Research and Extension Center (Verona) on a Leeper silty clay loam, and Prairie Research Unit (Prairie) on a Houston clay. The study at Stoneville was furrow irrigated, while all other studies were dryland culture.

Hybrids were grown in a randomized complete block design with four replications, except at Verona (three replications). The conventional hybrid was replicated twice per block. Each CLEARFIELD hybrid was planted in a four-row plot that varied in length (40-100 feet) depending upon location. The conventional hybrid was planted in an eight-row plot to minimize potential crop injury resulting from imidazolinone herbicide drift from adjacent CLEARFIELD plots. Corn was planted in 30-inch-wide rows at all locations except Stoneville, where rows were 40 inches wide. Hybrids at all locations were planted at a seeding rate of 28,000 seeds per acre. An imidazolinone herbicide (Lightning 70DG at 1.28 ounces per acre, plus 0.25% v/v nonionic surfactant) was applied on CLEARFIELD hybrids. Conventional herbicides were used on the conventional hybrid and at any location where supplemental weed control was necessary on CLEARFIELD hybrids.

The middle two rows of each plot were harvested with a Kincaid MF-8 XP two-row experimental plot combine. Shelled grain weight and moisture were measured and adjusted to 15.5% moisture. Data were analyzed using Statistical Analysis System (SAS) procedures for analysis of variance. Treatment means were compared using least significant difference with a significance level of $P \leq 0.05$.

RESULTS

Effective weed control negated weed competition with corn hybrid treatments at all locations. Herbicide treatments caused no apparent crop injury at any location.

Abundant rainfall and cool temperatures after planting hampered stand establishment at Prairie. The resulting low and variable stands were inadequate to evaluate hybrid yield performance. Thus, yield results are not reported from the study at Prairie.

Other than a short period of drought stress during mid-May, the dryland study at Brooksville received timely and abundant rainfall until the crop was nearly mature. These excellent growing conditions resulted in an average corn grain yield of 173 bushels per acre at Brooksville.

The study at Stoneville likely sustained slight yield reduction from an infestation of second-generation southwestern corn borers. An insecticide application was not made since the corn borer infestation did not exceed the treatment threshold before the crop reached maturity. The average corn grain yield at Stoneville was 149 bushels per acre.

The dryland study at Verona struggled through an early-season infestation of chinch bugs. Chinch bugs reduced hybrid plant populations to an average of 21,000 plants per acre, but their numbers were not

Table 1. Corn hybrids' grain yield production at three Mississippi location in 1999.[1]

Company	Hybrid	Type	Location		
			Brooksville	Stoneville	Verona
			bu/A	*bu/A*	*bu/A*
AgriPro	AP 9829 IMI	CLEARFIELD	159 c	**159** ab	**110** b
DEKALB	DK642IMI	CLEARFIELD	**189** ab	140 bc	99 c
Garst	8222 IT	CLEARFIELD	**193** a	**156** ab	97 c
Garst	8300 GLS/IT	CLEARFIELD	159 c	**144** abc	66 d
Pioneer	32K61	Conventional	**177** ab	**147** abc	**115** ab
Pioneer	32Z18	CLEARFIELD	159 c	128 c	97 c
Pioneer	3395	CLEARFIELD	175 bc	**154** ab	**122** a
Pioneer	35A19	CLEARFIELD	160 c	**155** ab	**113** ab
Terra	TR 1167 IT	CLEARFIELD	**177** ab	**161** a	**112** ab
		Mean	173	149	103
		LSD	16.1	20.7	10.8

[1]Values within a column followed by the same latter are not significantly different at p = 0.05.

significantly different among hybrids. An insecticide (Karate at 0.065 pound of active ingredient per acre) was applied once during the last week of May and again the first week of June to reduce chinch bug populations during the remainder of the season. Favorable rainfall during pollination and early grain fill allowed the corn to yield a respectable average of 103 bushels per acre.

Data indicate the CLEARFIELD hybrids differed in their ability to produce grain yields comparable to a well-adapted conventional hybrid/herbicide system. The conventional hybrid/herbicide system, Pioneer 32K61, produced high grain yields at all three locations (Table 1). Terra TR1167IT produced high grain yields similar to the conventional hybrid at all three locations. Garst 8222, Pioneer 3395, and Pioneer 35A19 produced high grain yields at two of the three locations. AgriPro 9829 IMI, DEKALB DK-642, and Garst 8300 GLS/IT produced high grain yields at only one of the three locations.

The CLEARFIELD hybrid Pioneer 32Z18 produced grain yields significantly lower than its conventional isoline (Pioneer 32K61) at all three locations (Table 1). These results demonstrate that the CLEARFIELD hybrid Pioneer 32Z18 exhibits less yield potential than its conventional isoline. Pioneer 32Z18 also produced shorter plants, lower ears, and less canopy development than Pioneer 32K61 (Table 2). This suggests need for additional evaluation of other CLEARFIELD hybrids and their conventional isolines to discover if a consistent trend of yield lag and plant growth characteristics exists.

Table 2. Plant characteristics of hybrids grown.

Company	Hybrid	Plant height	Ear height	Canopy development[1]	Days to tassel	Relative maturity[2]
			in			*days*
AgriPro	AP 9829 IMI	Tall	66	4	58	118
DEKALB	DK642IMI	Tall	51	4	54	114
Garst	8222 IT	Very Tall	61	4	54	118
Garst	8300 GLS/IT	Short	53	3	52	116
Pioneer	3395	Medium	55	2	53	110
Pioneer	32K61	Tall	55	4	55	114
Pioneer	32Z18	Medium	53	3	55	114
Pioneer	35A19	Medium-Tall	49	1	51	103
Terra	TR 1167 IT	Medium-Tall	64	4	56	116

[1]Measured after tassel stage. Ranked from 1 (sparse) to 5 (dense).
[2]As designated by the respective seed companies.

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