

Bed Height And Bed Longevity Effect On Corn And Soybean Yield

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Since drainage on flat bottomland soils is critical, a study was initiated on a Leeper silty clay loam soil in the fall of 2005 to evaluate bed height duration (5 to 6, 8 to 9 and 10 to 12-inch) effect on corn and soybean yield in a corn-soybean rotation. The study also evaluated under-row-deep tillage (Paratill, 10 to 12 inches depth) + bed (8 to 9-inch height) roller. The beds were formed with a bedder equipped with 12-inch busters and a roller. **Corn:** After initial bed formation in the fall of 2005, all bed heights, including under-row-deep tillage (Paratill), produced a 4-year (2006-2009) average of 9 to 18 bushels more per acre than continuous no-till (no raised bed). Under-row-deep tillage (Paratill) + bed-roller showed no consistent yield advantage over the bed-roller alone. In both 2008 and 2009, the yields for beds formed in 2005 were lower for 5 to 6-inch beds than 8 to 9-inch beds. These 8 to 9-inch beds had a 4-year average yield of 134 bu/acre, which was 15 bu/acre more than the continuous no-till system. The yield also was equal to the annual fall Paratill + bed-roller application, and the 10 to 11-inch beds formed in the fall of 2005. **Soy-**

bean: Soybean showed less yield response to raised beds than corn. In 2009, the yields for no-till and the 5 to 6-inch beds formed in 2005 were equal but lower than all other bed heights treatments. Only one (2008) of 4 years Paratill + bed-roller showed higher yield than no-till and all bed heights (5 to 6-inch, 8 to 9-inch and 10 to 12-inch) formed in 2005. The 4-year (2006-2009) average plant height at maturity indicated no-till and the 5 to 6-inch beds formed in 2005 were equal but both were shorter in height than all other bed height treatments. The 8 to 9-inch beds formed in 2005 were 4-inches tall in 2009, and the yield was higher than both no-till and 5 to 6-inch beds formed in 2005. Bed heights in 2009 for no-till and the 5 to 6-inch bed height formed in 2005 was 2.9 inches. In summary, these results indicate that a minimum bed height of about 4 inches is necessary to maintain high yields for both corn and soybeans. Therefore, the no-till cropping system can be used on bottomland silty clay loam soils for about 4 years on 8 to 9-inch initial bed heights without yield losses. Δ

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