

INTERACTIVE EFFECTS OF PLANTING DATE AND SEEDING RATE ON VERTICILLIUM WILT, LINT YIELD, AND FIBER QUALITY OF SUSCEPTIBLE AND PARTIALLY RESISTANT COTTON VARIETIES**X. Liu****Texas Tech University****J. E. Woodward****Lubbock, TX****Texas A&M AgriLIFE Extension Service****Texas Tech University****Lubbock, TX****Abstract**

Verticillium wilt, caused by the fungus *Verticillium dahliae* Kleb. is the most economically important disease of cotton in the High Plains of Texas. Currently, there are no effective chemical options used to manage the disease. Instead management strategies integrate various tactics such as the use of partially resistant varieties, higher seeding rates, preventative crop rotations, and proper irrigation. Increased acreage has led to some producers starting their planting operations earlier in the growing season. Little information regarding the effect planting date has on Verticillium wilt exists; therefore, a small plot field trial was initiated in 2013. The study was conducted in Hale Co., TX in a field with a history of continuous cotton and moderate Verticillium wilt. Treatments were arranged in a split-split plot design with four replications. Whole plots consisted of planting date (22-Apr, 12-May and 8-Jun). Sub-plots consisted of seeding rates (2 and 4 seed ft⁻¹). The varieties (FM 2484B2F and FM 9180B2F, partially resistant, and DP 0912B2RF and Phy 499WRF, susceptible) served as sub-sub-plots. Disease incidence, lint yield, fiber parameters and net returns were used to compare treatments. Data were subjected to ANOVA and means separated via Fisher's protected L.S.D. ($P \leq 0.05$). Below average temperatures were experienced early in the growing season, resulting in differences in stands for the three planting dates. As would be expected, higher stands were achieved for the later planting date. Likewise, stands differed by variety, as well as seeding rate. Close attention should be paid to soil temperature, so that risk of seeding disease is avoided. Disease onset occurred in early July for the Apr and May planting dates, but was delayed in the June planted cotton. This was believed to be due to delayed flowering and boll fill. Disease assessments in mid-August revealed differences for all factors evaluated. Less disease was observed for the later planting date compared to the two earlier planting dates. Disease incidence was lowest for FM 2484B2F, but similar for DP 0912B2RF, FM 9180B2F and Phy 499WRF. Fiber quality parameters were similar for the two seeding rates; however, differences were observed among planting dates and varieties (Table 1). Both micronaire and staple length were reduced for the later planting date. Micronaire was higher and length lower for DP 0912B2RF and Phy 499WRF compared to FM 2484B2F and FM 9180B2F; however, all values were within the premium range. Growing conditions late in the season will affect fiber quality, thus limiting the applicability of later plantings. Similar trends for yields and return were observed between planting dates and varieties (Fig. 2). Yields averaged \$579, \$514 and \$369 ac⁻¹ for the early, mid and late planting dates, respectively. Yields and returns for FM 2484B2F and FM 9180B2F averaged 234 lb ac⁻¹ and \$144 ac⁻¹, respectively over DP 0912B2RF and Phy 499WRF. These results corroborate previous studies illustrating the importance of using partially resistant varieties. Lower seeding rates have been found to exacerbate Verticillium wilt losses; however, such a relationship was not observed in this study. Additional studies investigating the effect of planting date on disease development and fiber quality are required.