



MAJOR CAPITAL ITEM REPORT 2015

Part 1 - Summary Details

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

CRDC Project Number: AOTG1401C

Project Title: Capital Item: “Semi-auto GHG chamber system”

Project Commencement Date: 01/07/2013 Project Completion Date: 30/06/2015

CRDC Research Program: 1 Farmers

Part 2 – Contact Details

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Signature of Research Provider Representative: _____

Date Submitted: _____

2/11/15

Part 2 – Capital Item Final Report

1. Background

This Action on the Ground project aimed to develop and demonstrate management systems to improve N management in cotton, and reduce nitrous oxide emissions whilst maintaining or improving soil C. In order to be able to interpret results, records of local weather conditions are essential. Three automated weather stations were required to service the three key sites at Emerald (Qld) and Moree and Gunnedah (NSW).

To assist meet the sampling demands of the project, semi-automated greenhouse gas samplers were also purchased for each site. These units allow sampling to continue at critical periods such as after significant rainfall events, where human access to field sites is difficult, if not dangerous.

2. How does the Capital Item meet expectations and specifications?

Although some teething problems were encountered with both sets of equipment, with support from the suppliers, both are performing to the requirements of the project.

3. How is the Capital Item being utilised to support your research or intended application?

A weather station and a semi-automated GHG sampler have been installed at each of the three core sites. The weather records are able to be downloaded remotely, and up to date records are providing guidance on the timing of rainfall-driven sampling events.

The semiautomatic samplers are providing additional sampling capacity, and will be most useful under wet conditions when access to the field sites is limited.

4. Describe the benefits of this Capital Item in supporting your research?

Accurate weather records are essential in the interpretation of greenhouse gas data. The weather stations fill this need. Additionally, their dial up access allows assessment of current field conditions, guiding sampling strategies.

The semi-automatic GHG samplers ease the sampling burden on the project team, and will continue sampling even when access to the field is not possible due to rainfall.

5. Are there any Extension/Communications opportunities?

These capital items directly support research with communication opportunities.

Part 3 – Capital Item Final Report Executive Summary

(This will be included on CRDC's website of final reports.)

Capital expenditure under the Australian Government, Department of Agriculture, Action on the Ground project “Determining optimum N strategies for abatement of emissions for different irrigated cotton systems” resulted in the procurement of automated weather stations and semi-automated greenhouse gas sampling systems to service the three core sites of the project.

Soil moisture is a key driver in the generation of nitrous oxide, a potent greenhouse gas released during some stages of nitrogen cycling. This equipment has allowed the remote monitoring of weather conditions to guide project staff in sampling strategies. Additionally, continued

sampling for greenhouse gases during very wet weather is possible utilising the semi-automated systems. It is these very wet conditions that are critical in determining greenhouse gas emissions, yet are prohibitive of safe access by sampling teams.

(Please email to research@crdc.com.au with a completed financial statement within 40 Business days from purchase of Capital Item.)