

Corn Update 2003



By:

ARKANSAS CORN PERFORMANCE TESTS AND HYBRID SELECTION –2003

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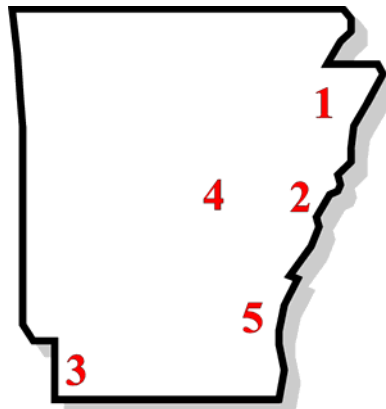
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Corn performance trials were conducted at five locations (Figure 1) in Arkansas in 2003. The information provided includes yield potential and agronomic considerations for successful corn production. This publication is intended to help producers select high-yielding hybrids.



**FIGURE 1. LOCATIONS OF ARKANSAS
CORN PERFORMANCE TESTS, 2003**

- 1 – Northeast Research and Extension Center, Keiser - Sharkey Clay Soil
- 2 – Cotton Branch Experiment Station, Marianna – Calloway Silt Loam Soil
- 3 – Williams Farm, Gin City - Severn Silt Loam Soil
- 4 – Bell Farming Company, Des Arc - Calhoun Silt Loam Soil
- 5 – Southeast Research and Extension Center, Rohwer- Sharkey/Desha Silt Loam Soil

Methods

Corn hybrids and experimental lines were entered and evaluated in the Arkansas Corn Performance Test to provide an unbiased comparison of their performance. In general, recommended cultural practices were used and tailored by site location.

Each test consisted of 93 hybrids and experimental lines replicated four times in a randomized complete block design. Of the 93 hybrids and experimental lines, 71 were considered early- to mid-season and 22 were mid- to late-season hybrids. For further details concerning agronomic practices, consult the *Arkansas Corn and Grain Sorghum Performance Test – 2003*, Arkansas Agricultural Experiment Station.

Yields of the corn hybrids in the Arkansas Performance Test for 2003 are located in Tables 1A and 1B. The two-year and three-year average yields are reported in Table 2A and 2B. Agronomic characteristics of each hybrid are found in Table 3A and 3B.

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Hybrid Selection

Numerous corn hybrids are commercially available in Arkansas. Extensive breeding programs exist for the development of high-yielding hybrids that provide desired agronomic characteristics. These hybrids are released yearly, and many are included in the Arkansas Corn Performance Test.

Hybrid selection is an important management decision for successful corn production. Yield potential is important, but should not be the primary concern when selecting a hybrid. Other characteristics such as lodging, disease reaction, ear shuck cover, and ear flexing should also be considered (See Tables 3A and 3B). Corn yields are influenced by the adaptation of the hybrid and by the level of management to maximize the genetic yield potential. No corn hybrid is superior to all other hybrids under all circumstances. Thus, selecting two or more hybrids is recommended which not only reduces the risks associated with adverse environmental factors but also benefits management operations such as harvesting.

The performance of a given hybrid will differ from site to site each year. While the yield data from all locations may be helpful, the data from the locations nearest to your farm may be the most meaningful. The adaptability of a particular hybrid at the location representing a soil type similar to yours should also be considered. Hybrid performance differs by location due to disease and environmental factors. By selecting hybrids with a two or three-year yield average, a more realistic performance of the hybrids can be evaluated. Therefore, selecting adapted corn hybrids with a two- or three-year yield history is important. (See Table 2A and Table 2B).

Maturity

Corn hybrids grown in Arkansas are classified according to maturity. The early- to mid-season and mid- to full-season hybrids correspond to an overall average maturity date of 112 and 119 days, respectively.

The early maturity hybrids perform well when planted early thus avoiding environmental stress during late July and August. These early hybrids are adapted to 30-inch row spacing. The ear shuck cover is typically loose on the early hybrids allowing quicker drydown, thus allowing earlier delivery to the elevator for possible premium payments in August.

The late-maturing hybrids offer advantages in late plantings and replanting circumstances due to their ability to tolerate environmental stress. Furthermore these late hybrids appear to perform better than early hybrids in row widths greater than 36 inches.

Diseases

Disease ratings on hybrids grown in Arkansas have not been conducted. Most corn hybrids adapted to Arkansas are developed by private seed companies. These companies or local seed dealers are the only source of information concerning the disease reaction for a specific hybrid.

Good production practices such as balanced soil fertilization and proper irrigation scheduling should help to minimize corn diseases. Also, proper drain furrow construction will aid in preventing stressed corn, thereby reducing possible disease development.

Nematodes have been reported feeding on corn. However, nematode damage on corn is unknown in Arkansas. Several corn hybrids are excellent hosts for root-knot nematodes (RKN), and corn should not be used as a non-host rotation crop when attempting to manage RKN in other crops.

Insects

Corn can be attacked by many insects, but economic damage may not occur every year. Typically, corn planted in March and April will have less insect pressure. Insects feeding on the corn seed and the root system can lead to reduced stands. With this in mind, in-furrow insecticides are recommended to control seed corn maggot, southern corn rootworm, white grubs, wireworms and for suppression of chinch bugs. Check the insecticide label for possible interactions with corn herbicides that may lead to crop damage.

Mycotoxins

Storage diseases of harvested corn grain can lead to the production of mycotoxins, especially aflatoxin. The fungi *Aspergillus flavus* and *Aspergillus parasiticus* may produce aflatoxin only under specific conditions. Consequently, the presence of fungi in grain does not always indicate the presence of aflatoxin. To prevent or reduce possible aflatoxin production, plant early, maintain adequate soil moisture, and plant corn with adequate shuck cover. Also, adjust the thresher to reduce kernel injury since the fungi can colonize on stressed, cracked or broken kernels. Harvest unstressed areas of corn first, thereby reducing possible grain contamination from stressed areas in the field. Rapid drying of the grain is required for safe storage since aflatoxin development stops when grain moisture is 12 percent or less.

Table 1A. Yields of Corn Hybrids in Arkansas Performance Tests, 2003¹.

Brand/Hybrid	Keiser Irr.	Marianna Irr.	Bell Farm Irr.	Rohwer² Irr.	Williams Irr.	Avg.
Early- to Mid-Season Hybrids	-----bu./A-----					
Belle 1130Y	220.7	227.4	200.4	127.2	210.0	197.1
Belle 1240RY	213.1	236.2	207.2	119.7	204.8	196.2
Belle 1420R	183.8	184.0	178.9	105.7	185.1	167.5
Belle 1430Y	214.7	214.3	199.5	122.3	194.3	189.0
Belle 1510C	199.4	205.4	172.6	86.8	170.6	167.0
Belle 1520R	224.4	184.9	199.6	62.7	176.1	169.5
Belle 1540RY	218.7	209.1	180.2	107.3	203.8	183.8
Croplan Genetics 691Bt	194.8	225.0	192.2	121.4	209.4	188.6
DEKALB DKC60-19RR/YGCB	187.9	223.6	183.5	87.3	177.8	172.0
DEKALB DKC61-42	214.5	204.3	218.1	127.8	183.1	189.6
DEKALB DKC63-24RR/YGCB	234.6	227.6	201.6	121.6	208.6	198.8
DEKALB DKC63-79YGCB	190.2	200.2	172.3	116.8	187.7	173.4
DEKALB DKC64-11RRYG	206.1	209.5	213.9	150.0	175.9	191.1
Dyna Gro 5528Bt	235.8	227.5	187.3	139.1	222.0	202.3
Dyna Gro 57K14	206.9	211.9	190.6	130.4	201.7	188.3
Dyna Gro CX03515	223.8	234.2	205.2	145.5	206.2	203.0
Dyna Gro CX03615	230.6	221.1	224.1	150.1	192.2	203.6
Dyna Gro CX03914	229.1	224.2	194.0	100.5	210.7	191.7
FFR 736 Bt	218.4	222.9	206.1	106.1	206.5	192.0
Garst 8350YG1	224.9	217.3	194.6	137.1	203.3	195.4
Genesis 2D14C	178.6	179.3	175.6	108.8	191.3	166.7
Genesis 2D14RR	186.5	203.2	195.5	115.3	205.8	181.3
Genesis 3214YG	248.9	235.0	214.7	153.4	197.3	209.9
Genesis 3215RR	225.3	218.1	218.4	128.0	212.0	200.4
Golden Acres 2828RR	210.0	208.9	191.7	121.9	187.1	183.9
Golden Acres 2850RR	206.8	197.0	170.3	122.5	188.2	177.0
Golden Acres 8112	192.3	208.9	192.1	94.0	207.3	178.9
Golden Acres X-6309Bt	249.1	218.9	203.1	130.6	188.8	198.1
Golden Harvest H-8906	207.2	196.9	186.8	123.7	197.2	182.4
Golden Harvest H-9148Bt	231.8	231.6	176.6	126.0	178.2	188.8
Golden Harvest H-9480	205.6	206.1	190.3	127.4	190.4	184.0
Golden Harvest H-9498Bt	215.8	232.8	202.9	123.1	216.3	198.2
Horizon 7380Bt	226.3	216.3	191.0	125.9	197.1	191.3
Horizon 7439CL	197.6	188.7	171.3	129.5	163.4	170.1
NK Brand N67-T4	194.1	202.5	167.6	121.5	177.5	172.6
NK Brand N70-T9	217.8	212.2	193.1	151.2	196.9	194.2
NK Brand N72-J5	202.0	214.4	200.9	125.4	186.3	185.8
Pioneer Brand 31G98	222.9	233.4	226.7	173.5	231.4	217.6
Pioneer Brand 32R25	207.3	213.8	213.5	183.2	191.5	201.9
Pioneer Brand 32W86	210.1	225.0	231.5	142.6	223.3	206.5
Pioneer Brand 33M54	217.1	212.4	213.2	171.9	229.0	208.7
Pioneer Brand 33P67YGCB	225.5	218.3	216.0	131.3	218.1	201.8
Terral TV2130	225.7	227.0	209.3	95.7	211.3	193.8
Terral TV2140	209.3	200.9	202.1	111.5	183.6	181.5
Terral TV2140nRR	217.6	213.8	206.8	75.6	184.4	179.6
Terral TV2155 Bt	225.9	229.1	214.2	93.1	191.1	190.7
Terral TV2160 Bt	213.2	230.5	226.4	146.5	207.4	204.8

Brand/Hybrid	Keiser Irr.	Marianna Irr.	Bell Farm Irr.	Rohwer² Irr.	Williams Irr.	Avg.
Early- to Mid-Season Hybrids	-----bu./A-----					
Terral TV23R15n	182.2	207.7	204.1	87.4	206.6	177.6
Terral TV24R10	180.9	206.7	213.0	111.8	208.8	184.2
Terral TV25B30	209.5	217.6	216.2	117.3	194.8	191.1
Terral TV26B23	223.5	228.0	214.1	113.1	199.4	195.6
Terral TV26BR10n	225.3	223.5	211.3	88.5	193.3	188.4
Terral TVX20C03	216.5	209.3	193.3	110.1	178.2	181.5
Terral TVX21C03	208.5	191.7	192.8	85.3	177.7	171.2
Terral TVX22R013	188.8	194.9	183.1	103.6	179.7	170.0
Terral TVX23C03	226.3	218.5	202.3	84.1	192.2	184.7
Terral TVX24R013	219.0	194.3	203.8	79.3	191.4	177.6
Terral TVX25B013	231.3	212.8	203.5	103.4	191.5	188.5
Terral TVX25B023	219.0	223.3	205.2	126.6	217.8	198.4
Terral TVX25BR013	218.1	217.8	210.5	133.4	204.7	196.9
Terral TVX25BR023	252.4	228.8	203.0	148.2	210.8	208.6
Terral TVX26B013	225.0	212.9	193.1	121.9	195.5	189.7
Terral TVX26C013	222.3	209.6	199.9	108.0	189.7	185.9
Triumph 1120BtRR	217.5	167.6	178.6	136.2	174.5	174.9
Triumph 1416Bt	212.7	237.1	216.5	129.5	204.4	200.0
USG/BG Bt1150	233.2	245.4	205.2	139.0	208.6	206.3
USG/BG Bt1152	222.9	181.8	167.9	121.3	185.7	175.9
ZEX 1122C	179.5	181.9	158.4	88.3	162.5	154.1
ZEX 1255C	202.3	195.1	173.3	78.5	185.7	167.0
ZEX 2211R	196.2	172.0	161.8	109.9	174.0	162.8
ZEX 4444C	179.1	175.7	154.1	104.9	176.1	158.0
Grand mean	213.2	211.8	197.0	119.0	195.6	187.3
LSD (5%)	34.4	18.8	21.8	17.7	30.1	-
C.V. (%)	11.6	6.4	8.0	10.7	11.1	-

¹ Keiser = Northeast Research and Extension Center.

Marianna = Cotton Branch Station.

Bell Farm = Bell Farming Company, Prairie County.

Rohwer = Southeast Research and Extension Center - Rohwer Division.

Williams = John Williams Farm, Lafayette County.

² Low yields were attributed to early season nitrogen loss due to extended wet weather and crop never fully recovered.

Brand/Hybrid	Keiser Irr.	Marianna Irr.	Bell Farm Irr.	Rohwer² Irr.	Williams Irr.	Avg.
Mid- to Full-Season Hybrids	-----bu./A-----					
Croplan Genetics 818Bt	207.0	186.0	171.0	108.0	212.0	176.8
DEKALB DK697	220.9	203.9	207.0	118.7	208.7	191.8
DEKALB DKC68-70YG	253.4	199.6	188.5	105.1	201.1	189.5
DEKALB DKC69-71RR/YGCB	241.1	207.8	212.8	129.5	232.8	204.8
Dyna Gro 5515	184.7	204.4	163.0	111.1	193.8	171.4
Dyna Gro 57K66	193.3	186.9	174.6	95.1	176.1	165.2
Dyna Gro 58K15	200.3	205.0	187.4	106.1	202.5	180.3
FFR 849CL	232.6	217.2	190.2	130.9	204.4	195.1

Table 1B Continued. Yields of Corn Hybrids in Arkansas Performance Tests, 2003¹.

Brand/Hybrid	Keiser Irr.	Marianna Irr.	Bell Farm Irr.	Rohwer ² Irr.	Williams Irr.	Avg.
Mid- to Full-Season Hybrids						
FFR 900Bt	248.3	228.1	216.8	110.1	217.9	204.2
Garst 8230IT	187.5	191.6	177.8	136.7	211.1	180.9
Garst 8288	226.4	189.6	170.6	142.0	203.0	186.3
Garst ND200YG1	228.0	202.9	189.9	80.0	199.0	180.0
Genesis 2A16RR	211.3	217.9	205.9	117.3	208.4	192.2
Genesis 2A16YG	211.2	215.6	199.3	100.8	198.1	185.0
Genesis 2B16TR	235.7	226.6	196.4	112.9	198.5	194.0
Golden Acres 2995RR	206.1	190.8	200.1	83.3	186.1	173.3
Horizon 7470Bt	210.1	214.7	190.1	121.2	219.6	191.1
Pioneer Brand 31G66	228.4	204.4	194.6	106.5	208.4	188.5
Pioneer Brand 32D99	231.9	222.4	212.8	135.3	227.8	206.0
Pioneer Brand 32P76YGCB	196.0	227.0	193.0	131.9	203.6	190.3
Southern States 753BtCl	196.4	200.3	191.5	98.7	200.9	177.6
Triumph 1866 Bt	202.7	212.8	191.1	115.9	199.6	184.4
Grand mean	216.1	207.1	192.0	113.5	205.2	186.8
LSD (5%)	34.0	20.3	22.1	18.5	25.3	-
C.V. (%)	11.2	7.0	8.2	11.7	8.6	-

¹ Keiser = Northeast Research and Extension Center.

Marianna = Cotton Branch Station.

Bell Farm = Bell Farming Company, Prairie County.

Rohwer = Southeast Research and Extension Center - Rohwer Division.

Williams = John Williams Farm, Lafayette County.

² Low yields were attributed to early season nitrogen loss due to extended wet weather and crop never fully recovered.

Table 2A. Two and Three Year Average Yields of Corn Hybrids in Arkansas Performance Tests

Brand/Hybrid	Keiser		Marianna		Bell Farm		Rohwer		Williams Farm	
	2-Year	3-Year	2-Year	3-Year	2-Year	3-Year*	2-Year	3-Year*	2-Year	3-Year
Early- to Mid-Season										
-----bu./A-----										
Croplan Genetics 691Bt	177	-	212.9	-	204.6	-	161	-	213	-
DEKALB DKC64-11RRYG	190.5	-	193.6	-	215.2	-	168.9	-	200.7	-
FFR 736 Bt	195.9	187.3	217	217.4	207.2	-	151.8	-	218.4	199.2
Pioneer Brand 31G98	211	208.1	224.9	216.2	230.7	225.2	197.1	183.1	218.3	203.3
Pioneer Brand 32R25	192.1	-	207.4	-	220.8	-	192	-	199.8	-
Pioneer Brand 32W86	187.7	-	207.5	-	245.2	-	168	-	234.4	-
Terral TV2130	199.8	199.9	209.8	194.2	226.9	224.9	152.4	150.5	217.5	190.2
Terral TV2140	187.8	193.2	193.5	197.9	203.1	203.6	157.8	154.8	194.1	175.4
Terral TV2140nRR	192.5	-	198.1	-	209.9	-	137.6	-	196.5	-
Terral TV2155 Bt	198.6	199.7	210.8	206.3	213.5	-	144.4	-	190.9	171.9
Terral TV2160 Bt	180.6	183.8	210.9	205.5	219.7	213.9	161	159.1	210.4	194.1
Terral TV23R15n	183.7	-	195.6	-	189	-	143.1	-	204.5	-
Terral TV24R10	177.2	-	193.7	-	218.4	-	.	-	198.1	-
Terral TV26BR10n	206.5	-	210.9	-	213.4	-	149.2	-	199.8	-
Triumph 1120BtRR	188.8	-	171.4	-	190.7	-	163	-	181.6	-

	Keiser		Marianna		Bell Farm		Rohwer		Williams Farm	
Brand/Hybrid	2-Year	3-Year	2-Year	3-Year	2-Year	3-Year*	2-Year	3-Year*	2-Year	3-Year
Mid- to Full-Season	-----bu./A-----									
Croplan Genetics 818Bt	204.1	208.7	190.7	180.3	192.1	203	146.7	143.5	217.1	188.2
DEKALB DKC68-70YG	232.4	227.7	198.4	188	199.5	-	137.2	-	211.9	184.5
Dyna Gro 5515	170.8	176.4	191.1	190.6	189.6	-	148.7	-	197.2	187.4
Garst 8230IT	175	-	196.4	-	189.4	-	173.6	-	213.1	-
Garst 8288	209.1	199.5	190.7	183.3	195.2	-	158.6	-	209	185.1
Pioneer Brand 32P76YGCB	191.7	194.6	214.6	219.7	212.9	217.3	173.2	153.2	221	200.5
Triumph 1866 Bt	168.8	174.2	197.2	194.7	185	196.2	140.4	145.6	197.8	176.7

*Three year averages were calculated from the years 2000, 2002, and 2003.

Brand/Hybrid	Ear Tip Cover¹	Ear Height² (in)	Test Weight (lbs/bu)
Early- to Mid-Season Hybrids			
Belle 1130Y	1	38	57
Belle 1240RY	1	37	56
Belle 1420R	2	44	61
Belle 1430Y	1	45	61
Belle 1510C	2	43	56
Belle 1520R	2	42	56
Belle 1540RY	1	40	57
Croplan Genetics 691Bt	1	40	57
DEKALB DKC60-19RR/YGCB	1	26	58
DEKALB DKC61-42	2	33	57
DEKALB DKC63-24RR/YGCB	3	42	58
DEKALB DKC63-79YGCB	3	36	60
DEKALB DKC64-11RRYG	2	39	58
Dyna Gro 5528Bt	2	38	57
Dyna Gro 57K14	1	34	57
Dyna Gro CX03515	2	38	56
Dyna Gro CX03615	1	39	57
Dyna Gro CX03914	1	36	57
FFR 736 Bt	2	38	59
Garst 8350YG1	2	36	57
Genesis 2D14C	3	39	58
Genesis 2D14RR	1	44	57
Genesis 3214YG	1	42	58
Genesis 3215RR	2	34	59
Golden Acres 2828RR	1	33	57
Golden Acres 2850RR	1	44	57
Golden Acres 8112	3	45	57
Golden Acres X-6309Bt	2	45	56
Golden Harvest H-8906	1	31	57
Golden Harvest H-9148Bt	2	39	56
Golden Harvest H-9480	1	44	59
Golden Harvest H-9498Bt	1	40	58
Horizon 7380Bt	1	35	57
Horizon 7439CL	2	38	58

Table 3A. Characteristics of Corn Hybrids in Arkansas Performance Tests, 2003.			
Brand/Hybrid	Ear Tip Cover¹	Ear Height² (in)	Test Weight (lbs/bu)
Early- to Mid-Season Hybrids			
NK Brand N67-T4	3	35	58
NK Brand N70-T9	1	34	58
NK Brand N72-J5	2	38	57
Pioneer Brand 31G98	2	46	59
Pioneer Brand 32R25	3	48	59
Pioneer Brand 32W86	2	44	59
Pioneer Brand 33M54	2	41	61
Pioneer Brand 33P67YGCB	2	38	60
Terral TV2130	1	44	56
Terral TV2140	2	43	56
Terral TV2140nRR	1	43	57
Terral TV2155 Bt	2	44	58
Terral TV2160 Bt	2	42	59
Terral TV23R15n	1	43	58
Terral TV24R10	2	44	62
Terral TV25B30	1	43	62
Terral TV26B23	2	44	60
Terral TV26BR10n	1	39	58
Terral TVX20C03	2	40	57
Terral TVX21C03	1	44	61
Terral TVX22R013	1	39	58
Terral TVX23C03	1	48	58
Terral TVX24R013	2	43	56
Terral TVX25B013	3	44	59
Terral TVX25B023	2	37	57
Terral TVX25BR013	2	44	58
Terral TVX25BR023	1	39	58
Terral TVX26B013	2	42	58
Terral TVX26C013	2	42	58
Triumph 1120BtRR	1	40	58
Triumph 1416Bt	1	37	57
USG/BG Bt1150	1	40	59
USG/BG Bt1152	3	35	57
ZEX 1122C	2	40	58
ZEX 1255C	2	44	60
ZEX 2211R	2	38	59
ZEX 4444C	1	38	61

1 Tip Cover: 1 = Good; 2 = Average; 3 = Poor.

2 Ear height was the average distance in inches from the soil surface to the point of attachment of the upper ear.

Table 3B. Characteristics of Corn Hybrids in Arkansas Performance Tests, 2003.			
Brand/Hybrid	Ear Tip Cover¹	Ear Height² (in)	Test Weight (lbs/bu)
Mid- to Full-Season Hybrids			
Croplan Genetics 818Bt	3	38	57
DEKALB DK697	1	40	58
DEKALB DKC68-70YG	2	44	58
DEKALB DKC69-71RR/YGCB	1	43	59
Dyna Gro 5515	2	36	56
Dyna Gro 57K66	1	40	57
Dyna Gro 58K15	1	39	56
FFR 849CL	2	41	55
FFR 900Bt	2	38	56
Garst 8230IT	2	40	56
Garst 8288	2	39	58
Garst ND200YG1	2	41	58
Genesis 2A16RR	3	46	57
Genesis 2A16YG	1	41	57
Genesis 2B16TR	2	36	58
Golden Acres 2995RR	1	43	57
Horizon 7470Bt	1	41	55
Pioneer Brand 31G66	1	40	57
Pioneer Brand 32D99	2	41	56
Pioneer Brand 32P76YGCB	1	38	56
Southern States 753BtCl	1	41	58
Triumph 1866 Bt	2	41	58

¹ Tip Cover: 1 = Good; 2 = Average; 3 = Poor.

² Ear height was the average distance in inches from the soil surface to the point of attachment of the upper ear.