2015 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 ag professionals first-hand opportunity and information to better assess hybrid performance and adaptability in Mississippi. This program provides 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.

Program Summary: Hybrids selected for this program must validate their entry by producing superior grain yield in the Mississippi Corn for Grain Hybrid Trials (MAFES IB480) or be a relevant market standard. Hybrids are selected annually and grouped into two distinct sets based upon performance in dryland or irrigated culture, since these cropping systems are both prevalent and are the most significant factor affecting corn hybrid adaptability in Mississippi. Seed companies are granted the discretion to enter the hybrid which has demonstrated superior performance in the Mississippi Corn for Grain Hybrid Trials, or a newly-released hybrid which they feel is more promising or better adapted. This establishes a very elite group of corn hybrids for evaluation in this program. These two standardized sets of hybrids are grown at numerous field locations representing Mississippi cropping systems. MSU 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 or all commercial hybrids available in the market.

Grain Yield Data: Hybrids evaluated in this program are generally planted in "strip trials." The yield data generated from a single location are not generally as reliable as when treatments are replicated numerous times. Treatment replication reduces the effect of numerous factors which can impart variability, which 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 information derived from numerous diverse environments, cropping systems, and soils and is intended to supplement data generated in university hybrid trials.

Technology Traits: All hybrid entries are Roundup Ready or 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 (Southwestern corn borer and/or

European corn borer) are present. Rootworm protection is not generally as beneficial in our region, as the native Southern corn rootworm species feeds on alternative hosts and primarily damages corn only during seedling establishment. All seed are commercially treated with an insecticide seed treatment, which is at the discretion of each respective seed company. Seed treatments are utilized to minimize damage from insect pests, including Southern corn rootworm, 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% grain moisture), and does not include additional time for the crop to dry to a desirable harvest moisture.

Plant Height: Plant height is reported as full plant height after tassel emergence. Plant height is one of several factors which may affect light interception, which is critical to optimum corn grain production. Light interception is determined by the leaf canopy, which is influenced by many other factors including leaf number, leaf size, leaf orientation, row width/pattern and plant population. Short plant height may reduce potential light interception, particularly in wide rows. Tall plants are generally more likely to lodge and should have higher water demand during the growing season.

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

Stalk Strength: Stalk strength is a hybrid's ability to resist stalk lodging, which occurs when the stalk bends, collapses or breaks above ground level. Stalk lodging often increases when harvest is delayed by inclimate weather, which promotes stalk deterioration. Stalk lodging is often more prevalent than root lodging (which is when the entire stalk severely leans or completely falls from ground level), but is generally less troublesome because timely harvest can mediate potential issues and combines usually can still gather stalks.

Stalk Integrity: Stalk integrity is a characterization of the plant's ability to maintain integrity after physiological maturity. Late-season stress and adverse weather often promote plant deterioration during the time between physiological maturity and harvest. This may be evident by the presence of shriveled, shredded or dislodged leaves, and brittle or broken stalks, particularly above the ear.

Disease Resistance: Disease resistance is hybrid's ability to resist infection of a specific pathogen. Southern rust was present during the 2015 season at levels substantial enough to evaluate hybrid differences. Ratings are represented in a scale from resistant to very susceptible based upon increasing degree of disease infection.

Yield Components: Corn grain yield is determined by the total number of kernels produced and kernel weight. Kernel number is comprised by the number of kernel rows an ear produces and the number of kernels per row. Each of these two traits are determined during different growing stages. Kernel row number is determined during late vegetative stages and is the first yield component determined by the plant. Although potential ovule number also develops during late vegetative stages, kernel number is primarily determined during the first few weeks after pollination as young kernels develop up until the milk stage. Successful kernel development is extremely dependent upon high photosynthetic energy production during this specific period and lack of stress. Kernel weight is the final yield component determined. Kernel weight is dependent upon favorable conditions during the latter reproductive stages (dough and dent stages) 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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2015 Grain Yield Summary (bu/a)

Irrigated Locations

Brand	Hybrid	MSU	Itta Bena	Indianola	Rolling Fork	Schlater	Sumner	Como	Ellisville	Goodman	Average Yield*
Agrigold	A6659VT2 RIB	239	164	238	239	205	231	212	201	200	**214** A
B-H Genetics	8735VTTP	234	167	225	226	208	211	196	206	192	**207** AB
Croplan Genetics	6640VT3P	224	173	219	231	202	232	202	258	187	**214** A
Croplan Genetics	7927VT3P	195	173	214	223	174	219	202	201	158	**195** C
DEKALB	DKC62-08	228	166	198	237	202	227	181	214	189	**205** ABC
DEKALB	DKC66-40	220	178	213	225	210	213	185	224	185	**206** ABC
DEKALB	DKC65-71	210	184	207	215	184	228	173	211	181	**199** BC
DEKALB	DKC66-97	222	208	229	227	180	231	180	220	186	**209** AB
DEKALB	DKC67-72	242	177	220	229	201	223	206	220	204	**213** A
Dyna Gro	D57VP51	230	175	228	235	197	227	200	195	194	**209** AB
Dyna Gro	D57VP75	198	181	211	217	196	219	208	221	184	**204** ABC
Terral	REV® 24BHR93™	190	173	208	227	211	226	204	191	178	**201** BC
Terral	REV® 26BHR50™	206	193	220	243	215	245	168	226	196	**213** A
Terral	REV® 25BHR26™	227	168	214	231	189	228	202	210	206	**208** AB
Terral	REV® 23BHR55™	210	174	210	237	203	231	224	201	193	**209** AB
Pioneer	2089YHR	208	176	217	241	213	250	211	207	187	**212** A
	Location Average	**218**	**177**	**217**	**230**	**199**	**227**	**197**	**213**	**189**	**207**
	Soil Type	Marietta fine sandy loam	Dundee loam	Dundee very fine sandy loam	Commerce very fine sandy loam	Dubbs loam	Dundee silt loam	Collins silt loam	Jena fine sandy loam	Oaklimeter silt loam	

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

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Irrigated Entries

Plant Characteristic Ratings

Brand	Hybrid	Days to Tassel	Relative Maturity	Plant Ht (feet)	Ear Height	Stalk Strength	Stalk Integrity	Southern Rust Resistance	Test Wt (lbs/bu)	Yield Components: Kernel Rows	Yield Components: Kernels per row	Yield Components: Seed Wt (g/250)
Agrigold	A6659VT2 RIB	57	114	8.5	Medium	High	Med-High	Moderate	58.8	14.5	37	76
B-H Genetics	8735VTTP	57	115	9.2	Medium	Med-High	Medium	Susceptible	59.1	15.7	36	70
Croplan Genetics	6640VT3P	55	116	7.9	Med-High	Medium	Low	Very Susceptible	58.7	16.7	36	71
Croplan Genetics	7927VT3P	57	118	9.1	Medium	Medium	Medium	Very Susceptible	57.9	16.8	34	79
DEKALB	DKC62-08	56	116	7.8	High	High	Medium	Mod-Susceptible	58.1	16.5	33	71
DEKALB	DKC66-40	56	118	9.0	Med-High	Medium	Medium	Susceptible	58.3	15.5	35	75
DEKALB	DKC65-71	54	113	8.1	Medium	Medium	Medium	Very Susceptible	57.5	15.7	39	68
DEKALB	DKC66-97	57	115	7.8	Med-Low	Med-High	High	Moderate	59.1	15.7	32	77
DEKALB	DKC67-72	54	118	8.1	Medium	Med-Low	Medium	Moderate	58.3	14.5	35	77
Dyna Gro	D57VP51	56	115	8.1	Medium	High	Med-High	Moderate	58.5	14.3	38	73
Dyna Gro	D57VP75	57	118	9.5	Medium	Med-Low	Medium	Susceptible	57.9	15.8	32	77
Terral	REV® 24BHR93™	58	114	9.4	Medium	Medium	Medium	Moderate	58.9	15.1	34	74
Terral	REV® 26BHR50™	58	115	10.0	Low	Med-Low	Medium	Susceptible	60.4	15.7	38	72
Terral	REV® 25BHR26™	57	116	9.5	Med-Low	Medium	Medium	Susceptible	59.7	16.0	36	73
Terral	REV® 23BHR55™	58	115	9.4	Medium	Medium	Med-High	Mod-Susceptible	58.1	16.4	36	67
Pioneer	2089YHR	58	114	9.9	Med-Low	Medium	Med-Low	Mod-Susceptible	58.0	15.4	39	73
			Average	**8.8**					**58.6**	**15.6**	**36**	**73**

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2015 Grain Yield Summary (bu/a)

Dryland Locations

Brand	Hybrid	MSU	Artesia	Brooks-ville	Good-man	Canton	Natchez	Ellisville	Shell-mound	Pontotoc	Corinth	**Average Yield***
Agrigold	A6659VT2 RIB	216	140	85	143	219	247	212	130	176	139	**171** ABC
Croplan Genetics	6640VT3P	208	152	120	166	205	242	218	144	151	138	**174** A
DEKALB	DKC62-08	210	173	113	121	207	251	214	137	158	108	**169** ABCD
DEKALB	DKC66-40	203	139	85	134	210	232	212	132	160	113	**162** CDE
DEKALB	DKC65-71	194	145	114	153	222	227	214	143	141	126	**168** ABCD
DEKALB	DKC66-97	207	146	133	166	219	228	201	135	161	139	**174** AB
DEKALB	DKC67-72	208	155	123	168	221	238	199	133	162	122	**173** AB
Dyna Gro	D57VP75	189	142	95	128	204	218	212	129	158	96	**157** E
Mycogen	2C786	206	151	114	179	215	228	201	142	154	122	**171** ABC
Mycogen	2D848	196	142	90	166	208	212	180	133	156	115	**160** DE
Terral	REV® 25BHR26™	222	142	91	138	225	247	224	136	163	120	**171** ABC
Terral	REV® 23BHR55™	219	164	100	128	190	241	213	134	146	102	**164** BCDE
Pioneer	1637YHR	211	146	104	146	216	255	220	137	156	127	**172** ABC
	Location Average	**207**	**149**	**105**	**149**	**212**	**236**	**209**	**136**	**157**	**121**	**168**
	Soil Type	Leeper silty clay loam	Vaiden silty clay	Brooksville silty clay	Kinston loam	Gillsburg silt loam	Memphis silt loam	Cahaba sandy loam	Dubbs loam	Atwood silt loam	Iuka fine sandy loam	

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

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Dryland Entries

Plant Characteristic Ratings

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Agrigold	A6659VT2 RIB	56	115	9.0	Medium	Med-Low	Medium	Mod-Susceptible	57.8	15.1	38	69
Croplan Genetics	6640VT3P	55	115	8.6	Medium	Med-Low	Low	Very Susceptible	57.5	16.7	37	65
DEKALB	DKC62-08	57	116	8.5	Med-High	Med-High	Medium	Mod-Susceptible	57.3	16.9	34	66
DEKALB	DKC66-40	56	117	9.4	High	Med-High	High	Mod-Susceptible	57.0	16.2	37	67
DEKALB	DKC65-71	56	113	8.8	Med-Low	Medium	Low	Very Susceptible	56.8	15.8	40	66
DEKALB	DKC66-97	56	114	8.8	Low	Med-High	High	Mod-Susceptible	58.5	16.3	33	73
DEKALB	DKC67-72	55	115	8.4	Medium	Med-Low	Med-High	Moderate	57.2	15.6	37	70
Dyna Gro	D57VP75	55	117	10.1	Medium	Medium	Medium	Susceptible	56.5	16.7	33	71
Mycogen	2C786	56	118	8.1	High	Medium	Medium	Moderate	55.9	15.1	35	66
Mycogen	2D848	55	115	9.1	High	Med-High	High	Mod-Susceptible	57.0	15.8	36	71
Terral	REV® 25BHR26™	55	115	9.9	Medium	Medium	Medium	Moderate	58.8	17.2	39	63
Terral	REV® 23BHR55™	56	114	9.9	Med-Low	Med-High	Medium	Moderate	56.4	16.3	37	60
Pioneer	1637YHR	56	114	10.4	Med-Low	Med-Low	Med-Low	Moderate	58.2	14.8	40	65
			Average	**9.1**					**57.3**	**16.0**	**36**	**67**

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