

SICKLEPOD MANAGEMENT IN BXN COTTON

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Abstract

Two field experiments were conducted to compare the growth of sicklepod, *Senna obtusifolia* and the response of BXN 57 cotton to EPOST treatments of MSMA and Buctril, alone and in combination. The objective was to identify treatments which would suppress sicklepod and promote a height differential between the cotton and sicklepod. Height measurements of the cotton and sicklepod were taken over a four week period to record the length of time any differences were maintained as well as injury ratings and lint yields of the cotton.

The cotton response trial was conducted in Clayton, NC. The plots received a blanket PPI application of 0.75 lb ai/A Treflan and a 1.5 lb ai /A preemergence application of Cotoran. The plots were kept weed free for the duration of trial. EPOST applications of 0.25, 0.5 or 0.75 lb ai / A of Buctril and 0.38 or 0.75 lb ai / A of MSMA plus all possible combinations of Buctril and MSMA were made to cotton at cotyledon stage. There were three replicates per treatment with 10 subsamples measured per plot.

The sicklepod trial was conducted on a natural sicklepod infestation in Goldsboro, NC. The plots received the same EPOST applications as the cotton trial. Treflan and Cotoran treatments were not applied in order to evaluate the effect of Buctril and MSMA treatments on sicklepod without confounding influences of other herbicides. After treatment, five subsamples per replicate of cotyledon, one leaf, two leaf, and three leaf sicklepod plants per plot were tagged and plant heights were measured four times until 28 DAT.

There was no cotton stand reduction in response to any treatment. At 7 DAT, transient discoloration was observed in the treatments containing MSMA but disappeared by 30 DAT. Cotton heights at all evaluation timings and all treatments were not significantly different than the weed free UTC. Lint yields for all treatments were statistically the same as the UTC.

Growth of cotyledon and one leaf sicklepod were markedly slowed by both rates MSMA and the combinations of MSMA and Buctril. Buctril alone at the 0.25 and 0.5 lb ai /A rate suppressed one leaf sicklepod growth by an average of 1 inch at 14 DAT rating but was not significantly different than the UTC by 27 DAT. Mean height

differential between the sicklepod and cotton at 14 DAT in plots containing 0.375 and 0.75 lb ai / A rates of MSMA averaged 3 inches and 3.6 inches in the 0.5 lb ai /A Buctril + MSMA treatments. By 27 DAT, the differential increased to 13 inches or greater in all treatments containing MSMA. Two leaf sicklepod responded similarly to applications of MSMA alone and MSMA + Buctril at all rates tested. The mean differential at 14 DAT between cotton and the two leaf sicklepod was 2.5 and 3.3 inches in treatments containing 0.375 and 0.75 lb ai / A MSMA respectively. By 27 DAT the differential increased to 10 and 16.8 inches. Treated three leaf sicklepod plants were noticeably more vigorous than treated cotyledon, one or two leaf sicklepod and exhibited more variability with less overall response to herbicide applications. A small (2 inches on average) difference between crop height and 3 leaf sicklepod was observed in the treatments containing MSMA at 14 DAT. Buctril alone did not significantly suppress 3 leaf sicklepod.

Treatments containing MSMA at 0.375 or 0.75 lb ai/ A alone or in combination with Buctril effectively established a height differential between cotton and sicklepod from cotyledon through two leaf stage. The height differential between the cotton and sicklepod was maintained for at least 21 days and the difference would allow a subsequent layby herbicide application.