Tillage System/Row Spacing Effects on Cotton Potassium Requirement. (S06-reeves105020-Poster)

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Abstract:

Potassium (K) needs for conventional spaced (76 to 90-cm row) cotton (Gossypium hirsutum L.) have been well researched and established, but there has been no published data on K requirements of ultra-narrow row (UNR) cotton. We conducted a replicated 3 yr study on a Lucedale sandy loam (Rhodic Paleudults) in central AL to determine the K need of cotton as impacted by row spacing and tillage system. Treatments were a factorial arrangement of K fertilizer rate (long-term applications of 0, 28, or 56 kg K/ha), row spacing (19-cm or 90-cm), and tillage system (chisel disk or no-tillage). Lint yields ranged from 160 to 1400 kg/ha during the study, depending on season and treatment combinations. The UNR cotton averaged a 98% yield increase compared to 90-cm row cotton over the 3 yr study. Potassium requirement of UNR cotton was similar to that of 90-cm row cotton, and UNR spacing with adequate K fertilization (56 kg K/ha), consistently provided the highest yield. In 2 of 3 yr, this row spacing-K fertilizer combination was optimized with no-tillage. Although it remains to be seen whether UNR cotton will be accepted by the market, our results suggest that adequate K nutrition is critical to optimize yield levels obtained with UNR cotton.

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Presentation Information:

Presentation Date: Tuesday, November 12, 2002
Presentation Time: 9:00-11:00 am
Poster Board Number: 1838

Keywords:
cotton, conservation tillage, K requirement, ultra-narrow rows