

THE EFFECT OF ALTERNATIVE LINT CLEANING PROCESSES ON FIBER LENGTH UNIFORMITY**INDEX****Carlos B. Armijo****Derek P. Whitelock****Paul A. Funk****USDA-ARS S.W. Cotton Ginning Research Lab****Las Cruces, NM****Christopher D. Delhom****USDA-ARS Cotton Structure and Quality Research****New Orleans, LA****John D. Wanjura****Gregory A. Holt****Mathew G. Pelletier****USDA-ARS Cotton Production and Processing Research****Lubbock, TX****Ruixiu Sui****USDA-ARS Sustainable Water Management Research Unit****Stoneville, MS****Vikki B. Martin****Neha Kothari****Cotton Inc.****Cary, NC****Cody D. Blake****USDA-ARS Cotton Ginning Research Lab****Stoneville, MS****Abstract**

Providing the textile industry with a more uniform fiber to manufacture yarns more efficiently would expand market share and increase the demand for cotton products. The objective of this project was to develop ginning methods that improve fiber length uniformity index to levels that are compatible with the newer and more efficient spinning technologies. Older studies on conventional controlled-batt saw-type lint cleaning machines showed that the feed mechanism that places fiber on the cleaning cylinder damages fiber and reduces uniformity. A gin test was run to determine how HVI fiber length uniformity is affected by lint cleaners that use a non-conventional method of placing ginned fiber on the cleaning saw. The test included 1) conventional saw-type lint cleaners that retain the harmful feed bar (this is the most widely used lint cleaner), 2) newer commercially-available saw-type lint cleaners that alter the configuration of the damaging feed mechanism, and 3) experimental saw and roller gin lint cleaners that connect directly (i.e., coupled) to the gin stand and eliminate the feed mechanism altogether. Conventional roller ginning was also included in the test. The different lint cleaner types were tested in New Mexico, Mississippi, and Georgia. Four diverse cultivars from the Far West, Southwest, and Mid-South were used in the test. Cotton moisture content was different among the states where testing took place. Statistical analyses are not yet complete. Mean values of fiber length uniformity showed that the conventional and coupled roller gin lint cleaners, and the saw-type lint cleaner that uses a rolling feed bar and splined roller to remove the batt from the condenser drum and feed the batt directly onto the saw without changing direction had the most favorable uniformity. The conventional saw-type lint cleaners had the lowest length uniformity in the test. Future work includes retesting the experimental lint cleaners with more favorable test conditions.