

**CHARACTERIZATION OF THE TARGET GROWTH CURVE  
USED IN COTMAN™: REGIONAL PROJECT SUMMARY**

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**Abstract**

The crop monitoring program COTMAN™ follows fruiting progress during squaring and flowering in relation to main-stem nodal development and assists with end-of-season management decisions. In order to evaluate this fruiting growth pattern, a 3-year study was conducted in four geographical locations: Arkansas, Georgia, Louisiana, and Virginia. The objectives of this study were (1) to characterize the target growth curve (TDC) in cotton with regard to calendar days for several geographical locations between major phenological stages [pinhead square (PS), first flower (FF), and physiological cutout (NAWF=5)], and (2) to determine the effect of production management inputs, mepiquat chloride (MC) and low soil nitrogen status (low N) on the fruiting curve. The treatments consisted of (1) an untreated control, (2) MC applied at PS and FF, and (3) low N (at 70% of the recommended value). First position white flowers were tagged with jeweler tags on the main stem node branch at NAWF=7, NAWF=6, NAWF=5 and NAWF=4. The results from this study showed that the three treatments in all locations tracked the TDC with slight variations among locations. In general, plant development was slower for all treatments, except in Louisiana (1997-1999) and Georgia (1998) which had an early initiation of flowering. Overall, the apogee at FF was 8 or less compared to the TDC (9.25). MC effectively reduced plant height compared with the untreated control and low N treatments. Plants treated with MC, followed by low N had a premature cutout as compared to the untreated control. On the contrary, the low N treatment in Georgia exhibited a premature cutout in 1997 and 1998. In Virginia in 1998, there were no differences in cutout between low N and MC treatments, but MC treated plants had an earlier cutout in 1999. Fruit retention appeared to drop constantly between NAWF=7 and 4 in Arkansas (1997 and 1998) and Louisiana (1997-1999). In Georgia in 1999, fruit retention dropped between NAWF=5 and 3, but it seemed constant between NAWF=7 and 4 in Arkansas in 1999, and Georgia in 1997 and 1998. In relation to the number of bolls required to produce one pound of seedcotton, these data did not show a clear trend in all locations. The MC treatment seemed to reach cutout at around NAWF=4 to 5 and the low N treatment reached cutout at NAWF=4. There was some evidence of a higher nodal cutout in Arkansas in 1999 and Louisiana in 1997 and 1999. It can be concluded that low N and MC treatments changed the TDC, leading to a delayed and lower apogee value at FF, and premature cutout, compared to the untreated control. Low N and MC treatments showed a lower NAWF value for cutout.