

MULTIBAR SAWLESS LINT CLEANER: SECOND YEAR OF FIELD TESTING**G. A. Holt****J. D. Wanjura****M. G. Pelletier****USDA-ARS Cotton Production and Processing Research Unit****Lubbock, TX****J. W. Thomas****Lummus Corporation****Savannah, GA****E. M. Barnes****Cotton Incorporated****Cary, NC****R. V. Baker****USDA-ARS – Retired****Lubbock, TX****G. Gamble****USDA-ARS, Cotton Quality Research Station****Clemson, SC****Abstract**

In an effort to improve overall lint cleaning efficiency, a prototype spiked-tooth lint cleaner, the Multibar Sawless Lint Cleaner (MBSLC), was designed to replace the first stage lint cleaning in a cotton gin. Previous studies demonstrated minimization of lint waste as well as improvements in some fiber properties compared to a conventional saw-type lint cleaner of the same width. The first field study of the MBSLC was conducted in a commercial cotton gin during the 2010-11 ginning season where it was placed as the first stage lint cleaner behind a Lummus 158 gin stand, ginning at a rate of 7 to 8 bales/h. Based on observations made during the first year of commercial operation, minor adjustments were made to the MBSLC for the second year of commercial testing, this time behind a Lummus 170 gin stand. Data was collected for the entire season on: seed cotton moisture (feeder apron), fractionation data (module and feeder apron), fiber properties (HVI and AFIS) after one- and two-stages of lint cleaning, mote weight (early season test only), ginning rates, and Shirley analysis of motes from each stage of lint cleaning.

Also conducted in the second year was a focused set of studies consisting of two test scenarios: 1) Early season test - ginning six modules using only one gin stand at a time and 2) Late season test – ginning multiple modules (a block) from four different growers. The early season testing consisted of selectively ginning six modules randomly on either the gin stand followed by a conventional saw-type lint cleaner or the gin stand followed by the MBSLC. The varieties and the harvesting method for the early season test modules were: 1) DP 0924, Stripped - Non Field Cleaned (NFC); 2) ST 5458, Stripped – NFC; 3) DP 1044, Stripped – NFC; 4) FM 9063, Stripped – NFC; 5) DP 164, Stripped - NFC; and 6) NexGen 3348, Picked. The late season test consisted of collecting samples while all gin stands were operational (i.e. normal ginning). The varieties harvesting method for the late season test block of growers modules were: 1) DP 1032, Stripped - Field Cleaned (FC); 2) FM 9058, Stripped – NFC; 3) FM 9170, Stripped – FC; 4) NexGen 3348, Stripped – FC.

Data across all varieties and from both test indicated the MBSLC performed well as a first stage lint cleaner in a two-stage lint cleaning operation. Advantages consisted of: 1) less lint waste, longer length, higher bale value, and fewer neps/g. Disadvantages consisted of: 1) higher leaf, 2) more visible foreign matter, and less combing of the lint that could potentially result in a slight prep call if use as a single stage lint cleaner. The MBSLC has the potential, as a first stage lint cleaner in a two stage lint cleaning system, to increase the amount of lint going to the producer's bale without negative monetary impact on fiber quality.