

INFLUENCE OF NITROGEN AND BORON INTERACTION ON THE PRODUCTION OF COTTON

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Abstract

Studies across the cotton (*Gossypium hirsutum*) growing regions of the country have shown boron and nitrogen to be essential nutrients for profitable cotton production. Four levels of nitrogen (N) (0, 30, 60 and 90 lbs/acre for 1996 and 0, 60, 90 and 120 lbs/acre for 1997) and four levels of boron (B) (0, 0.5, 1.0, and 2.0 lbs/acre) were used on DPL-50 in a split-plot design with B subplot treatments randomly assigned within N whole plot treatments. The experiment was replicated four times. Nitrogen as sodium nitrate, and ammonium nitrate for 1996 and 1997, respectively were side-dressed and boron as solubor foliar applied. Yield parameters were measured for each treatment. There was no significant N X B interaction thus, data were averaged over N and B rates, respectively. In both years increased N rate up to 90 lb N acre increased ($P < 0.01$) lint yield. The increase in lint yield was 86, 335 and 423 lbs/acre for 30, 60, and 90 lbs/acre N over the untreated control, respectively. In 1997, however the only significant yield increase was observed for the 90 lbs/acre N rate. Adding foliar boron at 2.0 lbs/acre, however decreased lint yield over the untreated control. Leaf blade tissue level increased with increasing B rates compared with the initial B level. Additional research is needed in order to fully understand the benefit of boron in N utilization.