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COTTON RESPONSE TO BED RENOVATIONS ON TWO SOILS

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Abstract

Cotton growers are interested in planting no-till into a fall prepared raised seedbed without doing any bed renovation. Therefore, studies were conducted in 2000 and 2001 on a Leeper silty clay loam and a Leeper fine sandy loam soil to determine bed renovation influence on cotton seedling emergence, vigor, and lint yield. Bed renovation systems were: Prepmaster® (bed renovator) applied in April or at planting (May); row conditioner (implement equipped with rolling cutter bars, drag harrow, and drag board) applied at planting (removed about 2 inches of soil from top of the beds); and planting no-till on a fall stale seedbed [fall under-row deep tillage (Paratill® bed-roller)]. Environmental and soil moisture conditions prior to planting and during the emergence period effected seedling emergence and plant vigor. In 2000, with good soil-surface moisture in the seedling emergence zone on both soils, these treatments had no effect on cotton seedling emergence or vigor. In 2001, soil-surface moisture conditions were unfavorable at planting (no rainfall 16 days before planting) and during the emergence period (11 days with no rainfall after planting). Five weeks after planting, the row conditioner application at planting and the Prepmaster bed renovation either applied in April or at planting had greater plant vigor and bloomed 7 days earlier than no-till. The Prepmaster treatment applied in April on both soils, also had greater plant vigor than the no-till planted treatment, the row conditioner applied at planting, or Prepmaster applied at planting. However, both years and on both soils, all treatments showed no difference in lint yield. These results indicated the use of a bed renovator or row conditioner on stale seedbeds can extend the planting window and the opportunity for good seedling emergence and plant vigor under adverse soil-surface moisture or rapid drying conditions.