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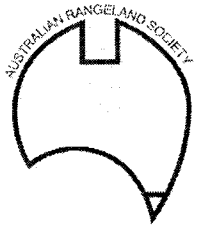

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DEVELOPING AND CUSTOMISING TOOLS FOR GRAZING LAND MANAGEMENT

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ABSTRACT

This paper describes work to develop a number of educational tools for grazing land managers in the mulga and Mitchell grass bioregions of western Queensland. The tools discussed are a land condition evaluation tool called the ABCD framework, regionally customised versions of the "Stocktake" pasture monitoring and forage budgeting package and an economics module that integrates land condition into financial analyses of alternative management scenarios. The ABCD framework and the economics module have both been integrated into the Grazing Land Management (GLM) education package, while "Stocktake" is a stand - alone package. Producer feedback on these extension tools has been very positive.

INTRODUCTION

One of the key challenges of rangeland management has been access to user - friendly, science based tools that assist producers' management decisions. Rangeland science and extension in Australia has a long history of discovery and development that, despite excellent research efforts and considerable expenditure, has often failed to spin off tools that are accessible and useful for land managers. In particular, rangeland management is populated by a swathe of monitoring systems targeting various aspects of rangeland condition, health, biodiversity, productivity or function that have failed over the longer tem to engage producers and even agencies, often despite positive initial responses (Beutel et al. 2005).

More recently, industry and government have begun to counter this trend through the development of a number of educational packages, designed to integrate a wide array of historical scientific data into user friendly products targeted at the needs of rangeland managers. This paper documents the development of three such products for pastoralists in western Queensland.

THE ABCD FRAMEWORK

The ABCD framework is a generic system for land condition assessment used in GLM (an EDGEnetwork educational package designed for producers and focussed on grazing management strategies). Land condition is defined within GLM as "*the capacity of land to respond to rain and produce useful forage*" (Quirk and McIvor 2002). Within GLM, the ABCD framework classes all pastoral land in one of four categories, from A (good) to D (very poor). ABCD measures land condition from a composite of three components - soil, pasture and woodland condition - and the generic method of assessment is built on a set of verbal descriptors that describe each of these components in each of the four condition classes.

A number of activities were carried out to customise the generic ABCD framework described above for use in both the mulga and Mitchell grass bioregions.

- The base set of descriptors were initially customised for each region through consultation with experienced agency staff, resulting in descriptors with improved local relevance, provided in language familiar to local pastoralists.

- Land type description sheets were developed for all major land types in each region. Land types are labelled in local terms with an accompanying photo. A substantial amount of additional data is also supplied on each land type, including lists of pasture species ranked by desirability to grazing animals and productivity data.
- A pasture assessment manual (DPI&F 2006a) has been developed and trialled as an optional extension to the base ABCD framework. It provides a relatively simple method for assessing the pasture component of land condition based on the basal area of two groups of perennial pasture species. Basal area is converted to an ABCD rating via a tool called an ABCD pasture chart, and the pasture rating is then inserted into the overall land condition assessment. This option has been developed for producers wanting improve the rigour of their assessments, or "get their eye in" before using the simpler framework.

The customised ABCD framework has two primary uses within the mulga and Mitchell grass GLM packages. Firstly, it is necessary for, and impacts directly on, calculations for long term carrying capacity estimates. It therefore has a very practical application in the eyes of producers and transparently links land condition to productivity goals. Secondly, it provides a common language around the issue of land condition. This is an area which historically presented significant challenges for producers and government agencies because condition, similar to terms like biodiversity and health, is open to a broad range of interpretations.

"STOCKTAKE" – A FORAGE BUDGETING TOOL

"Stocktake" is a generic one day producer training package developed by DPI&F for seasonal forage budgeting, land condition monitoring, and long term carrying capacity assessment (www2.dpi.qld.gov.au/stocktake/). Key features of the package are its capacity to deliver information at a paddock scale, management and interpretation of data in ways that are useful to the enterprise, and capacity to quantify potential for improvement in productivity. Prior to extension of the package in a given region, the generic package is customised to regional conditions, to ensure the generic framework and outputs match local conditions. The "Stocktake" package was customised to both the mulga and Mitchell grass bioregions through the following activities.

- The land type description sheets developed for use in GLM (see above) were also developed for use in "Stocktake". They are used here to identify land types, and help assess condition and likely productivity.
- Pasture production data was generated for each region using the GRASP pasture production model (Littleboy and McKeon 1997), in combination with data collected by Johnston et al. (1996). These data can be accessed by each enterprise and contribute to estimates of long term carrying capacity and short term forage budgets.
- Development of the ABCD land condition framework (see above) for each region. This is integrated into pasture production assessments.
- A brochure was developed for distribution with the "Stocktake" materials. Titled Mulga as a feed source (DPI&F 2006b), it discusses the role of mulga in forage budgets, providing the core message that sustainable grazing in mulga country needs to be based on perennial pastures, and outlining strategies for the use of mulga top feed, particularly during drought.

The provision of customised versions of "Stocktake" to the mulga and Mitchell grass bioregions, provides an important advance in training options for local land managers. Producers can now access training and supporting information that allows them to objectively budget for forage use, using current best practice. These methods are aimed at optimising both economic and environmental outcomes for producers and the broader community.

THE ECONOMICS MODULE

The economics module was developed through trial and amendment of the Breedewe and SheepDyn software (Holmes 2005). The module is underpinned by a range of data including flock structures compiled on the basis of discussions with experienced DPI&F extension staff, and relationships between land condition, stocking rate, carrying capacity and production developed from consultations with DPI&F research and extension officers, literature review and the principles outlined in the GLM workshops. Several management case studies were developed, documented on the basis of these data, and integrated into the GLM training. Individual producer access to the software is currently cumbersome, however, producers participating in GLM can access output from the economics module via DPI&F staff if they wish to assess alternative scenarios to those already documented for GLM.

The economics module improves producers' capacity to link economic and land condition outcomes across a range of management scenarios. It should therefore add relevance and flexibility to GLM training, and it is hoped, provide greater incentive for producers to pursue management practices that are economically and environmentally sustainable.

PRODUCER FEEDBACK

Evaluation of ABCD framework and associated training within GLM has been conducted to date at two GLM workshops, via post training evaluation sheets. Results indicate that producers viewed the framework and training positively. Over 90% of respondents found training on land condition and its components either *very useful* or *extremely useful*, and greater than 90% believed the training increased their understanding of land condition assessment, and their capacity and motivation to monitor land condition on their property.

Feedback on "Stocktake" was gained from post workshop evaluation sheets completed by participants. The evaluation asked participants to rate each of the seven workshop modules on a scale from 1 (*not useful at all*) to 5 (*extremely useful*). Average ratings for all modules were above 3.8 out of 5, including modules on land condition assessment (including the ABCD framework) and forage budgeting.

CONCLUSIONS

The provision of each tool - the ABCD framework, the pasture monitoring and forage budgeting package ("Stocktake") and the economics module, represents a significant advance, both for managers in western Queensland trying to develop or maintain sustainable and profitable enterprises, and for the DPI&F in its role assisting sustainable industries. However, it is the integration of these tools in a set of supported packages that provides the most important long term implications for these tools. Over the next two years DPI&F will provide "Stocktake" and GLM training to a minimum of 60 properties in each of the Mitchell grass and mulga bioregions, through the federally funded *Sustainable management and conservation of grazing lands in Queensland's rangelands* project. The tools developed here will therefore enjoy wide exposure in the producer community, and strong support through ongoing extension activities.

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