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Effect of conventional and organic practices on cotton quality parameters compared across 15 years

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Abstract

Cotton is the most widely used fibre crop and quality parameters such as fibre length are crucial for successful processing. These quality parameters can be influenced by a variety of factors, such as nutrient supply to the plant and varieties used. Establishing a correlation between these influential factors and the quality parameters of cotton can help improve the production process and enable farmers to earn more income from their cotton production.

This study aimed to assess product quality data from a long-term farming systems comparison trial under semi-arid conditions in central India in regard to different management regimes. The trial has been running since 2007, comparing biodynamic, organic, and conventional with GM and without GM cotton management. All treatments include a two-year crop rotation which is first-year cotton-wheat/chickpea and second-year soybean-wheat. To assess fibre quality, we took sampled plants for ginning and subsequent lab testing for quality parameters like fibre staple length, fibre fineness, maturity index, micronaire etc.

Results show that no significant difference in quality parameters like fibre length, fibre fineness, short fibre index, maturity index in both the systems even less percentage of nitrogen was provided in an organic system.

The results considering which factors are the most important and which are of lesser importance provide some insight into changes in management effect on lint yield and fibre quality and provide some basis for future investment in research. This bears relevance to stakeholders in the cotton industry including both Indian and international cotton merchants, ginners, spinners, textile mills and commodity exchange.

Keywords: Biodynamic, conventional, cotton, crop rotation, organic, quality parameter, system

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