ON-FARM VARIETY EVALUATIONS IN MISSISSIPPI

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Abstract

The decision making process regarding cotton varieties is often difficult and, in many cases, leaves growers wondering the remainder of the growing season if they made the correct selection decision. This process has become more complicated with the rapid turnover of varieties over the past several years. Nowadays, one to two years of variety testing information is common prior to a new variety release. Therefore, greater demand has been placed upon testing a variety in as many environments as possible as substitute for multiple years of data.

An experiment was conducted in seventeen locations in Mississippi to evaluate the performance of ten cotton varieties. Including, DP 1646 B2XF, PHY 444 WRF, NG 3522 B2XF, PHY 312 WRF, DP 1522 B2XF, DP 1518 B2XF, ST 6182GLT, ST 4946GLB2, DG 3385 B2XF, ST 4848GLT were planted in nine hill and eight Delta locations. All Delta locations were irrigated, whereas eight hill locations were dryland and one irrigated. Row length was 165 m to 695 m, plot were planted in a twelve row set to facilitate harvest. Seeds were treated by each respective manufacturer with insecticide + fungicide + nematicide. All in-season management decisions were at the discretion of the cooperating grower. Plots were harvested using a boll buggy or scale trailer equipped with load cells. Samples were collected at harvest and ginned at University of Missouri. Fiber quality was determined by HVI at the Texas Tech Fiber and Biopolymer Institute. Data were subjected to analysis of variance using PROC MIXED procedure in SAS v.9.4.

DP 1646 B2XF provided the greatest lint yield across all seventeen locations. DP 1646 B2XF, DP 1518 B2XF, and PHY 444 WRF were the top yielding varieties in irrigated and Delta locations. In addition, DP 1646 B2XF and PHY 444 WRF were the top yielding varieties over hill and dryland locations. PHY 444 WRF provided the greatest uniformity and fiber length. ST 6182GLT provided the greatest turnout among all varieties when data were pooled across all locations. Moreover, DP 1522 B2XF and PHY 444 WRF provided the highest and lowest micronaire values, respectively. ST 4946GLB2 significantly provided the greatest fiber strength, regardless of location. A number of excellent yielding varieties are available for growers in Mississippi. Nevertheless, growers are encouraged to consider not only the top yielding varieties, but also to consider performance stability across a range of environments and trait package for designed management.