# 1. Plain English Summary

The commonly used Micronaire value for cotton is related to both fibre fineness and maturity. There is a need for a new measurement technique to separate these. This is of particular importance to the Australian industry where varieties of fine mature cotton have the potential to be wrongfully discounted commercially by misinterpreting a low Micronaire value as indicating immaturity in a coarser fibre.

Recently CSIRO Division of Wool Technology has developed a new instrument for measuring wool fibre diameter, the Sirolan-Laserscan. It is now in commercial use world-wide.

Recent preliminary studies using wool have demonstrated that the Sirolan-Laserscan can be used in a new mode of operation to give independently both the average fineness of a sample as well as information on the fibre cross sectional shape i.e. fibre maturity.

This preliminary project was designed to extend these studies to see if the Sirolan-Laserscan, in this new mode of operation, can be applied to cotton.

Fourteen cotton samples whose fineness and maturity values had been measured in previous work sponsored by CRDC formed a useful set to evaluate the approach. These samples covered a broad range of both fineness and maturity values.

A good correlation was found between the average fibre fineness measured by the Laserscan and the previously reported values.

These encouraging preliminary results indicate that, in this novel mode of operation, the Sirolan-Laserscan can be used to determine the average fibre linear density or fineness of cotton samples.

Following this successful preliminary study the next stage will be to examine possibilities of simultaneously measuring fibre maturity using the Sirolan-Laserscan and the scope for scaling up the technique from the laboratory to become a useful commercial measurement technique.