Grazing Naturally

The Grazing Naturally Method

Dick Richardson

2 September 2020

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Foreword

by Ian Little

Dick Richardson was born and raised on cattle and sheep properties in South Africa. We are fortunate to have his presence and knowledge in Australia. Dick not only has had a lifetime experience with cattle, he has worked in wild animal reserves in South Africa, Namibia, Botswana and Zimbabwe. He therefore understands how the large African herbivores operate, including their herding instinct. Like most South Africans, Dick managed cattle and sheep using rotational grazing. He then adopted Allan Savory's Holistic Management planned grazing. He became a certified Holistic Management Educator in 1996 and consulted to producers and conducted training across Southern Africa. From 1999 Dick trained educators for Allan Savory.

Dick adapted his use and presentation of Holistic planned grazing to improve animal performance and reduce selective grazing. Generally planned grazing leaves much standing grass in the growing season that must later be laid down as litter. The thick litter layer leads to timber thickening (increased shrubs and saplings). He also found that animal performance declined where more feed had been allowed to become older. We can thank a fellow Australian, Dr Christine Jones, for Dick finding a solution. In 2004, while in South Africa, Christine asked Dick "what are you waiting for?" when he proudly showed her a well-grassed paddock, fully 'recovered' and ready for grazing, which in her opinion had long passed the optimum time for grazing again. Plants stop producing the all-important soil building root exudates very early in phase 2, yet this paddock was still awaiting it's turn!

While in South Africa, Dick experimented with some aspects of the Venter - Drewers grazing method on his family farm. He excluded the regular use of fire aspect of the Venter - Drewers Method and began to develop his Grazing Naturally Method. He also extended the Venter Drewers 5-year cycle out to seven (7) years, which more closely follows natural cycles.

We are very fortunate now to have Dick teaching Grazing Naturally in Australia, his new home since 2009. Dick is exceptionally aware of animal behaviour and health and considers these vital components in managing stock.

These notes are provided as a record for those who have attended the one-day Grazing Naturally Introduction course. They provide a brief guide on the principles of Grazing Naturally. A full understanding of the Grazing Naturally Method is best gained by attending further courses and in consultation with Dick Richardson and the Grazing Naturally team using MaiaGrazing.

MaiaGrazing is used for managing pasture forage, herd movements and production. The program includes a GIS map of the property paddocks on imagery background. Herds are plotted on the map and their movements and statistics recorded in tables. MaiaGrazing enables Dick to provide instant input by phone, avoiding time wasting explanation of herd management and forage budgeting.

Ultimately, only by gaining experience from implementing Grazing Naturally, can its benefits for pasture quality and livestock management be realized in production of nutritious beef, mutton, lamb and dairy products. Grazing Naturally applies to all land management and all types of stock, including cattle, sheep and goats.

Other notes have been written to accompany *The Grazing Naturally Method*. These include:

- *Grazing Naturally Tool #1: STAC Method of Forage Assessment* 2019
- *Grazing Naturally Tool #2: Paddock animal performance assessment 2019 – Includes Dung Score* and assessing nutritional health of cattle and sheep in the paddock.
- *Grazing Naturally Tool #3: Mineral & Feed Supplementation* 2019
- *Grazing Naturally Tool #4: Step by step for Grazing Naturally grazing plans* 2019
- *Grassland Soil Carbon & Forest Rain Climate Solution* 2020 – provides background information referred to as 'Soil Carbon Notes' in these notes

Introduction

The objective of Grazing Naturally is to create a fit for purpose grazing orientated community of organisms to produce the environment for grazing and animal production with regenerating soils

As Form will always follow function; the Natural Grazing process will build soil and grow vibrant, healthy, quality, mostly perennial grassland and savannah, with the associated Microbiome, producing more meat and dairy products of a high quality. This also results in holding water in the soil and preventing soil loss from water run-off.

I previously worked as an Holistic Management Educator, under Allan Savory, founder of "*Holistic Management"*, for which I am ever grateful, as this gave me the grounding for where I am today. All grazing systems and methods make various claims and yet create real or perceived issue of their own. Holistic Planned Grazing and Cell Grazing claim that they have overcome difficulties and problems relating to erosion and scrub thickening generated by conventional set stocking and rotational grazing systems. Planned grazing, carries a general stigma of poor animal performance and with cell grazing is perceived to result in scrub thickening and ecological stagnation. With experience of all of the above methods and much experimentation I have developed the *Grazing Naturally* method to address all these issues and to manage for the variables of nature as discussed in detail in the *Soil Carbon* notes and briefly below. There are various negative perceptions about Grazing Naturally too, in particular that it is too complex. Complexity, however, is what I am looking for with simplicity in the application being one of the challenges.

The Grazing Naturally Method has been adapted from cell and planned grazing methods and scientific grazing trials conducted by Venter and Drewers in South Africa. Venter and Drewers include a whole of paddock fire treatment in their 5-year system, while Grazing Naturally avoids fire, other than occasional and limited use in patch burning of non-palatable moribund grass in tall grasslands.

The impacts of fire, over grazing, selective grazing and grazing animal exclusion are discussed in the Soil Carbon Notes. The Soil Carbon Notes provide a history of grazing methods, including rotational grazing methods. The Grazing Naturally Tool sheets are also available #1 *Forage Assessment, #2 Paddock animal performance assessment, #3 Mineral & Feed Supplementation, #4 Grazing step by step*.

Before describing Grazing Naturally, we need to understand the concept that ***form will always follow function*** with community dynamics. Within climate and geomorphic constraints, plants and animals live in symbiotic relationships (in soil and above ground) that create the form of the community, e.g. grassland or forest (difference described in Soil Carbon Notes Table 2). Human management can create function with a consequent form - manipulating the variables of grazing disturbance, being the focus here. Grazing Naturally is all about creating a ***fit for purpose*** grazing orientated community of organisms to create the environment for grazing and animal production with regenerating soils.

Key factors explained in the Soil Carbon Notes:

- Savanna grasslands thrive on disturbance, either by grazing or fire – their survival depends on disturbance. Grazing management is highly beneficial for the soil, so is the preferred method
- Wet season spelling remains a very important and useful tool
- Some rotational grazing methods can have an adverse effect on animal production
- Leaving excessive forage after grazing can create a moribund grass understorey and lead to a reduced and weakened root mass
- Repetitive rotational grazing patterns can lead to stagnation in pasture growth and quality, especially in combination with the previous excess forage factor
- In rotational grazing, long grazing periods, and/or not allowing time for grass to recover optimum efficiency in photosynthesis lead to a decline in pasture quality and animal production
- Building soil carbon (humus) and thus increasing soil depth is a primary objective

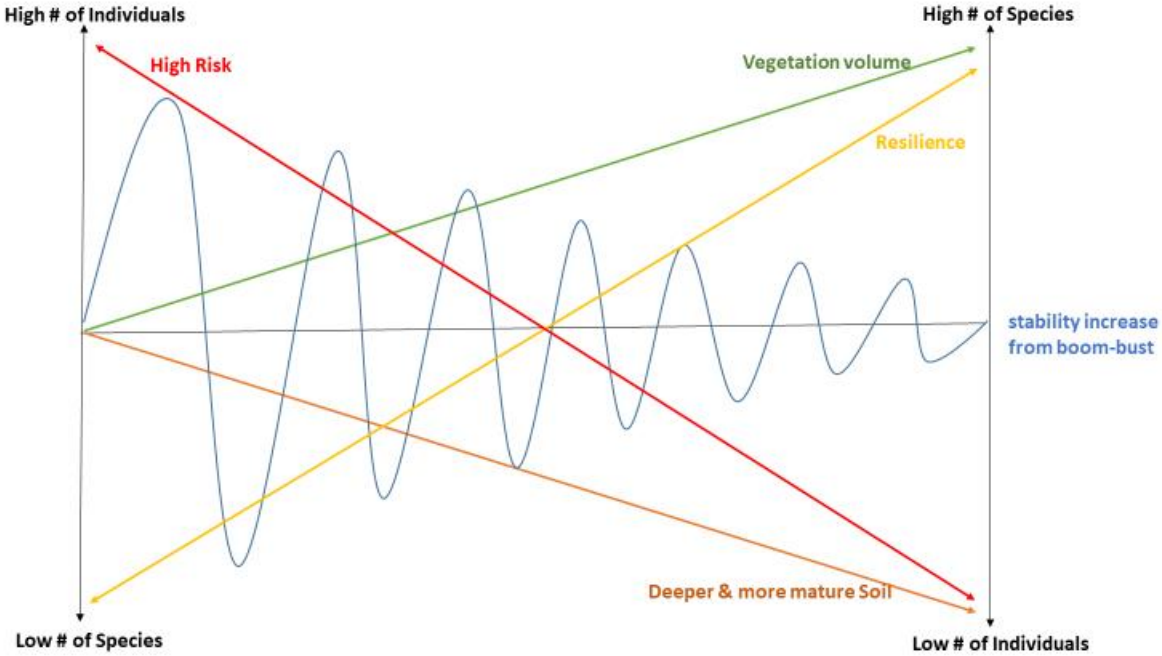
Community Dynamics

Figure 1 below, from Allan Savory's "Holistic Management – *A new framework for decision making*" illustrates how a community becomes more stable and resilient (the zig-zag line representing decreasing boom-bust incidences within populations) as soil becomes carbon richer and deeper while biodiversity increases from a high number of a few species to a higher number of species with fewer numbers of individuals of each species.

The objective of Grazing Naturally is to deepen soil and increase biodiversity in a grazing ecological context which goes hand in hand with increased natural grazing disturbance.

A weakness of the Community Dynamics point of view is a carryover of the plant succession point of view taught in schools. That is that trees are the pinnacle of ecological succession. Fundamentally this may be true of some environments (notably rainforest) but not in all. In the plant kingdom, the grasses are higher order plants; i.e. evolved more recently with their associated grazing animal compatriots. Therefore, by definition, grasses must be higher successional plants and trees simply an expression of either a regression in succession due to the loss of natural grazing disturbance or a product of areas which grazing organisms are excluded to access or thrive in.

Figure 1: Community Dynamics illustration



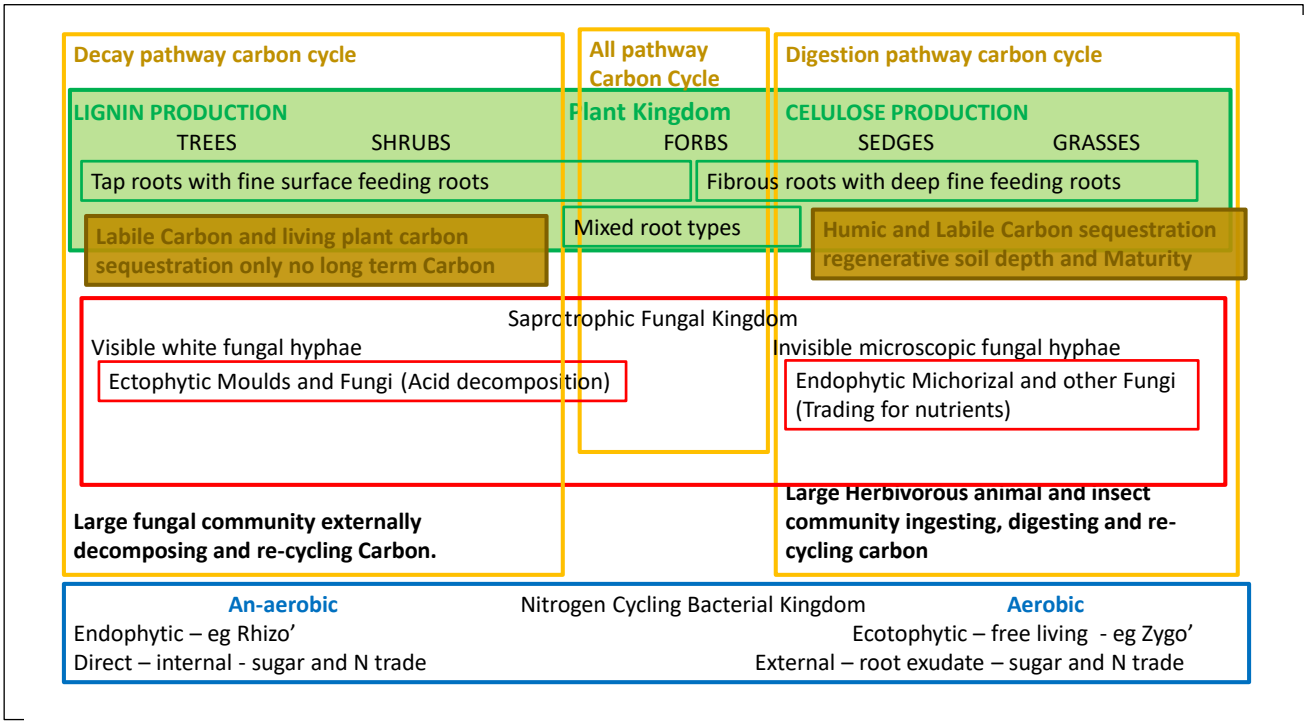
Ecological Communities and their bias towards the patterns that drive them

Referring to Table 1, as form follows function; a community of organisms inter-relating together is a product of the functions that drive the energy flow and mineral cycle in that community.

If a community is driven by biological decay, the community will adapt to the process and the organisms and their relationships that make up the community's dynamics will be those that rely on and thrive on a decay process.

Conversely a community governed by the processes of the digestion pathway through animals and macro soil organisms as the larger role player will be those that rely, procreate and thrive on this activity.

Table 1: Difference between grassland and woodland-forest communities



As Table 1 shows a woodland community is associated with the decomposers and labile carbon while a grazing community is associated with bulk digesters and humic carbon creating **HUMUS** and thus **aggregated soil structure and depth**. This whole process is largely driven by air availability in the soil. Where the community requires root exudates, **oxygen** and **nitrogen** in a higher proportion of soil borne air, the organisms open it up to allow this. Hence the **aerobic** condition in the grassland community on the right-hand side.

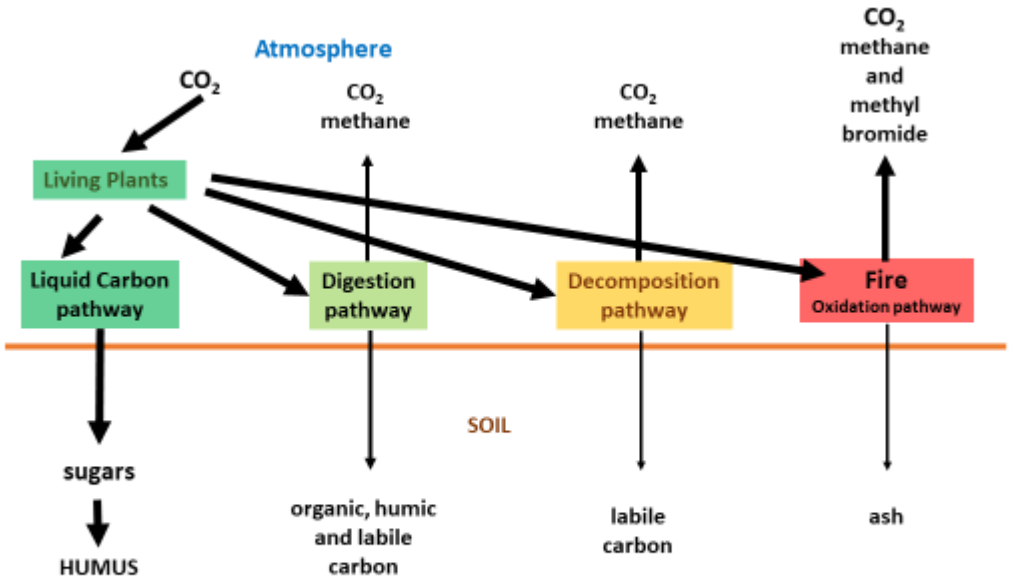
Carbon Pathways

Carbon Pathways

Carbon has to cycle somehow. It cannot stand, simply sequestered somewhere. The carbon cycle is the basis of life, all living organisms and humus is built on a carbon base. Photosynthesis will capture carbon, with water vapour, sunlight energy and nitrogen collected from soil bacteria in trade for carbon sugars. Once the carbon has been turned into a molecule, constructive process, it will then need to be freed once again for the cycle of life to go on. That means the carbon based living organism needs to be deconstructed. This happens through one of the active carbon pathways (Figure 2):

- ***Digestion:*** Ingested by grazing herbivores and invertebrates (insects, earthworms) and turned into humic and organic carbon compounds available to other organisms to form HUMUS. Methane and water vapour being digestion by-products.
- ***Decomposition:*** Broken down external to the body of the organism using weak carbon acids (COOH) to be made available very quickly to other organisms to use in the carbon cycle again, as labile carbon. Methane and water vapour being the decomposition by products.
- ***Liquid carbon:*** Released as active root exudates (sugars) for other organisms to use in exchange for minerals, nitrogen and water. The major product is **HUMUS** that builds soil structure, depth and maturity.
- ***Oxidation:*** If the plant material has still not been turned over in the carbon cycle and builds up above ground the only remaining pathway will attend to it. That is oxidation, either slowly by chemical oxidation or fast through fire. Fire releases as by products CO_2, methane and the worst one of all, methyl bromide. Nitrogen and other valuable nutrients are also volatized and lost.

Figure 2: Carbon Pathways



Soil Building Process

While grasses build soil directly through physical actions, they contribute far more to soil depth and maturity by feeding the soil's living community, who build soil structure and fix humus via the digestion pathway. The following are key factors in the soil building process:

1. **Photo synthesis:** capturing solar energy - fixing C from CO_2 in the air - producing sugars – entire nutrient cycle. All the remaining points are as a result of Photosynthesis. About 40% of Carbon gathered through photosynthesis goes into above ground plant growth, 40% goes into below ground plant growth and 20% is pumped into the soil.
    a. **Mineral cycle & energy flow:** Starting with ***photosynthesis*** and the creation of ***protein*** and ***carbohydrates*** by plants, this ***solar energy*** and ***mineral*** is passed through different trophic (feeding) levels, with losses through the metabolic processes. Having passed through animals the remainder is returned to the earth's surface, reduced in volume in a form ready for further incorporation as ***humic*** and ***colloidal*** compounds. A percentage of total soil feeding cannot be placed on this cycle as it is so dependent on periods of growth and frequency and intensity of gazing and worm and insect population health.
2. **Soil Liquid Carbon Pathway:** Direct sequestration of carbon into the soil: About **80%** of Humic soil C comes from liquid carbon pathway.
    a. **Liquid Carbon pathway:** (Dr Christine Jones): grasses, in biodiverse forb mixtures, pump the highest rate of C into the soil soon after grazing, slowing up at the moment the meristem changes over to the development of reproductive material. It is thus important that recovery period should be kept short where possible.
    b. ***Ethylene Cycle:*** Ethylene released by plants and mycorrhizal fungi can potentially be increased by disturbance adding to the processes.
3. **Root Pruning** (pulsing with grazing): happens by discarding old non-productive roots, rather than simply shedding root mass. Occurs on change of seasons and after grazing or other removal of above ground plant material.
4. **Sloughing off** (root): shedding of root 'bark' as roots grow. (Points 3 and 4 together supply around **15%** of the total feed for soil biology.
5. **Physical Root action** – physical pulsing effect of different species and types of plants break apart the soil with growing roots and creating spaces and interaction with various organisms.
6. **Litter on surface:** Is important as it moderates the microclimatic conditions at the soil surface, helping with both moisture retention and temperature moderation. The breakdown of this litter makes carbon available for the short-term carbon cycle only when surface detritus is broken down by bacteria in the digestion pathway or attacked by saprophytic fungi working in the decomposition pathway. In Woodland, shrub and forb-based communities; where fine roots feed close to the surface decomposition is the major pathway at work but produces only labile Carbon not Humic long-term stable Carbon. In a grassland this soil surface litter is responsible for less than **5%** of soil carbon sequestration and only occurs through the digestion pathway. The decomposition pathway is limited and only supplies labile Carbon. High populations of saprophytic fungi attack grass and grazing orientated forb roots and sap them of valuable nutrients. Too much litter on the soil surface is highly destructive to soil health, tying up N and valuable water resources and encouraging the growth of the visible saprotroph community.
7. **Hydraulic management** – translocation – plant roots of all types and mycorrhizal fungi move soil water laterally and vertically to store for later use and for keeping moisture around their roots for their health and the survival of the biological communities in their rhizo-sphere. Keeping plants from

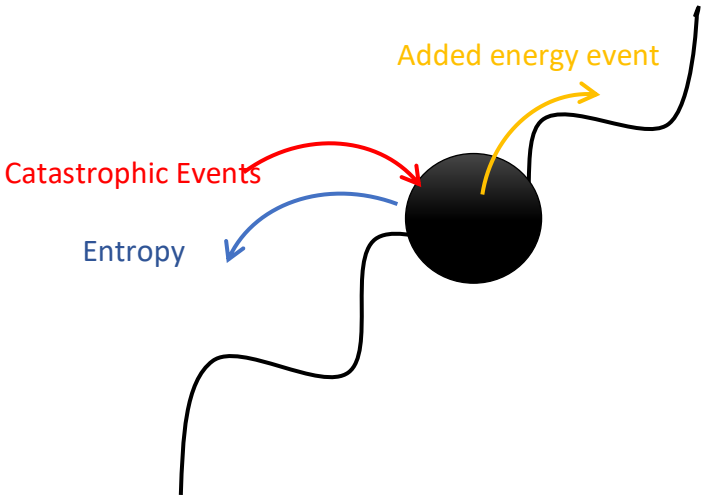
entering the reproductive (maturing) phase limits their water use and higher biodiversity increases water use efficiency.

8. Living plants **trapping or capturing material** – Dust, detritus and water borne litter and soil are captured by the living plant material at the soil for incorporation by the soil biology.
9. **Germination and recruitment** of plants - annual, perennial, forb and grass, further fill the voids in the plant community where utilization opens up the sward and minimizes mulching of the soil surface.
10. **Energy fields** – electrical and magnetic fields, paramagnetism, cosmic forces and other energies, that defines varying atomic patterns around the different species and plant types. Considered in ***biodynamics*** – more the merrier! A high percentage of digestion will result in a largely grazing orientated community.

Thermo-Dynamics

Another view of Community Dynamics and succession can be made from the point of view of Thermodynamics, as illustrated in Figure 3.

Figure 3: Thermodynamics illustration of the ecological community and its patterns



Laws of Thermo-Dynamics and succession

1. There is a **given amount of energy** in any Thermodynamic system comprising "The ecological community and its patterns", as illustrated in Figure 2
2. **Entropy**; energy will be lost from a stagnant community, eventually declining to a simpler level, as indicated by the blue arrow in Figure 2
3. **Syntropy**; energy can be added through activity and eventually lift the community to a higher more complex and vibrant level – the yellow arrow
4. A catastrophic event, one that disrupts the pattern can bring a positive change – The red arrow

JAN SMUTS:

"NATURE works in PATTERNS and WHOLES"

If you want to change the WHOLE, you must…?

Change the PATTERN!

No change = Entropy predominates in a Pattern

Botanist **Dr John Acocks**, author of *Veld Types of South Africa* (1953) identified over 700 grasses in semi-arid grazing rangeland of the Karoo. He noticed that the most palatable grasses were also the best for soil health and was one of the first to advocate reducing selective grazing and the introduction of rotational grazing. He was one of the first to understand that over grazing was not caused by stock numbers but the frequency of grazing. He is credited with the famous statement also so true of Australia, "***South Africa is 'over grazed' and 'under stocked'***!" Later this developed into a non-selective grazing method with mobbing up of stock and rotational grazing. However, non-selective grazing with long recovery periods was shown to lead to poor animal performance and declining pasture due to moribund grass. Years later the Savory Grazing Method, Cell Grazing and Holistic planned grazing developed following this work.

Cell Grazing

- Use only about 40% of available feed at every graze
- Use a short recovery period when green and growing– of 30 days
- Use a longer recovery period when dry and not growing – 60 or 90 days
- Outcome: repetitive light utilization
- Match stocking rate to carrying capacity using the 'Grazing chart' and the trend of SD/ha/100mm referred against fixed predetermined benchmarks

Holistic Planned Grazing

- Use short recovery periods when growth is fast
- Slow down when growth is slow
- The goal is to have the whole property looking un-grazed when growth ends
- Plan the dry season stocking rate to match carrying capacity to an end date
- Plan the dry season moves for the right class of stock to be on the right class of feed at the right time

Variables of Grazing and Disturbance

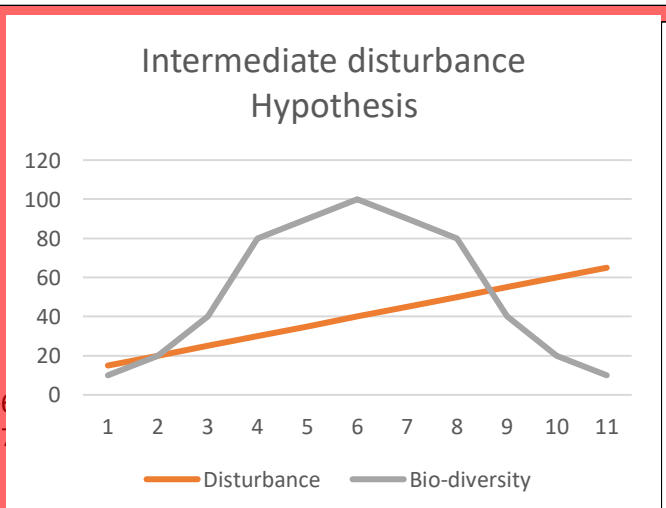
Grazing affects the efficiency of the soil building process. There is no fixed answer for length of recovery periods between grazing. It is better to manage ***variation***, as savannah naturally has variable changing cycles, with seasons and climate fluctuation. At any point that a repetitive pattern of use locks in, entropy will set in and an ecological simplification will ensue.

With set-stocking there is a risk that the pattern of grazing is repeated year after year starting near water points and on favoured sweet spots. The same plants are grazed first and repetitively until they become dwarfed and weakened over time. Trampling is repeated on the same patches and pathways over time. Beaten out areas develop around the heavy use zones making soils dry out and erode while flash water run events stacks organic matter into litter banks. The litter banks are attacked by the visible saprotroph fungi and create a perfect potting-mix for woody plant germination.

As indicated in the text boxes above, in both Cell and Holistic Planned grazing there is a risk that a pattern of repetitive-light-grazes develop through the growing seasons. This builds older plant material in the less palatable plants, smothering the more desirable ones and resulting in increased use of the tool of rest, or lack of grazing. The buildup of old plant material compounded by the goal or defined outcome of a well-covered soil, with a deep mulch layer on the soil surface leads to a greater and greater drive for extreme animal densities. The high animal impact of the dense concentration of animals compacts soil while the light utilization and late physiological phase of the plants slows root exudate production and consequently the soil carbon building process and recuperation of soils. (See text boxes on pages 8 and 13)

These patterns are repeated season after season (except in droughts) and entropy sets in. This shifts the ecological community into a non-grazing orientated one. In effect, a ‘rest orientated community’ develops where the visible saprotrophs do the decomposition, building an ideal seed bed for woody species and trees. Ultimately driving the development of woodland and forest.

Grazing Naturally relies on extreme variation of pattern of use on an annual basis creating a gradation in use levels and frequency. This allows for short recovery periods and intense re-utilization of paddocks to be used positively in driving the diversity, grazing orientated forbs, production of root exudates and the digestion carbon pathway. This creates a vigorous and vibrant thriving ***grazing orientated ecological community*** with a soil surface covered by tight living plant spacing (including high numbers of grazing orientated forbs), animal dung and macro soil organism (mainly earthworm) castings. Of great significance, is that the herd of animals is provided with their favorite ***green pick***, much of their grazing time, thus improving animal performance.



The hypothesis shows that increased disturbance increases bio-diversity to a point when too much disturbance begins to reduce it again.

Grazing Naturally employs this hypothesis in its frequent use / disturbance ‘Priority’ paddocks and the extreme event of ‘Sabbath’ allows it to be tempered before it becomes “too much”.

The variables of grazing management

Key factors we can manage or 'change' in grazing:

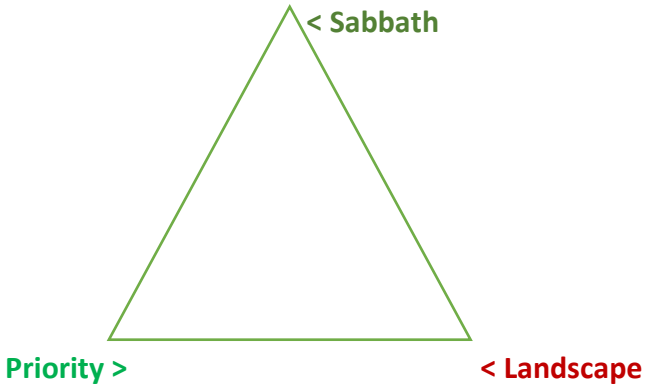
Note: The first three were originally found in notes from Jim Howell – Colordo USA

1. **Intensity:** number of animals, density and time – short or long graze periods
2. **Frequency:** number of times a paddock is grazed
3. **Timing:** in the year or season grazed
4. **Type of stock**: can affect grazing patterns and impact – species, size, age, and physiology
5. **State of mind of the animals:** wild, trained, hungry, settled of mind, or new to a paddock or region.
6. **Intent of grazier:** What the grazier is trying to achieve with a graze and/or their perspectives on what they are dealing with.
7. **Inputs:**
    a. feed supplements (especially urea)
    b. Sowing plants (Poly pastures, cover and pasture crops, legumes or grasses, native or exotic)
    c. Fertilizer (natural or synthetic)
    d. Herbicides, pesticides etc.
    e. Biodynamic preparations and harmonic resonance

Strategies for extremes to drive change

Figure 4 shows two opposite and one extreme (Landscape) treatment for individual paddocks or zones:

Figure 4: Three polar paddock management strategies in Grazing Naturally



Sabbath: The paddock is spelled for 12 months, starting from the beginning of a wet season. This works best if every 7 years (explained later).

Priority: The paddock is utilised heavily, being grazed as many times as possible and more than any other paddock within a group of paddocks. This works best if every 7 years.

Landscape: The paddock is subjected to extreme grazing pressure. This is done as a remediation measure, not as part of a normal grazing plan. It can be done using low value stock, a 'landscape mob', or in multiple visits for better animal production. As the Grazing Naturally pattern of use extends in time, the need for landscaping as a specific paddock treatment declines.

Root exudates and the liquid carbon pathway

- ***Within 20 minutes of being grazed, a grass plant is producing sugar rich root exudates and the liquid carbon pathway is operating at near maximum rates***
- At the early **3- 4 leaf** stage, just prior to the grass meristem changing over to a reproductive phase and the development of the seeding stalk, the sugar flow reduces dramatically
- Repeated graze periods through a single growing season, i.e. a priority paddock, at this early three leaf stage holds the plant in the vigorous root exudate phase
- Saliva released in the act of grazing carries an enzyme that drives the production of gibberellins which stimulate above ground growth
- The plants are stimulated to produce 'clones' of themselves and tiller repeatedly. Thus, thickening the grass sward and tightening plant spacing
- This age-old natural symbiosis between grazing animals and grasses lets the animal benefit in turn by being provided with ***green pick*** allowing for top animal performance
- When grass is allowed to grow to the beginning point of seed production and beyond, photosynthesis becomes all about creating the stronger hemi-cellulose infrastructure required for the heavy lifting of seed heads and the production of the proteins and carbohydrates in the seed itself
- Repetitive grazes, with only **2-leaf** or less of recovery, hinders this process, resulting in over grazing.
- Any repeated action over multiple seasons will result in a decline of plant health and vigour, a stasis in ecosystem development and ultimately degradation of pasture and soils

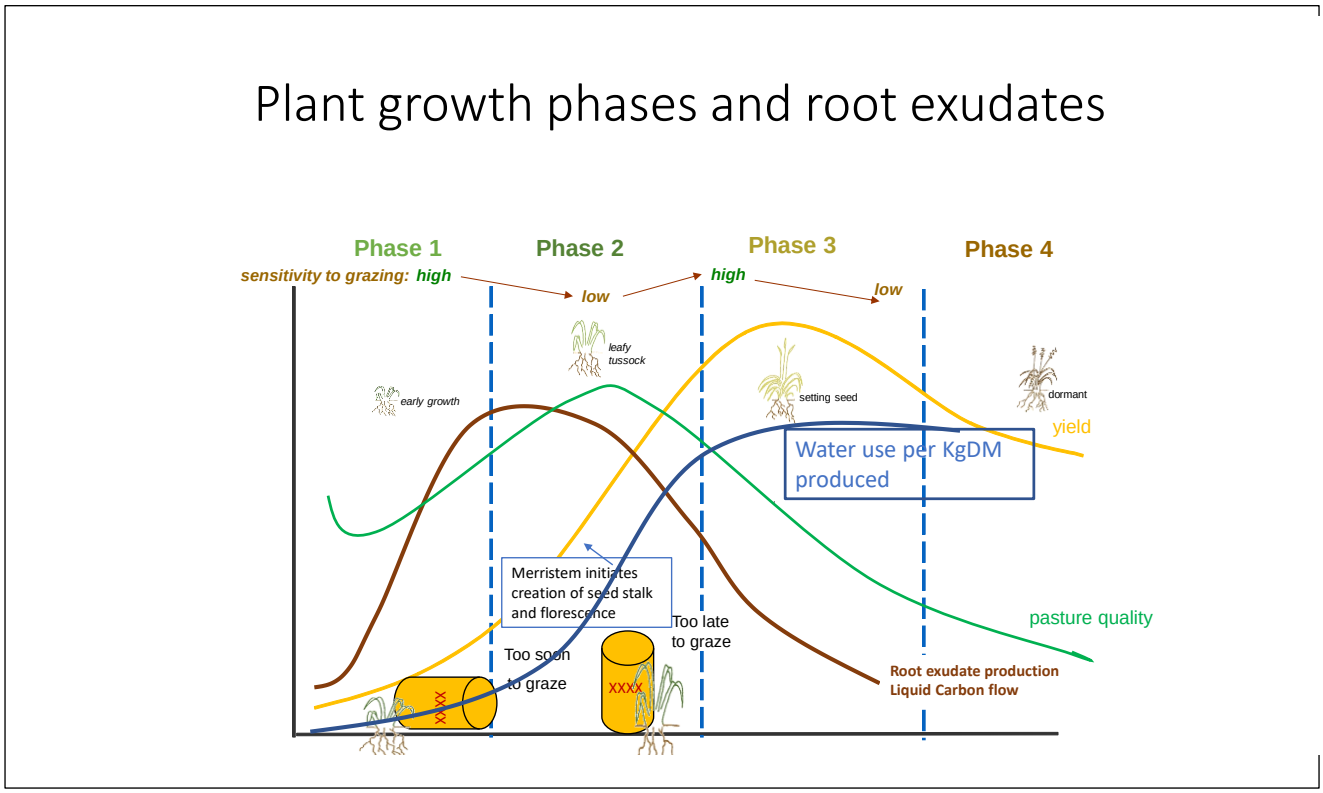
Figure 5 illustrates the four phases of grass growth, from sprouting to seeding. Grazing Naturally aims to utilize the maximum forage quality in early Phase 2 for good animal performance and to power the liquid carbon pathway. Water use efficiency drops so water use rises from 0.4 to 1.8 of average water use per unit of production once a plant begins to mature. Only sabbath paddocks are left to flower and seed – all to be explained under the Grazing Naturally Method on page 9.

Saliva from grazing stock contains an enzyme that stimulates the plant's production of the hormone ***gibberellin*** which drives above ground plant growth. Gibberellin stimulates grass plant cloning and stooling, and leaf elongation. A commercial product gibberellic acid can do the same. Active above

ground growth drives the plant's production of auxins which are the hormones that stimulate below ground plant growth.

Some grasses and other plants produce repellent chemicals on being grazed, such as phyto-toxins, which deter animals from further grazing, e.g. terpenes and tannins. The plants can pass on a 'warning' from one plant to the next to encourage others to produce inhibiting phyto-toxins too. This can be via pheromones on the air passing downwind in the older order plants like trees and shrubs or, with higher order plants like grasses through underground communication via the Mycorrhizal Fungi, higher order fungi. Animals browse into the wind to beat plant communication methods.

Figure 5: Plant growth phases



Grazing Naturally: An evolution of Practice

Holistic planned grazing and Cell grazing are based on the old point of view that soils build from the top down and building masses of soil surface litter is the secret to soil health. However, scientists are now shifting to the perspective that soil is built by biological activity underground. That is, from the bottom up in Grasslands. Much of this is done by those organisms living off root exudate from green actively growing plants. Old litter at soil surface inhibits this process if too thick and plants whose growth rates are slowing down or becoming less vegetative no longer feed the rhizosphere as much as before.

Planned grazing is built around using recovery periods based on the recovery rates of plants and the 'fast growth fast move' ideology, results in lighter grazes when plants grow quickly. This potentially results in less and less active plant growth across a growing season. The subsequent drop in root exudate production leads to a stagnation in biological activity thus less soil development and poorer quality feed production. The practice planned grazing promote to address this issue tends to be very high stock densities and or very long recovery periods that can further increase soil surface litter and stress the animals. The promotion of high stock density is the chief reason why planned and cell grazing come under fire from some quarters.

This has led to a need to redesign the process. Using insights from the Venter - Drewers method, John Acock's statements, Andre Voison's observations and Allan Savory's writings, I have developed the Grazing Naturally approach.

Venter & Drewers Grazing Method

Scientists Venter and Drewers developed and tested a variable grazing strategy in South Africa that comes close to fitting with the variation and extremes of nature. A fire treatment is included in this strategy. The method is based on a 5-paddock or 5-zone plan (multiple paddocks divided into 5 zones). Over a period of 5 years, each paddock (or zone) is repetitively and heavily grazed, then used less and less until rested completely in the 5th year.

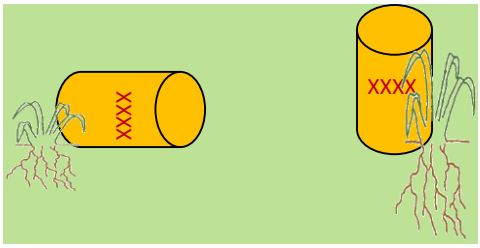
The rest year commences with a wet season and ends with a storm season burn prior to the break of the following wet season. Prior to the burn, the paddock is used for a light graze, e.g. calving cows. The rested and burned paddock (or zone of paddocks) becomes the priority paddock (repetitively and heavily grazed) the following year.

Reference: *Benefits of Multi-Paddock Grazing Management on Rangelands: Limitations of experimental grazing research and knowledge gaps* by Richard Teague et al (2008 – South Africa) – describes Venter and Drewers grazing system.

Grazing Naturally Method

Dick Richardson's Grazing Naturally method (**Table 1**) is a modification of the Venter-Drewers system to avoid regular use of fire and to drive an animal reliant rather than a fire reliant community. While Venter-Drewers use fire to prepare a rested paddock for priority grazing, Grazing Naturally uses grazing to prepare a paddock for spelling, a Sabbath. Thus, the Priority grazed paddock (or zone) becomes the Sabbath paddock. After a one-year spell, this paddock does not become the priority paddock as in the Venter-Drewers method, it is the least utilised and grazing gradually increases over 6 years, becoming the priority paddock, prior to another Sabbath.

Priority paddocks are grazed until short, though not as short Venter-Drewers, i.e. down to where a beer can on its side visibly stands out. It is grazed again when the grasses get to their 4th leaf. In some areas this is when they begin to hide a beer can standing upright (see text box below). The Grazing Naturally method reverses the paddock selection sequence of the Venter and Drewers method. Fire can be used in the Grazing Naturally method, during the growing season while livestock are present in the paddock. Burning takes the form of patch burning non-grazed unpalatable grass through the paddock (or zone). Such treatment may be more necessary in the first years of implementing this grazing method.



4th leaf is ideal. In temperate areas and in short highland grasslands the toe of the boot or golf ball height is better for the grazed picture and ankle height or cricket ball for the point to return and graze again.
In the tropics and tall grass subtropics, it is best measuring by the beer can analogy.

Table 1: Grazing Naturally Method: 7-Paddock (or zone) Plan

Growing Season or Wet Season:

Year	Pad/Zone 1	Pad/Zone 2	Pad/Zone 3	Pad/Zone 4	Pad/Zone 5	Pad/Zone 6	Pad/Zone 7
1	**Priority**	2nd choice	3rd choice	4th choice	5th choice	6th choice	**Sabbath**
2	**Sabbath**	**Priority**	2nd choice	3rd choice	4th choice	5th choice	6th choice
3	6th choice	**Sabbath**	**Priority**	2nd choice	3rd choice	4th choice	5th choice
4	5th choice	6th choice	**Sabbath**	**Priority**	2nd choice	3rd choice	4th choice
5	4th choice	5th choice	6th choice	**Sabbath**	**Priority**	2nd choice	3rd choice
6	3rd choice	4th choice	5th choice	6th choice	**Sabbath**	**Priority**	2nd choice
7	2nd choice	3rd choice	4th choice	5th choice	6th choice	**Sabbath**	**Priority**

Priority Paddock or zone of paddocks: Graze short and as often as regrowth allows (8+ times); graze until you can see a beer can lying on its side and return when you cannot see a beer can standing upright. Note: This paddock / zone becomes the Sabbath paddock / zone in year 2. Always move from the priority to paddock / zone 2.

2nd choice paddock / zone after priority paddock: return to priority paddock / zone as soon as it gets to beer can height or move on to 3rd choice. Note: This paddock becomes the priority use paddock or zone in year 2.

3rd to 6th choice paddocks – used progressively as needed until priority paddock / zone requires grazing again.

Stocking Rate - Note: If getting to **5th** paddock / zone more than once, a **stock reduction** should be considered. If not reaching the **5th** paddock, an **increase in stock** numbers should be considered.

Sabbath: Rest for 12 months (or 10 to 14 months) – no grazing through the growing season; can use for calving in the late dry season. This paddock or zone becomes 6th use paddock at the break of season in year 2, i.e. is the least used in year 2.

Non-Growing or Dry Season:

previous growing season use of paddock or zone:

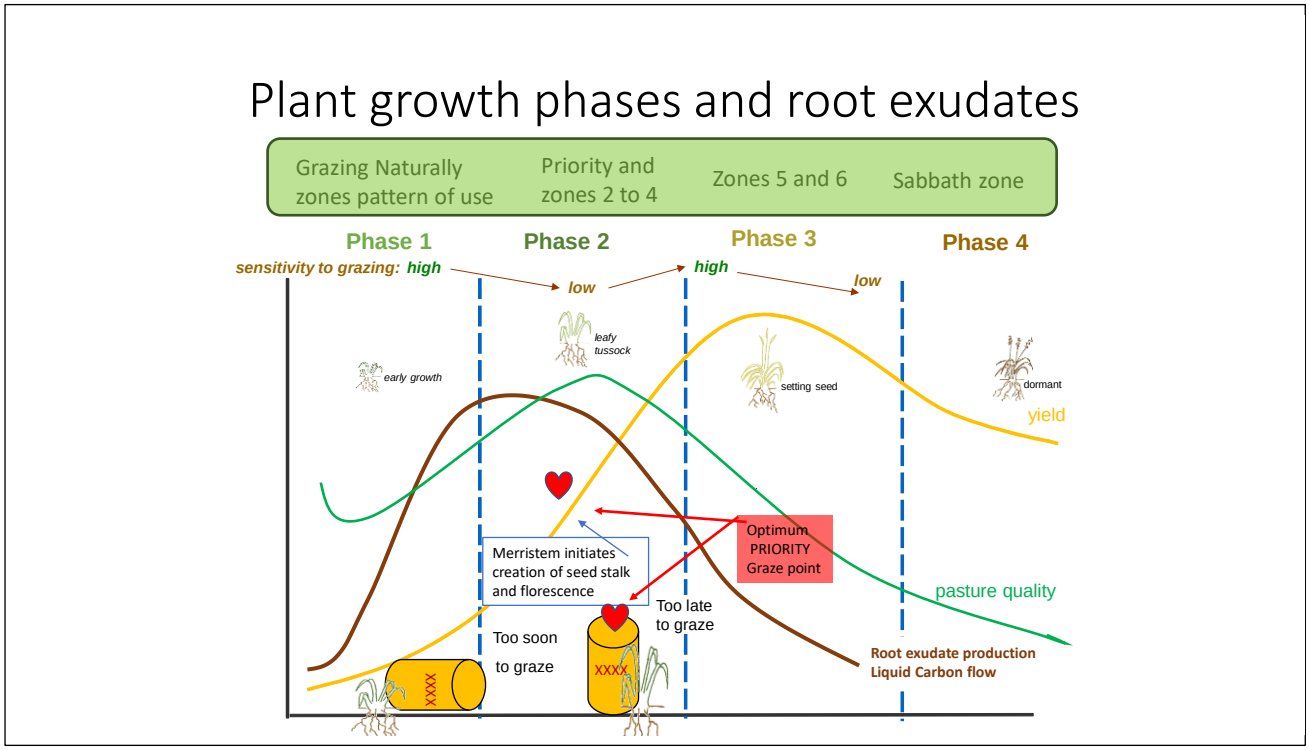
Priority	2nd choice	3rd choice	4th choice	5th choice	6th choice	Sabbath

relative grass forage height at end of wet season & stock choice for grazing:

graze young or prime stock through these paddocks and zones			graze secondary or mature stock through these paddocks or zones			Calving late dry season

Depending on the number of paddocks available, the Grazing Naturally method can work on a 4 to 7-year cycle, though a 7-year cycle is much preferred. If only 3 paddocks are available, then one of the paddocks can be wet season spelled, one treated as a priority paddock in rotation with the other. The paddock used as priority is spelled the following wet season. When paddock numbers exceed 7 then paddocks are divided into seven zones of paddocks. Where multiple mobs are run each mob can have its own set of paddocks. With an optimum of around 28 paddocks per mob.

In any method of grazing it is advisable to avoid stock densities getting too high, to avoid fouling of forage and to allow animals to choose when and how to graze. For example, animals graze into the wind to avoid reduction of forage intake by emission of plant toxins (e.g. tannins). High densities can be used with heavy landscaping events. The ideal graze period for animal performance 2-3 days.



Key Points to Take Home

- ***Patterns & Wholes:*** Nature works in patterns… and wholes
- ***Change:*** Change the pattern and you change the whole ecosystem
- ***Grazing Naturally is all about creating a fit for purpose grazing orientated community of organisms to create the environment for grazing and animal production with regenerating soils***
- ***Form will always follow function:*** *Choosing form and then forcing function on it results in failure*
- ***Under-Grazing:*** Too much litter, light grazing and unused moribund grasses increase visible Saprotrophic fungi populations, lead to fungal attack on grass roots and lead to Forb, shrub and tree encroachment and ultimately to bare ground in low rainfall areas
- ***Visible Saprotrophic fungi:*** do not build soil humus and do not encourage healthy grasslands and Savannahs
- ***Animal Density:*** Animal performance is based on animals being able to select their diets – too high a density prohibits this
- ***Short vibrant, highly mineralized paddocks:*** Purposefully creating short high-quality feed across part of the property increases animal performance and stimulates healthy, vibrant, fit for purpose grazing grasslands

Pathway to Grazing Naturally

The following steps can be taken in progression to a ***7-paddock or 7-zone grazing naturally plan***:

1. Conduct STAC forage assessment in all paddocks.
2. Reduce or increase stock numbers to carrying capacity.
3. Establish 3-7 zones (over time) or paddocks over the whole property, or in groups, with fencing and stock watering.
4. Select a priority zone/paddock and a Sabbath zone/paddock and formulate a graze plan that enables movement of the herd through all 7 zones/paddocks.
5. Mob cattle into one herd for each set of 7 zones/paddocks at the beginning of a wet season and commence grazing the herd in the priority paddock.
6. Monitor pasture throughout the wet or growing season and drop back to the priority paddock as soon as it is beginning to hide a beer can.
7. Reduce stock numbers, if getting to the 5th and 6th paddock or zone with no rain on the horizon.
8. Increase stock numbers if not getting to the 4th paddock or zone.
9. Assess forage reserves (See STAC method) as the growth slows down
10. Do a full feed budget - closed season plan for the whole dry season and adjust stock numbers accordingly.

After running the 7-year grazing plan for one or two terms, it is likely that overall stocking level will increase as forage quantity and quality increases.

Grazing Naturally key principles

- ***Match stocking rate to carrying capacity:*** (Understocking is as bad as overstocking!) In the growing season, it becomes obvious as you move through the zones; in the non-growing season a STACK calculation is made and stock numbers matched to the time needed and Quantity and Quality of feed available.
- ***In the growing season always concentrate on the priority paddock and put grazing in it to create a beer can of feed:*** Graze away towards Sabbath and return when it is beginning to hide the beer can and will replace it if you graze it again.
- ***Adjust stock numbers as the season progresses:***
    - Reduce stock numbers, if getting to the 5th and 6th paddock or zone with no rain on the horizon.
    - Increase stock numbers if not getting to the 4th paddock or zone.
- ***Always maximise animal performance in the growing season.***
- ***In the Growing season graze periods are calculated from paddock ratings and sizes based on time required to make destocking decisions if the season is not working out well!***
- ***In the non-Grow put the appropriate cattle on the appropriate feed quality.***
- ***In the non-Grow prepare the next seasons priority paddocks with heavy grazes.***
- ***Monitor animal behaviour:*** See paddock animal performance assessment tool # 2
- ***Ensure water systems are up to scratch for the animal numbers.***
- ***Stock densities must be limited so that graze periods are not shorter than two to three days.***
- ***Graze periods should always vary to avoid repetitiveness for animal behaviour.***
- ***Stock moves are preferably done after the morning rumination – ie afternoon moves.***

In order to fine tune this method of grazing, it is best to consult with Dick Richardson or one of his Grazing Naturally team. The use of MaiaGrazing can also facilitate direct consultation with the Grazing Naturally team and Dick Richardson.

The next step in Grazing Management workshops is the 2-day Grazing Planning Workshop.

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The Grazing Naturally 7 zone Grazing Planning method is being trialled on various properties in NSW, SA and Queensland. Herberton River Dry Rangeland

The Dry Range lands of the Herbert River catchment, Queensland.
The Atherton Tablelands and coastal wet tropics of Queensland.
Cape York peninsular, Queensland.
Coastal Dry Tropics, Queensland.
The basalt range in the dry tropics zone, Queensland.
In both the upper and lower Burdekin River catchment in the dry tropics zone of Queensland.
SE Queensland.
The Fleurieur Peninsular in SA.
Adelaide hills, SA
Eyre peninsular in SA.
Murray lands and lakes in SA.
The Mallee in SA.
The wet SE of SA.
Upper Hunter Valley in NSW.
South West slopes of NSW.
Arid Western NSW.

These trials are on varied country types, natural and introduced grass pastures and grass, legume pastures.