

Case Study

O'Connell and Surrounds Improved Systems

Improving the Accuracy and Efficiency of Chemical Applications

Case Study developed by Che Trendell, Project Officer - Farmacist. June 2023

Background

John Casey is a third-generation cattle and sugarcane producer who, along with his wife Maria, took over management of the family farm in 2000. Together they manage 130 hectares on the banks of the O'Connell River, south of Proserpine.

John joined the Reef Trust VII-funded OASIS project at the end of 2021 with the goal of increasing the effectiveness and efficiency of his chemical applications.

Through the project, John was provided with agronomic support by Farmacist to develop a Chemical Management Plan. This included a detailed farm chemical application plan which lists appropriate products and application rates based on soil type, weeds to be controlled and crop growth stage. It also provides alternative products to use in order to achieve reductions in Risk Units*.

"I find the Chemical Management Plan folder really useful and I have referred back to it quite often"

~John Casey

Funding to improve equipment performance

John runs a 6-row spray boom and, through project funding, he purchased a new tank with section and flow rate controllers. The flow rate controller will control the rate at which herbicide is applied to the crop.

The desired application volume is entered and the controller will alter pressure to provide the necessary flow. It is particularly useful at the beginning and end of rows to ensure accurate pressure for the nozzles to create the required droplet size and flow rate, leading to improved weed coverage.

QUICK FACTS

Grower: John and Maria Casey

Location: O'Connell River

Area: 160ha

Project Focus: Chemical Management

The Reef Trust VII - O'Connell and Proserpine Basins Water Quality Project is funded by the Australian Governments Reef Trust and administered through Reef Catchments Pty Ltd. The project aims to improve water quality entering the Great Barrier Reef from broad-scale land use, to increase resilience and health of the Great Barrier Reef and to increase awareness and adoption of land management practices that improve and protect the conditions of soil, biodiversity and vegetation.



Figure 1: Through his involvement in the OASIS project, John has improved his farm chemical applications. Photo by Che Trendell, Farmacist.



“Our old system would stay at 2 bar pressure. Using the new system, we can better match flow rate and pressure for better results”

~John Casey

Improved chemical application efficiencies

The section control system allows John to turn off sections of the boom which is useful on tapered rows, or edges of blocks so each section can be switched off when it is outside of the cane rows. The flow rate controller will adjust pressures in other sections to maintain the same flow rate.

John also purchased a GPS speed sensor which is fitted to the tank rather than the tractor wheel. The unit does not control the speed of travel, but it does provide accurate speed measurements to assist with calibration and maintaining flow rate.

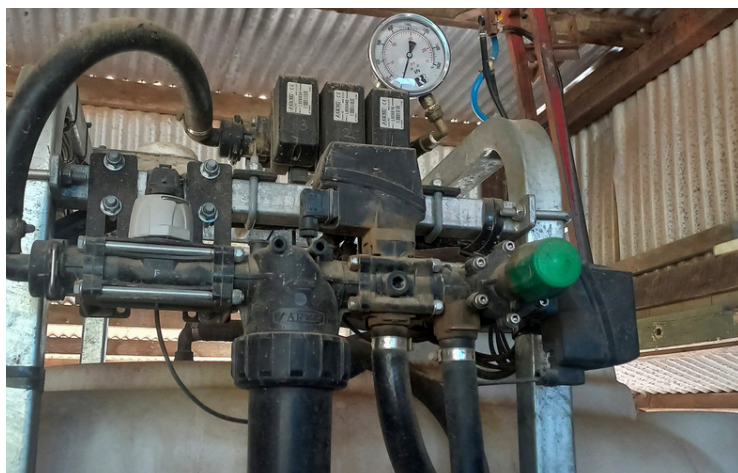


Figure 2: Through OASIS project funding a flow rate controller and section controller were installed on the Casey's spray rig. Photo by Che Trendell, Farmacist.

“I'm getting a better chemical spray and it's a lot more accurate so I know I'm putting on the right rate”

~John Casey



Figure 3: The new spray tank in conjunction with the flow rate and section controller have improved the efficiency of chemical applications. Photo by Che Trendell, Farmacist.

A Complete System

Prior to using the new spray system, it was necessary to enter different settings for each nozzle set-up. John's spray boom was fitted with multi-nozzle bodies with three different sets of nozzles targeting different spray application types.

John can now select the right settings for the nozzles he is using and the system applies the flow rate needed for those nozzles to achieve the correct pressure and droplet size.



Figure 4: Utilising new technology made available through OASIS project funding has greatly improved chemical efficacy. Photo by Che Trendell, Farmacist.

* Risk Units are allocated to agricultural chemicals based on their active ingredients, Relative Mobility (potential to move from farmland to waterways in runoff), and Relative Measure of Effect (potential to exert hazardous effects on aquatic organisms).

