COUTTS J&R
MANAGING AND EVALUATING CHANGE

A Summary of 30 Impact Case Studies

From the **Drought and Climate Adaptation Program (DCAP)** Phase 2

July 2021

ACKNOWLEDGEMENTS

These case studies tell stories of DCAP's impact on drought resilience in the Queensland farming sector and supporting producers in their decision-making – now and into the future. Without the help and contributions of those working on the DCAP projects and their stakeholders, this report would not have been possible.

Amy Samson
Principal Consultant

Liesel Rennie
Survey Manager and Researcher

Dr Jeff Coutts
Director

Ben Coutts
Data Manager

Coutts J&R
www.couttsjr.com.au

July 2021

INTRODUCTION

About DCAP Phase 2

DCAP Phase 2 is the Queensland Government's $17.5 million initiative to improve drought preparedness and resilience for Queensland producers. It aims to do this *by delivering a range of research, development and extension projects, improve seasonal forecasting and provide tools and systems that will support producers in their decision-making*[1]. Phase 2 of DCAP (2018-2021) has been extended to 2022 for a consolidation year to build on project learning. A small number of projects will continue into this final year and funds have been allocated for some new project initiatives to build on what has been achieved to date.

Purpose of this document

This document summarises the findings of a longer case study report (internal) which is an important part of the impact evaluation of DCAP Phase 2. It brings together 30 case studies across all nine DCAP projects providing an overarching picture of the potential scope of DCAP's impact on Queensland producers and their decision-making for managing drought and climate variability. The summaries included in this document illustrate the current and potential impacts across each of the DCAP projects as a result of their activities and outputs including tools, information and training/extension.

Approach to the case studies

Case study approaches were tailored to each project. Some projects had already developed case studies which were modified by Coutts J&R for Monitoring and Evaluation (M&E) reporting purposes. M&E case studies were also developed by the Coutts J&R team for other DCAP projects where required. The project teams helped develop the content by sourcing interview contacts and providing relevant data.

Some of the project case studies are available in their original format for public access online. These include:

- GrazingFutures (DAF 8 – all case studies https://www.longpaddock.qld.gov.au/dcap/grazing-industry/case-studies/),
- NACP (USQ 4 – all case studies https://www.nacp.org.au/outreach/case_studies) and
- Forewarned is Forearmed (DAF 9 – 1 case study https://www.longpaddock.qld.gov.au/dcap/cropping-industry/).

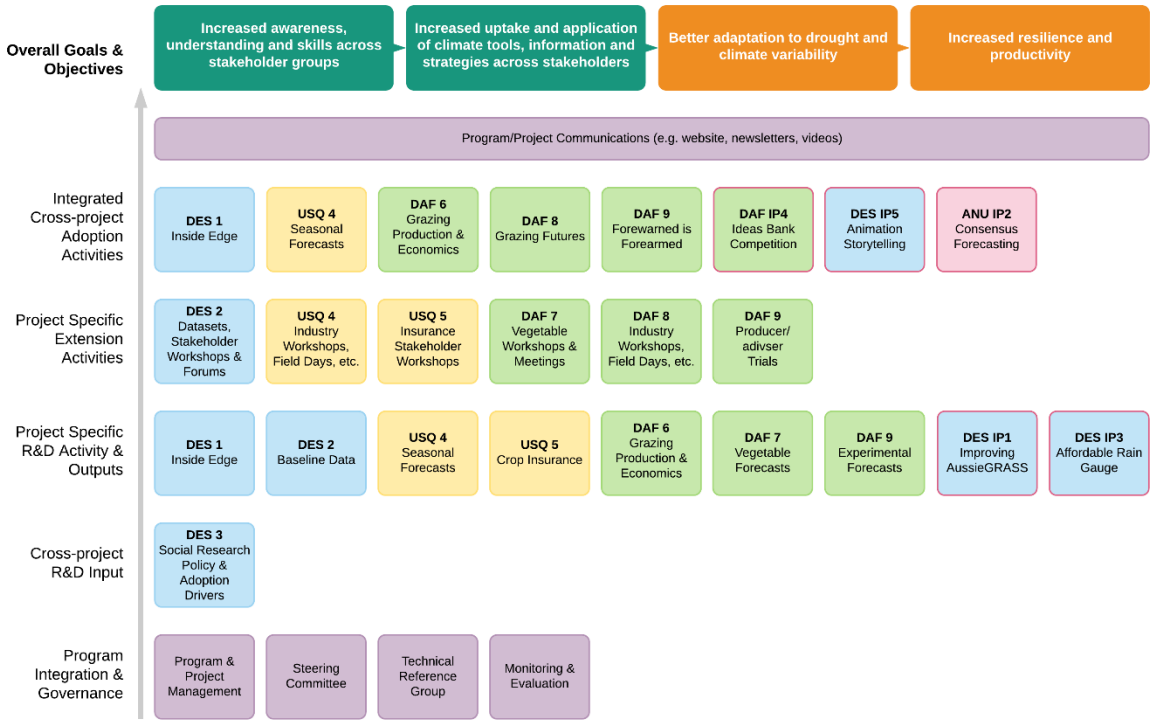
[1] https://www.longpaddock.qld.gov.au/dcap/

CASE STUDIES

Overview

The DCAP program is made up of a number of separate, but related, projects each contributing to the overall goal of improving outcomes for producers in the face of climate related challenges. The following impact pathway diagram (updated July 2020 to include the innovation projects) demonstrates how projects interrelate and contribute to the overall program objectives.

Figure 1: DCAP impact flow diagram (updated September 2021)



Impact Summary Statement

The 30 case studies included in this report provide evidence that on ground impact has been made by the different projects towards meeting DCAP's overall goals and objectives. They demonstrate projects working individually and together to increase awareness, understanding and skills across stakeholders, of DCAP products / tools / information and show these being applied in practice.

As a result, the case studies prove that equipping people to make better informed decisions has led to management strategies being changed to better adapt to climate variability. And by doing so, stakeholders have experienced benefits including increased resilience, productivity and profitability.

Summary of case studies by project

The following summaries of the case studies presented for each project illustrate the contribution of each to achieving DCAP's goals and objectives.

DES 1 — The inside edge for graziers to master Qld's drought prone climate

These six case studies demonstrate how the tools and information systems developed by DES 1 have been used to support Queensland producers to manage drought and climate challenges more effectively. The Long Paddock based tools have supported Queensland government policy decisions around drought declarations and claims for assistance, increased opportunities for more climate-based conversations between advisers / service providers and their clients and enabled the tailoring of information to improve decision-making. Examples are provided of producers applying the information and making decisions (e.g., stocking strategies, planting) that have resulted in improved outcomes (e.g., financial, land condition). Where needed, advisers are also working to support their clients in accessing this information for themselves and integrating it into their management systems. DES 1 tools have also been used at a commercial level to support the development of software to help mitigate the risk of bushfires (AussieGRASS) and for assessing the potential for property development (e.g., FORAGE reports).

These case studies strongly indicate that awareness and understanding is growing around the benefits of DES 1 tools amongst service providers and subsequently producers, and that the information is being applied for a range of purposes. This shows progress towards Queensland producers adapting to drought and climate variability and increased resilience and productivity.

DES 2 — Using paleoclimate data to prepare for extreme events and floods in Qld

This case study provides a clear demonstration of the potential impact that paleoclimate data can have on the decision-making of a Regional Water Authority that supplies millions of people. It shows how such information could reduce uncertainty around water modelling and management through a better idea of climate risk extremes and inform better estimates around long-term planning including planning infrastructure needs. The case study is a good illustration of how stakeholders are keen to understand more and apply the paleoclimate data for their own purposes once they are aware of its potential. It is clear that this data has the capacity to be a key contributor to better adaptation to drought and climate variability for a wide range of purposes.

DES 3 Drought resilience and adaptation: A program of social research and knowledge support

These two DES 3 case studies illustrate the benefits of using social science led approaches focusing on the needs of potential users, when designing and delivering information to producers - directly and through advisers. An animation video carefully planned to ensure contextually correct storytelling delivers complex and technical concepts (interpreting percentiles in weather forecasts) and has proved to be not only be a useful tool for producers (who have been found to identify with it) but also for advisers. It shows that linking people's value systems with information delivery is a valuable tool for encouraging change. Similarly, taking extension officers through a process of mapping producer practice change from the producers' point of view, provided the key benefit of a more considered approach to sharing information with producers resulting in better support of the steps involved to make a practice change.

The evidence shows that gains have been made in developing and testing strategies and tools that directly address producer barriers to drought preparedness and equip producers / service providers to improve business resilience and climate adaptation.

USQ 4 Northern Australia Climate Program

The five case studies included in this section were written by NACP. They provide compelling evidence of the value of Climate Mates, particularly for their provision of regionally relevant climate information to producers (e.g., Monthly Outlook from Climate Mate Peter Crawford) and also their one-on-one time to make producers aware of available climate information (e.g., products on Long Paddock), how to interpret the climate forecast information and develop their confidence in applying to their decision-making. The case studies demonstrate how producers have made changes based on this information (e.g., stocking strategies, herd management) and have experienced benefits around better management of climate risks and mitigating the impacts of poor seasons.

These case studies clearly prove that when producers are more aware of available climate information and tools and have an increased understanding of how to apply them to their own situation and the skills to do so (even assisted), they will use these resources to make more confident decisions around implementing strategies to better adapt to drought and climate variability and increase their resilience and productivity.

USQ 5

Producing enhanced crop insurance systems and associated financial decision support tools – Phase 2

The case study for USQ 5 looks at the work undertaken to develop practical alternative models for insurance by sugarcane producers against cyclone damage. The project team's collaboration and engagement with key agricultural and insurance industry, government and research stakeholders increased their awareness about parametric insurance options and provided a focal point from which to explore the options and practicalities of implementation. Demonstrated financial risk benefits for producers means increased business resilience in the face of challenges and adaptation to climate variability. This case study shows that the groundwork has been done for ongoing discussions to keep the momentum going. It also illustrates the potential to apply these approaches to other agricultural commodities and climate related disasters.

DAF 6

Delivering integrated production and economic knowledge and skills to improve drought management outcomes for grazing systems

These three DAF 6 case studies provide strong evidence of how service providers, particularly extension officers, are gaining high levels of value from the regionally specific economic reports. The extension officers have used the reports for developing their own confidence and knowledge, as a conversation starter with producers about alternative enterprises and more resilient business options, as a workshop tool, and validating extension and best practice messaging. Economist led one-on-one detailed business analyses with property owners has also allowed extension officers to demonstrate the benefits of specific practice changes. The reports have been called a game changing extension tool.

The case studies demonstrate that producers involved with DAF 6 have confirmed their current business practices and or began looking at their operations differently / more flexibly to improve resilience and profitability. Some have made changes based on the economic evidence the reports provide. As awareness and use of these reports by service providers and producers continues to grow, the evidence from these case studies strongly indicates that producer decisions made based on the research underpinning these reports will lead to more resilient and profitable businesses and better adaptation strategies to meet the challenges of climate variability.

DAF 7

Use of BoM multi-week and seasonal forecasts to improve management decisions in Queensland's vegetable industry

The DAF 7 project team sourced and wrote these four case studies. Together they illustrate a compelling story of the positive production and economic impact the climate information distributed by the project (e.g., bi-monthly experimental forecast and Heatwave Advisory service) has had on collaborating horticulture businesses in the Lockyer Valley and Granite Belt. The common theme is one of increasing business confidence in the information which has influenced management decisions across the supply chain, including individual growers. There is strong evidence that changes made have minimised disruptions to crop growth (e.g., irrigation strategy changes, harvesting early) and helped ensure market supply (e.g., crops grown in / sourced from alternate locations, production schedule changes). Horticultural businesses have reported increased returns per hectare in challenging climate conditions (e.g., heatwaves) as a result of better-informed management decisions. The Bureau of Meteorology (BoM) has also benefited from the 'real life' outcomes and insights this project has provided into the value of seasonal forecasts for the horticulture sector. It can use the knowledge to prioritise future R&D development and agriculture services.

These case studies clearly demonstrate that increased awareness, understanding and trust of collaborating horticulture stakeholders in the climate information provided by DAF 7 led to increased uptake and application to their decision-making. As a result, it is evident that businesses have implemented management strategies to mitigate the impacts of climate variability which has contributed to increased resilience and productivity.

DAF 8

GrazingFutures: Promoting a resilient grazing industry

These seven case studies were provided by the DAF 8 project team[2]. They present strong evidence of the Grazing Future's impact on Queensland graziers through its events (e.g., Mulga and nutrition workshop, Phosphorus (P) Roadshow, Early Weaning events) and one-on-one visits (e.g., economist analysis of businesses). Producers have demonstrably combined their own experience with their gains in knowledge and understanding about topics delivered by Grazing Futures to improve the sustainability of their livestock and land management strategies. The case studies prove the benefits of changes made including livestock in better condition, less stressed and better-behaved calves, labour saving, increases in calving numbers, better conception rates, improved groundcover and pasture quality, and improved nutrition (e.g., P supplementation, NIRS faecal testing for specific stock requirements). DAF 8 also actively support the producer led "women of wealth" business group which at its first meeting, was rated by participants to have increased their knowledge to make business management decisions. Improving business literacy is critical in building drought-ready livestock operations.

[2] Where long and technical, they have been shortened, and where required, text has been re-arranged for story flow, however the content overall has been only minimally edited.

It is clear that DAF 8 activities and information has increased the awareness, understanding and skills of Queensland graziers who have been shown to apply their new/reinforced knowledge and implement practice change. As a result, their businesses are demonstrably adapting to sustainably manage climate variability while increasing their resilience and productivity.

DAF 9 Forewarned is forearmed: Proactively managing the impacts of extreme climate events

These three case studies demonstrate the high level of potential value seasonal and multi-week extreme event forecasts developed by the Forewarned is Forearmed (FWFA) project have for producers and advisers. There is early evidence that these forecasts provide valuable information for decision-making and can underpin property management strategies for better adaptation to climate variability. For example, a beef and cane property trialling these products provided feedback that they were referred to daily and the information had been used to inform decisions around planting and harvesting schedules as well as cattle stocking rates. A former Climate Mate (NACP) also shared FWFA seasonal forecast tools with producers who had considered this information as part of their decision-making and was still referencing the FWFA products to track forage performance in their new role as a production manager on a large-scale property. Another adviser uses FWFA experimental forecasts and rainfall products to help plan biosecurity activities in a Red Witchweed eradication program. They have seen considerable planning benefits which include potential cost savings and benefits that would run into the tens of thousands of dollars.