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MANAGING STOCK NUMBERS DURING AND AFTER DROUGHT

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ABSTRACT

A recent national project collaborated with pastoralists and extension personnel around Australia to examine the financial implications of different approaches to coping with drought. This process assisted the development of decision support tools to improve pastoralists' self-reliance in the face of climatic variability. Here we examine two aspects of tactical stock management, showing that small differences in tactics for reducing stocking pressure in drought can have big financial ramifications, and that economic and environmental priorities may conflict when rebuilding after drought.

INTRODUCTION

In seven regions of the Australian rangelands we worked with a small number of pastoralists with differing management approaches to document their current operations in considerable detail during a project called 'DroughtPlan' (Buxton *et al.* 1996). The dynamic herd and flock model RANGEPACK Herd-Econ (Stafford Smith and Foran 1990) was used to simulate each property over a long period of realistic climate. Alternative management options were also simulated, for comparison with existing operations. A series of case studies based on the ideas and concerns of collaborating pastoralists were pooled into regional reports (Buxton *et al.* 1995-96); these form the basis of the following two studies.

DESTOCKING IN DROUGHT

Numerous methods are used around the country to reduce stocking pressure during drought, including selling, agisting, shooting, and feeding at a central point. While it is important to compare different tactics (e.g. selling or agisting), subtle adjustments to one tactic can also make substantial differences to financial outcomes. Two selling tactics during drought were compared for a mixed cattle and sheep station in NW Queensland. The major aspect of the tactic normally used on the station (Option 1) was to sell all steer weaners during drought; this was compared to selling the same number of steers but from a cross section of age groups (Option 2).

The two options were simulated over a ten-year period consisting of two average rainfall years, two drought years, then six average years to allow for stock numbers to rebuild to their pre-drought levels; the financial outcomes were then compared. At the end of the tenth year the accumulated cash balance for Option 2 was 10% greater than for Option 1 (\$1,674,670 compared to \$1,523,971). The financial benefit of the second option is not evident until several years later, and occurs because sales are maintained after the drought. Where all steer weaners are sold, there is a gap in sales 2-3 years after the drought when these steers would have normally been sold.

Similar studies were conducted on properties in other regions of the country. It was consistently found to be economically advantageous to: retain breeders where possible; retain stock which will be saleable immediately after the drought; and sell stock with the lowest levels of productivity.

REBUILDING STOCK NUMBERS AFTER DROUGHT

Building stock numbers up after drought is just as important as reducing stock numbers during drought. The two general options available to producers are to allow a slow buildup through natural increase (with some assistance from reduced culling rates and retaining breeders longer) or to facilitate a faster buildup by purchasing stock, usually breeders. Some pastoralists aim to rebuild stock numbers as quickly as possible while others prefer a slower recovery to allow pastures to be rested, but there is little ecological data to justify one of these options over the other.

In collaboration with a pastoralist from a sheep station in western NSW, we compared a slow buildup (natural increase) with a faster buildup (buying ewe hoggets). With buying, it takes two years for stock numbers to return to their pre-drought levels, compared with four years for natural increase. Five years after the drought, the faster buildup option has an accumulated cash balance 10% higher than the slow buildup option (Fig. 1). The faster buildup is more profitable than the natural increase option up to a purchase price of around \$50/head. Similar results were obtained for studies conducted on stations in central Queensland and South Australia.

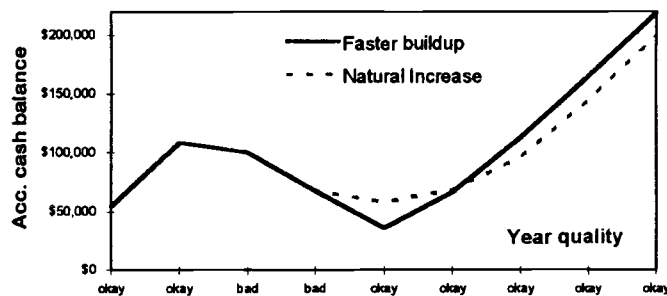


Figure 1. Comparison of accumulated cash balance for two options to rebuild stock numbers over 10 years of varying quality ('okay' = average year, 'bad' = drought year).

Despite the economic findings, many producers and others believe that a slow buildup after drought is better for the land and pastures, and will in fact give a financial benefit in the long term. If a longer recovery phase is considered desirable, then we must be able to demonstrate that it is financially beneficial to slow the rate of buildup. To do this we need to be able to accurately determine the effect of stock number recovery times on pasture abundance and composition.

DECISION SUPPORT

It is often difficult for pastoralists to know the full range of drought management options available to them and the financial implications of these, including options for rebuilding livestock numbers after drought. A decision support tool developed as part of DroughtPlan, **BB-SAFe** ('Buy, Breed, Sell, Agist or Feed evaluator': Stafford Smith and Breen 1995), can assist producers in making these decisions. It is a spreadsheet which allows users to compare the costs and returns of different stock reduction and buildup options on their property - using combinations of tactics and different assumptions about the length of drought.

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