THE PURSUIT OF QUALITY LENGTH MEASUREMENTS

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Abstract

A description is given of the various approaches followed at the Cotton Quality Research Station, Clemson for measuring cotton fiber length characteristics with special emphasis on total length distribution and short fiber content. The methods discussed include: high volume instrumentation (HVI), the advanced fiber information system (AFIS), Suter-Webb array analysis, and the Peyer Al-101 Almeter. Definitions and examples are given for the various length parameters measured including: Staple Length, Mean Length, Upper Quartile Length, Median Length, Upper Half Mean Length, Uniformity Ratio, and Short Fiber Content. Correlation results (Pearson's r-values) are given below for short fiber relationships between the various instruments.

	HVI_SFI	**AFIS_SFC**	**SW_SFC**
AFIS_SFC	0.930		
SW_SFC	0.952	0.945	
Peyer_SF	0.956	0.975	0.980

Where:

HVI_SFI = HVI Short Fiber Index (%)
AFIS_SFC = AFIS Short Fiber Content (% by weight)
SW_SFC = Suter-Webb Short Fiber Content (% by weight)
Peyer_SF = Peyer Short Fiber Content (% by weight)

These results indicate a good agreement between all four methods for measuring short fiber content. It is noteworthy that the best agreements are between the Peyer and Suter-Webb and AFIS.