PRELIMINARY REPORT: RESPONSES OF TWO COTTON CULTIVARS TO SIMULATED BOLLWORM DAMAGE DURING THE EFFECTIVE FLOWERING PERIOD

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Abstract

Plant maturity and yield responses of selected cotton varieties (NuCOTN 33^{B} and Stoneville 474) were measured after 7 levels (0, 2.5, 5, 10, 20, 40, and 80%) of simulated bollworm, Helicoverpa zea (Boddie), damage were applied during each of the first 4 weeks of flowering in 1997. Each treatment was independent so that plots were only damaged one time. The oldest bolls on plants within each plot were selected and tagged to receive each level of injury. At the end of the season, crop maturity based on percent open bolls and seedcotton weights were recorded.

All damage levels applied during the first two weeks of flowering did not significantly affect crop maturity or seedcotton yield compared to the undamaged plots for NuCOTN 33^{B}. Damage levels ≥40% significantly delayed maturity compared to the undamaged plots during the third week. During the fourth week of flowering, boll damage levels ≥20% resulted in significantly lower yields than the undamaged plots. Plots receiving 20%, 40%, and 80% boll damage had 6%, 12%, and 30% decreases in yields, respectively, compared to the undamaged plots. Boll damage levels ≥20% occurring during the fourth week of flowering significantly delayed crop maturity.

No significant differences in seedcotton yields were observed among damage levels during each of the first 3 weeks of flowering for Stoneville 474. Crop maturity was delayed by boll damage levels ≥40% during weeks 2 and 3 of flowering compared to the undamaged plots for those respective weeks. Crop maturity and seedcotton yields were significantly affected during the fourth week of flowering. Plots with boll damage levels ≥40% had significantly lower yields than the undamaged plots. Crop maturity was significantly delayed at damage levels ≥20% compared to the undamaged plots. Damage to 40% of bolls during the fourth week of flowering resulted in a 13% yield loss while 80% boll damage reduced yield by 35% compared to that in the undamaged plots. Both cotton cultivars did not show significant reductions in yield at any damage level during the first three weeks of flowering. Later in the flowering period, both varieties were more sensitive to boll damage with significant yield reductions occurring at damage levels ≥40%. This study will be repeated in 1998.

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