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STOCKTAKE – A PADDOCK-SCALE, GRAZING LAND MONITORING AND MANAGEMENT PACKAGE

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INTRODUCTION

Traditional natural resource monitoring systems have failed to establish clear links between field measurements and on-ground management actions required to maintain the resource. *Stocktake* is a paddock-scale land condition monitoring and management package that has been developed to provide grazing land managers with a practical, systematic way to assess land condition and long-term carrying capacity, and to calculate seasonal paddock forage budgets.

Using indicators of paddock condition, together with grass growth predictions for local land types by GRASP (Littleboy and McKeon 1997), *Stocktake* allows managers to quantify the effect that sub-optimal land condition is having on their long-term paddock carrying capacity. The forage budgeting technique has been included as a second component of the system. It provides a dynamic tool for land managers to adjust stock numbers based on seasonal forage supply.

A FRESH APPROACH

Prior to the development of this package, the most commonly recognised grazier pasture monitoring system in Queensland was GRASS Check (Forge 1996). Land managers using GRASS Check developed a high level awareness and knowledge of the pasture species present in their paddocks. However, few were able to apply such raw data in their strategic or tactical decision making.

A review of resource monitoring by Brown *et al* (1996) stated that, at the enterprise level, monitoring should be done for the purpose of improving short- and long-term productivity via a process of adaptive management. Thus, such systems should not only alert graziers about changes in the composition or condition of particular resources, but also be able to extrapolate that into a business productivity context. For this to happen, three key areas needed to be addressed: (a) scale of assessment; (b) resource monitoring in terms of ecosystem health and long-term productivity; and (c) data management and meaningful interpretation of results. Each of these components was addressed in *Stocktake*.

Scale of assessment

Grazing land managers are required to make stocking and management decisions on a paddock-by-paddock basis. Many existing resource monitoring systems are point, or transect based, and focus on collecting data about specific aspects of the grazing system. In extensive grazing systems, where paddocks often have a heterogeneous mix of landforms, soils, vegetation and infrastructure, a point-scale monitoring system alone is inadequate for broad scale assessment of land condition. *Stocktake* allows monitoring and assessment of a paddock at a land type scale.

Resource monitoring in terms of ecosystem health and long-term productivity

The ABCD land condition-scoring framework, introduced in the Grazing Land Management Workshop (Chilcott *et al*. 2003), provides a standard means of assessing and rating grazing land condition. This framework scores land condition based on an assessment of key indicators of current soil, pasture and woodland condition. "A" land condition is when the ecosystem is in the best condition and ecosystem processes, including cycling of nutrients, cycling of water and energy flow, are most efficient. "D" land condition is when it is poorest and requires remediation.

By using an ecosystem approach, the system acknowledges the importance that all components have on grazing productivity, for example, poor soil surface condition or woodland thickening. In a pasture-only monitoring system such imbalances would go unnoticed. A simple field assessment system for the ABCD scoring framework has been developed for Stocktake. Outputs allow an assessment of the potential for productivity and resource improvement. Forage budgets provide a means for then tactically adjusting stock numbers based on seasonal conditions.

Data management and meaningful interpretation of the results

A key downfall with many monitoring 'systems' has been the lack of meaningful interpretation and reflection about the results by grazing land managers. McGill (1995) highlighted that thinking through reflection is the essential link between past action and more effective future action.

The Stocktake package includes a comprehensive database which chronologically stores, collates, reports on and interprets the field data in terms of short and long-term carrying capacity. Information that can be generated by the database includes:

- Land condition of land types within a paddock ("A" to "D"),
- Paddock carrying capacity in current ("A" to "D") and in optimum ("A") land condition,
- Number of days the current forage in your paddock will last with current stock numbers, and
- Number of adult equivalents that can be carried in a paddock for a particular period whilst maintaining a desired dry matter residual.

CONCLUSIONS

The Stocktake package takes grazing land monitoring to a new level by not only collating data about key paddock resource indicators, but also managing and interpreting the information in a way that most grazing land managers can relate to and use in their business planning. By practically reinforcing key technical concepts from Grazing Land Management Workshops, Stocktake provides a catalyst for bridging the gap between paddock resource assessments and grazing land and stock management decision-making.

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