LARGE-PLOT ON-FARM REPLICATED COTTON VARIETY TRIALS IN OKLAHOMA Randy Boman Shane Osborne Jerry Goodson Oklahoma State University Southwest Research and Extension Center Altus, OK

Abstract

Extension large-plot on-farm replicated cotton variety trials are an important component in modern germplasm evaluation. Producer-cooperator and industry support for these trials is substantial. These trials enable growers to observe the newest genetics and transgenic traits on their operations, under their management conditions and are planted and harvested with their equipment. Multiple sites have provided excellent information on which growers can base important variety selection decisions. The objective of this project was to evaluate multiple cotton varieties in producer-cooperator fields under irrigated and dryland management systems. Six large-plot trials were planted and harvested using grower equipment. Most trials were established under no-till or strip-till conditions. For the replicated agronomic cotton evaluation (RACE) trials, typically 6-8 entries (one entry per brand name, plus a grower choice option) were planted at each site, with 3 replicates used. The Cotton Incorporated Core program provided direct support for two trials, which contained up to 10 entries and 3 replicates. A West Texas Lee weigh wagon was utilized to capture plot weights. At harvest, grab samples were taken from each plot and ginned at the Texas A&M AgriLife Research and Extension Center at Lubbock. Fiber samples were submitted to the Texas Tech University Fiber and Biopolymer Research Institute for high volume instrument (HVI) analysis. Color and leaf grades were set to 21 and 2, respectively, for each sample. HVI data were used to compute the Commodity Credit Corporation (CCC) Loan value for each sample. Final plant heights and visual estimates of storm resistance were taken prior to harvest. Analysis of variance was performed using SAS Ver. 9.3. The data indicated that in spite of the continuing severe drought situation in far southwestern counties, irrigated cotton performed very well in 2013. This can be attributed to timely precipitation and cooler temperatures in July. Mean lint yields at all irrigated sites exceeded 3 bales/acre, and one site averaged above 4 bales/acre. The single dryland location averaged about 600 lbs/acre. Fiber quality among entries was generally good to excellent unless maturity or late season stress (on dryland) was encountered. The results from these trials indicate that variety selection in 2013 was very important at some sites. Differences in yields (lb/acre) between highest and lowest lint producers were 910, 236, 139, 245, and 525 among irrigated sites. This difference was 167 lb/acre for the dryland site.