

DESERT KNOWLEDGE CRC

The Central Australian Grazing Strategies project
Working Paper Series

A water-controlled
rotational grazing system:
Rockhampton Downs, NT

D. Walsh

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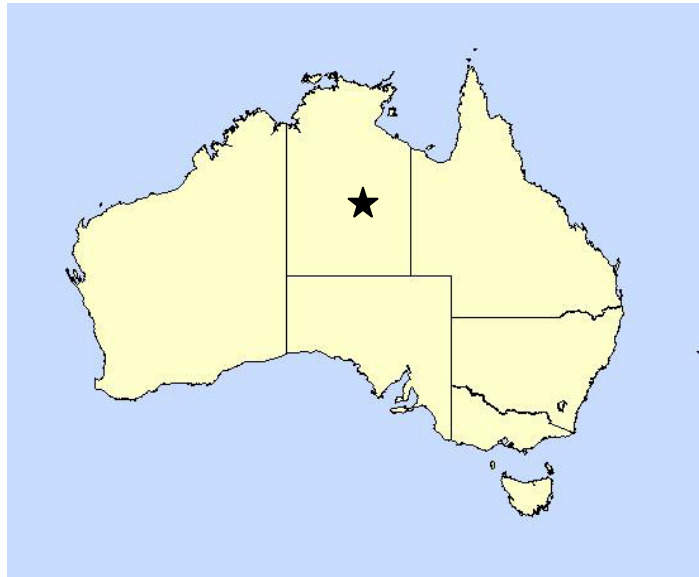
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A water-controlled rotational grazing system

Rockhampton Downs, NT



Key points	Rockhampton Downs, owned by the Australian Agricultural Company (AAco) is a 4,503 square kilometre station situated about 130 km north-east of Tennant Creek. The station is dominated by treeless Mitchell grass plains on black cracking clay soils. The southern part of the property comprises snappy gum woodland and acacia shrubland on red lateritic soils. Coolibah woodlands on heavy grey soils can be found on the far northern portion of the property. The 250 square kilometre trial paddock is mostly Mitchell grass downs with a section of red soil country on the southern boundary.
250 square kilometre trial paddock with seven water points	
Water points switched on and off to control cattle distribution	The average annual rainfall is 400 mm and is summer-dominant. Rockhampton Downs produces Santa Gertrudis X Charolais/Senapol weaners which are moved to backgrounding properties and feedlots owned by the company. The finished product is sold into both the domestic and branded beef export markets. Cattle are mustered using a combination of horses, motorbikes and helicopters.
Increased calving percentages and production per hectare achieved	The grazing strategy This case study describes a water-controlled rotation system which has been trialled at Rockhampton Downs since May 2004. The idea for the system came about after managers noticed how well holding paddocks responded after being heavily stocked for short periods and then rested. The concept they have trialled is turning waters on and off in a single paddock during the dry season so that the cattle rotate throughout the paddock. The trial paddock was initially part of a larger paddock that was divided in halves. During the trial, the other half was managed under normal station practice (continuous grazing) for comparison.
Maintenance, fuel and labour costs an issue	Each water in the rotation paddock is used for approximately six weeks during the dry season before being switched off. Cattle then move themselves to the next water, with station staff following up any stragglers. Over the wet season, cattle are free to graze wherever they like, but naturally concentrate on the red soil after rains. Each water point is thus spelled for up to 40 weeks depending on the duration of the wet season. Under the system, 80% of the paddock is being spelled at any given time during the dry season.
	
	Each water in the rotation paddock is used for approximately six weeks during the dry season before being switched off. Cattle then move themselves to the next water, with station staff following up any stragglers. Image courtesy of Jillian Fisher (Project Officer)

Decision making for stocking rates, timing and spelling

The stocking rate is set at about 1,000 head which has been determined by historical performance and assessing the carrying capacity of the country within a 3km radius of water. The cattle are managed as a single mob and the grazing duration at each water is about six weeks. Decisions about when to move stock to the next water are based on observations of pasture biomass available.

Objectives of the grazing system

The reasons for testing this grazing system at Rockhampton Downs include:

- to improve production
- to improve land condition and prevent degradation
- to increase the stability of production and income
- to improve drought management.

Results

Livestock

Initially there were problems with cattle behaviour in the trial. The cattle were used to grazing in their defined home ranges and kept walking back to their preferred areas after being moved. This meant that the whole stock-camp had to go out every day to shift cattle back to the new water. The manager overcame these problems by turning off their current watering point and switching on the new water a day before the move was due so that the smell of the water provided the cue for the cows to move once the old trough went dry. Over time the cattle adjusted to the new regime and now the small number of stragglers can be moved by one person with a Toyota or motorbike.

Calving percentages declined significantly in the first year of the trial and took three years to recover. This has been attributed to the hot weather in the first year, the high level of lignification in the pasture and the behavioural stress of the new regime. Today the calving percentages are the same or better than those of the cows under traditional management. The cows in the rotation tend to stay together as a closer mob, whereas before they spread out a lot. This means that the bulls are in closer proximity to the cows at all times. By the end of the third year the cows in the rotation were in noticeably better body condition which probably assists in re-conception rates.

The water-controlled rotational grazing system has resulted in an increase in the kilograms of beef produced per hectare. This has largely been due to the opening up of previously ungrazed country which has meant more cattle can be carried in the paddock. After three years, the weights of the trial cattle also began to outperform those under traditional management by an average of 25 kg/head.

Financials – costs and profits

Development of the trial paddock required 25 km of new fencing, 13 km of poly pipe and infrastructure for three additional waters. The total cost of developing the trial paddock was about \$131,000. AAco note that subdivision of the paddock was desirable regardless of the grazing system and probably would have occurred anyway.

The rotational system has had higher labour, maintenance and fuel costs compared to the traditional system because the cattle need to be checked every day. Ensuring that the water delivery systems are working and that cattle have not wandered back to the previous water have been the main concerns.

Mustering costs have been reduced by ensuring that the rotation puts the cattle close to the yards at the right time of the year. This has resulted in less helicopter use and shorter mustering times.

In terms of the bottom line, the results are still being evaluated, so it is unknown whether the increased production has outweighed the higher costs and management commitment.



Some tanks, now watering mobs of 1,000hd, have struggled to keep up with demand. Future options include fencing the paddock into smaller sections, running smaller mobs to ease pressure on waterpoints.

Image courtesy of Suzie Kearins (AACo.)

Land condition

Pasture condition has improved as a result of the rest regime. For example, native pasture species such as Mitchell grass have regenerated, particularly around old water points that now get more rest. As expected, there has been some decline in the amount of pasture near the new water points. However, data show that the “sacrifice zone” is much smaller than under traditional management and that perennial grass tussocks are persisting within 50 m of these new troughs.

People

The grazing system is more labour intensive because cattle are checked and moved more often than in the past. It took about a year for the staff and cattle to “learn the ropes” and become comfortable with the new system. Daily checks are also needed as AAcO have found that 30,000 gallon tanks sometimes struggle to meet demand and don’t offer a comfortable amount of water security in case of problems with bores, pumps or troughs. They have also had problems with tanks failing due to the amount of movement on the black soil plains.

There were times early on when management considered abandoning the trial due to problems with water security, work load and the difficulties with cattle behaviour. Having a funding commitment with Meat & Livestock Australia for the trial kept them committed. Having overcome the tough start, AAcO feel it has been a positive learning experience for staff and management right throughout the company.

Drought and fire management

Drought conditions are relatively rare on the Barkly Tableland, however AAco feel that the rotational system would probably cope better in dry years than the traditional management approach. In extended dry periods, cattle numbers would probably have to be reduced or the rotation stopped to allow cattle to spread out more.

In terms of fire management on the station, wild fires are not normally controlled in the spinifex country but fire is kept out of the Mitchell grass country. Controlled burns are not typically used to manage vegetation, but this could be considered if it is found to be useful.

Advantages of the system

AAco believe that the main advantages of the water-controlled rotational grazing system are:

- increased animal production (kg/ha)
- increases in native pasture in previously over-grazed areas
- more even utilisation of the paddock.

Disadvantages of the system

The disadvantages of the system have been:

- high initial financial outlay
- water storage and security concerns
- labour intensive, requires more commitment to stick with it.

Recommendations to others who want to try it

- do a lot of research and planning
- understand the science behind the strategy
- look closely into water storage options and decide which is best
- get information and support from others (e.g. Department of Primary Industry and other producers).

Plans for the future

AAco are currently reviewing the results of the trial and planning where to go next with the concept. One option would be to put more water points in the system and perhaps look at operating two waters and mobs at a time in the paddock, thus increasing stocking rate and fully utilising the available grazing area. AAco are also considering splitting the paddock in half again so that two mobs could be run separately to help reduce the demand on any one water point.

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