

MARKET DEVELOPMENT FOR NO-TILLAGE CORN HYBRIDS

M. W. Shankle, J. L. Main and T. F. Garrett

Pontotoc Ridge-Flatwoods Branch Experiment Station; North Mississippi Research and Extension Center; Mississippi State University; Pontotoc, MS 38863

ABSTRACT: Insect pressure was minimal and environmental growing conditions were good for corn production in 2002. A field study was established to evaluate yield for several corn hybrids in a no-tillage environment. This study will provide corn producers added knowledge for their corn hybrid selections. There were 16 corn hybrids planted on a Bude silt loam. Average yield for the trial was 138 bu/ac. The highest yields were at least 150 bu/ac with Pioneer 31G98, Pioneer 31B13 and Pioneer 32R25. All hybrids yielded more than 125 bu/ac, except Terral 2140RR and Pioneer 32W86 which yielded 124 and 122 bu/ac, respectively.

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MATERIALS AND METHODS: A corn hybrid study was established in a Bude silt loam (fine-silty, mixed, thermic Glossaquic Fragiudalfs) in 2002 to determine yield potential in a no-tillage environment. Experimental design was a randomized complete block with three replications. Plot size was 20 x 40 ft. Fertilizer and lime were applied in the spring according to soil test recommendations. A burndown application of 1 lb ai/ac glyphosate was applied 2 weeks prior to planting. Sixteen corn hybrids were planted in 8 row plots on 30-inch rows and 1.23 lb ai/ac chlorpyrifos was applied in a T-band on April 5. A preemergence application of atrazine + metolachlor at 1.8 + 1.0 lb ai/ac was applied after planting. A side-dress application of 150 lb N/ac (32% UAN solution) was applied 6 inches from the row and 2 inches deep at the 6 to 8 leaf stage. The two center rows of each plot were mechanically harvested on August 27. Corn grain from each plot was weighed and seed moisture was determined using a MT3 Farmex grain moisture tester. Yield was adjusted to 15.5% moisture. Analysis of variance was conducted and means separated using Fishers Protected LSD ($\alpha=0.05$).

Based on information obtained from Pioneer HI-bred International, Terral Seed, UAP Seed, and Monsanto Company these 16 hybrids have the following trait. Dekalb DKC64-10RR is a hybrid that has been enhanced with Roundup Ready technology resulting in tolerance to glyphosate herbicide. Dekalb TXP267-D contains Roundup Ready and YieldGard technology, which protects against some species of the corn borer, corn earworm, and fall armyworm. Dekalb DKC687RR is a Roundup Ready hybrid developed from the conventional DK687 isoline. DKC68-70 contains the YieldGard gene and was developed from the conventional DK687 isoline. The DKC68-70 and DK687 varieties have some tolerance to the southern virus complex. Dekalb DK697 is a conventional hybrid with disease tolerance to gray leaf spot, northern leaf blight, and southern leaf blight. Dekalb DKC69-70 is a genetically enhanced hybrid developed from the conventional DK697 isoline and contains the YieldGard gene.

Pioneer 3223 is a conventional hybrid with a good performance record. Pioneer 31B13 contains the YieldGard gene. Pioneer 32R25 offers common rust tolerance and exceptional drought tolerance. Pioneer 32W86 offers some tolerance to gray leaf spot, head smut and southern leaf blight. Pioneer 32D99 has good early growth and drought tolerance. This hybrid also offers tolerance against head smut and southern leaf blight. Pioneer 31R88 has outstanding drought tolerance and offers tolerance to gray leaf spot, southern leaf blight, and head smut. Pioneer 31G98 has good drought tolerance and head smut tolerance. Terral 2140RR and Dynagrow 5516RR are Roundup Ready hybrids.

RESULTS AND DISCUSSION: Sixteen corn hybrids were established to compare grain yield in a no-tillage environment. Insect pressure was minimal and environmental growing conditions were good for corn production in 2002, which had a mean yield of 138 bu/ac (Table 1). This is up from the 2001 mean yield with similar hybrids, which was 121 bu/ac (data not shown). In 2002, all hybrids yielded at least 122 bu/ac. Highest yields were at least 150 bu/ac with Pioneer 31G98, Pioneer 31B13 and Pioneer 32R25 yield was 161, 154 and 150 bu/ac, respectively. Yield was 147 bu/ac for 3223, which is a commonly grown conventional hybrid. DKC69-70 and parent inbred DK697 yielded 145 and 138 bu/ac, respectively. Highest yields included only conventional hybrids and hybrids enhanced with YieldGard technology. Yield for hybrids enhanced with Roundup Ready technology ranged from 124 to 134 bu/ac.

COOPERATORS: J. A. Mills and A. L. Catchot with Monsanto Agriculture Company; J. Love and M. Romines with DuPont Agriculture and Nutrition.

Table 1. No-tillage corn hybrid yields at Pontotoc Ridge-Flatwoods Experiment Station in 2002.

Brand	Hybrid	Trait	Yield Bu/ac
Pioneer	31G98	None	161
Pioneer	31B13	YG	155
Pioneer	32R25	None	150
Pioneer	3223	None	147
Dekalb	DKC69-70	YG	145
Dekalb	DK697	None	138
Pioneer	31R88	None	138
Pioneer	32D99	None	136
Dynagrow	5516RR	RR	134
Dekalb	TXP267-D	RR/YG	132
Dekalb	DK687	None	131
Dekalb	DK687RR	RR	130
Dekalb	DKC64-10	RR	130
Dekalb	DKC68-70	YG	126
Terral	2140RR	RR	124
Pioneer	32W86	None	122
LSD (0.05)			25