2016 Corn Hybrid Demonstration Program Results

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Program Summary: The Corn Hybrid Demonstration Program is intended to provide corn growers, crop consultants, and other agricultural professionals a firsthand opportunity to observe performance of elite hybrids and generate information to better assess hybrid performance and adaptability in Mississippi. This program provides a unique opportunity to observe and evaluate plant characteristics and environmental responses of our best corn hybrids in local, on-farm demonstration plots representing Mississippi's production systems.

Hybrids selected for this program must be validated by producing superior grain yield in the Mississippi Corn for Grain Hybrid Trials or be relevant market standards. Hybrids are selected annually and grouped into two distinct sets based upon performance in dryland or irrigated culture, since both these cropping systems are prevalent in Mississippi and significantly affect hybrid adaptability. Seed companies are granted the discretion to enter the hybrid that has demonstrated superior performance in the Mississippi Corn for Grain Hybrid Trials, or a newly released hybrid that they feel is more promising or better adapted. This establishes an elite group of corn hybrids for evaluation in the program. Each standardized set of hybrids is grown at numerous field locations representing Mississippi cropping systems. Mississippi State University Extension Service regional agronomic crop specialists and county agricultural agents coordinate locations with grower cooperators and supervise plots during the season.

Hybrid characteristics are rated relative to other entries within the respective set of hybrids (irrigated or dryland) grown at various locations. Thus, these relative rankings are not intended to compare to other commercial hybrids available in the market.

Grain Yield Data: Hybrids evaluated in this program are generally planted in "strip trials." Yield data generated from a single location are not as reliable as when treatments are replicated numerous times. Treatment replication reduces the effect of numerous factors that can impart variability that may affect performance and confound results. Thus, average yields are calculated from data collected at multiple locations and presented in this publication to better assess yield performance related to hybrid genetics. Analyses of yield data were performed with SAS using GLM procedures, and means are separated at the 0.05 level. This yield data derived from numerous, diverse environments is intended to supplement data generated in university hybrid trials.

Technology Traits: All hybrid entries are glyphosate tolerant. Inclusion of other traits is optional and is primarily based on product availability and the discretion of the respective seed companies. Corn borer protection normally enhances yield at locations where corn borers are present. All seeds are commercially treated with an insecticide seed treatment, which is at the discretion of each respective seed company. Seed treatments are used to minimize damage from insect pests during seedling establishment.

Relative Maturity: Maturity is measured and reported as the number of days to tassel, as well as relative number of days to physiological maturity (black layer or about 30 percent grain moisture). This does not include additional time for the crop to dry to a desirable harvest moisture.

Plant Height: Full plant height is measured after tassel emergence. Plant height is one of several factors that may affect light interception, which is critical to photosynthesis and grain yield. Short plant height may reduce potential light interception, particularly in wide rows. Tall plants are generally more likely to lodge and will likely have higher water demand during the growing season.

Ear Height: This is a rating of ear height relative to plant height for each specific hybrid in the program. High ear placement may promote more efficient energy use in the plant, as leaves in the upper canopy intercept more light and produce more photosynthetic energy for the developing ear. However, high ear placement may make plants more top-heavy and, thus, more prone to lodge when exposed to strong wind.

Greensnap: This is a relative rating to resist greensnap, which is a condition where corn stalks are completely broken off by high winds. This usually occurs during mid- to late vegetative growth stages when the stalks are rapidly developing and may be brittle and vulnerable to break if exposed to high wind. These damaged stalks normally break below where the ear should develop. Thus, these damaged plants rarely produce a viable ear.

Root Strength: An evaluation of a hybrid's ability to resist root lodging. Root lodging occurs when the force caused by wind exceeds the roots' ability to stabilize plants and keep them erect, particularly if the soil is moist and soft. Thus, the entire stalk leans or completely falls from ground level, often dislodging part of the root system from the soil. This may promote a "domino effect," causing lodging in sizable portions of a field. Root lodging normally occurs as plants approach physiological maturity, since the mass of the plant is greatest at this time. Root lodging may considerably hinder harvest efficiency because plants lay nearly flat on the ground and are often partially uprooted from the soil, making stalks difficult to gather and flow into a combine.

Stalk Strength: An evaluation of a hybrid's ability to resist stalk lodging, which is when the lower stalk bends, collapses, or breaks above ground level. Stalk lodging often increases when harvest is delayed by rainy weather, which promotes stalk deterioration. Stalk lodging is often more prevalent than root lodging but is generally less troublesome because timely harvest can mediate issues and combines can still gather stalks.

Stalk Integrity: A characterization of the plant's ability to maintain physical integrity after physiological maturity. Poor stalk integrity may appear as shriveled, shredded, or dislodged leaves and brittle or broken stalks, particularly above the ear. Late-season stress and adverse weather often promote plant deterioration during the time between physiological maturity and harvest.

Yield Components: Corn grain yield is determined by the total number of kernels produced and kernel weight. Kernel number is the number of kernel rows an ear produces and the number of kernels per row. Each of these traits is determined during different growing stages. Kernel row number is determined during late vegetative stages and is the first yield component determined by the plant. Kernel number is primarily determined during the first few weeks after pollination as young kernels develop until the milk stage. Kernel weight depends largely on favorable conditions from dough stage until physiological maturity.

Test Weight: Test weight is a measurement of grain bulk density and an indicator of general grain quality. It is a standard component used to assess official grain grade for commercial trade.

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2016 Grain Yield Summary (bu/a)

Irrigated Locations

Brand	Hybrid	Indianola	Schlater	Malvina	Rolling Fork	Belzoni	Steiner	Itta Bena	Goodman	Sumner	Average Yield*
Agrigold	A6659 VT2 RIB	227	148	203	206	194	212	238	206	201	204 AB
Agrigold	A6711 VT2PRO	247	178	193	186	197	230	228	199	204	207 A
Armor	1717 PRO2	237	154	190	190	199	217	233	212	198	203 AB
Augusta	7768 GT3110	231	173	178	178	184	201	227	210	181	196 ABCD
Augusta	8868 VT3PRO	233	140	182	209	188	212	244	195	188	199 ABC
Croplan Genetics	6640VT3P	229	159	197	211	185	190	243	192	186	199 ABC
Croplan Genetics	7927VT3P	208	139	181	208	178	210	234	170	162	188 CD
DEKALB	DKC66-59	235	160	193	206	178	209	240	180	182	198 ABCD
DEKALB	DKC67-72	236	166	197	214	185	220	237	199	183	204 AB
DEKALB	DKC68-26	238	156	196	211	191	217	229	210	180	203 AB
Dyna Gro	D57VP51	265	155	169	204	198	212	235	221	191	205 AB
Dyna Gro	D57VP75	208	144	169	205	189	215	179	180	191	187 D
Mycogen	2D848	215	169	177	187	232	198	233	201	170	198 ABCD
Pioneer	1197YHR	220	164	179	193	196	209	217	213	177	197 ABCD
Terral	REV® 23BHR55™	239	148	183	195	193	215	207	217	192	199 ABC
Terral	REV® 25BHR26™	260	149	190	205	173	227	222	206	187	202 AB
Terral	REV® 26BHR50™	230	167	182	201	148	229	241	199	153	195 BCD
	Location Average	**233**	**157**	**186**	**200**	**189**	**213**	**230**	**201**	**184**	**199**

Soil Type	Sharkey clay	Alligator clay	Dundee silty clay	Commerce silty clay loam	Forrestdale silty clay loam	Dundee silt loam	Dundee loam	Mantachie loam	Dubbs very fine sandy loam
Planting Date	9-Apr	26-Apr	8-Apr	11-Apr	8-Apr	23-Mar	7-Apr	26-Apr	26-Apr

**** Grain yields were analyzed and average yield values represented with the same letter are not significantly different (P < 0.05).***

MSU Corn Hybrid Demonstration Program

Irrigated Entries

Plant Characteristic Ratings

									Yield Components		
Brand	**Hybrid**	**Plant Height (feet)**	**Ear Height**	**Greensnap Tolerance**	**Root Strength**	**Stalk Strength**	**Stalk Integrity**	**Test Wt (lb/bu)**	**Kernel Rows**	**Kernels per Row**	**Seed Wt (g/250)**
Agrigold	A6659 VT2 RIB	9.1	Medium	Low	Medium	High	Med-High	58.7	14.1	38	89
Agrigold	A6711 VT2PRO	9.3	Medium	High	High	Medium	Medium	58.4	15.5	38	81
Armor	1717 PRO2	9.8	Low	Med-High	High	Low	Medium	59.6	15.7	39	81
Augusta	7768 GT3110	9.9	Low	High	Very Low	Very Low	Med-Low	56.9	15.3	35	81
Augusta	8868 VT3PRO	9.6	Medium	Medium	Med-High	Medium	Medium	57.5	15.6	34	87
Croplan Genetics	6640VT3P	9.2	Low	High	Med-High	Medium	Low	59.1	16.6	37	78
Croplan Genetics	7927VT3P	9.5	High	Medium	Med-High	Low	Medium	57.5	15.4	34	86
DEKALB	DKC66-59	9.3	Medium	Med-Low	High	Med-High	High	58.1	15.3	36	83
DEKALB	DKC67-72	8.7	Medium	High	High	High	Med-High	57.1	14.6	38	83
DEKALB	DKC68-26	9.9	Med-Tall	Med-High	High	Med-High	High	59.0	16.1	34	86
Dyna Gro	D57VP51	9.6	Medium	Med-Low	Med-High	High	Med-High	58.3	15.1	37	85
Dyna Gro	D57VP75	9.8	Med-Tall	Med-Low	Medium	Med-Low	Medium	57.5	16.2	33	83
Mycogen	2D848	10.1	Tall	Med-High	High	Med-High	High	58.1	16.0	36	80
Pioneer	1197YHR	9.8	Med-Tall	High	Medium	Med-High	Low	58.1	15.9	34	83
Terral	REV® 23BHR55™	9.9	Med-Low	High	Med-High	Medium	Low	58.0	15.9	39	77
Terral	REV® 25BHR26™	10.2	Med-Low	Med-High	Medium	Med-High	Med-Low	59.3	16.1	37	78
Terral	REV® 26BHR50™	10.1	Med-Low	High	Med-Low	Medium	Med-High	59.5	16.3	34	82
	Average	**9.6**						**58.3**	**15.6**	**36**	**83**

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2016 Grain Yield Summary (bu/a)

Dryland Locations

Brand	Hybrid	Artesia	Macon	MSU	Natchez	Como	Ashland	Corinth	Bolton	Canton	Eupora	Pontotoc	Vardaman	Shellmound	Average Yield*
Agrigold	A6659VT2 RIB	132	181	171	240	180	184	64	135	113	125	63	126	157	144 A
Armor	1621 PRO2	152	186	180	196	165	174	51	124	150	151	82	168	148	148 A
Croplan Genetics	6640VT3P	131	181	184	225	186	188	52	134	134	149	82	146	161	150 A
DEKALB	DKC66-59	157	194	173	209	192	183	40	128	95	154	67	177	144	147 A
DEKALB	DKC67-72	155	200	184	207	195	188	62	130	134	142	82	136	156	152 A
DEKALB	DKC68-26	142	197	177	223	197	190	52	132	104	143	55	136	166	147 A
Dyna Gro	D57VP75	156	177	164	211	175	175	43	133	141	140	71	156	147	145 A
Mycogen	2C797	148	193	176	208	189	174	54	130	128	147	63	143	145	146 A
Pioneer	1637VYHR	128	179	179	218	180	174	56	131	129	126	63	142	150	143 A
Progeny	5115 VT2P	147	188	180	230	180	183	40	135	137	158	71	149	149	150 A
Terral	REV® 23BHR55™	157	184	172	232	197	169	71	132	118	94	67	117	147	143 A
	Location Average	**146**	**187**	**177**	**218**	**185**	**180**	**53**	**131**	**126**	**139**	**70**	**145**	**152**	**147**

Soil Type	Okolona silty clay	Okolona silty clay	Leeper silty clay loam	Collins silt loam	Collins silt loam	Lexington silt loam	Arkabutla silt loam	Memphis silt loam	Oaklimeter silt loam	Oaklimeter silt loam	Providence silt loam	Providence silt loam	Dubbs loam
Planting Date	6-Apr	5-Apr	20-Apr	17-Mar	8-Apr	9-Apr	9-Jun	6-Apr	8-Apr	22-Mar	4-Apr	23-Mar	7-May

**** Grain yields were analyzed and average yield values represented with the same letter are not significantly different (P < 0.05).***

MSU Corn Hybrid Demonstration Program

Dryland Entries

Plant Characteristic Ratings

											Yield Components		
Brand	**Hybrid**	**Days to Tassel**	**Relative Maturity**	**Plant Height (feet)**	**Plant Height**	**Ear Height**	**Root Strength**	**Stalk Strength**	**Stalk Integrity**	**Test Wt (lb/bu)**	**Kernel Rows**	**Kernels per Row**	**Seed Wt (g/250)**
Agrigold	A6659VT2 RIB	61	115	8.9	Med-Short	Medium	Med-High	Medium	Med-High	57.9	14.6	34	70
Armor	1621 PRO2	61	116	9.1	Medium	Medium	Med-High	Medium	High	56.6	16.1	32	74
Croplan Genetics	6640VT3P	61	114	8.3	Short	High	Med-High	Medium	Very Low	57.2	17.8	34	63
DEKALB	DKC66-59	60	115	9.3	Medium	Medium	High	High	Med-High	56.5	15.1	36	74
DEKALB	DKC67-72	59	115	8.2	Short	Med-Low	Med-High	Medium	Medium	56.9	14.8	34	73
DEKALB	DKC68-26	61	115	9.1	Medium	Low	Medium	Medium	High	57.8	16.6	30	73
Dyna Gro	D57VP75	61	116	9.7	Tall	High	Med-Low	Medium	High	56.7	16.4	29	74
Mycogen	2C797	59	115	8.8	Med-Short	High	High	Medium	Medium	56.3	15.5	33	70
Pioneer	1637VYHR	62	117	10.3	Very Tall	Medium	Low	Med-Low	Low	57.4	14.4	40	71
Progeny	5115 VT2P	60	116	9.0	Medium	Low	High	High	Med-High	54.7	15.5	36	67
Terral	REV® 23BHR55™	60	115	9.7	Tall	Medium	Medium	High	High	56.6	16.1	37	65
			Average	**9.1**						**56.8**	**15.7**	**34**	**70**

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Publication 3309 (POD-01-19)

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Produced by Agricultural Communications.

Extension Service of Mississippi State University, cooperating with U.S. Department of Agriculture. Published in furtherance of Acts of Congress, May 8 and June 30, 1914. GARY B. JACKSON, Director