

APPLICATION ABSTRACTS

Production characteristics of an open range cattle herd in the south-east Pilbara region of Western Australia

H.G. Gardiner, K.R. Shackleton and J.G. Morrissey

Rapid increases in grazing pressure on marginal, low quality rangeland can result in increased mortality and reduced branding percentages. The effects of overstocking may be manifest in reduced production in the next and subsequent years. This implies that carrying additional stock over for even one year, for whatever the reason, may significantly affect production in subsequent years.

Cows older than six years are subject to higher mortality during periods of stress and consideration should be given to culling to make way for more productive younger cattle. Calf losses can also be high and they should be given additional care, perhaps supplementation. Changes in management aimed at reducing mortality and a careful assessment of the carrying capacity of the range should be considered before making any decision that will rapidly increase grazing pressure.

A population model for Noogoora burr (*Xanthium occidentale*)

R.J. Martin and J.A. Carnahan

A model of Noogoora burr population dynamics is described which enables alternative management and control procedures to be simulated.

Results of observations indicated that it would take about seven years for a seed reservoir of 100 seeds per m² to fall below one seed per 10 m² which would result in one mature plant per 100 m². Such a population could be controlled by hand-pulling. In the absence of any control attempt on return of favourable conditions, the plant population would recover rapidly.

Landholders should take advantage of periods of natural decline in the seed reservoir by making an extra effort to prevent seeding in the first favourable year after several successive dry years.

The application of Landsat image data to rangeland assessment and monitoring: an example from South Australia

R.D. Graetz, M.R. Gentle, R.P. Pech, J.F. O'Callaghan and G. Drewien

The rangelands of Australia are vast and empty of people. Compared with most semi-arid areas of the world, individual graziers manage and are responsible for very large parcels of land. They accomplish this using their own experience and observation, with remarkably little information about the land being provided from outside the rangelands.

Data from satellites such as Landsat have a contribution to make to rangeland management. This study examines how Landsat images, when processed by a computer, can provide information on the amount and the changes in plant cover for individual properties. Most of the study concerns the methods developed to integrate maps of property boundaries with Landsat images and the derivation of the pasture indices of 'cover' and 'greenness'. Changes in the pasture as measured by satellite for properties in saltbush country in the north-east of South Australia are reported.

The supplementary feeding of sheep consuming mulga (*Acacia aneura*) with low levels of molasses and urea under field conditions

D.R. Niven and K.W. Entwistle

Previous studies in penned sheep fed mulga indicate that low levels of molasses supplementation (50 g and 100 g dry matter (DM) per day) can produce significant liveweight and wool growth responses. These responses were enhanced in one trial by the addition of 6 g urea day⁻¹. This study sought to evaluate these responses under field conditions using similar low levels of molasses and urea.

Mature Merino wethers grazing mulga were supplemented for 21 weeks with 50 or 100 g DM molasses day⁻¹ with or without 6 g urea day⁻¹. Growth rates and clean fleece yields were higher in the supplemented groups than in unsupplemented controls, with groups receiving 100 g DM molasses day⁻¹ being higher than the 50 g DM day⁻¹ groups. The provision of urea depressed both growth rate and clean fleece yield.

It is suggested that molasses fed at very low levels is a useful supplement for sheep fed mulga in the field for prolonged periods. Further work is required to clarify the situation under which urea might be used in these circumstances.

The effect of prior history of superphosphate application and stocking rate on faecal and nutrient distribution on grazed natural pastures

G.G. Robinson, R.D.B. Whalley and J.A. Taylor

The concentration of excreta in sheep camps causes unevenness in nutrient distribution in grazed paddocks, particularly high concentrations of most nutrients occur in the camp area. Concern has been expressed that higher stocking rates could increase the rate of nutrient transfer to camps. Such a worry has proved unfounded because of the greater returns to non camp areas at higher stocking rates; in fact it could be suggested that increased stocking rates cause a more even distribution of sheep faeces and consequently of nutrients. This is an encouraging finding as management strategies for temperate rangelands in the New England Tablelands often recommend the adoption of increased grazing pressure.

The operation and reliability of urea dispensers to supplement sheep via drinking water

R.G.A. Stephenson

Ewe milk yields and lamb growth rates can be increased through urea supplements. This has prompted the development of dispensers to meter urea into trough water. Two designs for dispensing granular urea and one for dispensing liquid urea were evaluated in terms of providing accurate and uniform amounts of urea into trough water. The uniformity of urea concentration in troughs at different times of the day during summer was also investigated. The effect of urea intake on the concentration of ammonia in rumen liquor was measured.

Supplementation of urea via the drinking water ensures uniform and compulsory intake and is therefore superior to voluntary intake systems. These practical advantages enhance the value of the concept in semi-arid Merino districts where water troughs make up a large proportion of existing water facilities. The ammonia concentrations of supplemented ewes suggest that urea provided sufficient nitrogen to ensure maximum rumen function. The potential for other husbandry procedures to utilise the water medication concept is highlighted.