

Plain English summary

This project aims to provide fibre quality assessments for the Australian cotton breeding program and related projects by the operation and maintenance of a fibre testing laboratory at ACRI. The project supports the maintenance and operation of the Spinlab HVI (length/strength/micronaire) and the Shirley FMT 3 (maturity/fineness) equipment.

The significance and importance of the facility in assisting breeders is demonstrated by the progressive improvement in quality of recent CSIRO commercial releases. The objective each year is to provide length, strength, fineness and maturity estimates of cotton breeding and related research samples as rapidly and accurately as possible. In excess of 40,000 breeding samples have been tested in the fibre testing laboratory each season. Accuracy of the laboratory is very good as determined by the local testing comparisons.

A statistical analysis of fibre samples from the last four years has identified some relationships between different fibre properties. Micronaire was very closely related to fibre maturity and fineness. Neps were most closely associated with fibre maturity, fibre length uniformity and to a lesser extent with fibre fineness. These relationships will assist with setting critical values for each test when screening new varieties in the breeding program.

It is recommended a new instrument be purchased to replace the ageing FMT.