

REPORTS

Part 1 - Summary Details

Please use your TAB key to complete Parts 1 & 2.

CRDC Project Number: **US63C**

Annual Report: ☐ Due 30-September

Progress Report: ☐ Due 31-January

Final Report: ☒ Due 30-September

(or within 3 months of completion of project)

Project Title: Capital Item- FIA 5000 Automatic flow analyser for anions

Project Commencement Date: 1/07/02 **Project Completion Date:** 1/07/03

Research Program: 2 Integrated Natural Resource Management

Part 2 – Contact Details

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Part 3.3 – Final Reports

An automatic flow analyser was purchased to analyse nitrate, phosphate, chloride and sulfate. The monies for the instrument were a combination of CRDC, Australian Cotton CRC and University of Sydney funding.

Many of the cotton resourced projects involve the analysis of anions such as Nitrate (NO_3^-), Ammonium (NH_4^+), Phosphate (PO_4^{3-}), Chloride (Cl^-) and Sulfate (SO_4^{2-}) in soil extractions or water samples. This is particular true for all projects interested in soil fertility, soil salinity and water quality. The analysis of these anions is cumbersome, and involves several wet chemistry steps. The current procedure is to outsource the nitrate and Phosphate analysis. The analyses from these outsourcing companies however are mainly aimed at soil fertility parameters. The instruments used for the automated analysis, the flow injection analysers, are not only capable of measuring nitrate and phosphate but can in fact analyse several anions in solution. In particular we are interested in analysing chloride and sulfate, since these anions are most important in terms of soil salinity and water quality.

The instrument has been purchased last March and has since been going through an installation and testing phase. The instrument is currently capable of analysing up to 100 samples per hour of nitrate, ammonium, phosphate and chloride in soil and plant extracts and waters. We are currently at the end of the testing phase and are drawing up a plan for operation and costing of sample analysis. This costing will be based solely on technical assistance, chemical costs and replacement of instrument parts. The analysis of sulphate would still have to be developed and therefore will take some time.

The intended use of the instrument is to support cotton funded and other projects within the University of Sydney. In addition we will be able to analyse samples for researchers on cotton funded projects outside the University of Sydney on a cost recovery basis.

Part 4 – Final Report Executive Summary

An automatic flow analyser for anions was purchased using a combination of CRDC, Australian Cotton CRC and University of Sydney Sesqui funding. The instrument is currently in a testing phase and will be operational shortly. The instrument is capable of analysing nitrate, ammonium, phosphate and chloride in soil and plant extracts and waters. The instrument is particular well-suited for the rapid analysis of large numbers of samples.

Sample analysis using the instrument will be available to researchers on cotton funded projects based on cost recovery.