IMPORTANCE OF PRODUCING MATURE COTTON FIBERS: PART I

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Abstract

There is a need to understand how the cotton plant growth interacts with the environment to affect fiber quality traits. Of special interest is the evaluation and development of means to optimize secondary wall deposition (fiber maturity). A better understanding of the genetic and environment components of the fiber quality variations is especially important at this time because the shrinking U.S. textile manufacturing industry dictates an increased reliance on the international market for selling U.S. cotton. Among fiber properties, fiber maturity is paramount. We know that fine and mature fibers make it possible to spin a finer yarn. But maturity and fineness of cotton fibers are also essential qualitative characteristics if one wants to better understand the facility of rupture of fibers when they are subjected to stress. It is intuitively obvious to hypothesize that immature fibers (having a thin, poorly developed secondary wall) will be fragile. Thus, they are likely to break during multiple mechanical stresses involved in transforming the fibers from the field to the yarn. These generate short fibers and neps (entanglement of fibers). An increase in the short fiber content will result in yarn defects and decreased productivity. Neps and short fiber content are two extremely important fiber quality attributes on the export markets. This paper will attempt to describe the importance of cotton fiber maturity.

A complete manuscript will be submitted to Textile Research Journal.