

# **The Arizona Upland Cotton Advanced Strain Program**

## **Executive Summary**

### **#15-803AZ**

The Arizona Upland Cotton Advanced Strains Testing Program conducted through the University of Arizona, with support from participating seed companies and Cotton Incorporated, provides critical and unbiased information to the seed companies on the performance of varieties that will likely be grown in Arizona in the subsequent years. It also provides the Arizona cotton industry with an unbiased view of plant materials that are being considered for commercialization prior to their release into the public market place. This situation provides an opportunity to influence the decisions as to which varieties will be advanced for release, helping to ensure high yielding and high fiber quality varieties for the Arizona cotton growing industry.

A series of experiments were conducted at three locations in Arizona to evaluate approximately 35-40 commercial cotton strains and varieties during the 2015 cotton-growing season. These trials were conducted in Yuma, AZ (130 ft. above MSL); Maricopa, AZ (1170 ft. above MSL); and Safford, AZ (2900 ft. above MSL). Strains were planted in two row plots in Yuma and Maricopa and four row plots in Safford each extending 35 feet in length. Plots were arranged in a randomized complete block design with a minimum of four replications. Data collected included early season emergence and vigor data, limited plant growth and development data, yield and fiber quality data. Yield and fiber quality data was subjected to statistical analysis to test for differences among strains for these parameters. Overall yield levels for two of the three trials were very good with average yields of 1,475, 1,870, and 427 lbs lint/acre for Yuma, Maricopa, and Safford respectively. A significant hail storm passed through the Safford Valley on 11 August 2015 resulting in severe damage to the the plots at this location. Yield was reduced by around 1,200 lbs/acre. The data from this trial is still presented in this publication for documentation purposes but is not necessarily a fair evaluation of these entries. Fiber quality was lower at the Safford location in 2015 with average premium received for varieties tested of 1.4, 2.3, and -5.4 cents per pound for Yuma, Maricopa, and Safford respectively. Six of the varieties evaluated at the Yuma location produced fiber quality receiving a discount due primarily to high micronaire. All of the varieties at the Maricopa location produced fiber receiving a premium. Conversely, due to the hail damage, every entry at the Safford location produced fiber receiving a discount primarily due to low micronaire fiber color and leaf grade. Several new varieties released for the 2015 season along with some new varieties that will be available in 2016 performed very well in these trials, both in terms of lint yield and fiber quality. As of this writing, seven experimental varieties evaluated in 2015 will be advanced for commercial release in 2016. Of the seven new varieties, four are from Monsanto/Deltapine and three are from Bayer. These new offerings will provide additional options and choices for Arizona's cotton industry.

Several new varieties performed very well in 2015 evaluations which is a good indication that we continue to move in the right direction in terms of variety development with respect to both lint yield and fiber quality. Several of the entries that performed well in Arizona in 2013 and 2014 as experimental varieties were advanced in 2015 or will be advanced by the seed companies in 2016 into commercial production. We will continue with this evaluation of recently released and experimental varieties in Arizona in 2016 in an effort to find varieties that continue to raise the bar with respect to yield and fiber quality expectations for the Arizona cotton industry.