Corn Hybrids for Grain 2013

Introduction

Corn seed manufacturers participated in the LSU AgCenter's official variety trials with 68 hybrids during 2012.

The research station portions of the tests were conducted at two LSU AgCenter facilities – the Northeast Research Station and the Scott Research Center in Winnsboro. Soils involved at the stations were Commerce silt loam and Sharkey clay.

The on-farm core block trials were conducted with a total of 13 hybrids spread over 16 locations throughout the corn-growing areas of Louisiana, with LSU AgCenter parish agents coordinating trial activities.

All corn official variety trials were conducted based on LSU AgCenter best management practices. The on-farm core block trials were placed with active corn producers and subjected to the standard production practices of each producer. Several trials suffered from adverse growing conditions, including post-emergence storm damage. Separate core block trials were conducted for "stacked" varieties – containing both glyphosate tolerance and insect resistance – and "nonstacked" varieties that had glyphosate tolerance only.

The data is presented to provide yield results by trial, as well as some trend comparisons from compiled data. As opposed to the official variety trial research, the on-farm core block trials sometimes are not replicated in the field, and rigorous statistical analyses often are not possible. Nevertheless, sufficient trials were conducted across a variety of locations that meaningful and relevant observations can be made that will be useful to Louisiana producers as they make seed-buying decisions. The data provided in this publication should help you make a more informed decision about which varieties will work best for your production area.

Hybrid Selection

Companies offer multiple varieties for sale to producers for good reasons. Each corn producer has different soil conditions, irrigation practices and crop rotations than the neighboring growers. Some varieties tend to perform better than others based on soil type, planting date, weather conditions and location.

Maturity groups are determined genetically, but the actual maturity date of a given hybrid depends on the daily temperature mean accumulation (growing degree units – GDU) above 50 degrees Fahrenheit for corn, because little growth occurs with temperatures below that. Louisiana producers can grow early hybrids (100-108 days), midseason hybrids (109-119 days) and full season hybrids (greater than 120 days). Plant height, ear height and stalk strength all are factors that influence corn stands and ultimately yield. Husk coverage is important in wet harvest seasons because loosely shucked hybrids may dry quicker but tend not to withstand the wetter, humid Louisiana harvest season as well as the thicker, tightly shucked ones. Grain quality can be affected along with susceptibility to aflatoxin infection. Some hybrids have tolerance to certain diseases such as leaf blights, rust and viruses. For complete information on participating hybrid characteristics, refer to Extension Publication RS 187, which can be found on the Web at www.lsuagcenter.com/corn.

Planting Rate and Depth

The optimal plant population for corn ranges from 25,000 to 30,000 live plants per acre. Assume 80 percent field emergence if planting early (plant 31,250-37,500 seeds per acre). The lower end of the recommended range should be used when lower yields are expected due to soil type, late planting date, drought-prone area or low fertility. Higher populations should be used on highly productive, deep alluvial soils or irrigated fields where moisture will not be a limiting factor. Seed size and shape are not critical to a good stand, but be sure to use the correct plate and planter for the size purchased.

Corn should be planted 1.5-2 inches deep. On heavy soils, depth can be increased to 2 inches. It is vitally important to establish seed contact with moist soil, but planting seeds more than 2 inches deep can increase the probability of an uneven plant stand, which can affect growth and yield.

Fertilization

Proper fertility is critical to optimizing crop yields, particularly with corn.

Soil pH should be at least 5.8 for corn production. Nitrogen should be applied according to whether the field is in an alluvial plain such as the Delta, and whether it is irrigated or dry land (Table 1). Apply nitrogen in a split application with 50-75 percent applied before or at planting and the balance when the corn is 3-12 inches tall. All the

nitrogen can be applied preplant or at planting, but this increases the risk of fertilizer burn on seedlings and nitrogen loss from leaching or volatilization. Banding phosphorus will increase its efficiency when the soil pH is very acidic or alkaline or when soil test phosphorus levels are low. Soil testing is recommended to apply appropriate levels for each field, but in many soils 40-60 pounds of P2O5 and K2O per acre will be needed. Corn uses phosphorus and potassium early in its growth cycle, so these nutrients should be applied preplant or at planting.

Soil testing also is recommended for determining sulfur and zinc needs. If sulfur is lower than 12 ppm (Mehlich 3), apply at least 10 pounds of sulfur in the sulfate form per acre. If zinc is lower that 1 ppm, apply 10 pounds of zinc in a soluble form such as zinc sulfate or zinc chelate per acre. Among the inorganic zinc sources on the market, the most common sources are sulfates, oxides and oxysulfates. Zinc sulfate and zinc chelates are essentially 100 percent water soluble, while zinc oxides essentially are insoluble during a single crop season, thus unavailable to the crop that season. Oxysulfates are a mixture of sulfates and oxides, with varying proportions of sulfates and oxides and with various levels of solubility (0.7 percent to 98.3 percent). The effectiveness of these can be highly variable, depending on solubility. Low solubility materials may have some value in a long-term buildup program, but when immediate results are the goal, highly soluble fertilizers are the best choice. For acceptable in-season efficacy, a zinc fertilizer source should be at least 50 percent water soluble. If soil test zinc is between 1 ppm and 2.25 ppm, apply 5 pounds of zinc per acre, when broadcasting. Less is needed if using a banded application.

Table 1. Nitrogen rates for corn in Louisiana based on field conditions.

Soil	Irrigation	Nitrogen Rate (pounds/acre)
Alluvial	Yes	180-240
Alluvial	No	140-180
Upland	Yes	160-200
Upland	No	120-160

Planting Date

Corn should be planted as close as possible to the date of the average last spring freeze. The optimal planting window for south Louisiana is Feb. 25-March 20, and for north Louisiana the optimal planting window generally is from March 10 until April 1. In most years, April 15 is the last date for maximum yield potential. Extending planting to May 1 can result in a yield reduction of 30 percent or more.

Corn younger than V6 (6-leaf stage) usually can withstand a light frost if the temperature does not drop below 30 degrees Fahrenheit. A moderate freeze will burn any existing leaves to the ground, but new leaves can emerge in four to five days with higher temperatures. As the growing point moves upward near the soil surface, however, the possibility of injury increases.

Evaluating the Data

This report begins with yield data from the official variety trials conducted by LSU AgCenter scientists in replicated format that allowed for statistical comparisons. Detailed measurements were made, but this report only displays yield data. For a complete review of the variety trial data, please refer to Extension Publication RS 187 (2012 Corn Hybrid Performance Trials), which can be found on the Web at www.lsuagcenter.com/corn.

For a better understanding of how corn varieties performed in Louisiana, refer to the official variety trial data first. Choose those varieties that performed well overall and those that performed well in the region that most represents your growing area. Finally, check the on-farm core block data to see if it is consistent with the official variety trial data for your chosen varieties. By making thorough comparisons across the full range of information available, you improve your chances of choosing varieties that will perform well on your farm.

Official Variety Trial Data:

Table 2. Planting dates and irrigation schedule for official variety trials.

Location	Planting date	Irrigation	Seeding rate (seeds/acre)
St. Joseph – Commerce silt loam	March 19	No irrigation	32,000
St. Joseph – Sharkey clay	March 20	No irrigation	32,000
Winnsboro	March 28	Furrow irrigation	32,000
Alexandria	March 15	No irrigation	32,000

Table 3. Yield performance of hybrids entered in the LSU AgCenter's corn hybrid performance trials for 2012.

Yield data from LSU AgCenter/Louisiana Agricultural Experiment Station corn hybrid performance trials during 2012.

	Alexandria	St. Joseph - 1	St. Joseph - 2	St. Joseph - 3	Winnsboro	Average
			bushels/acre			
REV®24BHR93™	.	.	.	195.3	210.7	**203.0**
Pioneer P1303HR	171.8	205.6	182.1	198.1	217.5	**195.0**
Pioneer P1690HR	155.5	214.4	187.0	200.1	213.5	**194.1**
REV®26HR23™	.	.	.	191.7	194.6	**193.2**
REV®28HR20™	156.9	208.5	185.4	194.4	212.2	**191.5**
REV®25BHR63™	.	.	.	192.4	189.3	**190.9**
BH 8928VTTP	173.1	205.0	163.6	184.2	223.8	**189.9**
Dekalb DKC 62-09	180.5	196.6	160.1	191.0	215.3	**188.7**
Pioneer P1636YHR	152.1	202.4	179.7	207.4	198.0	**187.9**
REV®27HR83™	151.9	206.8	172.9	191.9	212.3	**187.2**
Pioneer P1739HR	165.3	203.5	173.6	185.3	202.3	**186.0**
Dekalb DKC 67-57	164.9	194.3	170.9	184.4	212.4	**185.4**
REV®29HR13™	147.5	198.0	183.1	192.8	203.6	**185.0**
REV®26HR50™	143.1	197.6	180.2	190.5	209.2	**184.1**
REV®28R10™	153.6	193.4	171.5	198.9	202.8	**184.0**
Dekalb DKC 64-69	167.5	193.6	178.4	179.0	201.7	**184.0**
D55VP77	159.4	191.6	165.7	189.2	211.7	**183.5**
Dekalb DKC 66-86	183.3	196.1	163.1	178.1	195.7	**183.3**
BH 8977RR/HX	171.6	203.6	168.2	177.3	194.4	**183.0**
Dekalb DKC 67-88	159.5	200.9	163.0	185.5	206.2	**183.0**
D57VP51	183.9	169.2	166.4	177.5	215.3	**182.5**
GA 28V81	154.3	187.0	175.3	187.5	208.0	**182.4**
Dekalb DKC 68-03	166.0	191.3	165.3	185.3	202.7	**182.1**
Dekalb DKC 69-29	150.2	195.6	165.2	194.0	205.3	**182.1**
REV®28HR30™	168.9	200.3	175.7	167.8	196.4	**181.8**
Pioneer P2088YHR	153.5	193.1	169.7	189.4	200.2	**181.2**
Dekalb DKC 66-97	145.5	191.1	170.3	191.7	205.6	**180.8**
REV®28HR29™	139.5	194.6	165.7	205.2	197.1	**180.4**
CG 8410VT3/P	157.1	170.2	164.8	192.9	214.3	**179.9**
DG2688GTCBLLRW	155.9	184.2	152.5	185.2	216.9	**178.9**
Armor AXC2118APRO3	165.8	188.3	169.3	175.6	195.0	**178.8**
N 72F-3000GT	156.4	188.2	159.7	187.2	198.7	**178.0**
Armor 1133PRO3	149.2	178.0	164.0	185.8	211.1	**177.6**
REV®23RE73™	155.5	175.1	153.0	198.5	203.3	**177.1**
BH 8895VTTP	154.8	188.1	165.1	184.0	193.2	**177.0**
Armor 1655PRO2	154.4	188.4	158.3	170.5	205.3	**175.4**
REV®22BHR43™	147.6	191.5	162.2	182.8	189.7	**174.8**
D54VP81	160.1	179.8	164.3	170.6	197.9	**174.5**
Armor 1770PRO3	156.1	172.5	158.6	192.1	189.8	**173.8**
Dekalb DKC 63-87	143.9	190.4	163.5	177.0	193.8	**173.7**
D56VP10	153.0	180.2	157.3	175.7	201.4	**173.5**
REV®27HR52™	140.0	196.9	159.7	172.9	197.3	**173.4**
BH 8630VTTP	152.1	163.1	161.1	185.4	200.2	**172.4**
DG6388GTCBLLRW	159.6	182.6	140.9	182.3	195.1	**172.1**

Table 3. Yield performance of hybrids entered in the LSU AgCenter's corn hybrid performance trials for 2012 (continued).

Yield data from LSU AgCenter/Louisiana Agricultural Experiment Station corn hybrid performance trials during 2012.

	Alexandria	St. Joseph - 1	St. Joseph - 2	St. Joseph - 3	Winnsboro	Average
			bushels/acre			
D56VP69	146.0	181.1	160.9	173.6	196.6	**171.6**
CG 6725VT3/P	149.4	177.5	166.9	170.5	191.8	**171.2**
N 78S-3111	146.9	182.8	157.6	185.6	183.1	**171.2**
Armor 1550PRO3	159.1	180.3	152.9	168.0	195.5	**171.2**
DG2788CBLL	155.8	175.7	153.7	.	197.4	**170.7**
DG3588GTCBLLRW	159.5	178.1	158.2	168.9	187.0	**170.3**
Dekalb DKC 61-88	146.8	185.2	159.6	171.6	188.3	**170.3**
DG6488GTCBLLRW	147.4	176.9	159.4	170.8	194.5	**169.8**
CG 6960VT3/P	145.0	178.3	160.9	166.3	198.0	**169.7**
D51VP40	150.6	175.3	147.1	176.7	198.0	**169.5**
Armor AXC2114PRO3	134.6	185.5	154.5	172.5	195.9	**168.6**
CG 6425VT3/P	141.2	169.0	155.0	173.9	201.4	**168.1**
D56VP79	144.4	185.3	145.3	177.1	187.8	**168.0**
DG4725Vip	145.8	175.5	154.0	167.3	194.3	**167.4**
Armor 1262PRO2	141.7	162.0	162.7	175.1	193.9	**167.1**
REV®21HR33™	144.0	183.2	153.6	172.0	178.3	**166.2**
Armor 1415PRO3	144.8	172.3	140.8	176.1	190.5	**164.9**
BH 8740VTTP	143.4	172.5	151.8	181.4	171.2	**164.1**
Dekalb DKC 64-83	138.1	175.7	141.7	181.8	181.8	**163.8**
DG2888GTCBLL	157.6	152.9	134.9	167.1	203.8	**163.3**
Dekalb DKC 65-67	150.6	168.0	145.8	161.2	185.2	**162.2**
Dekalb DKC 62-97	123.9	172.3	149.2	172.7	181.3	**159.9**
GA 26V21	159.6	170.8	131.7	153.5	180.2	**159.2**
DG3788GTBTLL	158.1	156.7	124.3	153.3	192.8	**157.0**
Average	**154.1**	**185.3**	**161.2**	**181.5**	**199.0**	
CV, %	**12.0**	**6.9**	**8.5**	**5.7**	**7.5**	
LSD (0.10)	**21.8**	**13.5**	**14.4**	**12.2**	**15.6**	

Alexandria: Planted March 15, 2012, at 32,000 seeds per acre, with no irrigation

St. Joseph - 1 (Commerce silt loam): Planted March 19, 2012, at 32,000 seeds per acre, no irrigation

St. Joseph - 2 (Sharkey clay): Planted March 20, 2012, at 32,000 seeds per acre, no irrigation

St. Joseph - 3 (Commerce sandy loam): Planted April 12, 2012, at 32,000 seeds per acre, no irrigation

Winnsboro: Planted March 28, 2012, at 32,000 seeds per acre, furrow irrigated

These data are being reviewed and will be provided later.

Table 4. Seed traits for corn hybrids entered in the 2012 LSU AgCenter/Louisiana Agricultural Experiment Station corn hybrid performance trials.

Hybrid	Transgenes[1] Insect resistance/herbicide tolerance	Seed treatment	Days to maturity

Table 5. Yield performance of corn hybrids entered in the LSU AgCenter's on-farm core block trials by parish for 2012.

Nonirrigated Trials – Stacked Hybrids							
Soil texture	**Sandy loam**	**Sandy loam**	**Silt loam**	**Clay**	**Silt loam**	**Clay**	
Parish	**Avoyelles**	**Evangeline**	**Evangeline**	**Madison**	**St. Landry**	**West Baton Rouge**	**Average**
Dekalb DKC 66-97 GENVT2P	176.2	200.2	164.8	127.0	168.1	204.6	**173.5**
Dekalb DKC 64-69 GENVT3P	189.1	182.9	155.7	121.8	166.0	189.8	**167.6**
Syngenta NK 74R-3000GT	175.2	166.9	156.3	115.0	167.7	206.7	**164.6**
Croplan CG 8410 Triple Pro	203.8	187.1	146.8	123.2	150.6	172.2	**164.0**
Terral 28HR20	191.2	175.8	130.4	123.1	171.0	189.8	**163.5**
Terral 26HR50	177.1	174.3	162.3	110.1	153.7	182.5	**160.0**
Armor 1550 Pro	185.9	177.0	142.4	98.4	.	189.7	**158.7**
Dynagro 54VP81	189.1	195.9	.	103.2	101.2	193.0	**156.5**
Pioneer P2088 YHR	188.3	131.4	156.9	120.1	168.9	171.8	**156.3**

Irrigated Trials – Stacked Hybrids										
Soil Texture	**Sandy loam**	**Sandy loam**	**Silt loam**	**Silt loam**	**Silt loam**	**Silt loam**	**Silt loam**	**Silt loam**	**Silt loam**	
Parish	**Beauregard**	**Caldwell**	**Franklin**	**Madison**	**Morehouse**	**Ouachita**	**Tensas**	**West Carroll**	**West Carroll**	**Average**
Terral 28HR20	255.8	189.6	219.7	296.9	169.4	223.9	243.7	208.5	237.1	**227.2**
Croplan CG 8410 Triple Pro	269.0	185.2	239.2	270.6	167.0	193.9	223.6	234.9	217.9	**222.4**
Dekalb DKC 64-69 GENVT3P	245.5	179.5	221.1	268.5	169.8	.	227.5	212.5	220.8	**218.2**
Dynagro 54VP81	248.9	173.2	220.6	269.1	161.4	183.2	250.1	211.8	214.4	**214.8**
Terral 26HR50	217.5	175.2	213.2	280.2	171.6	226.1	244.6	202.3	195.3	**214.0**
Pioneer P2088 YHR	226.3	181.9	219.9	278.9	171.0	208.5	219.0	204.5	212.2	**213.6**
Dekalb DKC 66-97 GENVT2P	220.6	176.2	215.6	260.1	170.4	199.5	235.2	206.4	220.7	**211.6**
Armor 1550 Pro	241.1	160.3	216.6	267.9	166.8	178.2	224.3	207.3	187.4	**205.5**
Syngenta NK 74R-3000GT	222.5	179.7	208.4	242.3	158.9	179.6	239.2	206.9	193.4	**203.4**

Table 5. Yield performance of corn hybrids entered in the LSU AgCenter's on-farm core block trials by parish for 2012 (continued).

Nonirrigated Trials – Nonstacked Hybrids					
Soil texture	**Silt loam**	**Silt loam**	**Clay**	**Silt loam**	
Parish	**Avoyelles**	**Evangeline**	**Madison**	**St. Landry**	**Average**
Terral 28R10	179.0	150.9	93.4	175.5	**149.7**
Syngenta NK 78S GT	125.6	156.2	95.4	161.6	**134.7**
Dynagro D56RR10	143.6	151.9	104.4	136.5	**134.1**
Armor 1550 R	.	131.6	97.3	130.9	**119.9**

Irrigated Trials – Nonstacked Hybrids								
Soil texture	**Sandy loam**	**Silt loam**	**Silt loam**	**Silt loam**	**Silt loam**	**Silt loam**	**Silt loam**	
Parish	**Caldwell**	**Madison**	**Morehouse**	**Ouachita**	**Tensas**	**West Carroll**	**West Carroll**	**Average**
Terral 28R10	167.9	284.6	209.6	229.1	252.2	219.3	217.6	**225.8**
Armor 1550 R	164.0	271.1	209.2	166.6	217.8	205.2	195.6	**204.2**
Syngenta NK 78S GT	162.2	265.2	201.2	174.9	210.2	204.7	198.9	**202.5**
Dynagro D56RR10	167.2	245.3	207.9	170.4	199.8	202.0	205.7	**199.8**

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