

**EXTRACTING COTTON FIBER MATURITY AND FINENESS PARAMETERS FROM THE AFIS
LENGTH DISTRIBUTION****Brendan Kelly****Eric Hequet****Texas Tech University****Lubbock, TX****Abstract**

Cotton fiber length is an important fiber quality attribute for explaining variation in yarn quality. However, cotton fiber length is not set within a field. Harvesting, ginning, and cleaning alter the within sample distribution of cotton fiber length by breaking fibers. The complete within sample distribution of fiber length is encoded with information about fiber quality and processing history. Typical fiber length analysis is based on a single fiber length parameter, such as upper half mean length, rather than the complete within sample distribution. However, the complete within sample distribution has an impact on processing performance and end-product quality. An analysis based on a single fiber length parameter, or even a couple of fiber length parameters, cannot account for the complete variation in fiber length within a bale. In this presentation, a set of bales is selected that exhibit a wide range in within sample fiber length, along with a wide range of fiber maturity and fineness. This set of bales is used to develop a method for extracting cotton fiber maturity and fineness parameters from the AFIS length distribution.