

INVESTIGATING THE RELATIONSHIP BETWEEN COTTON FIBER AND YARN QUALITY

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Abstract

Cotton fiber is sold on international markets as a raw material in the production of spun yarns. Natural variability in fiber quality within bales of cotton fiber can impact yarn quality. Spinning mills purchase bales of cotton fiber that meet their production goals. Developing varieties with a fiber quality profile desirable on international spinning markets is not trivial. Because spinning trials are impractical in a breeding setting, breeders make selections based on fiber quality parameters. This research presents an investigation into the relationship between cotton fiber quality and yarn quality. Bales representing a wide range in fiber quality were selected from across the cotton belt. The fiber quality of each bale was evaluated on both HVI and AFIS. The remaining lint from each bale was used to produce ring spun yarns. The yarn produced from each bale was evaluated for tensile properties and imperfections. Generalized linear models were used to investigate the multivariate fiber and yarn quality complex. A method for investigating the relationship between fiber quality parameters and yarn quality is presented here.