

**COTMAN EVALUATION OF NEW COTTON CULTIVARS
IN THE TEXAS HIGH PLAINS**

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Abstract

COTMAN is a computer-based integrated pest management program that tracks cotton (*Gossypium hirsutum* L.) growth and development. COTMAN was developed by scientists at the University of Arkansas in cooperation with Cotton Incorporated and consists of two components. SQUAREMAN is implemented during early season development and is used to determine first position square retention and growth as compared to an optimal target development curve (TDC). BOLLMAN is utilized to track nodes above white flower (NAWF) from first flower to cutout and to determine the number of days from planting to cutout (defined as NAWF=5). The objective of this study was to evaluate and compare differences among four new cotton cultivars and one standard cultivar at two locations in the Texas High Plains using COTMAN. The two sites monitored included Parmer County (shorter-season) and Yoakum County (longer season), both of which were low-elevation spray center-pivot irrigated producer-cooperator fields. Stripper-type cultivars included 'Paymaster 2326RR', a regional standard; 'Paymaster 2344BG/RR'; and 'Paymaster 2266RR' which were both recently introduced. Two longer season picker types, 'FiberMax 958' and Sure-Grow 215BG/RR, were also included. Cultivars were planted in large plots in a randomized complete block design with three replications. All replications were commercially stripper harvested. Bur cotton yields were determined by plot using weigh wagons equipped with integral digital scales. Replications were combined to produce a single module for each cultivar. Cultivar modules were commercially ginned and USDA-AMS classed. At the shorter-season Parmer County location, crop development was late as indicated by cultivar growth curves. The target apogee for NAWF was not reached by any cultivar. Days to cutout was significantly longer for picker cultivars, even though 'FiberMax 958' produced the highest lint yield. Mean lint yield of all cultivars was 1931 kg/ha (1724 lb/acre). "Lateness" of the two picker cultivars resulted in low micronaire discounts in USDA-AMS classed bales. At the longer-season Yoakum County site, crop development was late as indicated by cultivar growth curves. The target apogee for NAWF was reached by all cultivars except 'FiberMax 958'. Days to cutout was numerically greater for picker cultivars. Mean lint yield of all cultivars at this site was 1590 kg/ha (1420 lb/acre). COTMAN was a very useful research tool to determine relative maturity differences among cultivars. Although 'FiberMax 958' growth curves at both locations deviated from the TDC and differed from other cultivars, its yield performance was still excellent. Lateness of cutout at the Parmer County location was "predictive" of low micronaire.