

## COTTON RESPONSE TO SELECTED FOLIAR CORON APPLICATIONS

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### Abstract

A 2-year (2001-2002) study was conducted to evaluate the effect foliar nutrient application had on gin turnout and yield on a Leeper silty clay loam soil high in P and K. Foliar controlled release N (CoRoN<sup>®</sup> 25-0-0), N + K [CoRoN 10-0-10 0.5% B] liquid solutions, potassium nitrate (KNO<sub>3</sub>), boron (Solubor<sup>®</sup> 20% B) and feed grade urea (46% N) were applied either at pinhead square or sequential applications starting at pinhead square or first bloom. The study was conducted as a split plot with years as main plots and foliar treatments as subplots with four replications. The plot size was 4 rows (38 inch) by 500 ft. Soil test indicated high P and K levels. Annual fall applications of potash at 250 lb/A/yr were made prior to land preparation. Both years NuCOTN 33B was planted about May 20 and Nitrogen as liquid UAN (32% N) at 80 lb N/A was applied sidedress, 10 days before pinhead square foliar applications. All foliar nutrient treatments were applied using TXVS-4 nozzles with 20-inch spacings and water as the carrier at 5 gpa. Boom height was 20 inches above the tallest cotton with a boom pressure of 32 psi.

Appropriate preemergence and post-directed herbicides were applied for good weed control during the growing season. Appropriate cotton insecticides were also applied when insect pest were at or above threshold, based on twice weekly scouting reports. Pix<sup>®</sup> (mepiquat chloride) was applied during the growing season when necessary to control cotton rank growth. Cotton was defoliated with a boll opener (ethephon) and appropriate defoliant when the cracked boll on the first position branch was 4 nodes from the upper most harvestable boll in the check treatment. The center 2 rows were harvested with a 2 row spindle picker. A 20 lb seed cotton sample from each plot was ginned with a mini-gin to determine gin turnout and lint yield.

Foliar fertilizer treatments had no visual effect on cotton growth and maturity. Foliar treatments had no effect on gin turnout and there was no year by foliar treatment interaction. The mean gin turnout was 37 and 33% for 2001 and 2002, respectively. The mean lint yield was 884 and 958 lb/A for 2001 and 2002, respectively and showed no differences between years. However, foliar treatments showed variability across years and there was a foliar treatment by year interaction. In 2001, all treatments except Solubor were similar in yield and produced higher yield than the check (water). This was in contrast to 2002 where only CoRoN 10-0-10 0.05% B at 1 gpa, KNO<sub>3</sub> (1 lb N + 3.3 lb K<sub>2</sub>O/A) and urea at 1 lb N/A applied at first bloom and repeated 13 days later showed higher yield than the check. CoRoN 10-0-10 0.05% B at 1 gpa, KNO<sub>3</sub> (1 lb N + 3.3 lb K<sub>2</sub>O/ac), and urea at 1 lb N/A applied at first bloom and repeated 9 or 13 days later were the only treatments in both years which consistently showed higher yield than the check. Both years, Solubor was the only treatment with yield equal to the check. However, the yield for Solubor at 0.15 lb B/A applied at first bloom and repeated 13 days later was greater than CoRoN 25-0-0 at 0.5 gpa applied at pinhead square and equal to all other treatments in 2002. In 2001, Solubor yield also was equal to both CoRoN 10-0-10 0.05% B at 1 gpa and urea at 1 lb N/A applied at first bloom and repeated 9 days later. The two year average indicated foliar applications of CoRoN 25-0-0 at 0.5 gpa applied at pinhead square, CoRoN 10-0-10 0.05% B at 1 gpa, KNO<sub>3</sub> (1 lb N + 3.3 lb K<sub>2</sub>O/ac) or urea at 1 lb/A applied at first bloom and repeated 9 to 13 days later increased yield by 6 to 12%. The results indicated foliar nutrient applications of N (CoRoN 25-0-0 and urea) alone or N + K (CoRoN 10-0-10 0.5% B and KNO<sub>3</sub>) increased yields while Solubor had little or no influence on yield. CoRoN formulation showed yield similar and equal to KNO<sub>3</sub> and urea. However, CoRoN formulations, more readily dissolved in the water spray solution than KNO<sub>3</sub> or urea.