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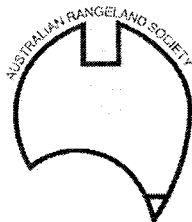
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RANGELAND GRAZING STRATEGIES FOR IMPROVED ECONOMICS AND RESOURCE SUSTAINABILITY

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ABSTRACT

The Central Australian Grazing Strategies Partnership is a collaboration between the CLMA, NT DPIFM, Desert Knowledge CRC, CSIRO and the pastoral industry, to promote research into rangeland spell grazing strategies. The Partnership has initiated a three year research program encompassing three commercial, on-ground spell grazing trials and a series of case studies in central Australia. Mt Riddock Station is trialling an eight paddock rotation aiming to maximise feed potential and productivity of a mixed buffel and native grass pasture. Idracowra Station is trialling an alternative approach to rotation by moving a mobile water trough along 30km of pipeline. The aim is to use pasture more evenly, reducing the impact and extent of the grazing gradient, and consequently come out of dry periods with heavier cattle and better land condition. The third trial is being undertaken on the NT Government Old Man Plains Research Station. This involves a four paddock rotation that spells pastures during the summer growing season. The Partnership will seek additional funding in 2007 to secure the long term focus of this project as we are well aware that it takes a long time to realise change resulting from new grazing strategies! Early results and observations from the spell grazing trials will be discussed.

INTRODUCTION

Over the past decade the ongoing cost-price squeeze has forced pastoralists to look at using their land more efficiently. There has been widespread interest by the industry in spelling practices, which hold out the potential for increased or sustained production without damage to natural resources. However, this potential, and subsequent challenges, has been little documented, particularly at a practical whole-of-property/business scale. Trials being conducted elsewhere in Australia encompass summer and winter-dominant rainfall regions of the rangelands but leave a hole in the aseasonal and more variable sector of the rangelands. Studying grazing strategies in central Australia requires a long-term commitment. For this reason, the Central Australian Grazing Strategies Partnership (CAGSP) was formed to coordinate projects that will contribute to our long-term knowledge of grazing strategies. Members of the partnership include the Desert Knowledge CRC, the Centralian Land Management Association, the Department of Primary Industry, Fisheries and Mines, the CSIRO and pastoralists. The primary role of the Partnership is to support and develop studies on grazing strategies beyond the ephemeral nature of funding cycles. In 2005, the Partnership secured funding from the Department of Agriculture, Fisheries and Forestry to conduct a three year project to develop best practice guidelines for spell grazing in central Australia and construct a national synthesis of rangeland grazing strategies. This paper primarily discusses the best practice guidelines component.

In order to develop best practice guidelines for spell grazing the Partnership is trialling three grazing strategies with a series of case studies designed to broaden the scope of the project.

Two of the trials are on commercial properties, Mt Riddock Station and Idracowra Station and the third is on Old Man Plains Research Station. These trials will be assessed for practicality, productivity, economic viability and resource sustainability. Best practice guidelines will be developed for spelling strategies as opposed to strict recipes for spelling or rotational grazing systems.

Mt Riddock Station is trialling an eight paddock rotation aiming to maximise feed potential and productivity of a mixed buffel/native grass pasture. Idracowra Station is trialling an alternative approach to rotation by moving a mobile water trough along 30km of pipeline. The third trial is being undertaken on the NT Government Old Man Plains Research Station. This involves a four paddock rotation that spells pastures during the summer growing season.

METHODOLOGY

Eight Paddock Rotation

Mt Riddock Station is trialling an eight paddock rotation on a predominantly buffel grass pasture to fatten Poll Hereford steers prior to sale. It is anticipated that cattle will move into a new paddock every 3-4 weeks depending on feed availability. The aim of the trial is to maximise the feed potential and productivity of buffel grass pastures and ensure that animal nutritional requirements are met. The control paddocks are continuously grazed and are dominated by buffel grass pastures, although a mixture of land types does exist.

Within both the treatment and control paddocks there are two transects per watering point, with sites located at 500m, 1km and 3km from water. The monitoring sites are assessed prior to grazing and immediately after grazing. Assessments describe yield, cover, perennial grass basal area, pasture composition and species frequency and percentage of rank buffel grass. This data will enable us to analyse the effect on pasture composition and productivity considering distance from water and how the pasture changes over time. Data is also collected to describe the extent of cattle activity, the presence of other grazers (kangaroos, rabbits), defoliation and soil erosion. The cattle activity index is of particular interest as it is hoped that this will give us some indication of cattle spatial distribution. Herd performance data for weight and condition score will be collected at regular intervals and this will enable analysis of herd weight gain over time and through various seasons.

Mobile Trough

At Idracowra Station, the pastoralist is trialling a mobile trough along a 30km pipeline. The pipeline is located through more robust land systems and also through terrain that allows easier movement of water. Time on each watering point is gauged according to land type (more fragile = less time), time since rain (longer period = longer grazing at that point) and human resources. This will enable greater access to the 500sq. km. paddock and will allow for pasture spelling as the trough is moved. Mixed Santa Gertrudis cross breeder cows are used in the trial and also in the control area. It is anticipated that cattle will require some training to adjust to the new system. The aims of this strategy are to come out of dry periods with heavier cattle in better condition, to use pastures more evenly and reduce impact and extent of the grazing gradient and to minimise labour and capital requirements in comparison with more intensive controlled grazing and spelling strategies.

There are four pseudo transects within the treatment paddock, with each transect representing a different land type; mulga over perennial grasses, clayey stony slopes, *Eragrostis* drainage lines and calcareous oatgrass plains. There are four control transects located in comparable land types at continuously grazed water points. Monitoring sites are located at 500m, 1km and 3km from water along each transect.

Pasture monitoring will be undertaken prior to grazing and as soon as possible after grazing. The pasture status is described in terms of cover, total yield, the contribution of the four most abundant species to yield and the presence of any other species. Data is also collected to describe the extent of cattle activity, the presence of other grazers (kangaroos, rabbits) and defoliation. It is also anticipated that additional transects will be monitored using a simple palatable species count and cattle activity index. This will enable more of the paddock to be assessed. Cattle activity is of particular interest in this trial as we are keen to find out how cattle cope with a moving watering point. Data for pregnancy, weight and condition score will be collected annually and this will enable analysis of herd performance over time and through various seasons.

Four paddock rotation

The trial at Old Man Plains Research Station is designed to move Droughtmaster breeders through a four paddock rotation that uses three paddocks in a twelve month period, and thus provides summer spelling to each paddock. Stock numbers are based on forage budgets. The aims of this strategy are to decrease overheads through intensification, optimise cow condition, and maintain land condition. A more sophisticated version of this system will allow herd management activities to be incorporated into the rotation. A control paddock of mixed land types will be grazed continuously, however stock numbers will be adjusted according to feed on offer.

As for the other trials, the paddocks in this rotation will be assessed immediately prior to grazing and immediately after grazing. Data will be collected to allow analysis of pasture composition and productivity considering distance from water and changes over time. We will analyse herd performance data over time and through various seasons in comparison with the trial cattle.

KEY LEARNINGS

It will take many seasons before change in pasture composition and productivity become apparent. However it is possible to make some observations on management systems and cattle behaviour even at this early stage. The most significant area of interest is that of cattle behaviour. When the Hereford steers first populated the Mt Riddock trial they were congregating in small groups of up to ten individuals, comparable with cattle in the control areas. However, after three weeks it was noted that cattle were starting to move in groups of 20-30 animals and within six weeks were seen in mobs of up to 100 individuals. Observations made after three months identified that the majority of the 400 animals within the treatment paddock were grazing in one large herd. This has interesting ramifications on how cattle are grazing the pasture. Preliminary post-grazing observations also suggest that cattle are using the treatment paddocks evenly, without forming pads, although the grazing pressure is still higher closer to water.

At Idracowra, the cattle have only just gone into the paddock. Seasonal conditions have resulted in good growth of parakeelya, a succulent plant that cattle favour and enables them to go for longer periods of time without water. As such the pastoralist is finding that cattle are not totally reliant on the trough at this stage and has not been able to begin moving the trough as predicted. Logistically, the mobile trough has been challenging with the third generation already being planned. Perhaps surprisingly, it has also taken the cattle some time to become accustomed to this newfangled device!