

RESIDUAL FALL PARATILL EFFECT ON CORN YIELD

R. R. Dobbs, N. W. Buehring, and M.P. Harrison

Northeast Branch Experiment Station; North Mississippi Research and Extension Center;
Mississippi State University; Verona, MS 38879

ABSTRACT: The purpose of this study was to determine if deep under-row tillage (paratill) applied in the fall of 2000 had any residual effect on corn yield in 2002. The environmental growing conditions were very favorable for corn with above normal rainfall in May and July. The study mean yield was 175.2 bu/ac. The results indicated no yield difference between continuous annual fall paratill-bed-roller (deep under-row tillage) and fall paratill-bed-roller in 2000 followed by a fall bed-roller in 2001 without the paratill. The preliminary results indicate that deep under-row tillage may not be necessary every year.

CITATION: Dobbs R.R., N.W. Buehring, and M.P. Harrison. 2003. Residual Fall Paratill Effect on Corn Yield. Annual Report 2002 of the North Mississippi Research & Extension Center. Mississippi Agricultural & Forestry Experiment Station Information Bulletin 398:61-62.

KEYWORDS: Paratill, corn

MATERIALS AND METHODS: A field study was conducted on a Leeper silty clay loam soil at Verona, Mississippi, during the 2002 growing season to evaluate corn response to residual effects of paratillage. The study was conducted as a randomized block design with 4 replications. Plot size was 8 rows (30-inch) by 520 ft. Fertilizer P and K were applied based on soil test recommendations. Soil test results indicated high levels of P with medium levels of K. Therefore, 250 lb/ac of potash (K₂O) was applied broadcast to the soil surface on 9/25/01. The entire study area was paratilled in the Fall of 2000. Land preparation treatments in 2001 consisted of a fall paratilling (11/01/01) plus bed-roller on 11/02/01; and the bed-roller alone treatment applied 11/02/01. The beds on the whole study were reshaped with a bed-roller on 3/05/02.

Pioneer 31R88 at 28,000 seed/ac was planted in 30-inch rows on 4/16/02. Lorsban (chlorpyrifos) at 1.32 lb ai/ac was applied in-furrow at planting for seedling insect control. Gramoxone Max (paraquat) + Guardsman Max (dimethenamid-P + atrazine) + surfactant at 0.75 + 0.64 + 1.24 lb ai/ac + 0.5 pt/ac was applied preemergence for weed control on 4/17/02. Nitrogen fertilizer (32% UAN solution) at 175 lb N/ac was applied with a colter-knife applicator, 6 inches from the row and 2 inches deep on 5/17/02. Intrepid (methoxyfenozide) at 0.0625 lb ai/ac was applied on 6/25/02 for southwestern corn borer (*Diatraea grandiosella*) control.

The center 4 rows of each plot were harvested with a John Deere® 4435 combine equipped with a 4-row cornhead and weights were determined with a weigh wagon. Plot grain samples taken from each plot were analyzed with a Dickey John® 2000 grain analysis computer to determine moisture and bushel test weight. Yields were adjusted to 15.0% moisture and the data were subjected to analysis of variance. The treatment means were separated using Fisher's Protected LSD at the 5% significance level.

RESULTS AND DISCUSSION: Rainfall during the growing season was above normal for May and July which favored excellent corn yield. The results indicated no difference between paratill/bed-roller and bed-roller alone for yield and bushel test weight (Table 1). The study mean yield was 175.2 bu/ac and the mean bushel test weight was 58.08 lb/bu. Preliminary data indicate that deep under-row tillage may not be necessary every year.

COOPERATORS: None

PUBLICATIONS: None

Table 1. Corn yield response to tillage system on a Leeper silty clay loam soil in 2002, Verona, MS.

Fall 2001 Tillage treatment	Corn yield bu/ac	BTW lb/bu
Fall paratill-bed-roller (2000) Followed by bed-roller (2001) ¹	174.9	58.03
Paratill bed-roller (2000 and 2001)	<u>175.5</u>	<u>58.13</u>
Mean	175.2	58.08
LSD (.05)	NS	NS
% CV	3.8	0.40