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The Central Australian Grazing Strategies project
Working Paper Series

Cell grazing in the Pilbara: Cheela Plains, WA

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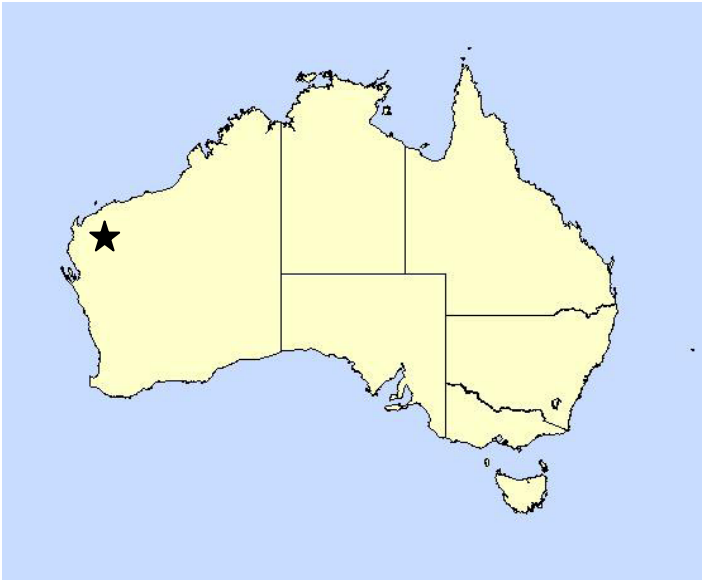
Cell grazing in the Pilbara

Cheela Plains, WA



Key points

23,500 hectare cell grazing system in the Pilbara

Reduced cost of production from 81c to 43c per kilogram

Innovations in waterpoint and fencing infrastructure

Improved feed quality and quantity

Evan and Robin Pensini started developing Cheela Plains after it was subdivided from the family property (Wyloo) in 2001. The property is 198,501 hectares, with 23,500 hectares currently being managed as a cell grazing system. The Pensinis breed Shorthorn X Red Angus and *Bos indicus* cattle targeting the domestic feeder and live export markets.

Cheela Plains consists of arid rangelands of open grass plains, creeks and drainage systems coming off the rugged hills that characterise the Pilbara. The main trees and shrubs on the station are mulga and other acacias, along with bloodbush and saltbushes. The dominant perennial grasses are buffel, eragrostis and Mitchell grass. Annual feeds include button and Flinders grasses.

The average rainfall is 290 mm a year and is summer-dominant, but like most rangeland properties, the amount and timing can be highly variable.

The grazing strategy

Twenty-five percent of the overall property is rested at any given time. The cell system, which has been fenced on 23,500 hectares of the most productive country for nine years, has 98% of its area being rested at any given time. Cattle are run in a single mob of 1,000 to 1,200 head.

The decision to implement cell grazing was made after Evan and Robin attended a Grazing for Profit School in the late 1990s. The cell area currently comprises 57 paddocks in a grid formation, with the potential to become about 100 paddocks with an ideal size of about 225 hectares each. A single-wire electric fence is used to control the cattle. Most waterpoints are situated in the paddock corners which means that each water can supply four paddocks. The water supply is still being refined to maximise flow rates to troughs and tanks. An innovation in the water infrastructure has been to use dump-truck tyres from the local mines as water troughs.

Another innovation at Cheela Plains is the lack of gates in the cell system. Cattle are moved between paddocks by lifting the single-wire electric fence with a PVC pole. This means the stock can be moved from any location (not necessarily the paddock corner or trough). The cattle also recognise the white pole very quickly. When paddocks are not in use an old truck tyre is simply laid on the wire at track intersections etc. The old truck tyre laying on the ground near the fence becomes the only permanent “gate” fixture. Cattle are moved quietly using horses.

Decision making for stocking rates, timing and resting

Stocking rates are determined by calculating the feed on offer of each paddock in the cell and estimating carrying capacity. The expected forage growth is also assessed in April and August each year for future stocking and drought assessment. Pasture assessments are also done before stock are introduced to the paddock and then again halfway through the expected grazing duration to ensure that things are going to plan. The level of defoliation in relation to plant biomass is a key indicator. If at the end of a graze period there are desirable plants left ungrazed and some that have been overgrazed, then the utilisation rate is considered to have been poor. The problem of patchy utilisation is best overcome by increasing mob size or reducing paddock size.

"There are only benefits from implementing a better grazing strategy. Any difficulties are just human mindset. All humans are good at putting up barriers to change"

Care is taken to ensure that plants are not grazed too severely so that they can recover quickly. Evan tries to retain about 50% of the plant height but notes that it takes awhile to get "tuned" to the system. When grass is green and actively growing, it needs one quick bite and then rest which means that about 60% can be left after the graze period. Evan prefers to work on conservative rates of defoliation to ensure good plant recovery. The rate of forage re-growth, which depends on soil moisture and previous grazing pressure thus dictates the resting and grazing regime. Paddocks are thereby grazed for variable lengths of time rather than for a set period.

Grazing Charts (as promoted by Resource Consulting Services) are used to keep track of feed availability, stocking rates, stock movements, paddock rest intervals and rainfall. A series of 22 monitoring sites is used to illustrate land condition trends.

The open grass plains, creeks and drainage systems coming off the rugged hills of Cheela Plains is typical of the Pilbara region.

Image courtesy of Evan Pensini

Objectives of the grazing system

The reasons for adopting cell grazing at Cheela Plains include:

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

Results

Livestock

The Pensinis had been trying to implement controlled mating of their heifers prior to setting up the current cell grazing system. However, it was difficult to achieve synchronisation in the extensive situation due to high variability in pasture quality and animal nutrition. Once the cell grazing system was started, they quickly implemented a 70 day mating schedule and have seen incredible improvements

in reproductive performance. The extra control has also made it easier to market their cattle as they know they will have a line of even-aged weaners to sell at a certain point in time. It also means they only need to do one round of weaning a year instead of two. The cows and calves also perform better because they have a higher plane of nutrition due to the improved quality and quantity of pasture available. Controlled mating also provides a greater chance of detecting fertility problems because you know when cows were mated and when to expect the calving period. Underperforming cows are harder to detect in the extensive system because there is often uncertainty about when a cow had her last calf.

The controlled mating program has not been without its problems though. During a four-year drought, the mating program on Cheela Plains had to be modified and it has taken several years to re-synchronise the herd.

"Some results are seen immediately, while others take a long time to become apparent. You have to remain patient and positive"

Another benefit of the cell grazing system is that the cattle are quiet due to the additional handling they get. Theoretically, the cell grazing system allows extra cattle to be run in exceptionally wet seasons, however Evan notes that it is sometimes difficult to source enough cattle at these times to take advantage of the additional feed.

Financials – costs and profits

It is somewhat difficult to quantify the set-up costs of the system because it has been a "work in progress" for nine years. However, Evan notes that infrastructure costs have increased dramatically since they first started. These costs are not really specific to the current grazing strategy – they would have been similar if other property development options were implemented. Innovations in fencing and water infrastructure (mentioned earlier) have in some way alleviated the increasing costs of materials. Evan believes that the cell grazing system implemented at Cheela Plains does not have any additional running costs compared to a more traditional grazing system.

Evan has used Resource Consulting Services' Profit Probe tool to benchmark his production and financial performance. Profit Probe breaks down the business costs and highlights where efforts need to invested to get the "best bang for the buck". Evan notes that when prices are good and the cattle are doing well, it is easy to think that the business is highly profitable. However, Profit Probe drills down to show how each of the overheads and direct costs impact on the production of each kilogram of beef. In the first three years after implementing cell grazing the Pensinis had reduced their cost of production from $0.81/kg to $0.43/kg.

Overall, Evan has seen an improvement in the bottom line as a result of the grazing system and expects to recoup the costs of development once the current drought conditions end.

Land condition

Since the implementation of cell grazing nine years ago, Evan has been able to demonstrate an increase in pasture biomass and soil nutrients, a decrease in run-off (leading to increased penetration of rainfall) and improvements in biodiversity. An increase in palatable perennial native species is a sign that the system is working well. A decline in weed species has also been a positive outcome of the grazing system. Before the current grazing system, there were

areas of previously bare ground on the property that were covered with burrs and unpalatable annuals. These “pioneer” species, which establish on tired soil, have gradually been overtaken by more palatable and productive species as the mineral and water cycles have improved on these areas. Evan now finds it difficult to find some of the “weedy” species that once dominated.

People

Evan feels that his personal development has benefited greatly from the implementation of the grazing system and he now has better knowledge and records to pass onto others about the management of the property.

Drought and pest animal management

The Pensinis have found that the adoption of cell grazing overcomes many of the problems of traditional management in the region. The use of feed budgeting and Grazing Charts creates an “early warning system” because they estimate the amount of feed present and how long it will last given the number of cattle present. Rather than waiting until the feed situation is dire, the Pensinis have greater control over their feed supply by adjusting stocking rates well in advance. In the event of a severe drought, the ungrazed paddocks away from the cell complex provide a source of feed for cattle as numbers are further reduced.

Evan notes that extreme dry periods have been testing, but by remaining patient and believing in the system he has been able to stay positive. In these extreme situations, he now destocks and looks for other opportunities that might arise.

Many critics of cell grazing and rotational systems point to problems in keeping other herbivores out of the paddocks being rested. Evan notes that there is a high kangaroo population on Cheela Plains at times and he manages these by switching off the waters in his rested paddocks. Evan makes adjustments to his feed budgets to account for the extra grazing pressure when kangaroo numbers are high.

Waterpoints are located in paddock corners with a single wire electric fence controlling the herd.
Image courtesy of Evan Pensini

Advantages of the system

Evan nominates the following as advantages of his grazing system:

- improved water, nutrient and mineral cycles
- improved profitability
- improved personal satisfaction through achieving personal goals
- water medication for supplement distribution is very cost-effective.

Disadvantages of the system

Some of the disadvantages of adopting a different grazing system are:

- a sense of isolation if you are the only person in the region doing it
- frustration at others not seeing the benefits
- specialist skills are required which means you may not be able to leave the property as often as you would like.

"It is a continuous learning process. You can't just copy others, you must adapt things to your own situation and take an individual approach. You have to be flexible and be prepared to change along the way"

Recommendations to others who want to try it

- look at others who are already doing it
- get the necessary training
- just do it!

Plans for the future

The plans for expanding the cell grazing system on Cheela Plains are certainly possible and will be implemented when the infrastructure cost returns can be realised. In the longer term, Evan feels that Cheela Plains will be well placed to cope with climate variability because cell grazing is a very adaptable grazing strategy. Preliminary soil carbon testing shows very good levels of carbon sequestration in the cell grazing area compared to outside it.

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