

## SOYBEAN RESPONSE TO CONVENTIONAL AND NO TILLAGE ON A PRAIRIE CLAY SOIL

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**ABSTRACT:** A study was conducted on a Catalpa silty clay loam soil evaluating Deltapine 5110S soybean yield response to tillage (no-tillage and conventional tillage). Three weeks of dry weather in August reduced yield potential. The soybean matured 8/29/02, with the mean yield across the study of 41.3 bu/ac. There was no difference in yield and plant height at maturity between tillage systems.

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**KEYWORDS:** Soybean, tillage, clay soil

**MATERIALS AND METHODS:** A tillage study was conducted on a Catalpa silty clay loam soil in 2002, Verona, Mississippi. The experimental design was a randomized complete block with 4 replications. Plot size was 16 rows (30 inch) x 30 ft. The tillage treatments were no tillage and conventional tillage. The conventional tillage system was subsoiled 11/05/01 and disked 11/06/01, followed by a do-all (row conditioner) in late April. Soybeans were planted no till on 4/23/02 with Deltapine 51105 seeded at 8 seed/ft in 30-inch rows. Phosphorous and potassium fertilizer applications were based on soil test recommendations. The whole study received 250 lb/ac of potash (K<sub>2</sub>O) on 10/24/01.

Weed control management was the same for the whole study. Gramoxone (paraquat) + Broadstrike (flumetsulam)/Dual (metolachlor) at 1.5 pt + 1.8 pt+ surfactant at 0.5 pt/ac was applied preemergence on 4/24/01. First Rate (chloransulam) + surfactant at 0.25 oz ai/ac + 0.2 pt/ac was applied postemergence to the entire study 5/20/02 and repeated 6/17/02. Orthene (acephate) at 0.27 lb ai/ac was applied 6/24/02 for Striped Blister Beetle (*Epicauta vittata*) control. The center 2 rows of each treatment were harvested 9/05/02 with a plot combine for grain yield. Following harvest, the grain was weighed and seed moisture was determined with a Dickey John ® GAC II grain analyzer. Yields were adjusted to 13% seed moisture. Treatment means were separated using Fisher Protected LSD at the 5% significance level.

**RESULTS AND DISCUSSION:** The growing conditions were highly variable with below normal temperatures in May and highly variable rainfall. Above normal rainfall for May and July was followed by no rainfall in August until August 25. The study mean yield was 41.3 bu/ac (Table 1). The results indicated no yield or plant height at maturity differences between tillage systems.

**COOPERATORS:** None

**PUBLICATIONS:** None

**Table 1.** Soybean response to tillage systems on a Catalpa silty clay loam soil in 2002, Verona, MS.

Tillage system	Maturity height (in.)	Yield (bu/ac)
No-tillage	43.9	42.2
Fall subsoil + disk	<u>47.3</u>	<u>40.4</u>
Mean	45.6	41.3
LSD (0.05)	NS	NS
%CV	6.5	16.4