



Carbon Grazing

The Missing Link

Improving plant & landscape resilience

Re-carbonise the soil for profit

De-carbonise the atmosphere

Reduce methane emissions

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Carbon Grazing® is a general principle to maximise the introduction of carbon from the atmosphere into the landscape between the trees. Those who implement Carbon Grazing should enhance their economic return and achieve positive environmental outcomes including methane reduction.

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Graziers often say they cannot rest pastures because the property is fully stocked. While this is true in one sense, we have to ask the question: **Does the potential for resting and regeneration actually exist in our present pastures?** The answer is usually yes, as I discovered. I successfully rested pastures following rain without selling livestock. It is when “rest” is thought of as time that it is impossible to rest without destocking. If “rest” is seen as **timing**, then the animals only have to be off the pastures **for a short period of time**, which can usually be managed.

FENCE TO SOIL TYPES

It has always been recommended that different types of vegetation be fenced off to separate them. This decision is usually based on soil types. It allows the manager to look after each type of country according to its productivity and its susceptibility to degradation due to overgrazing.

“The more palatable patches of country are always going to attract higher grazing pressure.”

(Prof Brian Roberts)

With most properties, there is usually one area of a paddock that has a lower quality soil type compared to the rest of the paddock. Often the grasses on this soil type, although inferior, are adequate for production when green. The opposite can also be the case when this inferior grass hays off, as it can be unproductive without supplements. On the other hand, the grasses on the best soil types are often still productive even when they hay off.

Through fencing, the stock should be forced onto the inferior country while it is green following rain. In this way the most productive country can be spelled by using the inferior country while it is at its most productive. The substantial short-term increase in production of the best country, through resting, guarantees the inferior country can then be rested over a longer period of time. This ensures it is also rested after rain before being restocked.

While on the land, I implemented this approach of fencing to soil type, then suddenly realised how much potential production had been foregone in the previous years. Soon after building the first fence an opportunity to spell the good country arose. I joined/mated the breeders on the inferior country while it was green. As a precaution, a supplement was put out to overcome any possible deficiencies in the inferior pasture. What I must stress is that there was some consumption of the supplement at a time when it would not have been consumed on the best soil, or if the two soil types remained together.

After the mating, the animals were shifted to the best half of the paddock. The inferior half was then destocked. With the next rainfall event, it grassed up again and the gates were opened to allow the animals access to the original paddock. Giving animals access to a mixture of soil types always leads to higher production. In this instance, they chose to spend more time on the best soil type, but still utilised plants in the inferior half. With this trial, their reproduction rate was no different to the other breeders on the property. The message was that the animals differentiated between the two soil types, but the poorer soil was more than adequate when green to get them pregnant.

Prior to the fencing, the animals kept the best half of the paddock in a semi degraded state as they always grazed it following rain. Over a period of four years, the production capacity of the original paddock increased by 25%, because of regeneration that occurred on the best soil. Satellite imagery documented the improvement in the best soil.

Originally, the best soil type was lacking perennial grass cover and the superior plants that should have been available were at a low percentage. The condition of the inferior soil did not deteriorate following the changed management, as it still received rest after subsequent rainfall events. Naturally there needs to be a balance of how often the inferior soil type is used to rest the best soil type. This is because it is being grazed at a higher rate, while trying to store carbon.

Due to the increased production, the fence paid for itself in three years, even at a time when stock prices were low. The paddock withstood dry spells better with time, because of the grasses' improved response to rain in marginal years.

Availability of water in fenced off areas can be a major hurdle, while the initial cost of fencing will deter some. It needs to be explained to bank managers that, with the investment, they are exposed to less risk as the pasture will be much more productive and sustainable. Compared with the cost of implementing cell grazing, this is a very low cost exercise. Indeed, it is as important for bank managers to understand the benefits of Carbon Grazing as it is for those on the land.

The conclusion of the Ecograzing project conducted at "Cardigan" in central coastal Queensland, was that paddocks should be fenced to soil type whenever possible. With long-term planning, it is possible to change fences when they have to be renewed. With early settlement, a lot of paddocks were badly designed because the first consideration had to be water. In the case of undulating country, the top of hills, and everything leading down to the most productive lower country was combined to allow it all to have access to the water that existed in the lower country.

DOUBLE STOCKING

If one paddock is in good order, then double stock it for a short period following good rain, to rest a degraded paddock. Alternatively, spread the stock of the paddock being rested over a few paddocks that are in better condition. Occasional bad management will not harm a healthy pasture. It is continuous bad management that does the harm. On the other hand, with "good timing", degraded country can be raised to a higher long-term level of production. It is the initial introduction of carbon reserves that allows a paddock to proceed towards a regeneration threshold, and then further regeneration can occur at an increasing rate. Plants need to be introduced to trap water and promote the process of further carbon introduction.

After regeneration events, the secret is to only increase the long-term stocking rate by half the increased carrying capacity and use the excess capacity to further rest pastures after rainfall events.

Short-term overgrazing on "healthy" perennial grasses in order to spell other pastures will only create a short-term drop in production until the next rainfall event. It has little impact on the health of the pasture. In reality it is only possible to spell some country each time it rains, but with the principle of one paddock improving another, there is a multiplier effect over time. One paddock spells another one, then two spell two and so on.

PAIRED PADDOCKS

Another version of double stocking, for short-term resting, is the pairing of paddocks which run equal numbers of stock. With good rain, all the stock go into one paddock for four to six weeks, then at the end of the rest period are divided back up again between the two paddocks, according to available feed. With the next good rain, they all go in the other paddock. With this system, 50% of the property is rested every time there is good rain. While a guest speaker at the AGM of a Landcare group, I was informed of somebody who used this method. I was told that the system did work, and his property was in much better condition than his neighbours who were continuously grazing.

The subtlety of this method is that rest lifts a paddock to a higher level, so that next time it is double stocked, it is more resilient. The positive effect of previous rest is not eroded as the double stocking is short term. This method does not work for those who are trying to consistently run too many stock.

Short-term overstocking does not have a long-term impact, provided the management leading up to the double stocking is correct.

Understanding this last statement relies on understanding the earlier discussion on the energy reserves held in the roots (root reserves), and the need for plants to have an extensive root system. Previous rest consolidates these factors and takes plant health and resilience to a higher plateau. Double stocking is like a blow to the jaw, big strong fellows are not affected, small weak ones are. Continuous grazing is like ongoing jabs to the jaw which eventually take their toll.

People who believe rest is time, not timing, can do a lot of damage to the landscape using this method of paired paddocks. I quote what one educational group proposed in a national journal: “During the growing period, all stock are put into paddock A. At the end of the growing season, stock are spread out over both paddocks A and B. During the next growing season, all stock are put into paddock B. At the end of that growing season, stock are again spread out over paddocks A and B. This gives each paddock a rest every second growing season, and this is beneficial to the pasture and an improvement on continuous grazing.”

What the educators proposed is double stocking for the “whole growing season”, which is the worst form of continuous grazing possible. The most appropriate paired paddock method is double stocking for only part of the growing season.

USING SALTBUSH AS A RESTING TOOL

This requires overcoming the well held paradigm of Old Man Saltbush (OMSB) as only being a drought reserve. Because it is drought resistant, frost resistant and not eaten by kangaroos, it is a source of protein at the end of dry spells, which enables animals to be removed from the pastures when good rains often arrive. Of course OMSB plantations can be used any time it rains, to allow pasture resting. Used following rain, it is actually more palatable than when stock consume it during dry spells to source protein. Following rain the salt content is lower.

Back in 1996 I was approached to conduct a \$272,000 on-property research project on how to incorporate OMSB into a rural operation. This was a Drought Regional Initiative Project. The main focus of the program was perfecting the use of OMSB for resting pastures after rain to allow them to regenerate. This required researching how to achieve animal performance while they were on the saltbush. At that time there was a negative perception that animals could not perform while on saltbush.

The project proved that it is possible to fatten animals with OMSB and supplements. Lactating animals were successfully trialled using baled frosted grass in conjunction with OMSB. This frosted grass was tested, and shown to be inadequate in its own right. The project was conducted on a site where saltbush was growing on a claypan. This allowed OMSB and different supplements to be trialled, as well as assessing saltbush on its own, during both dry and wet years.

Saltbush plantations planted for the purpose of resting pastures should have sufficient grass between the rows to allow animal performance. This is because saltbush is low in energy. The CSIRO lent its support to the project, and coined the phrase, “using saltbush in the mud, not the dust”.

The advantage of using saltbush as a resting tool is that only a small percentage of the property is needed to rest the whole property. The lower the average rainfall, the more this is so. It has been calculated that in lower rainfall country, only 2% of a property has to be planted to saltbush to enable the whole property to be rested for one month each year following rain.

AGISTMENT

Most people would never think of trucking stock out when it rains. However, if trucking is a short distance, it is a sound, long-term investment in the resource base.

There is a case for government to explore this option, as it is based on an incentive approach to drought management, instead of the current subsidy approach. It would entail less taxpayers' money than the current approach, and would likely have a better GDP and natural resource management outcome. There would also be the added bonus of positive greenhouse outcomes.

CELL GRAZING

This is a method that has already been well covered in literature. Cell grazing is a high capital expenditure approach, which requires an increased understanding of the system required for success. These producers have already taken the carbon issue on board.

In lower rainfall areas, there remain issues to overcome with cell grazing, given that the cycle of nature is much slower. There is also the high capital expenditure on fencing and waters, in relation to the number of stock involved, which must be considered.

ROTATIONAL SYSTEMS

Many of these systems do not guarantee that there is rest after rain, although it will often happen.

LOWER STOCKING RATES

Some people take the short-term position of lowering total stock numbers by say 10%. This means they are able to rest 10% of the property with rainfall events. Their view is that they are not actually losing 10% of production, as all the animals become more productive. In dry times they are losing nothing, because the property would be fully stocked at 90% or less.

This method is suited to degraded properties that have a lot of unrealised potential. With some regeneration, the paired paddocks approach would then become a more commercially practical exercise.

I have used this approach with the purchase of a very tired property in a higher rainfall area. Coming off a low base, it was possible to greatly increase the production capacity in a very short time with two favourable summers. The cold hard economics of this plan was that there was more money to be made through capital gain with regeneration, than there was from trying to produce a cash flow using unproductive country. After witnessing the outcome, the next door neighbour adopted the same approach and has achieved the same result, which is reflected in the far superior condition of their livestock during dry spells.



“I HAVE FINALLY GOT TO RE-READING CARBON GRAZING. HOW DIFFERENT IT IS ON THE SECOND READ. I AM CAPTIVATED AS YOU REVEAL THE “SECRETS” OF GOOD GRAZING MANAGEMENT.”

...SHANE JOYCE, GRAZIER, THEODORE, QUEENSLAND, AUSTRALIA.

“ALAN HAS THE GREAT ABILITY TO THINK ACROSS SCALES FROM THE MOLECULES INVOLVED IN CARBON FIXATION, THE GREEN PICK NEEDED FOR SHEEP AND CATTLE DIGESTION, TO THE GLOBAL CHALLENGE OF CLIMATE CHANGE.”

...DR DAVID FREUDENBERGER, FORMER CSIRO SCIENTIST, CANBERRA, AUSTRALIA.