

GLYPHOSATE TOLERANT GROUP IV NO-TILLAGE SOYBEAN VARIETIES

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ABSTRACT: Eight glyphosate tolerant soybean varieties were evaluated for yield in a no-tillage environment. This trial will give producers added knowledge in their Group IV soybean variety selections. Yield ranged from 50.5 to 65.3 bu/ac with a mean yield of 57.6 bu/ac. The highest yield was with Agripro 4512RR which yielded 65.3 bu/ac. Yield for all other varieties was at least 56 bu/ac and was not different, except for Deltapine 4344RR which yielded 50.5 bu/ac.

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KEYWORDS: glyphosate tolerant, no-tillage, soybean

MATERIALS AND METHODS: A maturity Group IV glyphosate tolerant soybean variety trial was established on a Henry silt loam (coarse-silty, mixed, thermic Typic Fragiaqualfs) to determine yield potential in a no-tillage environment. The experimental design was a randomized block with 4 replications. Plot size was 10 x 40 ft. Fertilizer and lime were applied in the spring according to soil test recommendations. A preplant burndown application of glyphosate was applied. Additional glyphosate treatments were applied during the growing season to maintain a weed-free growing environment. Soybean varieties were planted in 30-in rows on April 18. A seed treatment of Apron (12.5% metalaxyl) was applied at a rate of 4 oz/100 lb of seed. HiStick2, a soybean rhizobium inoculant was also applied at a rate of 14 oz/125 lb of seed. The two center rows of each plot were harvested on September 11. Following harvest, the grain was weighed and seed moisture was determined with MT3 Farmex grain moisture tester. Pre-harvest loss due to shattering was calculated using a 4 seed/ft² equivalent to 1 bu/ac conversion. Pre-harvest loss due to shattering and mechanical harvest loss due to combine efficiency were included for total yield. Yields were adjusted to 13% seed moisture. Analysis of variance was conducted and means were separated using Fishers protected LSD ($\alpha=0.05$).

RESULTS AND DISCUSSION: Rainfall during the growing season was 2.9, 11.2, 2.7, 3.4, 2.1, and 0 inches for April, May, June, July, August and until September 11, respectively. Pre-harvest soybean shattering ranged from 0.4 to 2.35 bu/ac among varieties (Table 1). Shattering loss was 2.35 bu/ac with DP 4344RR, which was higher than any other variety. Experimental varieties DPX 4527RR and DPX 4431RR shattered 1.1 and 0.9 bu/ac, respectively, but DPX 4446RR only shatter 0.4 bu/ac. Yield ranged from 50.5 to 65.3 bu/ac with a mean yield of 57.6 bu/ac (Table 1). Yields were at least 62 bu/ac for Agripro 4512RR and DPX 4431RR. Both of these varieties have good yield stability and are adaptable to no-tillage. Yields were 58 and 57

bu/ac with AG4403 and AG4602, respectively. DPX 4446RR and DPX 4527RR experimental variety yields were 57 and 56 bu/ac. DPX 4446RR has excellent shatter resistance, plant height is medium to tall, and it may be marketed for clay soils. DPX 4527RR is enhanced with a RR/STS stacked gene package. DP 4344 yield was 50.5 and this variety is marketed for early plantings in late March targeting the “harvest before corn” concept.

COOPERATORS: David Roberts, Delta and Pine Land Company; J. Anthony Mills and Angus L. Catchot, Monsanto Agriculture Company.

Table 1. Glyphosate tolerant Group IV no-tillage soybean variety response at Pontotoc Ridge-Flatwoods Experiment Station in 2002.

Variety	Brand	Pre-Harvest Yield Loss	Mechanical- Harvest Yield Loss	Total Yield Loss	Adjusted Yield
		----- Bu/ac -----			
AP 4512RR	Agripro	0.8	7.1	8.0	65.3
DPX 4431RR	Deltapine	0.9	6.7	7.7	62.0
AG 4403	Asgrow	0.6	5.7	6.3	58.3
AG 4602	Asgrow	0.5	9.4	9.9	57.1
DPX 4446RR	Deltapine	0.4	8.5	8.8	57.1
DP 4690R	Deltapine	0.8	5.0	5.7	56.6
DPX 4527RR	Deltapine	1.1	6.2	7.3	56.2
DP 4344RR	Deltapine	2.4	4.4	6.7	50.5
LSD (0.05)		0.5	3.7	3.6	6.8