



The Game Changer and Project Catalyst sugar innovation programs bring together around 140 sugarcane farmers from Australia's most productive sugar growing regions. The Game Changer program is a part of the Australia Government Reef Programme and facilitates on-farm demonstrations and trials of practices with the potential to cut pollutant loads to the Great Barrier Reef. The program actively seeks to more widely extend the uptake and adoption of agricultural innovation validated through Project Catalyst. Growers are supported to implement improved operations on a farm block, gaining greater understanding of practice change in a practical sense, while also learning more about best possible economic efficiencies. The Coca-Cola Foundation, the Australian Government, Bayer and Syngenta are among a wide group of stakeholders supporting Project Catalyst. Combined, these two programs drive true innovation by working with growers to modify farm management for positive water quality and economic outcomes.

With thanks to this program's valued 2014-15 partners and contributors.

Landholders, The Coca Cola Foundation, WWF-Australia, Bayer CropScience, Syngenta, Case IH, Netajim, Wilmar, Suncorp, Inkerman Lime & Gypsum, Farmacist, Catchment Solutions, QDAFF, Reef Catchments, NQ Dry Tropics and Terrain NRM, with support from the Australian Government.

PROGRAM REPORT 2014-15

Game Changer trials have been implemented during 2014-15 across the three NRM regions of Reef Catchments (Mackay Whitsunday Isaac), North Queensland Dry Tropics, and Terrain Wet Tropics. There are currently 67 trials in progress.

The growers and their support networks are using the sugarcane ABCD best practice framework as the guideline for trials. The aim is to change C and D farm practices (poor or potentially degrading and common practices) into A and B (industry endorsed best management to aspirational and innovative practices), with a legacy after the project is completed. Participating landholders are receiving agronomic advice and planning support to assist them to improve not only the trial sites but also their overall farm management. Improving the agronomy reduces variations across trial sites which is expected to improve the statistical comparison between treatments. If the landholder is happy with the results, it is anticipated this planning support will result in spreading the trialled activity across each farm. Through group extension activities it is also anticipated, once the trials have proven to be economically and environmentally successful, that other growers will adopt the practices following the leadership of the project's growers.

Promotion of the project has been undertaken at conferences, forums and field days, media (print, radio and television) and via social media channels. The grower network has been strengthened and communication between growers of other regions is common.

The 67 established trials have a range of investigations. These include:

1/ Variable rate nutrient application guided by soil mapping within a paddock to determine changes in soil types. This will increase fertiliser use efficiency (including nitrogen) and is expected to lead to reduced nutrient runoff into waterways, without affecting crop yield. In some cases crop yield may increase.

2/ Using soil mapping, residual herbicides such as diuron are applied at a variable rate across a paddock according to soil texture. This approach capitalises on natural benefits of soil type

- for example, light soil could use as little as one third the rate of herbicides required for heavier soils. The default practice of using high application rates of residual herbicides per hectare results in the surplus running off into waterways. The objective of these series of trials is to demonstrate that varying the application rate of residual herbicides, using soil maps, demonstrates a reduced rate of herbicide per hectare and less runoff. This reduction in rate of fertiliser and herbicide application will result in lower costs over the long-term, and more efficient use of nutrients and chemicals. In order to achieve this, the landholder will need to have soil mapping completed to guide the use of variable rate application. This is something currently being supported and funded under the Reef Programme free of charge for participating growers.

3/ Using controlled release fertiliser it is expected that an increase in nitrogen use efficiency will be demonstrated, allowing less nitrogen per hectare to be applied for the same average yield. It is also expected that improved consumption of nitrogen will translate into a higher yield using the same current rates of nitrogen application. The benefit to the environment will be less nitrogen runoff.

4/ A series of trials investigating the variation of fertiliser rates when using soil ameliorants, accounting for their nutrient content and speed of nutrient release. Recycled organic and mill filter press products such as mill mud, mill ash and compost will be used. Trials are expected to demonstrate and quantify the benefits of soil ameliorant placement and associated reduction of fertiliser input. The environmental benefit will be less nutrient runoff, particularly nitrogen.

5/ A series of trials investigating and demonstrating potential soil health improvement using different strategies of crop husbandry.

6/ Variable rate nutrient application due to block yield potential guided by age of the crop ratoon. Sugarcane is a perennial crop. A crop cycle is defined by the time between the replanting of sugarcane. Crop cycles can commonly vary from 3 years to 10 years. This series of trials aims to demonstrate that reducing fertiliser inputs as the crop ages in years will not alter the yield outcome. It is expected if adopted that this will reduce

Funding acknowledgement: This project is a Reef Catchments (Mackay Whitsunday Isaac) initiative, through funding from diverse stakeholders outlined in partners and contributors above.

fertiliser cost and reduce runoff of nutrients, particularly nitrogen.

7/ Investigation of low cost alternative irrigation. Sites have been established with drip systems installed under the ground, expected to demonstrate improved water and nutrient use efficiency.

8/ Investigation into the benefit of irrigation telemetry and automation. It is expected to demonstrate the agronomic and economic advantage of using automated decision support for irrigation scheduling.

These types of trials are topical especially those involving various forms of nitrogen. Sugar Research Australia and Incitec Pivot, with their rural retail outlets agronomists, have set up similar trials. This can only be positive for awareness and uptake of improved nitrogen use practices. In regard to nitrogen, the message is spreading throughout industry that to reduce the volume entering the Great Barrier Reef, volume used per hectare is not as important as timing, placement and the form of the nitrogen.

PROJECT CATALYST GROWERS FORUM 2015

Sugar farmers are showcasing serious action to reduce the impact of agriculture on the Great Barrier Reef.

More than 170 sugar growers and industry representatives gathered in Townsville in March 2015 for the annual Project Catalyst Growers forum to discuss and drive innovation.

Project Catalyst is a leading program stimulating major change amongst Queensland cane farmers.

The three-day event presented industry issues of national and

international interest, as well as an overview of current trials being conducted across the state.

Mr Steven Miles, Queensland Minister for Environment and Heritage Protection, National Parks and the Great Barrier Reef, joined the event for the formal forum dinner where he met with forward-thinking cane farmers.

Mr Robert Cocco, Reef Catchments CEO said the primary purpose of Project Catalyst was to reduce the environmental footprint of sugarcane on freshwater systems and the Great Barrier Reef.

"We do this by supporting a network of innovative farmers to fast-track the adoption of cutting edge management practices."

Project Catalyst is a pioneering partnership between sugar producers and major supporters – The Coca Cola Foundation, WWF-Australia, Bayer, Syngenta, Catchment Solutions and NRM Groups (Reef Catchments, NQ Dry Tropics and Terrain NRM).

To date, more than 75 cane farmers involved in Project Catalyst farm trials have helped improve runoff and drainage water quality of more than 100 billion litres across 20,345 ha of land – an amount equivalent to the water it would take to fill 40,000 Olympic sized swimming pools.