COMPENSATION OF COTTON TO SQUARE AND BOLL REMOVAL WITH DIFFERENT VARIETIES AND PLANTING DATES

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Abstract

Fruit shedding is a natural occurrence in cotton. Fruiting retention is very important since yields are highly correlated with number of bolls produced.

There are many factors contributing to the shed of squares, including environmental conditions, heavy boll load, diseases, and insect feeding. An experiment was designed to evaluate the compensation capacity of cotton at various levels of square removal using two varieties at two planting dates over two Virginia locations. Various rates of mechanical square removal were imposed and effects on yield components and quality, and the effectiveness of COTMAN in tracking major phenological stages (PHS, FF, Cutout) were evaluated. In 1999, two varieties (DPL 51 and DPL 5111), two planting dates (PD), timely and two weeks later, and five levels of manual desquaring/debolling (0%, 12-15%, 20-25%, and 30-40% of first position squares, or 10% of small bolls) were used. In a preliminary study in 1998, similar desquaring treatments were used (no bolls were removed), but only with DPL 51 at a single, timely planting date. The physiological progress of all treatments was monitored using the COTMAN cotton mapping system. In1998, neither yield nor boll weight were affected by any of the square removal levels. In 1999, only the removal of squares at the 30-40% rate resulted in yield reduction for both DP51 and DP5111 for the first PD. Similar results were obtained for the second PD, although the square removal rate at which the yield reduction occurred varied. Yields were not affected by 10% boll removal. COTMAN mapping showed slow development of squaring nodes and a low apogee compared to the Target Development Curve (TDC) for Arkansas. However, for this experiment, there were no differences in the TDC among any of the square or boll removal treatments compared with the undamaged control.

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