

1. Introduction

The cotton fibre is unique in generating a host of products that sustain and make life for humans more comfortable and aesthetically appealing. Australian cotton is viewed worldwide as an excellent fibre. It is usually purchased with the intention of producing high quality combed, ring-spun yarns for use in the woven and knitted apparel sector primarily in the Asia-Pacific region. China is becoming an increasingly significant market. Australian cotton is purchased for a premium as it meets many of the spinner's requirements on the basis of quality and consistency.

Fibre quality is affected by a large number of interacting factors; variety, seasonal conditions, crop and harvest management, and ginning. These can all determine whether or not the spinner's requirements are met. While some of these factors cannot be controlled, there are many that can. Through better understanding of the nature of fibre and the factors that affect its quality, improved varieties, management for each region's climate, and processing to minimise damage to fibre are all opportunities to improve the quality of fibre delivered to mills.



The task for industry is to optimise fibre quality in all steps from strategic farm plans, variety choice, crop management, harvesting, and ginning. We have termed this 'Integrated Fibre Management' (IFM) to emphasize the importance of a balanced and complimentary approach to managing fibre quality across the whole production chain (see Figure 1.1). The industry's BMP program seeks to improve quality by providing guidance and assurances in production, classing and ginning. Along with BMP, new technologies, instruments, research and extension programs and communication will all help together to facilitate IFM.

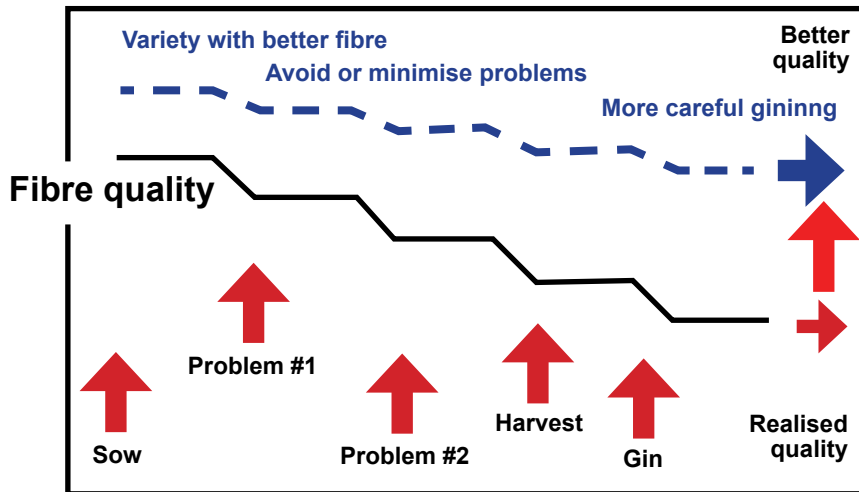


Figure 1.1: Concept of 'Integrated Fibre Management' (IFM) to improve industry fibre quality. The aim is to raise quality by minimising the damage to fibre quality along the whole production chain. Note in comparing the dotted line with the solid line how starting with better fibre properties and avoiding or minimising problems through the production and processing chain can substantially improve fibre quality outcomes.

FIBREpak contains information for managing fibre quality at every step, from pre-planting to processing. The aim is to provide all those involved in producing and delivering fibre — the grower, manager, agronomist, consultant, ginner, classer, merchant, shipper and retailer — with:

- Knowledge of what aspects of fibre quality they can influence;
- Options for managing those aspects;
- An understanding of the needs and constraints of the other participants in the fibre supply chain.

Coarse (high Micronaire) fibre, high nep counts and excessive short fibre content are aspects of Australian cotton that spinners would like to see improved. Some key fibre quality challenges addressed by FIBREpak include:

- Maintaining and improving fibre length through better variety choice; management during hot, dry seasons; and preservation through harvest and ginning.
- Producing fibre within the optimum Micronaire range through hot sunny seasons; high yield management strategies; and appropriate defoliation and harvest preparation.
- Reducing nep content through effective defoliation and harvest preparation; better management of fibre moisture in the field and through the gin; and reduced requirement for cleaning in the gin.
- Minimising contamination found in bales (Figure 1.2).
- Ensuring fibre quality uniformity and consistency within and between years.



Figure 1.2: Some spinning mills invest significantly to remove contamination. This shows manual decontaminating cotton before processing at an Indian Spinning Mill.
(Photo: Rene Van der Sluijs, CSIRO).

Further Reading

Gordon SG, van der Sluijs MHJ, Prins MW (2004) Quality Issues for Australian Cotton from a Mill Perspective (Australian Cotton Cooperative Research Centre, Narrabri, NSW).

Constable GA, Bange MP (2007) Producing and preserving fiber quality: from the seed to the bale. In Proc. 4th World Cotton Conf. (Lubbock USA).

Van der Sluijs MHJ (2009) Contamination and its significance to the Australian Cotton Industry (Cotton Catchment Communities Cooperative Research Centre, Narrabri, NSW).