MECHANICAL TOPPING, AN END OF SEASON MANAGEMENT TOOL?

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Abstract

Potential benefits of mechanical topping of cotton plants include reduced boll rots, decreased over-wintering insect populations, enhanced maturity, improved defoliation, and increased yield (by diverting energy from non-productive fruit). Optimum timing and position of cut might be in synchrony with the end of effective flowering. Within the COTMAN cotton management system, the last effective flower population is identified as when nodes-above-white-flower equals 5.0 (physiological cutout) or when the latest possible cutout date occurs (seasonal cutout). The objective of this study was to determine the effects of mechanical topping on cotton when topping was sequenced by development of the last effective boll population. Tests were conducted at Clarkedale, Arkansas, in 1996, 1998, and 1999. Plants were topped (ca. one-half distance from the position of the last effective flower to the plant apex) at various (0 to 700) heat units after the last effective flowering date. In 1996, topping did not significantly affect yield, and the highest numerical yield was attained by topping at 350 heat units past physiological cutout. Since seasonal cutout occurred prior to physiological cutout in 1998, topping treatments were sequenced with the latest possible cutout date. All topping treatments tended to decrease yields in 1998. Although physiological cutout was achieved prior to the latest cutout date in 1999, yield was reduced by mechanical topping. Although mechanical topping has several potential benefits, these results suggest that yield can be adversely affected.

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