VARIETY RECOMMENDATIONS FOR COTTON DISEASES ON THE SOUTHERN HIGH PLAINS OF TEXAS

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Abstract

Cotton (*Gossypium hirsutum* L.) production encompasses a large geographic area in portions of west Texas. Variety selection is an important factor for optimizing production. Recommendations are initially based on yield potential, transgenic traits, fiber quality, maturity, and/or growth habit. Disease issues may influence variety selection on a field by field basis. Disease issues experienced in west Texas include the seedling disease complex, Bacterial blight, Root-knot nematodes, as well as Fusarium and Verticillium wilt. Resistance to seedling disease is not easily attainable due to the number of fungal pathogens involved (i.e. *Rhizoctonia solani, Pythium* spp., *Fusarium* spp., and *Thielaviopsis basicola*). Use of high quality, vigorous seed lots should be considered when choosing a variety. In addition, combinations of seed treatment fungicides can be used to minimize losses associated with this complex. Bacterial blight (caused by *Xanthomonas axonopodis* pv. *malvacearum*) is capable of infecting cotton plants during all stages of development. The pathogen can cause premature defoliation, which will reduce yield, as well as a boll rot that can negatively impact fiber quality. The reaction of cotton varieties to Bacterial blight can be determined in field studies where plants are inoculated with a virulent isolate of the pathogen. Reactions can be classified as susceptible, partially susceptible, partially resistant, or immune. The root-knot nematode (*Meloidogyne incognita*) is widely distributed throughout the region. Historically, there has been little resistance to this nematode; however, several varieties with partial resistance have recently been released. Fusarium and Verticillium wilt (caused by the soilborne fungi *Fusarium oxysporum* f. sp. *vasinfectum* (*Fov*) and *Verticillium dahliae*, respectively) are capable of causing substantial damage. Verticillium wilt is distributed throughout much of the region, while Fusarium wilt is most prevalent in sandier soils. Field trials are routinely conducted to evaluate the performance of commercially available varieties and advanced breeding lines in fields infested with *M. incognita*, *Fov* and/or *V. dahliae*. Disease assessments (such as % incidence), soil populations of the pathogen(s), yield, fiber quality, and economic data from such trials are summarized and made available to producers at local and regional production meetings, as well as on the internet through extension publications. Producers are encouraged to consider these results when selecting varieties for specific disease situations.