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Burdekin rangelands Grazing BMP and Extension support project – practice change

Mellissa Holzwart, Brigid Nelson, Tim Moravek and Joanna Robertson

Queensland Department of Agriculture, Fisheries and Forestry, Charters Towers, Qld. 4820. E: mellissa.holzwart@daff.qld.gov.au

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Abstract

This paper reports on the services and support delivered by the Queensland Department of Agriculture, Fisheries and Forestry (DAFF) to the Burdekin rangelands grazing industry from July 2011 through to June 2014. It outlines the achievements and activities undertaken specific to the Burdekin rangelands, Grazing Best Management Practices (BMP) and Extension Support Project.

The Grazing BMP and Extension Support project is part of the ongoing response aimed at reversing the decline in water quality in the Great Barrier Reef (GBR) World Heritage Area. The decline water quality is largely a result of land management practices in adjacent catchments over the past 150 years. Since 2003, the Australian and Queensland governments have partnered with industry, natural resource management and conservation organisations to deliver a series of Reef Water Quality Protection Plans (Reef Plan). The most recent Reef Plan is for the period of 2013 to 2018. A primary objective of Reef Plan is to reduce the level of nutrients, sediments and pesticides from agricultural lands entering the GBR by encouraging landholders to adopt better land management practices. This is to be achieved using a variety of mechanisms including incentives, regulation and extension services. The Burdekin rangelands Grazing BMP and Extension Support Project aims to support beef producers to adopt grazing systems that are productive and profitable with improved water quality outcomes in the GBR.

Background

The Burdekin rangelands have been identified as a major source of the sediments currently impacting on the GBR, particularly on inshore coral reefs and seagrass meadows. In 2010, the Queensland Department of Environment and Heritage Protection (DEHP) commenced funding the Queensland Department of Agriculture, Fisheries and Forestry (DAFF) to bolster its delivery of research, development, extension and support services to the Burdekin grazing industry. The objective of this funding was facilitating and accelerating the adoption of better grazing practices in the region.

In 2012, DEHP funded the development and implementation of the Grazing BMP project, a collaboration between industry (AgForce), natural resource management groups (Fitzroy Basin Association), and government (DAFF) agencies. This project's extension and support services are now aligned to the Grazing BMP program which has led to a re-focus of extension effort in the Burdekin catchment. The focus has moved from a resource condition, reef water quality perspective to a whole systems approach that combines resource condition, animal production along with business and economic considerations.

Achievements

The Burdekin NRM region has a catchment size of 14million hectares, 650 commercial beef herds, and 1.6m head of cattle worth \$300m (ABS, 2008). Over the period of the project, 2011-2014, 272 beef businesses (476 beef producers), representing over 6.2 million hectares of land and over 850,000 head of cattle have participated in project activities. Therefore, from 2011-2014 the project has impacted on 42% of commercial beef properties in the catchment, representing 44% of the catchment area, and 54% of beef cattle within the catchment.

Over the 2011-2014 financial years the beef extension team coordinated and delivered 199 activities which included: 57 workshops, 30 field days, 14 forums, 63 recorded one-to-one engagements, and 35 other activities (e.g. information mail outs, webinar, industry event planning, staff training). As a result of these activities the project recorded 1,937 producer engagements and 2,687 total participant engagements between 2011 and 2014. On average, the individual beef business attended 4 activities over the three year period.

Project methodology

Within a Reef Plan context, successful extension and education requires the thoughtful blending of approaches aligned to the development of the agricultural industry and the principles of integrated catchment management. Extension services provided by DAFF to the beef industry aims to turn producer awareness, understanding, and intention to trial research and development information into action. Using a range of processes that enable change, DAFF beef extension staff aimed to assist producers to adopt grazing management practices that would enhance enterprise productivity and profitability, whilst achieving environmental and social sustainability targets.

The adoption of improved management practices by industry is the result of sustained education, training and communication efforts integrated into the business in a holistic manner. The depth and range of activities offered within this project is unique to the beef branch within DAFF. The project has achieved and exceeded its targets due to DAFF staffs' coordination and technical skills, extension delivery skills, monitoring and evaluation (M&E) expertise, ability to build capacity of Departmental and partner organisation staff, access to a range of communication channels such as FutureBeef, and the network of RD&E professionals who value-add to the project.

Practice change

The project's targets of 80% Knowledge, Attitudes, Skills, and Aspirations (KASA) improvement and 50% intention to change were met and exceeded over the life of the project from 2011-2014. Results of the project M&E demonstrate that 81% of participants reported an improvement in KASA, and 60% of participants said that they intended to make a practice change as a direct result of participating in project activities (Table 1). These values were calculated from the responses provided on activity feedback sheets recorded in a comprehensive M&E platform.

A sample of 64 properties, representing the properties who engaged with the 2011-2014 project, were selected to complete practice change evaluations throughout the life of the project. Two main evaluation surveys were conducted, a mid-project evaluation in 2013 and a final project evaluation in 2014. The finding of the evaluations represents the total number of participants with a high level of confidence (margin of error of 10.73 at 95% confidence).

Targets, as listed in table 1, were all achieved and exceed in the 2011-2014 project. The target of >25% real change was greatly exceeded and is a credit to the work undertaken in the project. Of those properties that completed the practice change evaluation surveys, 76% recorded an actual practice change. The data collected ensured a 95% confidence interval resulting in 65-87% of the population (beef producers who undertook activities) achieved real practice change.

Table 1. Target vs. actual change achieved

Target	Achieved
80% KASA	81% KASA
50% intention to change	60% intention to change
>25% real change	76% real change (C.I. = 10.73 at 95% confidence) (65-87% real change)

Project activities

Over 1,800 producer engagements and 2,500 total participant engagements (Table 2) were recorded during 2011-2014. The total number of producer and participant engagements reflects the level of extension effort and extension involvement with individual producers on multiple occasions to increase capacity and support change. A beef business is very complex, comprised of a number of components. Careful consideration and understanding of the interaction of these components is required in order to manage the business holistically. Therefore, producers require access to new and updated information on all components.

Table 2. Producer engagement in activities 2011-2014

Activity type	Activities	Producer engagements	Total participant engagements
1 to 1 not on property	15	50	54
1 to 1 on property	48	154	202
Field Day	30	587	772
Workshop	57	595	791
Forum/seminars	14	206	264
Other	35	246	456
Total	199	1838	2536

199 activities were recorded in the project M&E platform. The types of activities delivered were:

- **Workshops:** GLM EDGE, StockTake, StockTake App, AgForce Phoenix mapping, pasture budgeting, pasture monitoring, Grazing BMP pilots, GLM EDGE follow-up, Reef Catchments Grazing Forum, AgForce Forum BMP, Breeding EDGE, Nutrition, Young Producer workshop, soil health, CashCow and BMP, Grazing BMP with extension presentations.
- **Field days:** Improving productivity from rundown of sown grass pastures, Giant Rat's Tail grass information day, DLC smaller holdings field day, fire management information day, breeder management information days, bull selection field days, breeder management and genetic technologies field day, Clermont Cattleman's Challenge field days, Clermont Show Cattleman's Challenge Taste Test, buffel grass run-down, soil health.
- **One-to-one:** Grazing land management -pasture monitoring, yield estimation, forage budgets, carrying capacity, infrastructure planning for evenness of grazing, weed management and land rehabilitation. Animal production -nutrition and supplementation for animal classes, breeder management and application of genetic technologies. Feed base and matching land type capability and condition to animal performance. Use of decision support tools such as Breedcow and Dynama, BRICK business benchmarking, VegMachine, and pasture photos and budgets within StockTake.
- **Capacity building:** training activities were delivered to a number of government, NRM group, and education providers. The beef extension team also participated in training in the fields of grazing land management, animal production, business and technology.

Future project direction

The next phase of this ReefPlan project will see an increased focus on demonstrating practices to increase adoption of sustainable and productive practices. The project will also develop extension approaches for a variety of personality types, particularly targeted to those late adopters of research and development information and best practices. A biophysical prioritisation process will also be undertaken to pin-point where a certain type of extension activity should occur for maximum

impact to reduce sediment entering the waterways and the GBR. The Burdekin project team will work closely with BMP activities occurring in the Fitzroy Catchment, providing an across-catchment, collaborative approach to assist producers to improve their management practices.

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