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EFFECT OF PLANTING DATE AND IN-FURROW FUNGICIDE ON SEEDLING EMERGENCE, GROWTH, AND YIELD OF COTTON IN VIRGINIA

P. M. Phipps and Joel Faircloth
Virginia Tech Tidewater Agricultural Research and Extension Center
Suffolk, VA

Abstract Only

Seed treated with RTU Baytan/Thiram/Lorsban/Allegiance was planted in field trials over a 4-year period (2002-2005). Trials were planted to DP451BR in 2002 and 2003, and DP449BG/RR in 2004 and 2005. Seed cool germ ranged from 79 to 87%. Test sites had sandy textured soils that were planted in a corn-peanut-cotton rotation. Land was prepared by strip tillage into a cover crop of wheat. A split-plot design was used with planting dates as main plots and subplots of two, 30 ft rows with and without in-furrow fungicide (Terraclor Super X 2 qt/A in 2002 and 2003; Quadris 0.6 fl oz + Ridomil 0.12 fl oz/A in 2004 and 2005) applied in a volume of 5 gal/A. Seed were planted 0.5 inch deep at 3 to 4 seed/ft of row. Temik 15G 5 lb/A was applied to the seed furrow at planting. Thereafter, standard production practices were followed. Rainfall, air temperature and soil temperature at the 4-inch depth were recorded hourly by electronic recorders at each site. Plots were harvested with a two-row machine. In-furrow fungicide did not improve stand or yield significantly in any trial. Soil temperatures up to 7 days after planting (DAP) on April 9 through May 20 in 2002 averaged from 64 to 71 F. Plant emergence was reduced significantly and up to 30% with rainfall accumulations of 2.41 and 1.10 inches up to 7 DAP on May 1 and May 6, respectively. Yields were significantly highest in the April 22 planting and lowest in the May 20 planting. Soil temperature in 2003 averaged 58.6 F up to 7 DAP on April 15, and 62.4 to 68.5 F in subsequent plantings. A significant stand reduction (10%) was observed in the planting on April 15. The greatest stand loss occurred in plantings on May 2 (32%), May 16 (26%) and May 21 (44%) which had 1.23, 1.98 and 2.76 inches of rainfall up to 7 DAP, respectively. The April 20 planting had the highest emergence and yield. Plant emergence in 2004 was good in all plantings. The greatest loss of stand (20%) occurred in the April 7 planting when soil temperature averaged 56.4 F and rainfall at 7 DAP totaled 2.16 inches. Yield was significantly higher in plantings from April 7 to May 6. Plant emergence in 2005 was reduced significantly in plantings on April 6 (88%) and April 12 (76%) when soil temperatures averaged less than 60 F up to 7 DAP. Yields were highest in the April 20 to May 3 planting dates. These results indicate that cotton can be planted prior to May 1 in Virginia as long as soil temperatures average above 60 F and rainfall accumulations within 7 DAP are not greater than 1 inch.