

## **APPLICATION ABSTRACTS**

### **Alternative turnoff strategies for Kimberley cattle 1. Live Animal Performance and Carcass Characteristics**

*W .J. Ryan, D .Pratchett and B .L. McIntyre*

In Western Australia approximately 50% of the beef cattle population is located in the pastoral areas. Owing to poor feed quality, the turnoff from these areas traditionally consists of cattle over three to four years of age suitable only for the lower priced manufacturing beef market. In order to meet the requirements of higher value markets cattle must achieve a carcass fat thickness of at least 4 mm before they reach 30 months of age. This experiment shows that on good Kimberley pastures, this can be achieved in certain areas and feedlot finishing on grain produced on the Ord River Irrigation Areas is a possibility.

In the southern areas of Western Australia the major options for the production of high quality beef are to run a breeding herd and turnoff weaners or yearlings or to purchase and finish locally bred stores. The profitability of these alternatives strongly favours the latter, however, this depends on the availability of a plentiful supply of stores. The pastoral areas have the potential to provide a long term supply of young store cattle. However, the performance of Kimberley cattle in the southern agricultural areas in this experiment would indicate that this trade is likely to be limited unless considerable improvements in cattle performance can be achieved.

### **Mapping current land use from Landsat data in southern inland Queensland**

*G.D. Kelly*

The management of rangeland areas requires an understanding of the spatial relationships of current land uses. In many parts of Australia, however, current land use information is not available. The digital analysis of Landsat Multispectral Scanner data has been shown to provide this necessary and up to date information at an acceptable level of accuracy.

To achieve this result analysis was based on a combination of unsupervised classification techniques and image stratification. This consisted of: classifying the image; removing (masking) successfully identified classes; and submission of the remaining image for reclassification. The typical application of stratification in image processing utilizes a single mask. In this mask, for example, water regions (on an image incorporating both land and water) would be removed prior to the classification of terrestrial areas, the benefit of the mask being to isolate the area of interest and reduce the volume of data to be processed.

### **Response of plant growth to removal of surface soil in the rangelands of western Queensland**

*A.J. Pressland and D.C. Cowan*

Pot and field studies were conducted to assess the likely effect of soil erosion on plant production in mulga and Mitchell grasslands. The results indicated that plants growing in eroded soils would be potentially less productive than those growing in intact soil. This was attributed partly to lower soil fertility which indicates a need to conserve ground cover to minimize erosion. Buffel grass would be more seriously disadvantaged on eroded soil than some native grasses.

## **Effect of drought and high summer rainfall on biomass and composition of grazed pastures in western New South Wales**

*G. Robertson*

Knowledge of the changes in biomass (mass of herbage) and composition of pastures is important if we are able to develop management strategy for Australia's rangelands. Biomass and composition of pastures near Menindee, in western New South Wales, were estimated over a range of seasonal conditions between 1980 and 1985. Biomass and composition of pastures grazed separately by kangaroos and by a mix of sheep and kangaroos were similar. Biomass fluctuated markedly among calendar seasons and years due to erratic rainfall and grazing. Biomass declined to 7 kg/ha during a drought and reached 1,100 kg/ha following high summer rainfall. High summer rainfall triggered a switch in pasture dominance from annuals to short-lived (1-2 years) perennial subshrubs and grasses. Changes in biomass and composition of pastures similar to those described seem likely to occur on average every five years and highlight the need for management strategy to accommodate them.

## **Botanical and chemical composition of the diet selected by cattle in three range types in central Australia**

*V.R. Squires and W.A. Low*

Diet preference studies were made on beef cattle in Mulga Shrubland, Mitchell Grassland and Open Woodland range types in the semi-arid rangelands of central Australia. Diets contained only five to eight of the 26 to 42 species available and preferences were highest for annual and biennial grasses and forbs. Some perennial grasses were seasonally preferred and some were ignored. Diet quality was generally adequate in the two range types containing shrubs, but was more often marginal in the Mitchell Grassland where forage abundance usually compensated for lack of quality. The simplistic classification of range condition classes used in this study was not associated with significant differences in plant biomass but differences in species composition were recorded. This and other studies on range condition in central Australia under favourable climatic conditions have suggested that a more complex system of classification of sites and measurement of parameters is needed.

Cattle managers in arid rangelands must consider plant phenology, species composition and cattle distribution and behaviour as well as the usual cattle condition in arriving at stock and pastoral land management decisions.

## **Socio-economic and biological impact of the feral pig in New South Wales: an overview and alternative management plan.**

*Peter H. O'Brien*

Feral pigs pose a management dilemma in Australia because they are simultaneously an agricultural pest, endemic and exotic disease hazard, environmental liability, export commodity and recreational resource. These diverse values have been ignored in unsuccessfully pursuing the traditional policy of eradication. A multiple use management plan is one which acknowledges the diverse values of the feral pig and seeks a net gain for all parties. One such plan is described here. The proposal is based on : local ("buffer zone") control near susceptible enterprises; sustainable yield harvesting; and appropriate exotic disease contingency plans. Properly evaluated and implemented, plans such as this can result in management which is not only biologically realistic but also minimizes current conflict.