



Cavitoma in Cotton

What is Cavitoma?

By definition, a series of changes in cotton fibre involving loss of strength resulting from activities of microorganisms is called Cavitoma. It is a rare phenomenon which is not experienced often locally, however there have been several incidents reported in Australian cotton growing valleys in 2023. All cottons contain microorganisms; but their presence does not cause any adverse effects on fibre quality under normal growing and storage conditions. However, conditions of high temperature and moisture can result in biologically damaged cotton – referred to as Cavitoma.

What are the effects of Cavitoma?

The damage can result in substantially lower fibre strength ($\leq 24 \text{ g tex}^{-1}$), lower fibre length (34-35 32nds) and length uniformity ($\leq 75 \text{ UI}\%$), increased short fibre content ($\geq 10\%$), reduced micronaire and brightness ($\leq 78 \text{ Rd}$) and increased greyness. All these factors can result in decreased lint turn out %, reduced processing performance during ginning and spinning, increased processing waste,

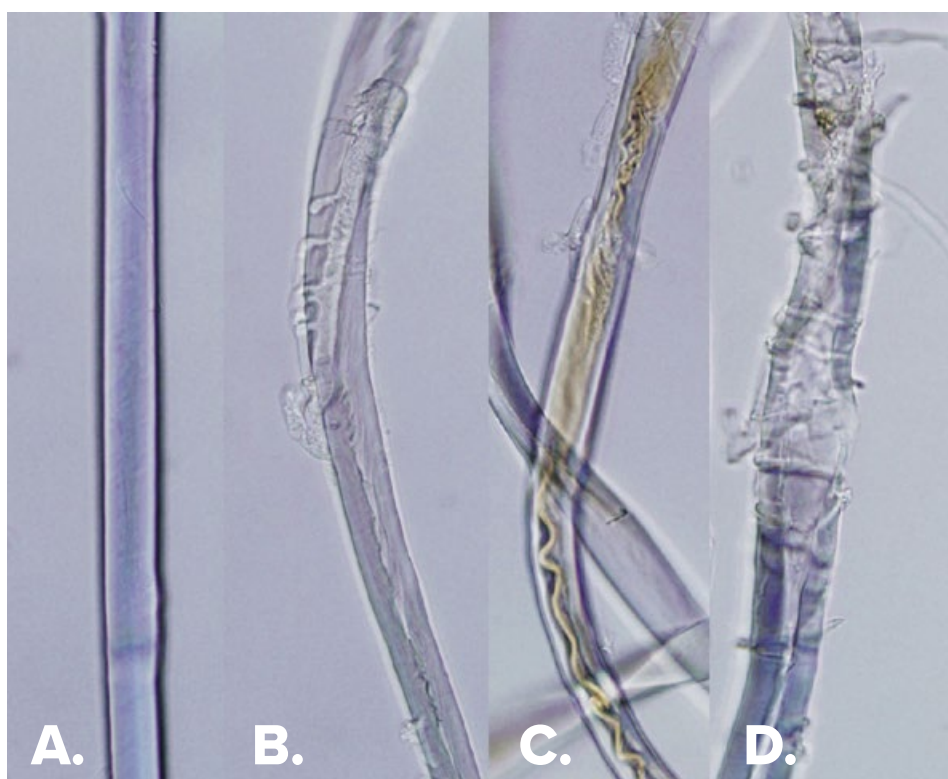


IMAGE COURTESY STEVE ALLEN CSD AND FIBREPAK 2018

Figure 1. Examples of fungi affecting fibre. A.- No microbial damage; B. Fungi on outside; C Fungi on inside; D. Fungi all over.

higher end breakage in spinning, lower yarn strength and uneven dyeing of the fabric produced.

What are some of the causes of Cavitoma?

Harvesting at $\geq 12\%$ moisture, the prolonged storage of round modules and conditions such as rain, dew, or fog lasting over extended periods of time accompanied by warm weather will promote the growth of

micro-organisms. These micro-organisms are always present, and all that is required to damage cotton are the right conditions for their growth. After growth has started, fungi are most predominant, Bacteria follow, and these two types of organisms together possess the enzyme system that can break down cellulose and thus weaken the fibre. See Figure 1 for examples of fungi affecting fibre.