PROJECT CATALYST – HARVESTING INNOVATION IN SUGARCANE

Ross Neivandt
Catchment Solutions Pty Ltd, Mackay, QLD

ABSTRACT

Australian agricultural industries are amongst the fastest growing sectors in the Australian economy, with visions of exceeding farm gate values of $100 billion by 2030, therefore, the need to support Australian agricultural industries has never been greater. As a sugarcane grower led initiative, Project Catalyst has promoted innovation and improved farm productivity since 2008. Through exploring, developing and validating innovative farm management practices, Project Catalyst has not only improved sugarcane production but also produced significant improvements in the quality of water impacting the Great Barrier Reef.

INTRODUCTION

Partnering with the Australian Federal Government, Reef Trust Partnership, Great Barrier Reef Foundation, The Coca-Cola Foundation and WWF-Australia, Project Catalyst funds and coordinates innovation research and farming practice adoption for Queensland canegrowers from Mossman in the north to Koumala in the South.

As agricultural practices and farming systems are developed to enhance productivity and improved environmental performance, Project Catalyst continues to provide Queensland sugarcane growers the opportunity to look beyond conventional farming methods, think from a fresh perspective and try out those new ideas.

Today, innovation is accepted for its importance in industry advancement, and in underpinning its longevity. However, in the not-so-distant past, those having creative ideas tended to invite a degree of scepticism and judgment. Project Catalyst countered this by providing a safe place for growers to imagine, explore, develop and implement their ideas. Through providing reliable professional support, the project helps show the benefits of successful innovation, which in turn provides growers with the confidence that practice change adoption can create a genuine advantage. In a broader sense, our sugarcane farmers must be able to see for themselves that any value promised by the new is worth the abandonment of the old.

OUTLINE

Since 2008, Project Catalyst has supported and motivated farmers to explore new ideas and concepts to improve productivity, reduce production costs and provide for future of farming sustainability. Strongly linked to this is the preservation and improvement of the natural environment. As a core value, the project aims to also achieve significant and enduring improvements of agricultural runoff waters contributed to the Great Barrier Reef through developing and adopting improved farming practices without productivity decline.

Since humble beginnings in 2008 when 19 Mackay based sugarcane growers commenced the project with the support of The Coca-Cola Foundation and WWF-Australia, Project Catalyst has continued to flourish. By 2021, and with the help of seven professional agronomy partner businesses, the program will be actively engaged with 183 growers, their farming enterprises and their families on over 42,000 hectares of farmlands in catchments of the Great Barrier Reef. The current program includes:

- 44 innovation trials
- 65 practice change validation projects
- 28 new growers adopting changes
- 46 growers receiving agronomic support to continue practice change initiatives and minimise dis-adoption
- 1 step change pathway project to introduce revolutionary systems (microwave technology weed control)

CHALLENGES AND PATHWAYS

Initially the project faced a number of significant challenges. Amongst these were the lack of established pathways or strategy to support innovation, a distinct lack of investment support to fund sustainable farming practice development and a weak business case to promote or affect change. Another impediment was a negative reactive culture that stifled entrepreneurship and on farm innovation and provided little opportunity for like-minded, progressive growers to share ideas and learn from each other. And finally, there existed a mindset that

farming and improved environmental outcomes were incompatible.

Through its 12 years of growth focused innovation and practice change support, Project Catalyst has seen dramatic shifts in government policy and approaches to farming sustainability, environmental impacts and the industry's social licence. Project Catalyst has broken through these barriers and today the sugarcane industry enjoys significantly more investment in improving Great Barrier Reef water quality through improved production methods. The industry also benefits from a more structured approach to improving on-farm performance and practices.

Our innovators have flourished, continue to exchange ideas and approaches, and thrive in the positive and productive culture that Project Catalyst fosters. There is also now the recognition at all levels that more efficient farming is good for business and the environment. Perhaps most importantly, it is also recognised that improved environmental performance in the farming sectors is driven by sustainable and profitable farming. As is often said, "you can't go green when you're in the red". It is important to understand that growers are not paid to make changes but rely on solid business cases to encourage adoption and to embed new practices.

Project Catalyst is a powerful example that shows innovation outcomes developed and promoted by farmers - for farmers, are highly effective in encouraging growers to be receptive to change. The project recognises that growers are most open to new ideas when these ideas are presented by other growers.

APPROACH

Project Catalyst targets innovators and early adopters. Through innovation design, development and field trials, the project evaluates different practices and technologies to improve the efficient use of fertilisers, chemicals and water as well as improvements to soil and crop health and water quality. When innovations have been repeatedly tested and validated, they are promoted through the Project Catalyst grower network and to industry.

To encourage the adoption of farming practice change, Project Catalyst provides professional agronomic support to individual growers to assess farm and nutrient management practices and identify practice changes appropriate to the situation and that meet the project's objectives. Project Catalyst growers are encouraged to continually develop new innovation ideas and volunteer their expertise and knowledge to the group.

VALUES

The project has been highly successful and has demonstrated significant achievements by concentrating on the four core values of culture, learning, extension and communication. Considering the significance of culture, the project provides a positive no-regrets environment and a safe-space to innovate and share experiences - good and bad. In relation to learning, the project facilitates genuine peer-to-peer learning where growers present trial results and farm activities to other growers and ideas are shared and openly discussed. The extension of successful innovation work and practice change development is delivered to growers through professional agronomists and specialists who mentor and support growers to undertake practice changes and adopt technologies suitable for their farm.

Finally, the project insists on the open and honest sharing of results and the communication of benefits, drawbacks, considerations, and outcomes. The project is an advocate for effective practice change adoption and works with growers and industry to promote improved farming practices.

FARMING PRACTICES, FINDINGS AND ASSESSMENTS

Some examples of improved farming practices that Project Catalyst has assisted in developing include, matching nutrient application rates to soil characteristics, variable rate ameliorant application, reduced fertiliser after legume crops, subsurface placement of nutrients and ameliorants, adjusting N application to crop age and minimum tillage. Adopting these practices has achieved sugar cane productivity stability or improvement as well as reductions in Dissolved Inorganic Nitrogen, Pesticide and Sediment levels in 37,500+ Megalitres of water contributed to the Great Barrier Reef. Since 2008, N application has been reduced by an average of 19 kg/ha, producing annual savings of $34/ha in fertiliser costs (over $1M per year for project growers).

Innovation outcomes are also assessed from an economic perspective to allow growers to evaluate practice changes as they apply to real life farming applications. For example, economic analysis completed by the Department of Agriculture and Fisheries for a trial of alternate row irrigation showed savings of $297/ha per year in reduced power usage. When coupled with the measured productivity increase that netted $689/ha of additional income, the outcomes of the analysis showed a 50% decrease in water use, reduced water losses by reduced runoff and groundwater infiltration and $986/ha increase in net revenue. To promote these findings and provide factual data for growers to consider practice change for their own use, Project Catalyst communicates these

outcomes using a wide range of tools including shed and grower meetings, videos, fact sheets, case studies, annual grower forums, peer to peer learning and the Project Catalyst website (www.projectcatalyst.net.au).

RECOGNISED AND CELEBRATED

Each year, approximately 200 people attend Project Catalyst's annual forum, and a further 1,500+ people attend project events such as shed meetings, information sessions and field days each year.
Project Catalyst continues to be recognised, awarded and celebrated for its outstanding work and its amazing people. Recently, five growers were recognised in The Prince's Trust Reef Alliance Awards including winning the Environmental Leadership Reef Sustainability Award. In another recent win, a project agronomist was also awarded The Prince's Trust Reef Extension Officer Champion Award. The project has also won the Banksia Foundation Award for Agriculture and Food.

BUILDING OUTCOMES

With its diverse group of sugarcane growers, each individual grower brings a different perspective but also remains committed to the outcomes the project is seeking to deliver. In partnership with professional agronomists and strongly linked project partners, Project Catalyst has achieved measurable outcomes in terms of sustained or improved productivity, reduced production inputs, and enduring environmental improvements effecting the Great Barrier Reef that truly "harvest innovation in sugarcane". Figure 1 shows Project Catalyst's pathway to innovation success and practice change adoption.

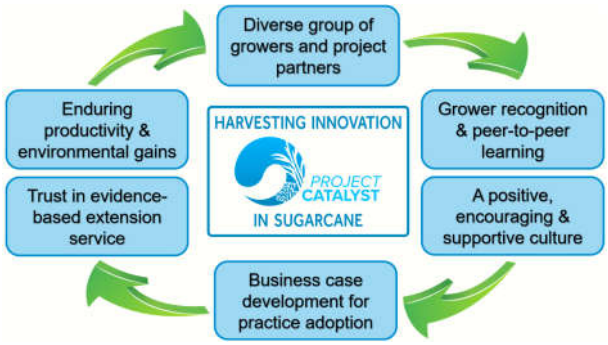

Figure 1: Building Outcomes

CONCLUSION

Innovation in agriculture is not new, but it is reassuring that quality research and extension continues to lead to the discovery and development of farming practices and tools for production improvement, sustainability and enhanced environmental performance.

Project Catalyst has made incredible contributions to sugarcane farming practice change, enhanced productivity and continues to make real water quality improvements that benefit the Great Barrier Reef and catchment environments. Innovators can only do so much on their own, and the project has sought to create an environment that brings out the best in them and provides a pathway for continued innovation and practice change development and adoption.