

DCAP Grazing Futures

Staff Extension Skills and Training Needs Report

June 2017

Department of Agriculture and Fisheries

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Summary

The GrazingFutures commenced in 2016 as a pilot project and in early 2017 it was announced that funding had been committed for the following four years (to 2020/21). The primary objective of the project is to: *Support grazing businesses in western Queensland to improve business resilience, drought recovery and future drought preparedness.* One of the project's objectives is to grow the capability of project staff.

As a means of measuring growth in project staff's capacity it was determined to use a survey to benchmark the current level of project officer's extension skills, knowledge and confidence; and then repeat the survey towards the end of the project.

In March 2017, all GrazingFutures project officers were emailed an invitation to complete the skills and extension training needs survey together with a link to the online survey. The survey was conducted via *Survey Monkey* and 29 staff across 10 organisations were invited to complete the survey. The survey was based on the questions used in the Reefplan Extension Training Needs Audit conducted in late 2016.

The results identified that the project currently provides an environment where learning and capability-building is occurring through delivery of a new program in Western region, with partner organisations and individuals working together. However, this environment needs to be complemented by specific learning opportunities to address the knowledge and skills development priorities identified in this survey. Further, the survey identified that some officers within the project may hold skills in a number of the extension components who could be drawn on to provide leadership, advice and training in these specific skill areas.

Introduction

The GrazingFutures commenced in 2016 as a pilot project and in early 2017 it was announced that funding had been committed for the following four years (to 2020/21). The project is a partnership between nine organisations of differing levels of direct and indirect involvement. The primary objective of the project is to: *Support grazing businesses in western Queensland to improve business resilience, drought recovery and future drought preparedness*¹. The project has five objectives, of which the following is an important one:

Improve the skills and capability of grazing industry support officers from both the public and private sectors to facilitate improvement in business resilience, drought recovery and future drought preparedness of grazing businesses in western Queensland.

The project's Monitoring, Evaluation, Reporting and Improvement plan (MERI) has identified the need and means of measuring achievements against the project objectives. For this objective, the MERI identified the following project performance measures:

- Extent of change in participating officers' skill and confidence levels
- Extent and relevance of regional officer networks
- Extent of collaboration among partners
- Level of comfort/familiarity with the collaborative experience by individual officers
- Level of effective delivery across all partner organisations
- Extent of uptake of a Professional Extension best practice process with project officers

As a means of establishing both a start and end point, it was determined to use a survey to benchmark the current level of project officer's extension skills, knowledge and confidence; and then repeat the survey towards the end of the project. The survey would provide the additional benefit of identifying training needs and capacity building for project staff. The survey process would not be the sole means of evaluating the success against this objective as a number of other measures (as above) would be recorded through the project life and reported through the six-month report.

With a similar motivation, the Department of Agriculture and Fisheries (DAF) saw the need to qualify extension skills and training needs of extension officers in Queensland reef catchments. In September 2016 DAF coordinated an Extension Capacity Survey in the five reef NRM regions. The survey background of extension capacity in reef catchments is provided in Appendix 1.

It was determined that the same survey would be suitable to survey officers involved in the GrazingFutures project. To undertake the survey across the many organisations involved in reef catchments, DAF had used the Survey Monkey tool² to collect the information. Through negotiations DAF offered to support the completion of the same survey for this project and make the results available. Specific thanks must go to Mr Phillip Trendell, Senior Project Officer DAF, Mackay who offered the use of the developed survey, supported the survey delivery and generated the report.

¹ IB&DR in WQ MERI 2017

² Available from surveymonkey.com

Methodology

In March 2017, all GrazingFutures project officers were emailed an invitation to complete the skills and extension training needs survey together with a link to the online survey. The survey remained open for four weeks with a reminder sent to project staff after two weeks. The survey was conducted via *Survey Monkey* and 29 staff across 10 organisations were invited to complete the survey.

The survey was based on the same questions used in the Reefplan Extension Training Needs Audit conducted in late 2016. Definitions for the survey questions and responses were available to those completing the survey and are detailed in Appendix 2. Part one of the survey asked questions about extension skills/knowledge based on the Extension Best Practice Framework. The second section focused on specific industry technical skills/knowledge and for this project, grazing only.

Many of the questions were influenced and based on the Extension Best Practice - ABCD Framework (refer Appendix 3). The Extension Best Practice framework was recently developed in an effort to describe in a generic manner, best practice extension. The Extension Best Practice framework was developed in consultation with a range of extension specialists. Motivation to develop the framework and the four levels (ABCD) was inspired by the agricultural sectors use of best practice frameworks (eg Grazing BMP program) to benchmark industry practices and identify practices where improvements could be made.

To assist in understanding the Extension Best Practice framework the five models of extension are summarised in Appendix 4. Equally the extension delivery specific activities are defined in Appendix 5. Appendix 6 details the industry specific technical knowledge and skills topics for those working with the grazing sector. The survey included the technical skill requirements to allow the identification of where best to provide further support to project officers in delivering their important role with landholders.

All survey responses were anonymous however respondents were asked which region they worked in (North, Central and South). The participant responses for each question were divided into three categories: the relevance to their role, their current level of proficiency and their desire to develop skills further.

Results

Of the 29 officers that were invited to complete the online survey 18 officers responded, with 12 fully completing the survey with a range of responses for each of the questions. The results of the survey are detailed in the accompanying PowerPoint file. The following is a brief summary of the responses to each question together with relevant observations from the results.

Q1: Which NRM region do you work in?

All respondents were in Western region.

Q2: What river basin do you work in?

For this survey participants were given the choice of North, Central and South with 18 responding to this question. A number of officers selected more than one region.

Q 3. What type of organisation do you work for?

Of those who completed all questions 40 per cent were DAF officers with the balance being NRM officers.

Q 4: Would you like to know more about the required response options for extension skills?

In responding positively to Question 4, respondents were taken to an explanation of options for extension skills as detailed in the Appendices. Seventy-five percent of respondents chose to review the definitions.

Q5: Extension planning

The first section of this question asked about relevance of extension planning in relation to the respondents' work with all answering that extension planning was a very highly or highly considered industry need. However, one respondent considered that targeting audiences was of low relevance.

The second part of Question 5 was about an officer's proficiency with almost 50 per cent of the respondents signalling they needed to learn more about planning extension work, targeting audiences and developing outputs and outcomes. The third section asked about a respondent's desire to develop further skills and in all three areas (with 54 per cent to 77 per cent) the respondents answered positively, clearly presenting a signal for training and additional experience.

Q6: Engagement

The majority (12 of 13) were confident they networked well with industry, whilst there were a number of medium responses for networking across industries and group management. When it came to the respondent's proficiency, over 50 per cent of the respondents replied that they needed to learn more. Further, when asked if they would like training the response was over 60 per cent for all three components of networking and group management.

Q7: Extension delivery

All activities involved in extension delivery are listed in Appendix 4. Overall, respondents considered the majority of extension activities as either very high or of high relevance to their work. The three activities respondents identified as only of medium relevance were: web presentations, media training and social marketing. For each of the activities there was an identified training demand with only two (social market and event management) identified by less than 60 per cent of the respondents. The highest demand for additional skills was the use of different engagement models and methods being selected by 11 of the 13 respondents.

When combining respondent's indications of relevance to their work and desire for further development of their skills the top four were: the use of different engagement models and methods, formal written communication skills and web-based presentations. Whilst there were identified skilling needs across the other activities, a number of officers identified they were confident in providing leadership and advice in these skill areas. This resource could be utilised to upskill and mentor others in the project.

Q8: Evaluating and reporting (M&E)

The three components of this question were broken into: Monitoring and Evaluation (M&E) planning, techniques and undertaking M&E. Respondents results were balanced across the three levels of very high, high and medium for project relevance for each of the three components. Of all extension skills surveyed, M&E was the area where respondents identified they were least

proficient. In contrast, there were a small number who indicated they were a leader among their peers or confident. Over 50 per cent identified they needed to learn more across all three components with more than 60 per cent wanting to further develop their skills. This indicates an obvious area to prioritise training and development for project staff.

Q9: Main industry

100 per cent identified they worked with the grazing industry.

Q11: Skills and knowledge relevant to the grazing industry

The thirty grazing industry specific technical knowledge and skills components are detailed in Appendix 6. As the survey used knowledge and skills developed for reef catchments there were a small number that may have less relevance in a savanna grazing system (eg: use of fertilizers, water quality, storm management). By logical coincidence the majority of the knowledge and skills components align with the key areas of the five Grazing BMP modules. Given the large number of knowledge and skills components (30), it was difficult to identify meaningful trends and specific messages in the areas respondents considered most relevant to their work and their proficiency in the area.

It was considered more useful to identify where the greatest number of respondents identified they desired additional skill development. All areas saw a level of demand, however the following six areas reflect the greatest demand for skill and knowledge development (selected by 75 per cent of the respondents or more):

- Managing the land resource
- Understand land capability
- Nutrition
- Business planning
- Business knowledge and skills
- Innovation (cycle / research / support mechanisms).

Given the first five have a clear connection with a grazing business and drought resilience they would be worthy of prioritising a coordinated training and development effort. This would allow project staff to grow their knowledge and skills, which in turn would allow them to be more supportive and confident in their dealings with the grazing businesses they engage with. Many of the knowledge and skill components identified could be delivered as combined training due to their similarities, with one example being: business planning and business knowledge and skills.

Discussion

The completion of all survey questions by 12 project staff provides a useful benchmark of current extension knowledge and skills in year one of the five-year project. The plan is to repeat the survey toward the end of the project to identify the progress that has been made towards delivering on Objective 3 (improve skills and capability of project officers). Importantly, the initial survey has identified the areas where project officers have indicated they desire skill development. It is disappointing there was not a higher rate of completion however completion (of all questions) by more than 33 per cent of project officers is regarded as successful for online surveys and offers a similar percentage as the reef survey. There would have been several of the 29 that were invited to complete the survey who may not have identified themselves as a project officer.

When compared with the reef survey results there was wide variation across the rating of relevance and levels of proficiency. One explanation may be due to the fact that many reef extension staff have a longer history in their roles and the projects have been running for a longer duration. However, in the areas of skill development there were very similar results with a high proportion seeking to further develop skills across. This result could be explained by the observation that the majority of extension officers are motivated to continually improve both their extension process skills and technical knowledge.

Knowledge and skill priorities

In summarising the knowledge and skills results, these are broken into extension or process knowledge and skills, and technical knowledge and skills related to the grazing system. There is clear evidence that project officers desire to further develop skills across a range of both extension process areas and technical knowledge. The following items report on the areas where more than 50 per cent of survey respondents indicated they desired to improve their skills in extension processes where relevant to their work:

- The three components of extension planning
 - Planning based on industry need
 - Identification of target audiences
 - Developing outputs and outcomes.
- The three components of engagement (relationships and extension planning are linked)
 - Industry networking
 - Network across industries
 - Group management.
- Extension delivery (these were rated highest across relevance and additional skill demand)
 - different engagement models
 - different engagement methods
 - formal written communication skills
 - Web based presentations.
- The three components of evaluating and reporting (this area had the overall lowest level of proficiency as well as of high relevance)
 - Monitoring and evaluation planning
 - Monitoring and evaluation techniques
 - Undertaking monitoring and evaluation.

The results suggest there was a desire to improve knowledge and skills across all components of extension practice. Improving project officer knowledge and skills would not only deliver against Objective 3 but may also produce the improved project outcomes of effective industry engagement and support for enhancing business and drought resilience.

When planning the delivery training there is an opportunity to combine all four components as detailed above. One high priority for skills development is evaluation and reporting, as a good understanding of monitoring and evaluation should lead to better planning, including being more rigorous in developing project and activity outputs and outcomes.

Moving to technical skill development the following are priorities for skill development in grazing skills as identified in Question 11:

- Managing the land resource

- Understand land capability
- Nutrition
- Business planning
- Business knowledge and skills
- Innovation (cycle/research/support mechanisms).

Knowledge and skill development

There is a significant body of learning research and theory; much of which is diverse in its findings. Malcolm Knowles was at the forefront of adult learning theory and was well known for the use of the term Andragogy as synonymous with adult education. Knowles (2013) identified the following about the design of learning:

1. Adults have the need to know why they are learning something.
2. Adults learn through doing (experiential).
3. Adults are problem-solvers.
4. Adults learn best when the subject is of immediate use.

In common with the learning of knowledge and skills in any field there are many ways to grow individual project officer's extension skills and capability. Skills development or learning can occur many different ways with the following examples related to this project environment:

Process of learning	Examples
Speaker presentations	Listening and interacting with an event or conference speaker.
Attending or participating in an activity	Attending a grazing workshop for the first time or in another region.
Experiential or learn by doing (with a need to practice)	Being required to plan an event, deliver a component of an event or workshop or develop a case study. Working with other organisations together with the collaboration involved.
Program learning	Through short courses or formal learning (VET and university).
Mentoring (both informal and structured programs)	As simple as asking a colleague where to find out something or asking something works. A longer-term arrangement where guidance and feedback is provided.

In summary, this project provides an environment where learning and capability-building is already occurring through delivery of a new program in Western region, with partner organisations and individuals working together. This delivery environment needs to be complemented by specific learning opportunities to address the knowledge and skills development priorities identified in this survey. It must be remembered there are some officers within the project that may hold skills in a number of the extension components who could be drawn on to provide leadership, advice and training in these specific skill areas.

Appendices

Appendix 1 Building Extension Capacity and Survey - Overview

One of the key components of Reef Plan is the adoption of agricultural land management practices that can help lead to improved economic and environmental sustainability within Great Barrier Reef (GBR) catchments. As identified in the Extension and Education strategy update 2014, improving extension capacity is a priority activity to help drive this practice change with land managers. This was also highlighted as a key priority in the Great Barrier Reef Water Science Taskforce Report with Recommendation 3 focused on improved Extension and Education.

To help support this, an Extension Best Practice Framework was developed to highlight the different levels of generic capacities extension staff can have and what additional skills may be required to move them up to a higher level. It also included the identification of the range of industry specific key technical skills required to communicate and work with farmers, graziers, producers and other service providers to support practice change adoption. These are included as Appendix 2, 3 & 4 below.

To help determine, GBR wide, the current level of skills and knowledge extension staff have within the framework, it was converted into an electronic survey format that could be completed via Survey Monkey. This included the technical skill requirements so we could identify as many opportunities to support extension staff and advisors in delivering their important role with landholders. All responses were anonymous but we did need to ask which NRM region, basin and industry they worked with or across so we could identify any differences between them. The participant responses for each question were divided into three categories: the relevance to their role, their current level of proficiency and their desire to attend training. More details are provided in Appendix 1 below.

The link to the survey was sent out during September 2016 through as many networks as possible with a closing date of mid-October 2016. These networks were focused in five NRM regions along the GBR:

- Wet Tropics, Burdekin, Mackay Whitsunday, Fitzroy and Burnett Mary
- and across the 5 main agricultural industries; Sugar Cane, Grazing, Horticulture, Grains and Dairy.

There were also some extra responses from new extension staff in December 2016 leading to a total of 121 responses overall.

A training needs/opportunities assessment has been conducted on the collated responses from the survey and a training needs program (generic and technical) is currently being developed. This includes identifying current/existing training providers who can support and deliver the relevant targeted training. It is also being linked to available funding support so there can be workshops or training events delivered regionally before June 30 2017 and more details on this will be provided in early 2017.

Appendix 2 Survey Responses and Definitions

Survey Question Responses

Relevance	Proficiency	Skill Development
Very high	1	Yes
High	2	No
Medium	3	
Low	4	
Very low	5	

Response Definitions

Relevance
Very high: may happen frequently such as every day or week, very high priority role of extension position, high priority issue for industry.
High: may happen every week to fortnightly, high priority role of extension position.
Medium: may happen fortnightly to monthly, moderate priority role of extension position.
Low: may happen monthly to once every 6 months, low priority role of extension position.
Very low: often only happens 1 or 2 times a year, very low priority role of extension position.

Proficiency
1: I could be a trainer or mentor. Considered a leader in this area among peers and capable of providing specialist advice regionally and cross-regionally.
2: I'm pretty good already. Confident in providing advice in this area regionally or at an Industry level.
3: Sufficient for current role and no need for improvement.
4: I need to learn more to perform current role better
5: I need to learn a lot more for immediate improvement

Skill Development
Yes: yes please, I would like to develop my skills further.
No: no thanks, I don't need to develop my skills further.

Appendix 3 Generic Extension Capabilities

Extension Best Practice - ABCD Framework

Professional Standard	Beginning	Developing	Best Practice	Innovative
Management	D	C	B	A
Planning extension projects and activities	<ol style="list-style-type: none"> 1. No planning undertaken, only responses to narrow range of client demand. 2. Activities based on what has been previously done. 	<ol style="list-style-type: none"> 1. Identifies industry needs and uses this in planning projects and activities. 2. Develops projects plan and plans activities to suit the program/funding and target audience and focuses on outputs. 	<p>As for C, plus:</p> <ol style="list-style-type: none"> 1. Uses project evaluation and industry information to inform project planning and activities. 2. Detailed project plan developed with evidence of planning and targeting delivery to achieve outcomes for producer / program / funding. 	<p>As for B, plus:</p> <ol style="list-style-type: none"> 1. Uses formative evaluation to design projects. Involves stakeholders/producers and collaborators in project development.
Management	D	C	B	A
Client and collaborator engagement	<ol style="list-style-type: none"> 1. Has limited and static group of clients that are 	<ol style="list-style-type: none"> 1. Maintains network including producers, other extension 	<p>As for C, plus:</p>	<p>As for B, plus:</p> <ol style="list-style-type: none"> 1. Maintains national/global networks of industry

	<p>usually engaged through phone and visits.</p> <p>2. Has limited network. Does not work regularly with other collaborators.</p>	<p>providers and researchers.</p>	<p>1. Understands and engages with industry supply chain and policy and funders.</p> <p>2. Meets regularly with other innovative clients, extension providers, industry, NRM etc. to ensure across project and program coordination.</p>	<p>knowledge and extension practice.</p>
Extension delivery	<p>1. At best based on transfer of technology and programmed learning (training).</p> <p>2. Uses limited engagement approaches.</p>	<p>As for D, plus:</p> <p>1. Uses additional extension models such as technological development and consultant mentor.</p>	<p>As for C, plus:</p> <p>1. Delivery built on group facilitation and empowerment model.</p> <p>2. Extension is producer driven and supports producer's networks to have a wide range of sources and professional advice. Integrates Web and social media.</p>	<p>As for B, plus:</p> <p>1. Applies knowledge and experience of all extension models and delivery media.</p> <p>2. Works with producers and collaborators to support business benchmarking to measure change.</p> <p>3. Regularly trials and evaluates new techniques.</p>
Management	D	C	B	A
Evaluation and reporting	<p>1. No evaluation incorporated only activities and interactions reported.</p>	<p>As for D, plus:</p> <p>1. Representative surveying to detect changes in KASA (knowledge, aspiration,</p>	<p>As for C, plus:</p> <p>1. Designs processes to identify before and after changes in management practices.</p>	<p>As for B, plus:</p> <p>1. Incorporate other lines of evidence of impact into M&E design e.g. remote sensing, production and</p>

	2. May use event feedback sheets the program to clients.	skills, attitude) amongst some clients.	2. Management practice profile established and documented for each client.	price data and product sales.
Developing extension skills and knowledge + refer to industry specific technical knowledge and skills	1. Rarely attends technical or professional development.	1. Attends technical development opportunities and occasional professional development.	1. Regularly attends workshops and conferences and undertakes professional development to keep knowledge and skills updated.	As for B, plus: 1. Learns and applies new skills and seeks knowledge from other sectors and disciplines. Has a wide network and uses mentor/s.

Appendix 4 Five models of extension (Coutts and Roberts, 2011)³

The Group Facilitation/Empowerment Model: This model focuses on participants increasing their own capacity in planning and decision-making and in seeking their own education/training needs based on their situation. Groups may undertake their own research. The project will often provide or fund a facilitator to assist groups to define their own goals and learning needs and to help them realise these.

The Technological Development Model: This model is about individuals working together to develop specific technologies, management practices or decision support systems which will then be available to the rest of the industry or community. It often involves local trials, demonstrations, field days and on-site visits.

The Programmed Learning Model: This model is about delivering specifically designed training programs/workshops to targeted groups of landholders, community members, government personnel and others to increase understanding or skills in defined areas. These can be delivered in a variety of modes and learning approaches.

The Information Access Model: This model is about providing a range of blanket information that individuals and groups can access from a distance and at a time that suits them. It can be based on a web-site, information centre or other centralised locations.

The Personalised Consultant Model: This model recognises the interaction between a mentor or consultant who works over time with an individual or community to improve their managerial, technological, social or environmental situation – or individuals from different backgrounds working together on a 1:1 basis.

³ Reference: “Shaping Change – Natural resource Management, Agriculture and the Role of Extension”

Appendix 5 Specific Extension Activities

Extension Delivery Specific Activities
Formal Written Communication (Reports, Scientific articles/journals)
General Written Communication (newsletter articles, electronic newsletters, web pages, emails)
Web-based Presentations / Meetings (Webinars, Goto Meeting)
Presentations (Creating and delivering PowerPoints / slidecasts, conference style presentations)
Media Training (interviews, articles, media releases)
Social Media (options, training, using etc.)
Social Marketing (community based, drive practice change, persuasion)
Event Management (Designing & delivering workshops, field days and training events)
Trial / Demo Management (Designing scientific trials including statistical methods , managing variability)

Appendix 6 Industry Specific Technical Knowledge and Skills

Grazing Specific Technical Knowledge and Skills
Animal health
Extreme weather events/predation
Biosecurity
Animal welfare
Livestock transport
Animal production
Land capability condition
Markets & marketing
Reproduction
Weaner management
Nutrition
Maps/property information
Land capability & condition
Managing the land resource
Managing grazing pressure
Improving pastures and forage crops
Weeds & pest management
Business planning
Business knowledge & skills
Human resources
WH&S
Chemical use & records
Soil physical properties
Soil chemical properties
Soil Biology
Soil health & fertiliser use
Stormwater management (Swales, buffer strips, sediment basins, constructed wetlands)
Reefplan (Targets, priorities, P2R modelling / monitoring, Linkages to funding)
Water quality (sediment sources, catchment load monitoring, P2R)
Innovation (What is innovation, Cycle / research / support mechanisms)