EVALUATION OF THE STABILITY OF HVI FIBROGRAM MEASUREMENTS

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Abstract

Cotton has been used extensively by the textile industry as raw material to produce soft, breathable and highly valued products. Fiber length distribution is an important parameter throughout the many processing steps found in spinning mills. The High Volume Instrument (HVI) is capable of outputting a graphic representation of length distribution of cotton fibers called a fibrogram. This graph holds useful information to predict yarn quality better than the current standard measurements. However, only two values along the length distribution are currently used in the marketing system and these values are highly correlated and characterize only the longer fibers. Recent research finding using the total information present in the fibrogram suggests its importance to the cotton industry. The goal of this research is to assess the stability of the fibrogram measurements for its potential use in future research projects. A set of six samples representing a wide range of variation was selected for this study. Measurements were taken three to five times daily over two weeks for short-term stability and twice a week for a total of eight weeks for long-term stability assessments using one HVI. Simple linear regressions, descriptive statistics, and t-tests are used as tools for analysis on ten selected span lengths. The results revealed that the extracted length measurements from the HVI fibrogram are stable over both the short-term and long-term. To improve the future use of the fibrogram, a calibration procedure will be explored.