	47.5	270	120	12.8
1	((LH82/KO679Y)/GEMN-0205)-B-B-002/MBS3520	188.4	96.0	265.0	20.8	9.1	53.9	0.0	35.8	287	123	25.0
3	((LH82/KO679Y)/GEMN-0205)-B-B-009/MBS3520	173.6	88.5	468.3	19.2	9.1	53.1	0.0	51.4	285	123	0.0
18	((LH82/KO679Y)/GEMN-0205)-B-B-065/MBS3520	162.3	82.7	1020.0	18.4	8.8	55.8	0.0	36.2	273	103	11.9
42	Pioneer 34R65	157.6	80.3	2104.6	18.2	8.7	57.5	0.0	12.7	282	113	87.3
Replications		5			5	5	5	1	2	1	1	1
Test Entry Means		164.7			19.9	8.3	54.2	0.9	34.8	283.1	120.5	36.5
Check Means		196.2			19.1	10.3	56.3	0.3	24.1	280.2	111.2	35.0
Overall Means		168.2			19.8	8.5	54.4	0.8	33.5	282.7	119.5	35.3
Yield Range		119.8 - 244.3										
CV		14.6			4.7							
LSD (p=0.05)		33.2			1.2							

* All trial data will be posted on the website

** Locations: Ames, Crawfordsville, Keystone, and Carroll in Iowa; and Monmouth in Illinois

2016 GEM Ames Yield Trial Top Twenty Entries

Experiment: GEM1664204

Tester: Varied

		All Location Means										
Entry	Pedigree	Yield B/A	% Yield /CHK	Variance	% Moist	Yield/ Moist	TWT	% S.L.	% R.L.	Plant Height	Ear Height	% Green Snap
8	(GEMS-0175/GEMS-0184)-B-B-008/MBS8814	209.9	116.5	165.8	19.5	10.7	52.6	5.2	5.9	288	130	0.0
30	CML325:S1840-B-024/MBS8814	205.0	113.8	963.7	19.5	10.5	53.6	0.0	20.7	293	160	12.5
48	DKXL212:S0943b-(2n)-105/MBS8814	204.0	113.2	383.3	20.0	10.2	53.0	0.0	26.7	276	110	0.2
54	Pioneer 31D58	197.9	109.9	797.7	18.9	10.5	55.2	0.0	22.9	285	123	11.9
18	AR16035:S0209-(2n)-128/MBS8814	193.0	107.1	674.0	19.5	9.9	53.6	0.0	8.2	272	103	37.9
33	CUBA164:S2008dT47(PHJ40)-B-007/MBS8814	190.6	105.8	750.4	18.9	10.1	55.6	0.0	24.1	277	130	0.0
7	(GEMS-0175/GEMS-0184)-B-B-008/MBS5411	190.4	105.7	390.3	17.1	11.1	54.0	0.0	53.6	277	123	12.1
16	AR16035:S0209-(2n)-043/MBS8814	187.7	104.2	1912.4	18.0	10.4	55.6	0.0	26.7	275	123	88.2
53	MBS3520/MBS8814	184.6	102.5	920.1	17.6	10.5	52.6	0.0	12.3	277	103	25.8
55	Pioneer 31N27	181.9	100.9	1435.5	18.1	10.1	55.9	0.0	29.4	278	112	12.3
1	(53SS4/GEMS-0031)-SIB-B-010/LH287	177.9	98.7	892.4	17.8	10.0	55.2	0.0	44.1	272	120	12.9
10	(GEMS-0175/GEMS-0184)-B-B-018/MBS5411	176.8	98.1	697.3	17.0	10.4	53.4	1.7	36.8	283	133	25.0
2	(53SS4/GEMS-0031)-SIB-B-034/LH287	175.3	97.3	675.1	18.1	9.7	52.2	0.0	36.9	275	110	24.6
27	CML325:S1840-B-023/LH287	172.5	95.7	618.0	17.8	9.7	54.7	1.6	45.6	268	102	38.2
51	MBS9508/MBS2655	170.2	94.5	1974.0	18.1	9.4	56.1	0.0	16.7	275	110	25.5
3	(53SS4/GEMS-0031)-SIB-B-054/LH287	169.3	94.0	606.4	16.2	10.5	52.8	1.6	57.1	282	103	12.3
5	(GEMS-0115/S49w)-B-B-023/LH287	168.7	93.7	1128.1	17.4	9.7	55.6	2.8	65.3	283	113	13.2
52	Pioneer 34R65	166.3	92.3	1238.6	17.3	9.6	55.7	0.0	20.1	278	110	75.7
29	CML325:S1840-B-024/MBS5411	160.3	89.0	403.0	16.4	9.8	54.7	0.0	59.5	288	128	12.5
25	BR52051:S172641-B-050/MBS5411	158.0	87.7	1792.3	15.8	10.0	54.9	4.2	58.6	273	120	12.7
Replications		6			6	6	6	1	3	1	1	1
Test Entry Means		172.1			18.4	9.4	54.5	1.3	39.7	279.6	125.7	28.4
Check Means		180.2			18.0	10.0	55.1	0.0	20.3	278.6	111.6	30.3
Overall Means		172.9			18.3	9.4	54.5	1.1	37.9	279.5	124.4	28.6
Yield Range		144.4 - 209.9										
CV		17.0			6.8							
LSD (p=0.05)		33.8			1.4							

* All trial data will be posted on the website

** Locations: Ames, Crawfordsville, Keystone, and Carroll in Iowa; Terre Haute in Indiana; and Elmwood in Illinois

2016 GEM Ames Yield Trial Top Twenty Entries

Experiment: GEM1664205

Tester: Varied

		All Location Means										
Entry	Pedigree	Yield B/A	% Yield /CHK	Variance	% Moist	Yield/ Moist	TWT	% S.L.	% R.L.	Plant Height	Ear Height	% Green Snap
9	((KO679Y/GEMS-0115)/GEMS-0181)-B-025/MBS8814	201.0	113.6	1522.6	22.1	9.1	54.2	7.3	8.2	288	130	
24	Ki21:S(DJ7)(GEMS-0115)-B-051/SGI079	189.5	107.1	1037.3	21.2	8.9	54.8	1.6	17.6	291	129	26.1
52	Pioneer 31N27	187.1	105.7	733.2	21.2	8.8	57.3	0.8	12.9	273	105	24.6
45	TZi 9:S21z(GEMS-0163)-B-074/MBS8814	186.8	105.6	1072.4	21.2	8.8	55.8	6.6	18.9	292	129	25.4
21	BR106:S(LH132)(LH74)-080-001/MBS5411	171.0	96.6	505.7	19.5	8.8	56.2	8.5	24.0	261	114	12.5
23	Ki21:S(DJ7)(GEMS-0115)-B-013/SGI079	192.9	109.0	1577.9	22.0	8.8	54.5	0.5	16.5	290	119	13.1
12	AR17056:S1912-B-009/MBS8814	200.2	113.1	1588.8	22.9	8.8	53.7	0.0	20.1	275	105	13.1
47	UR13085:S(N28)(CUBA117:S1520-156-1-B-B)-B-B-B-007-001-001-B/MBS8814	195.5	110.5	1437.5	23.0	8.5	52.9	0.0	3.7	286	116	0.0
51	Pioneer 31D58	199.1	112.5	1958.0	23.5	8.5	55.7	0.8	18.7	288	115	12.3
49	Pioneer 34R65	173.4	98.0	653.1	20.6	8.4	57.8	0.0	12.7	266	99	62.9
41	TZi 9:S21z(GEMS-0163)-B-046/MBS8814	175.0	98.9	708.9	20.9	8.4	55.2	1.6	13.5	292	123	12.3
17	BR105:S21z(GEMS-0162)-B-061-B/MBS8814	188.5	106.5	1319.8	22.7	8.3	53.7	0.8	7.5	293	129	24.6
38	TZi 9:S21z(GEMS-0163)-B-034/MBS8814	181.8	102.7	648.7	22.0	8.3	54.4	1.7	10.5	282	121	25.0
42	TZi 9:S21z(GEMS-0163)-B-054/MBS8814	173.7	98.2	1539.4	21.3	8.2	55.4	0.8	6.5	279	125	50.7
11	AR17056:S1912-B-007/MBS8814	186.1	105.2	1251.8	22.8	8.2	55.5	0.0	14.7	289	123	13.0
7	((KO679Y/GEMS-0115)/GEMS-0181)-B-023/MBS8814	178.6	100.9	905.9	22.0	8.1	54.4	0.0	13.9	287	122	38.2
8	((KO679Y/GEMS-0115)/GEMS-0181)-B-025/MBS5411	159.0	89.9	412.4	19.8	8.1	55.3	7.7	21.7	264	115	25.0
6	((KO679Y/GEMS-0115)/GEMS-0181)-B-023/MBS5411	166.9	94.3	597.5	20.9	8.0	54.4	0.0	18.8	293	123	12.5
48	MBS9508/MBS2655	159.7	90.3	1404.1	20.7	7.7	56.1	1.4	17.5	269	95	26.1
50	MBS3520/MBS8814	165.5	93.5	1777.8	22.0	7.5	53.3	0.5	13.2	287	110	75.4
Replications		8			8	8	6	3	4	2	4	1
Test Entry Means		175.8			22.4	7.9	54.8	1.8	16.7	286.5	122.3	25.8
Check Means		177.0			21.6	8.2	56.0	0.7	15.0	276.3	104.7	40.3
Overall Means		175.9			22.3	7.9	54.9	1.7	16.5	285.5	120.6	27.2
Yield Range		147.8 - 201.0										
CV		14.5			7.6							
LSD (p=0.05)		25.2			1.7							

* All trial data will be posted on the website

** Locations: Ames, Crawfordsville, Keystone, Carroll, and Red Oak in Iowa; Lewiston in North Carolina; and Dixon and Geneseo in Illinois

Entry	New GEM Code
24	GEMS-0291

2016 GEM Ames Yield Trial Top Twenty Entries

Experiment: GEM1664206

Tester: Varied

		All Location Means									
Entry	Pedigree	Yield B/A	% Yield /CHK	Variance	% Moist	Yield/ Moist	TWT	% R.L.	Plant Height	Ear Height	% Green Snap
21	Pioneer 31D58	224.3	123.9	479.9	20.0	11.2	55.7	14.2	283	115	12.1
10	AR16035:S0209-(2n)-052B/MBS8814	201.0	111.0	551.3	18.8	10.7	56.2	54.5	282	132	12.5
17	(NEI9004:S2809-B-061-B-B/GEMS-0003)-B-B-023/MBS8814	216.3	119.5	378.6	20.4	10.6	53.4	31.3	288	129	62.7
12	BR52051:S172641-B-050/LH287	190.8	105.4	285.2	18.1	10.6	53.3	54.9	270	105	12.5
14	DKXL370:S08b46-B-031/LH287	181.4	100.2	235.5	17.3	10.5	53.9	48.9	260	108	25.9
7	(GEMS-0147/GEMS-0180)-B-033-001/MBS8814	210.6	116.3	99.7	20.2	10.4	53.5	26.5	285	135	24.6
22	Pioneer 31N27	197.7	109.2	673.6	19.3	10.2	56.6	41.4	270	98	25.9
9	(GEMS-0175/GEMS-0115)-B-B-024/LH287	185.8	102.6	800.1	18.2	10.2	54.2	66.5	272	122	12.1
20	MBS3520/MBS8814	187.9	103.7	1912.6	18.5	10.1	52.0	26.1	285	128	25.0
1	(GEMN-0140/GEMN-0097)-B-B-054/HC33	169.4	93.5	2135.7	17.0	10.0	54.9	18.9	275	118	50.0
3	CHOCLERO:N(LH123)(GEMN-0097)-B-022/HC33	172.4	95.2	4074.9	17.4	9.9	55.0	16.0	285	135	87.3
6	(GEMS-0147/GEMS-0115)-B-002-001/LH287	186.2	102.8	2975.8	18.9	9.9	51.8	74.0	278	118	12.9
16	NS1:S0852-B-068/LH287	176.1	97.2	705.1	18.1	9.7	53.5	62.1	280	115	37.9
11	AR16035:S0209-(2n)-141/MBS8814	194.9	107.6	1243.0	20.3	9.6	53.8	14.0	273	127	50.0
5	((LH82/KO679Y)/GEMN-0205)-B-B-050/MBS3520	169.8	93.8	283.5	17.7	9.6	54.2	33.8	270	113	24.6
13	CUBA164:S2008dT47(PHJ40)-B-030/MBS8814	181.6	100.3	680.1	19.5	9.3	55.1	14.8	273	142	37.0
23	Pioneer 33F85	181.5	100.2	2688.9	19.6	9.2	55.6	37.8	275	133	74.6
2	(GEMN-0179/GEMN-0205)-B-B-036/HC33	169.2	93.4	294.3	18.5	9.1	55.5	61.5	283	118	25.0
18	MBS9508/MBS2655	149.9	82.8	416.0	17.3	8.7	55.9	28.4	283	120	51.4
19	Pioneer 34R65	145.3	80.2	1794.3	16.9	8.6	56.3	20.0	277	108	87.5
Replications		4			4	4	4	2	1	1	1
Test Entry Means		180.2			18.7	9.6	54.3	39.6	277.3	123.2	35.3
Check Means		181.1			18.6	9.7	55.3	28.0	278.8	117.0	46.1
Overall Means		180.4			18.7	9.7	54.6	36.6	277.7	121.6	38.1
Yield Range		126.7 - 224.3									
CV		17.1			5.0						
LSD (p=0.05)		43.9			1.3						

* All trial data will be posted on the website

** Locations: Ames, Crawfordsville, Keystone, and Carroll in Iowa.

Entry	New GEM Code
6	GEMS-0288
7	GEMS-0289
12	GEMS-0290

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