

**INTEGRATED APPROACH TO BREEDING FOR ENHANCED UTILIZATION OF WEST TEXAS
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The overall objective is to provide the textile industry with a raw material that processes more efficiently and makes better textile products (yarn and fabrics), this without compromising the cotton crop yield. The current focus of this study is to evaluate the effects of irrigation level and ginning method on the fiber quality of 4 experimental lines and two commercial check varieties. Lines developed in previous research will be used in this integrated approach to investigate fiber maturity. Demonstrating genetic/production/processing combinations that result in less fiber breakage and fewer imperfections will show the importance of fiber testing strategy in a breeding program. Research objectives and design are presented along with preliminary fiber data from 2012 and 2013.

Summary

The field test for 2012 was located in Lamesa, TX with an additional location being added for 2013 in Lubbock, TX. Each of the field tests was a randomized complete block design with three replications, six entries, and three irrigation levels (to obtain varying fiber maturity). Early season boll samples were harvested both years for fiber analysis using both HVI and AFIS. Both locations were stripper harvested in 2013, but only boll sample data is currently available. Preliminary data suggest that the irrigation level did not significantly affect fiber quality, but the fibers had not yet been subjected to mechanical harvest or aggressive ginning. A GxE analysis was run for each location looking at entry, irrigation, and entry x irrigation interactions for HVI properties. Entry x Irrigation was not significant for any of the properties tested. According to these data the initial differences in fiber properties remained, with no significant interaction caused by the irrigation treatments.

Conclusions

Few conclusions can be made based on the results currently available; however it is promising that the experimental lines are maintaining the level of fiber quality that was seen in previous studies. The current plan is to proceed in 2014 with a multi-location spinning study. There should be at least two different irrigation levels, two locations, two ginning treatments and the addition of spinning variables (card speed). Final plans for the 2014 test design and entry choices will not be made until all of the 2013 data are available.