PLANTING DATE EFFECTS WITH MODERN COTTON CULTIVARS

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Abstract

Field studies investigating variety by planting date interactions were conducted during 2008 and 2009 at Jackson, Tennessee, 2009 at Marianna, Arkansas, and 2009 at Starkville, Mississippi. Four varieties that were grown in both years in TN were DP 0935 B2RF, FM1740 B2F, PHY 375 WRF, and ST 5327 B2RF. Varieties grown in Arkansas were DP 0912 B2RF and DP 0935 B2RF. Varieties grown in Mississippi included DP 0912 B2RF, DP 0935 B2RF, FM1740 B2F, PHY 375 WRF, ST 5288 B2F, and ST 5327 B2RF. Production practices for fertility, insect and weed management, and defoliation were made according to each state's recommended practices. Plant parameters recorded throughout the growing season included, but were not limited to final plant height, total number of nodes, and node of first fruiting branch, lint percent, lint yield, and fiber quality. Plots were harvested utilizing a spindle picker modified to harvest research plots at crop maturity. Data were analyzed using SAS PROC MIXED procedure and are presented by locations since planting dates and varieties differed among locations. In Arkansas, lint percentage was affected by planting date. The maximum lint percentage was by planting from April 18 to May 20 with all other dates having lower lint percentages. Lint yield was affected by both planting date and variety. Lint yield of DP 0912 B2RF was reduced by planting in early April or in early June compared to the late April and May planting dates. In contrast, DP 0935 B2RF displayed similar yields for all planting dates except for the early April planting. In Mississippi both plant height and total number of nodes were affected by planting date. Final plant height increased with later planting dates until the final June 29 planting date which was similar to the first planting date. The June 12 planting date had the tallest plants compared to all other planting dates. The total number of nodes was similar for the first four planting dates. The June 29 planting date averaged 2 fewer nodes per plant. Cotton lint yield in Mississippi was effected by both variety and planting date. All planting dates except the June 29 planting had similar yields. FM 1740 B2F had the best yield when average over all planting dates. DP 0912 B2RF, DP 0935 B2RF, PHY 375 WRF, and ST 5288 B2F had similar yields. ST 5327 B2RF had yields similar to PHY 375 WRF and ST 5288 B2F, but was lower than all other varieties. In Tennessee, during 2008 and 2009, final cotton plant height and total number of nodes was affected by variety and planting date. DP 0935 B2RF, PHY 375 WRF, and ST 5327 B2RF were taller than FM 1740 B2F. Statistical difference in number of nodes between varieties was less than 0.5 nodes. Plant height and number of nodes by planting date were pooled over varieties. The tallest plant heights were found with the late May and early June planting dates. Plant heights on all other dates were not different. Total plant nodes was greatest with the two earliest planting dates then decreased throughout remained of the planting period. Cotton lint yield in Tennessee was affected by variety, planting date, and the interaction of both. All varieties had numerically highest yields when planted during May. DP 0935 B2RF yield was only lower when planted in mid-June. This could be due to later maturity of DP 0935 B2RF when compared to other varieties in this trial. FM 1740 B2F highest yield was obtained when planted on May 19, all other dates had equivalent yield. PHY 375 WRF yielded best when planted in May. ST 5327 B2RF had highest yield when planted on May 5, which could be a result of later maturity when compare to PHY 375 WRF and FM 1740 B2F. Lint percent was equivalent for all planting dates except May 19 where it was greater. Higher yields for the May 19 planting date could be a direct result of higher lint percentage. In conclusion, delaying planting decreased overall plant height, number of nodes, and lint percentage. While lint yields tend to decrease with later plantings, planting in mid-late June can dramatically reduce yields. Yield response by variety was related to environment and variety maturity. Maximizing lint yield is dependent on picking a variety that is adapted to the growing environment and planting when soil temperature is optimal. Planting into a warm seed bed with warm temperatures will ensure rapid emergence, less susceptibility to disease and thrips injury. Choosing to start planting cotton based on a calendar date is not advised.