EVALUATION OF COTTON VARIETY PERFORMANCE WITH CONSIDERATION TO VARIATIONS IN FIELD-BY-FIELD YIELD POTENTIAL

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Abstract

Proper cotton variety selection is extremely valuable for producers across the country. In Georgia, an on-farm, replicated variety trial program evaluated sets of top-performing varieties in numerous locations in 2011, 2012, and 2013. Our objective was to evaluate whether consistency of overall performance was similar to performance in subsets of locations separated by average yield. Varieties tested in two years were compared in this study, with seven common varieties in 2011 and 2012 across 34 locations and five common varieties in 2012 and 2013 across 31 locations. Performance, as frequency of a particular variety having yields ranked within the top two, was calculated across all locations and within subsets of locations with lower, average, and higher overall yields. In 2011 and 2012, PHY 499 WRF, DP 1137 B2RF and DP 1050 B2RF had yields ranked in the top two of seven in at least 44% of all locations, as other varieties (ST 5458 B2RF, FM 1740 B2RF, PHY 375 WRF and PHY 565 WRF) were ranked in the top two less than 19% of all locations. In 11 locations with yields lower than 1000 lbs/A, PHY 499 WRF was most consistent, with top two ranking frequency at 90%, as all other varieties were below 37%.

Varieties DP 1137 B2RF and DP 1050 B2RF had top two rankings in at least 50% of 12 locations where yields were between 1001 lbs/A and 1400 lbs/A, compared to other varieties below 34%. In 11 locations with yields greater than 1400 lbs/A, DP 1137 B2RF had a top two ranking at 82% which was at least 27% higher than all other varieties. In 2012 and 2013, DP 1252 B2RF, DP 1137 B2RF and DP 1050 B2RF ranked in the top two of five in at least 48% of all locations, as PHY 499 WRF and FM 1944 GLB2 had top two rankings at or below 23%. In seven locations with yields lower than 1150 lbs/A, PHY 499 WRF was most consistent with 71% top two rankings compared to other varieties at or below 43%. Varieties DP 1252 B2RF and DP 1050 B2RF were most consistent in 13 locations with yields between 1151 and 1400 lbs/A (at least 69%), and DP 1252 B2RF and DP 1137 B2RF were most consistent in 11 locations with yields were higher than 1400 lbs/A (at least 73%). This study provided information on performance of varieties over a large number of locations and indicated that overall performance may not be a predictor of performance in all situations. Moreover, this study indicates that growers should consider yield potential or yield expectation of a field or farm when making proper variety selection decisions.