

▶ Cotton Disease Management

Presented by Dr. Craig Rothrock

Plant Pathologist, University of Arkansas

Cotton production can be complicated and yield potential limited by a number of plant diseases. The importance of diseases may shift with changes in the production system, environment, cultivar planted and pathogens present. This talk will focus on changes in the importance of selected diseases and their management. Seedling diseases remain an important constraint to obtaining an adequate and uniform stand of vigorous seedlings. The importance of minimizing seedling diseases has increased as seeding rates have decreased, increasing the importance of each seed planted. Seed treatment chemistries on seed continue to change, with significant improvements in disease control with the use of some of the newer chemistries. In addition, we now have a better understanding of the importance of different seedling pathogens and the role of the environment on seedling diseases and stand establishment. Bacterial blight became a significant problem in localized areas in the mid-South in the past two years. The occurrence of this disease has emphasized the importance of limiting the movement of the pathogen and the survival of the bacterium in residue in the field. Good levels of resistance are available for this pathogen and should be considered in selection of cultivars for these areas. Another area in cotton disease management receiving attention is the use of foliar fungicides to control a number of pathogens which can cause foliar diseases on cotton. The importance of these pathogens and the recommendations for the applications of foliar fungicides will be reviewed. The management of cotton diseases is a dynamic process and needs to be constantly reassessed as production systems change, new disease options become available, and the complex of pathogens present change. If not managed, diseases have the potential to become yield limiting, reducing the profitability of cotton.

▶ Texas A&M Cotton Improvement Lab Cotton Breeding Activities

Presented by Dr. Wayne Smith

Professor, TAMU

Public cotton breeding programs in Texas, and many other states, focus predominately on developing unique and improved parental germplasm for private plant breeders to utilize in cultivar development for Texas and U.S. producers. This freedom for public programs to concentrate on trait development combined with long term use of HVI, and now AFIS, for objective fiber quality data has led to the development and release of germplasm with properties beyond the norm for only a decade ago. Availability of AFIS analysis and improvements in genotyping, mapping, and marker availability should accelerate trait improvement and improved cultivars.

The Cotton Improvement Lab has released 124 germplasm lines and four conventional cultivars since 1986. These improved germplasm lines of upland cotton have been distributed to breeders in the private sector for incorporation into adapted cultivars. Germplasm lines have been released expressing resistance to silverleaf whitefly, *Bemisia tabaci*, Gennadius, cotton fleahopper, *Pseudatomoscelis seriatus*, Reuter, and root-knot nematode, *Meloidogyne incognita*. More recent efforts have centered on the development of unique fiber quality types that could help maintain upland cotton as a viable U.S. commodity in global markets.

Fifteen unique germplasm lines have been released since 2008 that represent UHML and Strength exceeding all non-acala upland cultivars currently grown in the United States. The Cotton Improvement Lab collaborated with Dr. Jim Starr in the release in 2011 of two lines combining resistance to both reniform and root-knot nematodes. In 2008, we released the first Extra Long Staple upland germplasm lines developed in the U.S. without introgression of alleles from pima. TAM B182-33 ELS, (2008) and TAM WB-33s (2010) have been spun into