

Vertical Simulated Weed Seed Movement Following Various Tillage Practices and Overhead Irrigation Intensities.

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Abstract

Vertical weed seed movement has been shown to be influenced by tillage system. The objective of this study was to evaluate vertical movement of simulated weed seed in conservation-tillage practices in a Coastal Plain field at the E.V. Smith Research and Extension Center near Shorter, AL. 10,500 1 mm ceramic beads (5,250 = specific gravity of water; 5,250 = specific gravity of water) were scattered evenly in nine equally divided square cells within a one square meter area in each plot, centered on the crop row, prior to tillage and irrigation treatments. Tillage treatments included: 1) none, 2) a KMC™ straight leg subsoiler, and 3) a bent leg Paratill™. Cotton was then planted using a row-cleaner equipped John Deere® MaxEmerge™ planter. Plots were then overhead irrigated with 0, 2.5, or 5 cm of water. The ceramic beads were then vacuumed from the nine cells separately. Additionally, visible beads outside the square meter were vacuumed into one sample. Following vacuuming, a 25 cm diameter soil core was taken to a maximum depth of 40 cm and divided vertically into 5 cm increments. Soil samples were then sieved. Beads from each sub-sample were removed and counted.