GLYPHOSATE TOLERANT GROUP V NO-TILLAGE SOYBEAN VARIETY EVALUATION

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ABSTRACT: Seventeen glyphosate tolerant soybean varieties were evaluated for yield in a no-tillage environment. This trial will give producers added knowledge in their Group V soybean variety selections. Yield ranged from 37.3 to 44.1 bu/ac with a mean yield for the trial of 40.9 bu/ac. Hartz H5885RR and Deltapine DP5414RR yields were at least 44 bu/ac. Early season environmental conditions were favorable. Inadequate rainfall throughout August to mid September may have had a negative impact on yield. Excessive rainfall in late September and early October delayed harvest.

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KEYWORDS: glyphosate tolerant, soybean

MATERIALS AND METHODS: A Group V 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. Fertilizer and lime were applied in the spring according to soil test recommendations. The experimental design was a randomized complete block with 4 replications. Plot size was 10 x 40 ft. A preplant burndown application of glyphosate was applied. Additional glyphosate treatments were applied during the growing season to maintain a weed free growing environment. Seventeen soybean varieties were planted in 30-in rows on April 25. 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 applied at a rate of 14 oz/125 lb of seed. The two center rows of each plot were harvested on October 14. Following harvest, the 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 (α=0.05).

RESULTS AND DISCUSSION: Seventeen glyphosate tolerant soybean varieties were established to determine grain yield differences in a no-tillage environment. Rainfall amounts throughout August to mid September were low, but the no-tillage environment helped conserve soil moisture. However, excessive rainfall in late September and early October delayed harvest and reduced seed quality. Rainfall during the growing season was 11.2, 2.7, 3.4, 2.1, 10.1, and 4.8 inches for May, June, July, August, September and early October, respectively. Yield ranged from 37.3 to 44.1 bu/ac with a mean yield for the trial of 40.9 bu/ac. Yield for Hartz H5885RR and Deltapine DP5414RR was only different from Hartz H5444RR, Deltapine DPX 97094-19RR, and AgriPro 588RR. Highest yields were at least 44 bu/ac with Hartz H5885RR and

Deltapine DP5414RR (Table 1). DP5414RR is well adapted to a no-tillage environment and has excellent shade cover in wider rows, since it has medium to tall plant height. This variety is also resistant to race 3 soybean cyst nematode and field tolerant to phytopthora root rot (PRR). Yields with H5223RR, AG5701RR, DP5644RR, and DP5806RR were at least 42 bu/ac and these varieties are adapted to no-tillage. DP5644RR responds well in narrow rows and DP5806RR is adapted to heavier clay soil. DPX5734RR, AG5501RR, AG5903RR, and AG5301RR yields were at least 40 bu/ac. DPX5734RR is an experimental variety and other research suggests this variety to perform best when grown under ideal environmental growing conditions. Yields were at least 39 bu/ac with DP5915RR, ARMOR 56-J6RR, P95B96RR, and AG5602RR. DP5915RR is a short to medium height plant, has broad disease resistance, and is adapted to narrow row planting.

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Table1: Glyphosate tolerant Group V no-tillage soybean varieties at the Pontotoc Ridge-Flatwoods Experiment Station in 2002.

Variety	Brand	Yield Bu/ac
H 5885RR	Hartz	44.1
DP 5414RR	Deltapine	44.0
H 5223RR	Hartz	43.7
AG 5701RR	Asgrow	43.1
DP 5644RR	Deltapine	42.4
DP 5806RR	Deltapine	42.1
DPX 5734RR	Deltapine	41.7
AG5501RR	Asgrow	41.2
AG 5903RR	Asgrow	40.7
AG 5301RR	Asgrow	40.3
DP 5915RR	Deltapine	39.8
Armor 56-J6	Armor	39.6
P95B96RR	Pioneer	39.4
AG 5602RR	Asgrow	39.4
H 5444RR	Hartz	38.8
DPX 97094-19RR	Deltapine	37.8
588RR	AgriPro	37.3
LSD (α=0.05)		5.0