

**PLANTING DATE EFFECT ON VARIETY PERFORMANCE
IN THE COASTAL PLAINS IN SOUTH CAROLINA**

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Abstract

The performance of a cotton variety can be influenced by the time at which that particular variety is planted. Generally, southeastern cotton growers begin planting around the middle to latter part of April and continue planting until late May or early June. This wide range in planting can be attributed to weather, harvesting of wheat, or planting of other crops at the same time. Therefore, growers have questioned what type of variety to plant throughout this broad planting window. The objective of this study was to observe the performance of eighteen cotton varieties for yield and fiber quality planted over three dates in mid-April (PD1), late-May (PD2), and early-June (PD3). The varieties selected were DP 444 BG/RR, DP 449 BG/RR, DP 451 B/RR, DP 458 B/RR, DP 5415 RR, DP 555 BG/RR, DP 5690 RR, DP 655 B/RR, FM989BR, FM989R, FM991R, PM 1199 RR, PM 1218 BG/RR, SG 215 BG/RR, SG 501 BR, SG 521 R, ST4793R, and ST4892BR. The study was conducted at one location in South Carolina over a two-year period from 2002 to 2003. In 2002, growing conditions were hot and dry throughout most of the season, whereas 2003 growing conditions were wet, with mild temperatures. There were significant interactions with years for planting dates and varieties for the various parameters measured. The purpose of this study, however was to observe variety performance regardless of environmental effects; therefore, planting dates and varieties were averaged over years. All parameters measured had a significant planting date by variety interaction with the exception of staple. Most varieties responded similarly to date of planting, generally producing higher yields when planted on PD1 or PD2, and lower yields when planted later. However, DP 444 BG/RR, PM 1218 BG/RR, SG 215 BG/RR, SG 501 BR, DP 555 BG/RR and ST4892BR did not significantly decrease yields when planting was delayed to PD3, compared to their yields at PD1 or PD2. Yields from these varieties were relatively consistent regardless of planting date. Turnout for most of the varieties did not significantly change with planting date. However, turnout for PM 1218 BG/RR significantly increased between PD2 and PD3. DP 555 BG/RR produced the significantly highest turnout percentages among the varieties, though not different from DP 444 BG/RR planted early or PM 1218 BG/RR planted late. There was not a significant planting date by variety interaction for fiber length, which averaged between 34.2 to 36.2 staple (32nds of an inch) among varieties averaged over planting dates and years. Staple length significantly increased with each successive delay of planting averaging 34.54, 35.06, and 35.63 for PD1, PD2, PD3, respectively. In general, micronaire values for most varieties were lowest at the earliest planting date, but most varieties had higher, but similar micronaire levels between PD2 and PD3. Date of planting did not significantly alter the micronaire levels for nine of the varieties (DP 444 BG/RR, DP 449 BG/RR, DP 451 B/RR, DP 5415 RR, FM989BR, SG 215 BG/RR, SG 521 R, ST4793R, and ST4892BR). Eight varieties (DP 458 B/RR, DP 555 BG/RR, DP 5690 RR, DP 655 B/RR, FM989R, FM991R, PM 1199 RR, and SG 501 BR) exhibited their highest micronaire values at PD2. The highest micronaire levels for PM 1218 BG/RR were observed at PD3. Numerically, DP 444 BG/RR had the consistently lowest micronaire values, regardless of the date of planting. Generally, fiber strength increased as planting was delayed, with the largest increase in strength observed between PD1 and PD2 for most varieties. Fiber strength for SG 521 R increased from PD1 to PD2, then significantly decreased at PD3. Length uniformity was generally lowest for most varieties at the earliest planting date; varieties tended to have their highest uniformity percentages at PD2. However, PM 1199 RR significantly increased length uniformity, whereas other varieties were had either similar or slightly decreased uniformity percentages as planting was delayed from PD2 to PD3. The variability in uniformity among the varieties was greatest at the last planting date. Crop value per acre, calculated as the loan value achieved by the fiber quality performance at each planting date multiplied by the lint yield per acre, generally followed the lint yield trends among varieties. However, crop value per acre at any planting date for DP 444 BG/RR, DP 555 BG/RR, PM 1218 BG/RR, SG 501 BR, and ST4892BR did not significantly differ from the highest crop value achieved regardless of planting date, suggesting these varieties have a wide window of planting at the Hartsville, SC location where the tests were conducted. Most varieties had similar crop value per acre between PD1 and PD 2, then decreased on the latest planting date, suggesting these varieties may perform better when planted during April and the first half of May within the geography tested.