

## EVALUATION OF GROUP V SOYBEAN VARIETIES IN A NO-TILLAGE ENVIRONMENT

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**ABSTRACT:** Thirty-two glyphosate tolerant maturity group V soybean varieties were evaluated for yield potential in a no-tillage environment. Yield ranged from 37.1 to 70.4 bu/ac. Mean yield for the trial was 53.4 bu/ac. Varieties yielding at least 64 bu/ac were Deltapine J00-2392 (experimental), Deltapine 5634, and Deltapine 5414. Varieties yielding less than 44 bu/ac were Croplan 5003, Dekalb 57-51, and Pioneer 95B96, which yielded 43.5, 43.4, and 37.1 bu/ac, respectively

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**KEYWORDS:** glyphosate tolerant, soybean, no-tillage

**MATERIALS AND METHODS:** A group V glyphosate tolerant soybean variety trial was established on a Henry silt loam (coarse-silty, mixed, thermic Typic Fragiqualfs) soil in 2004 to determine yield potential at the Pontotoc Ridge-Flatwoods Experiment Station. The experimental design was a randomized complete block with 4 replications. Plot size was 5 x 30 ft. Fertilizer and lime were applied in the spring according to Mississippi State Soil Testing Laboratory recommendations. A preplant burndown application of 1.0 lb ai/ac glyphosate was applied 2 weeks prior to planting. Soybean varieties were planted no-tillage in two 30-in rows on April 27 with a seeding rate of 129,000 seed/ac. Additional treatments of glyphosate were applied during the growing season to maintain a weed-free growing environment. A seed treatment of ApronMAXX RTA (12.5% metalaxyl) was applied at a rate of 5.0 fl oz/100 lb of seed. Cell-Tech Soybean, a soybean rhizobium inoculant was also applied at a rate of 2.1 fl oz/50 lb of seed. Plant lodging was recorded prior to harvest on a scale of 0 to 100, with 0 being all plants erect and 100 being all plants down. Shatter loss was visually observed and recorded on a scale of 0 to 100, with 0 being no yield loss due to preharvest shatter and 100 being complete yield loss due to preharvest shatter. The plots were harvested at 153 days after planting on September 27. Grain was cleaned with a 3-sieve seed cleaner, weighed, and seed moisture was determined with a GAC II seed moisture analyzer. 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:** Thirty-two glyphosate tolerant group V soybean varieties were evaluated for yield potential in a no-tillage environment. Environmental growing conditions were good for soybean production in 2004. Rainfall during the growing season was 0.55, 9.77, 9.03, 4.61, 3.45, and 3.50 inches following planting in April, May, June, July, August, and until harvest in September, respectively. Yield ranged from 70.4 to 37.1 bu/ac with

a mean yield for the trial of 53.4 bu/ac (Table 1). Yield was at least 64 bu/ac with Deltapine J00-2392 (experimental), Deltapine 5634, and Deltapine 5414. Varieties yielding less than 44 bu/ac were Croplan 5003, Dekalb 57-51, and Pioneer 95B96, which yielded 43.5, 43.4, and 37.1 bu/ac, respectively. Lodging was less than 20 percent for all varieties except, Deltapine 5806, Asgrow 5402, Deltapine 5808 (experimental), and Deltapine C00-110604 (experimental) which lodged at 21, 28, 29, and 31 percent, respectively. A hailstorm on September 12 caused yield loss due to preharvest shatter in some varieties. Percent shatter loss was less than 10% for all varieties, except, Dekalb 53-51 and Croplan 5003, which had losses of 12 and 21 percent, respectively.

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**Table 1.** Glyphosate tolerant group V no-tillage soybean variety evaluation at the Pontotoc Ridge-Flatwoods Experiment Station in 2004.

Variety	Brand	Yield	Plant Height	Lodging <sup>1</sup>	Shatter <sup>2</sup>
		----Bu/ac----	----Inches----	---Percent---	---Percent---
DPX J00-2392	Deltapine	70.4	25.5	2	2
DP 5634	Deltapine	65.3	29.5	10	0
DP 5414	Deltapine	64.3	31.5	9	6
GP 530	Armor	63.1	32.0	6	5
DPX 5808	Deltapine	63.0	28.0	29	1
DPX C00-114605	Deltapine	59.0	23.3	1	0
DPX C00-110604	Deltapine	58.7	28.0	31	0
PI 95B43	Deltapine	58.3	26.5	6	7
DKB 54-52	Dekalb	57.1	32.3	2	3
DPX C00-132820	Deltapine	56.6	28.0	3	1
5555	Croplan	56.5	29.0	1	5
DK 5366	Delta King	55.5	26.0	14	2
TVX 52R301	Terral	55.1	20.5	0	9
AG 5903	Asgrow	54.1	28.0	4	1
AG 5701	Asgrow	53.9	27.0	5	3
AG 5501	Asgrow	53.5	29.5	4	5
DKB 53-51	Dekalb	52.6	26.3	6	12
DP 5915	Deltapine	52.6	30.8	10	0
58V8	Armor	52.2	23.8	1	1
DKB 58-51	Dekalb	52.0	26.3	9	3
TV 58R12	Terral	51.9	29.5	8	0
AG 5402	Asgrow	51.0	33.3	28	3
DK 5767	Delta King	49.7	25.3	9	1
AG 5605	Asgrow	47.5	24.8	0	3
TVX 59R3011	Terral	46.6	24.0	1	0
TV 56R11	Terral	46.3	29.5	18	1
AG 5905	Asgrow	46.1	30.0	5	2
56-J6	Armor	46.0	26.3	3	2
DP 5806	Deltapine	44.8	26.0	21	0
5003	Croplan	43.5	25.8	1	21
DKB 57-51	Dekalb	43.4	23.3	1	9
PI 95B96	Pioneer	37.1	25.3	12	1
LSD ( $\alpha=0.05$ )		6.6	4.4	12.4	4.5

<sup>1</sup> Lodging was rated on a scale of 0 to 100 percent; 0=all plants erect; 100=all plants down.

<sup>2</sup> Preharvest shatter yield loss was rated on a scale of 0 to 100 percent; 0=no yield loss; 100=total yield loss.