MISSISSIPPI STATE UNIVERSITY
EXTENSION SERVICE

2014 Corn Hybrid Demonstration Program Results

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Program Summary: This program is intended to provide corn growers, crop consultants and other ag professionals additional information to help assess future hybrid performance and adaptability on your farm.

Hybrids selected for inclusion in this program must demonstrate superior grain yield performance in MSU Corn for Grain Hybrid Trials based upon either dryland or irrigated culture. This performance is evaluated annually and those top-yielding hybrids are published as "MSU Corn Hybrid Suggestions." A respective seed company may make an alternate hybrid choice, if conditions warrant. These two standardized sets of superior-yielding hybrids are respectively grown at numerous field locations according to the crop culture. MSU Extension Service Area Agronomic Crop Agents coordinate locations with grower cooperators in their region, and supervise plots during the season.

The objective of the Corn Hybrid Demonstration Program is to provide opportunity for clientele to evaluate premier hybrids during the entire season and substantially supplement the information gathered in the university hybrid trials. This program increases hybrid exposure and is well suited to evaluate various plant characteristics and environmental responses that may be impractical to accomplish in university hybrid trials.

The following explanation suggests how results may be interpreted and utilized. Characteristics are rated relative to the other entries within the respective set of premier hybrids grown in the program. 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 are not generally as reliable as that from replicated trials (University Hybrid Trials), particularly for a single location. Treatment replication reduces the effect of numerous non-treatment factors which can impart disproportionate amount of either "benefit" or "stress" capable of affecting performance and confound analyses. Thus, average yields are calculated from multiple locations to strengthen our ability to assess yield performance related to hybrid genetics. This information derived from numerous diverse environments, cropping systems and soils, supplements data generated by University Hybrid Trials.

Technology Traits: All hybrid entries possess Roundup Ready or Glyphosate tolerance technology in order to allow use of glyphosate herbicide for weed control. Inclusion of other traits is open and is primarily based on product availability and the discretion of the respective seed companies who submit entries. 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, because the native Southern corn rootworm species feeds on alternative hosts and primarily damages corn only during seedling establishment and product efficacy on this species has not been extensively evaluated. All entries are also commercially treated with an insecticide seed treatment of each seed company's choice. This should minimize damage resulting from many insect pests, including Southern corn rootworm, during seedling establishment.

Relative Maturity: Maturity is reported as numerical measurement of 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: This is reported as a numerical measurement of 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. However, tall plants are generally more likely to experience lodging problems and likely will have higher water demand during the growing season.

Ear Height: This 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 far 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 blow down when exposed to substantial wind.

Stalk Strength: This is a relative rating to resist stalk lodging between hybrids in this program. Stalk lodging is described as when the stalk bends, collapses or breaks above ground level. Stalk lodging generally 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 pick up stalks better, since stalk lodging occurs above the soil surface.

Plant Integrity: This is a relative rating of late-season plant integrity between hybrids in this program. This is a characterization of the plant's ability to maintain integrity until crop harvest. Late-season stress and adverse weather often promote vegetative deterioration, particularly after plants reach physiological maturity. This may be evident by the presence of shriveled, shredded or dislodged leaves, and brittle or broken stalks, particularly above the ear.

Disease Resistance: This is a relative rating to resist infection of a specific disease between hybrids in this program. Southern rust was present during the 2014 season at levels substantial enough to evaluate hybrid differences. Ratings are designated on 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 by the number of kernel rows an ear produces and the number of kernels which develop per row. Each of these two traits are determined at different times. 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 weeks after pollination as young kernels develop to the milk stage. Successful kernel development is extremely dependent upon extremely upon high photosynthetic energy production during this specific period and lack of stress. Kernel weight is the final yield component determined. Kernel weight is primarily 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.

MSU Corn Hybrid Demonstration Program

2014 Grain Yield Summary (bu/a)

Irrigated Locations

Brand	Hybrid	Rolling Fork	Hollandale	Schlater	Webb	MSU	Hickory Flat	Average Yield
Agrigold	A6659VT3 PRO	287	253	248	238	251	246	**254**
Agrigold	A6687VT2PRO	268	219	244	241	226	247	**241**
Armor	1880 Pro^2	256	236	237	203	224	233	**232**
Croplan Genetics	6640VT3P	259	235	247	218	242	250	**242**
Croplan Genetics	7927VT3P	264	210	242	222	223	264	**237**
DEKALB	DKC62-08	269	227	252	215	253	271	**248**
DEKALB	DKC64-69	261	274	232	223	241	231	**244**
DEKALB	DKC66-97	275	205	243	217	253	248	**240**
DEKALB	DKC69-29	264	202	242	226	226	248	**235**
Dyna Gro	D57VP51	275	210	241	235	250	246	**243**
Dyna Gro	D57VP75	256	233	244	230	212	270	**241**
NK	78S 3111	251	242	237	233	243	226	**239**
Terral	REV® 24BHR93™	259	219	241	242	234	255	**242**
Terral	REV® 26BHR50™	279	232	268	248	226	269	**254**
Terral	REV® 27HR83™	277	216	190	245	224	248	**233**
	Location Average	**267**	**227**	**240**	**229**	**235**	**250**	**241**
	Soil Type	Commerce very fine sandy loam	Commerce silty clay loam	Dubbs silt loam	Dundee silt loam	Marietta fine sandy loam	Arkabutla silt loam	

MSU Corn Hybrid Demonstration Program

Irrigated Entries

2014 Plant Characteristic Ratings

		Maturity Measurements							Grain Yield Components			
Brand	Hybrid	Days to Tassel	Relative Maturity	Plant Height (ft.)	Ear Height	Stalk Strength	Stalk Integrity	Southern Rust Resistance	Kernel Rows	Kernels per Row	Seed Wt (g/250 seeds)	Test Wt (lbs./ bu.)
Agrigold	A6659VT3 PRO	62	114	8.3	Medium	Med-High	Medium	Mod-Susc.	15.2	39.4	87.4	59.5
Agrigold	A6687VT2PRO	62	118	8.8	Med-Low	Medium	Medium	Susceptible	15.0	38.9	88.1	60.5
Armor	1880 Pro[2]	63	120	9.0	High	Med-High	Medium	Susceptible	15.6	36.3	84.7	60.3
Croplan Genetics	6640VT3P	61	115	8.6	High	Medium	Low	Very Susc.	16.5	37.7	85.7	59.4
Croplan Genetics	7927VT3P	60	118	9.4	Med-High	Med-Low	Med-Low	Very Susc.	15.3	39.2	83.9	58.5
DEKALB	DKC62-08	62	115	8.6	Medium	Med-High	Med-Low	Mod-Susc.	16.4	36.4	92.0	58.7
DEKALB	DKC64-69	61	110	8.8	Med-Low	Medium	Med-Low	Moderate	15.2	37.8	86.6	58.7
DEKALB	DKC66-97	62	116	9.0	Low	Medium	High	Mod-Susc.	15.2	36.1	81.9	59.9
DEKALB	DKC69-29	59	117	9.0	Med-High	High	High	Susceptible	15.3	39.0	94.2	59.2
Dyna Gro	D57VP51	63	116	8.8	Medium	Medium	Med-Low	Moderate	14.5	36.5	82.1	59.3
Dyna Gro	D57VP75	62	117	9.3	Medium	Med-Low	Medium	Susceptible	15.4	37.9	93.0	58.6
NK	78S 3111	61	114	9.0	Low	High	Med-High	Mod-Susc.	15.4	37.5	88.8	57.2
Terral	REV® 24BHR93™	63	116	9.5	Low	Low	Medium	Mod-Susc.	15.1	36.1	95.7	59.9
Terral	REV® 26BHR50™	62	115	9.7	Medium	Medium	Medium	Susceptible	16.0	38.3	82.1	61.0
Terral	REV® 27HR83™	62	117	9.6	Very Low	Low	Med-High	Moderate	15.0	38.7	91.2	60.7
			Average	**9.0**					**15.4**	**37.7**	**87.8**	**59.4**

MSU Corn Hybrid Demonstration Program

2014 Grain Yield Summary (bu/a)

Dryland Locations

Brand	Hybrid	Vardaman	MSU	Shellmound	Canton	Columbus	Ellisville	Pontotoc	Corinth	Walnut	Natchez	Average Yield
Croplan Genetics	6640VT3P	214	193	156	244	210	191	202	184	196	187	**198**
Croplan Genetics	6926VT3P	189	181	156	210	194	169	189	190	212	159	**185**
DEKALB	DKC62-08	201	200	158	246	201	192	196	169	166	211	**194**
DEKALB	DKC66-40	210	200	151	249	186	199	214	194	215	185	**200**
DEKALB	DKC64-69	213	211	150	245	203	221	202	210	177	195	**202**
DEKALB	DKC67-57	220	193	161	236	191	201	204	181	160	185	**193**
DEKALB	DKC69-29	209	185	153	240	192	186	194	168	172	185	**188**
Dyna Gro	D55VP77	188	190	149	234	180	186	194	172	243	191	**193**
Dyna Gro	D57VP75	212	190	158	241	183	209	200	160	165	172	**189**
Mycogen	2C786	190	198	157	227	201	164	189	153	207	206	**189**
Mycogen	2C797	205	191	152	226	196	190	196	188	206	193	**194**
Mycogen	2H877	216	183	122	219	185	165	196	152	176	184	**180**
Steyer	11604	212	186	149	227	180	184	179	156	187	180	**184**
Terral	REV® 24BHR93™	218	192	146	237	183	206	192	192	201	178	**194**
Terral	REV® 18BHR84™	220	186	120	230	187	209	184	164	171	188	**186**
	Location Average	**208**	**192**	**149**	**234**	**192**	**191**	**195**	**176**	**190**	**187**	**191**
	Soil Type	Chastain silt loam	Leeper silty clay loam	Dubbs loam	Oakli-meter silt loam	Leeper silty clay	Prentiss loam	Bude silt loam	Iuka fine sandy loam	Collins silt loam	Falaya association	

MSU Corn Hybrid Demonstration Program

Dryland Entries

2014 Plant Characteristic Ratings

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Croplan Genetics	6640VT3P	59	114	8.6	Medium	Medium	Low	Susceptible	16.9	38.1	73.3	58.3
Croplan Genetics	6926VT3P	59	116	8.5	Med-Low	High	Med-High	Susceptible	15.7	34.8	79.3	59.6
DEKALB	DKC62-08	62	115	8.4	High	Med-High	Low	Susceptible	16.3	35.0	80.7	57.6
DEKALB	DKC66-40	60	116	9.4	High	Medium	Medium	Mod-Susc.	15.5	34.2	81.5	57.5
DEKALB	DKC64-69	61	114	8.6	Med-High	High	Med-Low	Mod-Susc.	14.4	36.6	75.8	58.3
DEKALB	DKC67-57	60	115	8.7	Medium	High	Med-High	Mod-Susc.	14.3	36.0	78.5	59.4
DEKALB	DKC69-29	59	113	8.9	Med-Low	Med-Low	Med-High	Mod-Susc.	15.3	35.4	80.8	58.1
Dyna Gro	D55VP77	61	114	8.6	Low	High	Medium	Mod-Susc.	15.9	36.5	76.8	59.0
Dyna Gro	D57VP75	59	116	10.0	Med-High	Med-Low	Med-Low	Susceptible	16.2	32.8	76.3	57.0
Mycogen	2C786	62	115	7.9	Medium	High	High	Moderate	16.7	34.4	80.7	56.7
Mycogen	2C797	61	114	9.0	Medium	High	Med-High	Mod-Susc.	14.9	37.9	77.7	57.3
Mycogen	2H877	61	115	9.5	Low	Med-Low	Med-High	Moderate	15.4	36.3	73.7	54.6
Steyer	11604	61	115	9.0	Low	Med-High	Med-High	Mod-Susc.	15.5	37.8	83.9	57.8
Terral	REV® 24BHR93™	61	115	10.1	Medium	Low	Medium	Mod-Susc.	14.6	40.5	74.8	58.4
Terral	REV® 18BHR84™	58	114	9.1	Very Low	Med-Low	Med-Low	Mod-Susc.	14.3	37.5	74.4	57.3
			Average	**9.0**					**15.5**	**36.3**	**77.9**	**57.8**