



*Canter For Climate*



## **GRAZING MANAGEMENT FOR HEALTHY PASTURES**

**FACTSHEET #3**

**FACTSHEET 3/5**

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# GRAZING MANAGEMENT FOR HEALTHY PASTURES

Factsheet 3 describes the principles of pasture management and explains the interaction between pasture plants and soil biology and why taller grasses are good for the environment.

Actively managing your pastures will improve production, reduce feeding costs and improve the sustainability of your property.

## Principles to healthy pasture

- 1. Never allow ground to become bare.**
- 2. Have living roots in the ground at all times.**
- 3. Don't graze too hard, leave some stem to allow plants to regenerate quickly.**
- 4. Let plants recover before grazing again.**
- 5. Aim for diversity of species.**

Typically the first rule of grazing management is to match stocking rate (number of animals on your property) to current carrying capacity (number of animals that your pastures can feed).

The amount of feed changes with the seasons, so a cattle grazing property will alter the number of stock carried on the property from year to year (even within a year). However, almost no horse owners will be buying and selling animals based on grass availability so the animals are kept and supplementary fed, often to the detriment of the pasture.

This Factsheet's aim is to provide you with hints and suggestions on how to achieve these principles as a horse owner.



## Principle #1 - Never allow ground to become bare

The first principle is critically important because bare soil is usually either dust or mud. An unprotected soil surface becomes sealed and does not effectively allow rainfall to infiltration into the soil resulting in increased runoff, carrying away soil and manure and their nutrients polluting waterways and adding to flooding. With less water getting into the soil, pasture plants will become water stressed more quickly in the dry.

This means that Forbs/annual broadleaf (non-grass) plants that we often consider weeds can be very useful to a paddock in helping to protect the soil surface and help the pasture to recover from over grazing.

Most of these plants are not preventing grass from growing but are there because the grass didn't grow. These "weed" species can grow because they can cope better with reduced fertility. As the ground recovers and the soil biology again becomes active, nutrients become more available. If the grasses are now given a chance to grow through improved grazing management most of these weeds will be naturally replaced by productive grasses.

*Never allow ground to become bare*

So only remove species that are poisonous to your stock (i.e. paterson's curse, hemlock etc) or are serious weeds in your area (i.e. Parthenium, Giant Rats Tail grass). Otherwise leave them to help cover the soil and kick start the soil biology back into cycling nutrients.

If nothing can grow then you might consider protect the soil with mulch hay or matting etc.



## Principle #2 - Living roots in the soil

Plants convert the sun's energy into their own energy giving carbohydrates by photosynthesis. Animals don't photosynthesize so can only obtain energy by digesting plants and animals that have eaten plants. The microbes living in the soil without sunlight are the same.

Plants on their own are limited to accessing nutrients that are dissolved in the water in the soil. Bacteria and fungi are very good at creating acids and other chemicals that can remove nutrients from soil particles.

Over the millions of years of soil microbes and plant root interactions, they have learnt to cooperate.

Plants actively secrete sugars and simple starches out of their roots. These feed the soil biology in exchange for nutrients. This exchange process greatly increases the nutrients that are available to plants.

Some microbes even live in the plant roots. Many of us know about rhizobia that live in legume roots that can "fix" nitrogen from the air in the soil and provide it to their host plant. But there are also many free living nitrogen fixing bacteria, that live close to plants roots to feed on the secreted carbohydrates and they in turn put available nitrogen into the soil solution when they die, feeding the plant.

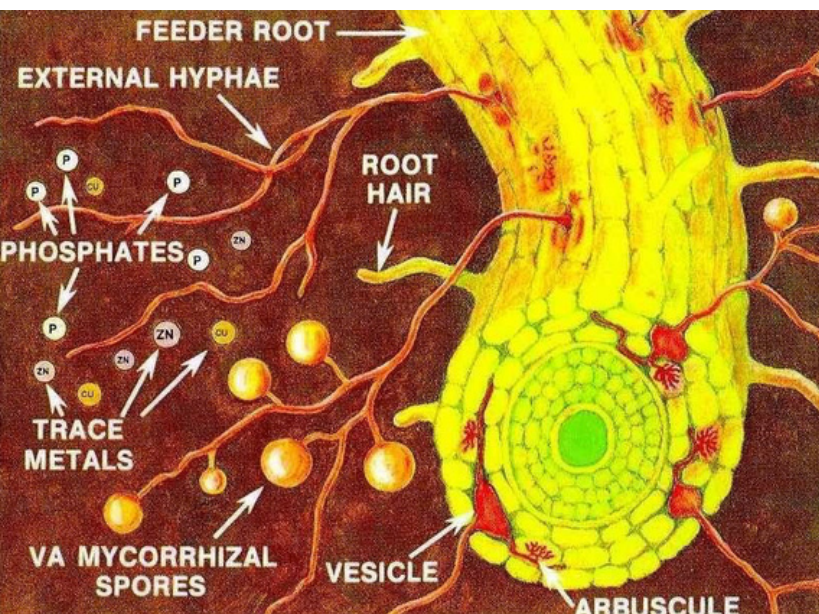
Image: Rhizobia's nitrogen fixing nodules on a Mungbean roots.



Photo: Greenpatch Organic Seeds

## Living roots in the soil

Some fungi live inside the roots of the plant and extend throughout the soil. They directly feed off the plant's carbohydrates, not causing harm but providing the plant with nutrients and water from a hugely increased network throughout the soil. Phosphorus is provided to many plants by this process.



There are, of course, disease-causing bacteria and fungi, but in a healthy system these are usually greatly outnumbered by the good guys.

Some plants can do direct trades with particular microbes to obtain specific nutrients and amino acids (building block for proteins). This is why some plants can thrive in some conditions where other plants struggle.

Stressed grasses that constantly have to recover will store large amounts of sugar, and reduce the amount they feed to the soil biology. This reduces their access to nutrients.

### Principle #3 - Don't graze too hard

### Principle #4 - Let plants recover before grazing again

Why these two principles are important is explained in Factsheet 2 - Pasture Growth and Recovery.

One frequently used method to achieve these two principles is Regenerative Grazing also known as strip or cell grazing. This is where animals are restricted in smaller areas, often by temporary electric fencing. They are moved often, anything from twice a day to every week. It is advisable that you don't leave them longer than a week in any area as new shoots will begin to show on grazed plants and these shouldn't be grazed off immediately but allowed to grow and replenish the plants reserves.

Animals are not returned to a grazed portion of a paddock until it has recovered, which may be a couple of weeks or several months depending on pasture species, rainfall and time of year.

*Don't graze too hard*

### *Regenerative Grazing*

Regenerative grazing is when pastures are grazed at high stock numbers on small areas, for short periods and the pasture is then spelled, or rested until plants have recovered.

*Let plants recover before grazing*

## Principle #5 - Diversity

You can supply variety in your horses' diet by providing a wide range of species in the paddock. By doing this you allow your horses to select what they want/need, mimicking their grazing in the wild.

You can plant species other than grasses and legumes in the paddock, for example; sunflowers, plantain, turnip, rape, kale, swede, radish, chicory, buckwheat, linseed, chai.

*Providing diversity allows the horse to select what they want and need - mimicking nature*

## Management option - strip grazing

Strip grazing, giving animals only a small area to graze at a time, is a frequently used method by landholders practicing regenerative agriculture.

### Advantages for your pastures of strip grazing

- **More even grazing**

Restricting your horses to smaller areas, encourages them to eat the less preferred species and older growth stages, so you make better overall utilisation of your pasture. Eating older grass is also good for your horses gut health, and reduces the risk of metabolic disorders like laminitis.

- **Disturbance**

The soil disturbance and trampling provided by grazing animals aids a pasture by knocking down clumps of old grass, stimulating them into putting up new shoots. The trampling can also help bury seeds to assist germination, increasing plant numbers.

- **Rapid recovery, healthy pastures with big root systems**

Resting and not grazing paddocks for a time allows the preferred species to recover and persist in the pasture.

This break also gives time for dung beetles and soil biology to incorporate dung, fertilising and aerating the soil and saving you the laborious task of removing it manually from the paddock.



## Disadvantages for pastures of strip grazing

There are no disadvantages for your pasture from strip grazing as long as you don't graze too hard and give sufficient recovery time. Not doing these two things can cause serious harm to your paddock.

For you there is the effort of moving fences every few days and providing access to water and shelter may become complicated. Also, it will be necessary to organise ways to provide sufficient exercise to your horses if you don't ride regularly.

*See Factsheet 4 for more detail on the pros and con for you and your horse and Factsheet 5 for ways to allow exercise to occur.*

The critical thing to remember, if you want to maintain the good productive species and good ground cover, is to remove horses from the pasture once it has been grazed to <75% of bulk, usually leaving at least a 1/5 of its height. However very healthy pastures with extensive root systems can cope with occasional heavier grazing.

Grazing is never uniform across a paddock so you should manage for the species you want, so don't over graze your "good" grasses just to get the rubbish eaten. You are better off slashing these after the grazing.

*Manage for what you want*

### Too little feed

If your first grazed area has not recovered by the time you have completed a circuit of the entire property, then the horses should be confined to one part of the property and fed hay.

Most of us are already supplementing with hay and/or hard feeds, especially once the grass has started to run out, so often all that is needed is establishing a place to confine them.

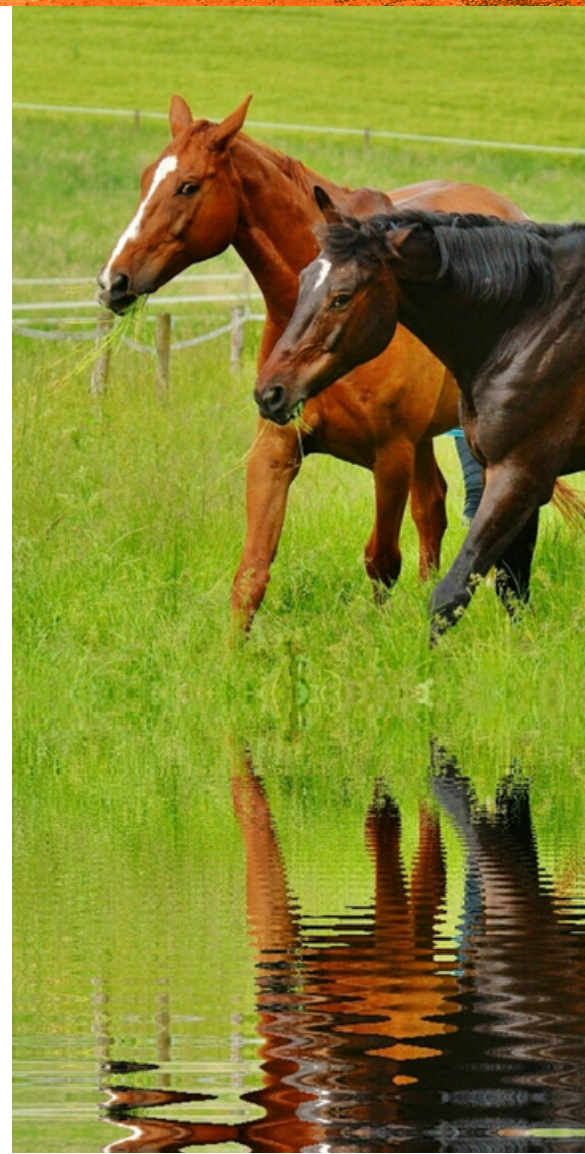
You can do this to regenerate the worst weedy section of the property. Fence the horses there and provide bulk feed by hay. The trampled hay will be enriched with manure and urine. This can then be seeded in the next wet season to establish good pasture species back to the area.

In wet times, and especially if you have clay soils, you may need to confine the horses to an area that has been surfaced with matting or gravel etc.

With good grazing management we aim, over time, to reduce the need for confinement.

If you lock your horses off the pasture and onto hay before all your usable grass has been eaten you can give your horses access to some of the remaining grass for a period each day.

*See Factsheet 5 for more options and detailed examples.*



## Too much feed

If your horses can't eat all the feed you are growing and your pasture becomes old and rank then you have a few options.

Option 1: You can leave a section of the property to go through a full seeding and rotate your horses across the rest of the property.

Option 2: You can slash. You are better off slashing it just as it matures and starts to seed. However, the slashing must be done at a height to suit your pasture species.

When you slash, attempt to spread the grass cuttings evenly over the pasture to prevent windrows that will smother strips. But if the amount being cut is large and is likely to smother large areas then it may be better to windrow. This way you are limiting the areas that will be smothered. These windrows, as they rot, give you the potential to seed some new species into your pasture.

The big productive species such as Rhodes and Gatton panic should not be cut lower than 6cm, preferably more than 15cm. Cutting lower will remove too much of the plants reserves and slow its recovery. Creeping grasses like couch and carpet grass can be cut lower but as these do not tend to go rank and unpalatable you should cut to take as little off these species as possible.

Option 3: Buy/borrow some cows, sheep, goats (if you have suitable fences) or agist some extra horses. We understand this option brings about its own challenges.

*What horses like in a pasture  
is not what we need to provide*

## Problem with grazing management with horses

One problem with grazing management of horses is that, what horses like in a pasture, is not what we need to provide.



Photo: Diana O'Donnell

Pasture that horses want to eat.



Photo: Diana O'Donnell

Pasture horses should eat for a healthy gut.

## Why taller grasses are also good for the environment

- Taller pasture plants provide a habitat for beneficial insects, small mammals, reptiles, and ground-nesting birds.
- Taller pasture plants with deeper root systems bring up more nutrients from deeper layers in the soil.
- With their longer/thicker root systems, taller pasture plants sequester more carbon than short plants. Pasture does this quicker than trees! This function is magnified when the plants are repeatedly grazed and then allowed to regrow (as part of a rotational grazing system), effectively "pumping" carbon into the soil.
- Taller pasture generally creates more biodiversity because a wider variety of plants that get to grow.
- Longer/thicker roots protect the soil (no dust and much less mud), plants can be grazed in wetter conditions for longer before it all turns to slush.
- Taller grasses shade out and outcompete many weedy species without the need for herbicides.
- Taller pasture plants
  - insulate the soil keeping it warmer in cold weather.
  - shading the soil in hot, dry conditions, keeping it cool and reducing evaporation. This, plus the increase in soil organic matter, helps hold water in the soil for longer - essential in dry conditions.



## Summary

The way we graze our pastures can have a major impact on the health of our pasture, resulting in significant changes in the quality and quantity of feed we are providing our horses and the health of the environment in the paddock.

Aiming to never have any bare unprotected ground is critical. Then ensuring there are living roots in the soil from as diverse groups of plants as possible is achieved by not grazing too hard and not mowing too low and then allowing your pasture to recover before being grazed again.

## References

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Article: [Get down and dirty for a better environment](#) (email required to read)

### **Equiculture**

[www.equiculture.net](http://www.equiculture.net)

### **CSIRO**

[www.csiro.au](http://www.csiro.au)

### **Meat and Livestock Australia (MLA)**

[www.mla.com.au](http://www.mla.com.au)

### **NQ Dry Tropics NRM - Healthy Soils Project**

[www.nqdrytropics.com.au](http://www.nqdrytropics.com.au)

### **Queensland Department of Agriculture and Fisheries (QDAFF)**

[www.daf.qld.gov.au](http://www.daf.qld.gov.au)

### **Resource Consulting Services (RCS)**

[www.rcsaustralia.com.au](http://www.rcsaustralia.com.au)

