

STABILITY OF THE HIGH VOLUME INSTRUMENT (HVI) ELONGATION MEASUREMENT**Kolby M. McCormick****Eric F Hequet****Brendan Kelly****Addissu G. Ayele****Suman Lamichhane****Texas Tech University****Lubbock, TX****Abstract**

Cotton fiber elongation is an important fiber property in spinning and weaving. Bales that exhibit higher fiber elongation better tolerate the stresses placed on cotton fibers throughout the spinning and weaving processes. Currently the Stelometer, a reference method, can be used to determine the elongation of cotton fibers. The use of the Stelometer is very tedious and time consuming. As an alternative to the Stelometer, the High Volume Instrument (HVI) measures the elongation of a bundle of fibers. The disadvantage of using the HVI for the measurement of fiber elongation is that it currently lacks a calibration procedure and is therefore not used for elongation measurement. In an effort to calibrate the elongation measurement given by HVI, it was first necessary to look at the stability of the HVI elongation measurements. The stability of the measurements was done in two stages: the short-term stability, a time period less than two days, and the long-term stability, a time period over thirty working days. Two bales of cotton were selected based on their reported HVI elongation that was later confirmed using the Stelometer, one bale is considered low elongation and the other bale is considered high elongation. The bales were run through our short staple opening line to blend the samples prior to testing and then placed in a conditioned laboratory. For the short-term study, ten-subsamples were taken from each of the bales and tested on three separate HVI lines with 4 replications for micronaire, 10 replications for length/strength, and 4 replications for color. For the long-term study, the bulk samples were used for testing over the thirty day period using the same protocol on three HVI lines every day. The results obtained show that, for both the short-term and the long-term stability study, the HVI elongation measurement is stable.