

## Pasture under adverse conditions - Handling what you have:

### Grazing systems in practice

Bill Waugh

*"Nortongong", Gulargambone*

**Summary:** "Nortongong" is situated between Coonamble and Gulargambone. It is 3128 ha, mainly natural plain country with scattered clumps of timber. The average rainfall is 550 mm. The main enterprises, until 1993, were wheat and steers. The steer enterprise is run under the KISS (Keep It Simple Stupid) principal, buy steers (300 kg) and sell bullocks (600 kg). Weight gain average about half a kilogram per day and each steer runs on 3 ha. The target market is Jap Ox. The only improved pasture is lucerne sown under the last crop in any crop rotation. The natural pastures are a range of summer perennials (Mitchell, cup, curly windmill, wallaby, box) and in the winter mostly annual grasses and forbs, with burr medic providing a very good source of protein. Time Control Grazing was tried and abandoned because of poor animal performance and now a hybrid form of rotational grazing is practised.

#### Introduction to Time Control Grazing (TCG)

About five years ago there was a virus sweeping the rural industry called "Cell Grazing". It went like this. First, one paid \$50 to attend a meeting to hear an interesting Rhodesian speaker. At this meeting you heard about this revolutionary way of running your stock that would cure all your problems. However, you got just enough information to make you want to find out more. If you wanted to learn more, you had to pay more money and attend a "Grazing For Profit" (GFP) school. You were even told that if you attended the GFP school, they would tell you how to predict droughts.

The next part of the syndrome is where you try to learn about this method of management without paying \$2000 to go to the school. Nevertheless, they are too smart for you and after you waste a few months you realise that the grazing system is only the bait to get you to the school. So you give in, and pay the money to attend the school.

At the GFP school you learn all these new concepts such as:

- do not feed in a drought
- do not make hay
- do not irrigate
- do not invest in machinery.

New terms are also used such as:

- brittle and non-brittle

- water cycle
- mineral cycle
- succession
- energy flow
- animal impact
- herd effect
- sigmoid curve
- paradigms

They spend a whole session on paradigms. The promoters have the most "Paradigm Paralysis" of anyone. Like any revolution, there is no room for any "Doubting Thomas", or free thinkers. Then you go to another meeting and find the cost of the school was the cheap part, and now you have to pay to join the Executive Link Board or the KIT (Keep In Touch) group.

At the GFP schools you are told that TCG was the answer to all the problems of declining perennial pastures. Then a couple of years later Allan Savory came along and said that TCG is only a tool and is not the answer to our problems at all. He indicated that we needed to go back to more schools and learn about Holistic Resource Management (HRM).

After the school you go home and worry about what they call the "hardware" which are the fences and water. Building the fences was the easy part, trying to understand the rules about rotating the stock, the "software", is a lot harder. Then the fun

part starts when you have bus loads of people visiting to see your farm and the advisers telling you what a good job you are doing, and the knockers telling you it will not work.

Finally, if there are any young rural advisers in the audience who want to make a name for themselves, just wait twenty years and bring out rotational grazing again, with a new name, a few new complicated rules and you can start another revolution.

### Experiences of TCG at "Nortongong"

Please excuse my facetious start to the paper. I am not here to knock TCG. Actually, I was very impressed with Dr Stan Parsons. All his ideas on the grasses and pastures seemed so logical and simple. In the right conditions and climate, I believe it is an excellent idea. Unfortunately, I have not been able to achieve my aims with TCG. My problems were that I have the wrong enterprise, in the wrong climate, with the wrong soils. Please understand that my priorities are more with animal performance.

Everyone here wants to leave the country in a better condition than we found it. Where we differ is in the ideas we use to achieve this aim. All management is a compromise and we usually have to compromise between profit and the environment. It seemed TCG would allow us to avoid this problem because you could run more stock and improve the pastures at the same time.

"Nortongong" is situated 20 km north of Gulargambone on 3000 ha, mainly plain country, with scattered clumps of timber. The main enterprises until 1993 were wheat and steers, but with high farming costs, good cattle prices and a desire for a change in lifestyle, we decided to stop farming and only run steers. This proved lucky with a drought in 1994 and unlucky in 1995, with high prices for wheat and low cattle prices. Reluctantly, the tractor was resurrected.

The steer enterprise is run in the simplest possible way. Buy steers at 300 kg and sell bullocks at 600 kg. Weight gains average about half a kilogram per day. The target market is Jap Ox. Lucerne is sown under the last crop in any rotation. The natural pastures are a good range of summer perennials and annuals, and in winter mostly annual grasses and forbs, with burr medic providing a very good source of feed and protein.

After the GFP school I built 69 paddocks with 10 cell centres and installed extra tanks and troughs. The average size of the paddocks was 45 ha with single wire electric fences and iron posts about 40 m apart. The cost per hectare was between \$10 and \$20. The water was the expensive part.

After the fences were built, the aims on "Nortongong" were to:

- Try to keep the feed at its most nutritious state (phase 2), *ie.* do not eat the grass too short or let it get old and moribund (*rest*)
- Give the young plants the maximum time to re-grow before being bitten off, to encourage the desirable species to re-colonise the pasture. The hope was that better quality grasses would return to the pastures (*rest and succession*)
- Create more grass cover and hope the extra grass and vegetable matter on and in the soil would improve water penetration (*water cycle*)
- Ration out the feed in dry times (*rest*)
- Create heavy stock density to break up the soil for the seeds to germinate in (*animal impact*)
- Create heavy stock density to knock down old vegetation so it will rot and improve the cycling of the minerals and nutrients (*animal impact and mineral cycle*)
- Keep a grazing chart of paddock record relating stock numbers to rainfall and vary the stock numbers to the rainfall.

### Evaluation of TCG at "Nortongong"

Being enthusiastic I wanted to prove that the greases would improve so I set up a control paddock, just to compare the grasses. When it became apparent that the stock in the control were doing very well I started to record the weights of the two mobs. The results were devastating. The control mob were putting on 0.56 kg/day and the cell mob were putting on 0.42 kg/day. This was without any increase in stocking rate. A second trial showed a difference of 1.59 kg/day to 1.14 kg/day (28%) over 27 days in favour of the set stocked mob

#### *The obvious question: How accurate are the results?*

Endeavouring to make the trial as fair as possible, I kept the stocking rate the same. Each steer had 3 ha. The 15 head in the control mob had 45 ha and there were about 400 in the other mob with 1200 ha. I am sure that a small mob will always do better than a larger mob, probably for social reasons. Even if the results were only half as bad as measured, it is still too much.

To reinforce my results, Dr Ron Hacker (NSW Agriculture) told us at a meeting we had at "Woodside" (Russell and Pip Smith's) that animal performance would suffer. The GrazFeed computer program showed a 10% reduction in production if livestock are rotated. All Nation (Stockman/Grass Farmer) said, "One major disappointment of many intensive graziers is lowered per head production". Mr Johann Zietsman, an adviser from Zimbabwe said what I was experiencing was "typical of conventional, low density rotational grazing". However,

he went on to suggest that the solution was to raise my stocking pressure to 5000 head/ha moving 20-30 times per day. When I asked Allan Savory if a reduction in animal performance could be expected, he said he could not guarantee it would not happen unless he was doing the planning.

However, the promoters of TCG are quick to tell me there are also plenty of examples from other places where the TCG steers are doing better than the set stocked steers. The information is confusing and mostly reflects the paradigms of the informant.

It was a very depressing day when I decided to stop TCG. A considerable amount of time, energy and money had been invested into the project, and no one ever likes to be wrong.

The management of the cells was constantly compromising between feeding the animals and looking after the grasses. Simon Fritsch would come out and look at the grasses in the next paddock that the stock were moving into and say slow down, and I would look at the cattle and want to speed up the moves. Obviously, the quicker you move, the less time you rest the pastures. There never seems to be enough feed in each paddock for the required time to obey the rules. If we were supposed to move in four days to achieve a 90 day rest, by Day Two the cattle would be standing at the gate bellowing.

When you open the gate the steers all race their mates to get first bite of the grass. This means they do not have the time to select the most digestible feed. They also have a reduced amount of feed to eat on the second and third day if the stock density is heavy enough to have any impact. I believe that a lot of trouble that I experienced with weight gain was caused by forcing the stock to eat more of the available feed than they wanted to. The higher the percentage of the available feed stock are forced to utilise, the worse their performance will be. Perhaps on average over the whole year it might work out better but as my business is growing and fattening bullocks I have to make my money when the grass is green and the stock are putting on weight. I cannot afford to stifle production then, for benefits later, when the feed has dried off and production is low anyway. At these times the stock manage as best they can and rely on compensatory gain to make up for what they lose.

One of the most fantastic experiences out of the experiment was the opportunity to visit five farms in South Africa who have been using TCG for up to 17 years. No one in South Africa could show us a control paddock or the boundary fence that was not being grazed. The figures they showed us about the increase in the amount of beef turned off the places was amazing. After visiting the farms in South Africa, I believe that TCG works as it is supposed to, regenerating the pasture albeit very slowly.

It works a lot better in some soils than in others. On sandy soils at John Waylands "Fort Richmond", Belmont near Kimberley, it worked extremely well. He had not even bothered to try it on his harder soils and told us that if the soil was too fine, he did not like the animal impact as the soil blew away.

One of the measures of the system is Stock Days (SD)/ha/100 mm rainfall. The observations that our South African friends pointed out was that we were starting at a much higher SD/ha/100 mm rainfall than the South African farmers. Figures from Revilo in South Africa showed that when they started TCG they were running about 10 to 12 SD/ha/100 rainfall while we already run approximately twice that figure.

The two farms we visited in Queensland between Rolleston and Moura were spectacular and showed that it worked in that climate in regenerating or maintaining the grasses, and the more you followed the rules, the better it worked. The difference at "Clovernook", near Bauhinia (Brian and Joy Maloney) between the paddocks under TCG and the neighbour's paddock was incredible. You could feel the difference in the soil just by walking on it. The Waylands (SA) and the Maloneys (Qld) were the two most successful operators we have visited. They were also the most pedantic about obeying the rules, although they did have the most suitable soils.

Graeme Callaghan, who was then with NSW Agriculture, did some counting trials in the pastures, and over a three year period the only improvement was in volunteer lucerne plants in the spring of 1993. This is a long-term trial and you could not expect much to happen in three years.

### Personal observations

The two main points that any rotation system can do are ration the pasture and manipulate the quality and growth of the pasture. The main differences between TCG and other rotational systems are the variation in the speed of rotation, the long rest period required for dry times and the need to vary the stocking rate with the season.

On the first point, rationing out the feed is a good idea in areas where there is a predictable annual drought such as Queensland, where the summer is dry, or in the south where the winter is dry. Here, in this part of central NSW, we only have a short dormant season. This means it can rain at almost any time of the year and we get some growth. This makes it very hard to forward plan. If we keep planning for a long dry spell, we are constantly holding the stock back and wasting good feed if it rains.

The idea of flexible stocking rates is an important part of TCG. If you are going to stock heavier in the good times, you must be prepared to stock

lighter when it is dry. In ten years, on average, we will have one drought and three or four dry spells. If you get it right and de-stock for the big droughts, it is a good idea, but if you de-stock every time it gets a bit dry, you are always going to be selling cheap and buying dear.

There is always a conundrum about stocking rates. Do you go for higher stocking and lower animal production, or a lower stocking rate and hope that the higher performance makes up for less stock? the reason why so much country is flogged is because the best return to total capital is achieved by running more stock per hectare, even with lower animal production, as it brings down the capital in land per head. Even if the profit per hectare is balanced between stocking rate and animal performance, the best return to total capital is still with more stock per hectare (the best return to capital in stock is with low stocking rate).

Of course, you have to decide your attitude to risk, the environment, drought, and in my case, if I slow down the weight gain too much, the stock start getting too many teeth before they get to market. If you could manage to balance the stock numbers with the rainfall, it would be perfect. However, that management is beyond my ability because my system depends on buying and selling on the same market.

I believe that given the right conditions, the re-colonisation of soil by perennial grasses depends a lot more on the soil types than anything else. My observation is that different soils grow different grasses and the soils that are best for growing wheat (eg. the good red loams) are the hardest to get native pastures to re-grow on, followed by the black, self-mulching soils. The grasses re-appear more quickly on the sodic grey clays, the softer soils probably need re-seeding after a farming phase. From a grazing point of view, I am lucky that I have mostly this harder type of soil and do not have many grasses that are inedible when they are mature.

The most damage to the grasses has been done with the plough. You can do more damage in an

hour with the plough than in ten years of bad grazing. In my opinion in our country the most important point is rest to get cover on the soil. It does not matter what at first, as long as something is growing. "Weeds are the scabs, trying to heal the wound on your soil". As you get something growing, you start to put organic matter back into the soil. The more organic matter in the soil, the more water the soil can hold.

The system I now use is a sort of hybrid rotational grazing system. The stock are now rotated with about a 30 day rest period. When it gets dry with TCG, one is suppose to ration the feed out with at least a 90 day rest period. However, I prefer to use up available feed in a number of visits to the paddock rather than cleaning each paddock up completely and then moving on. This means the grass the stock are eating is always the best available, the feed is not as soiled when they are cleaning up the last bit in each paddock (as it has 30 days to freshen up) and if the season changes during those 90 days, they do not have to eat the rubbish at all.

The pastures at "Nortongong" have improved a lot in the last few years. I would like to claim that it was my management, but the neighbour's have had similar improvements and they certainly do not do anything to look after their pastures so the reason must be the three good summers we have had. the challenge is to try and keep the improvement when the seasons return to normal.

If one believes that TCG can improve the country as it is promoted, then the conundrum is "At my age is it worth embarking on the long-term job of trying to improve the land this way, when in our district any future owner of the land will probably plough it up again?" When I started, I believed that I could improve the land and make more money. That was a good idea, but if it is going to cost me money to do it, then it is not such an easy decision.

The conclusion to draw from my experience is that no system is suitable for all areas and you must work out your grazing system to suit your goals, soil, water cycle, climate, grasses, stock and enterprise.