EFFECT OF WHEAT STUBBLE MANAGEMENT ON DOUBLE-CROPPED COTTON

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Abstract

Experiments were conducted in 2012 to determine the effect of wheat stubble management on cotton growth and yield in a doublecrop situation. Experiments were conducted at the R.R. Foil Plant Science Research Center near Starkville, MS and at the Black Belt Branch Experiment Station near Brooksville, MS. Soil type in Starkville was a Leeper silty clay loam whereas the soil type at Brooksville was a Brooksville silty clay. DP 0912 B2RF was planted on May 25, 2012 in Brooksville and June 4, 2012 in Starkville at seeding rates (seeds/ha) of 62,000; 86,000; 124,000; and 161,000. Wheat stubble management techniques included: no stubble management, burning stubble, and double disking of stubble followed by bed re-formation. Plots consisted of four with 97 cm between rows and 12.2 m in length. Plots were replicated four times at each location. Experiments were conducted using a factorial arrangement of treatments in a randomized complete block design. Data were subjected to analysis of variance and means were separated using Fisher's Protected LSD at $p = 0.05$.

Cotton height at first bloom at both locations was significantly reduced in plots that were double disked and re-bedded, regardless of seeding rate. In addition, cotton height at first bloom at Starkville was significantly reduced where no stubble management was performed compared to burning wheat stubble, regardless of seeding rate. End of season cotton heights in Brooksville where no stubble management was performed where similar regardless of seeding rate. Cotton height in plots that were double disked and re-bedded were significantly shorter than those where no stubble management was performed; however, no difference in height was observed where plots were double disked and re-bedded due to seeding rate. End of season cotton height was greatest in areas where wheat stubble was burned where seeding rates were 124,000 seeds/ha or greater. Seeding rates of 161,000 seeds/ha resulted in less total nodes at the end of the season at Brooksville compared to seeding rates of 62,000 seeds/ha. In Starkville, seeding rate had no effect on end of season cotton height. Cotton was significantly taller at the end of the season where wheat stubble had been burned compared to no stubble management or double disking followed by re-bedding. Total nodes at the end of the season in Starkville were significantly reduced where cotton was seeded at 161,000 seeds/ha in areas where wheat stubble had been burned or where stubble had been double disked at re-bedded. Seed cotton yields at Starkville were greatest where wheat stubble had been burned (2680 kg/ha) as opposed to double disked and re-bedded (2350 kg/ha), regardless of seeding rate. Seeding rates of 124,000 and greater most consistently maximized yield (>2575 kg/ha).