

CONSERVATION TILLAGE REDUCES THE INCIDENCE OF TOMATO SPOTTED WILT IN FLUE-CURED TOBACCO

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ABSTRACT

Conservation tillage production systems are gaining popularity in the southeastern USA on many row crops. Reduced tillage minimizes soil erosion, off site movement of nutrients, improves water percolation, and contributes to soil organic matter accumulation. Conservation tillage may alter the incidence of Tomato Spotted Wilt (TSWV) in tobacco. The effects of strip tillage on the incidence of TSWV was evaluated in a 2 x 4 factor factorial design experiment where main blocks were tillage (conventional vs. strip till) and subplots were actigard, admire and actigard + admire treatments. Strip tillage plots were planted into a rye cover that had been treated with glyphosate (Roundup ultra 3.5 l/ha). Admire 2F was applied as a tray drench (83 ml/1000plants) 5 days prior to planting. Actigard 50 W was applied as a tray drench (2 g/1000) 5 days prior to transplanting with three foliar sprays (35 g/ha) applied on a 10-day spray interval starting at transplanting. Conservation tillage reduced TSWV incidence 22% and 38% for year 1 and 2, respectively when averaged across admire and actigard applications. In year 1, significant tillage ($P = 0.03$), and treatment ($P = 0.0001$) effects were observed. In year 2, a significant tillage ($P = 0.001$), treatment ($P = 0.001$) and treatment by tillage interaction ($P = 0.001$) were observed. In actigard treated plots (year 2) conservation tillage did not reduce TSWV ($P = 0.05$). Generally, incidence of TSWV was lower in plots grown under conservation tillage systems where the soil was covered with light colored mulch. Conservation tillage systems such as strip tillage may provide suppression of TSWV in tobacco.