

Grazing management principles: No.8

Match stock numbers to feed availability

Stocking pressure is based on the number of animals present and the period of grazing and has a critical influence on pasture condition and productivity.

The skill of estimating pasture growth, in terms of how many stock it will carry and for how long, is fundamental to sustainably managing rangelands. Adjusting stock numbers to match the amount of feed available will ensure optimum animal performance and healthy pastures.

Feed availability determines how long current stock numbers can be carried without further pasture growth. This is important in the Western Local Region as future pasture growth is difficult to predict. Rainfall quantity and timing is highly variable and pasture response also depends on conditions during the growing period.

What are the benefits of matching stock numbers to feed availability?

Greater ability to manage risk

Knowing the amount of feed available will determine when to buy, sell or agist stock. This takes the guesswork out of management decisions and ensures stock is in saleable condition.

Better feed quality

Having the optimal number of stock for your feed supply means there is less competition for the desirable key pasture species. This prevents over-grazing or patch grazing, and can lead to better weight gains, better livestock condition and higher fertility.

Drought resilience

Heavily grazed perennial pastures are more likely to die during drought because their weakened root systems cannot find enough moisture from the drying soil. By correctly adjusting stock numbers with available feed, drought induced pasture death is reduced and pastures will quickly respond to rainfall.

Prevention of declining land condition

Overgrazing is the biggest influence in declining land condition. Land in low condition is dominated by annual species, as well as unpalatable grasses, forbs and weeds. Land in this condition also has considerable erosion risk and provides bare soil for the germination and establishment of invasive native scrub. De-stocking when the feed supply has been utilised will maintain land in good condition.

Biodiversity outcomes

Pastures in good condition and with a diversity of perennial native pasture species provide valuable cover and food sources for native fauna. The resulting healthy grassland or bluebush/saltbush shrubland can establish connectivity between patches of woody vegetation.

Figure 1: This illustrates the difference between pasture recovery in country that has stock numbers matched to feed availability (right) and country that has been overstocked (left).



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Implement tactical grazing strategies

Stocking rates that are matched to feed availability encourage desirable species that are perennial, palatable and productive.

Designing and implementing a grazing strategy will encourage these desirable species. An example strategy suitable for the Western Local Region could be:

- maintaining a minimum groundcover level of 50%
- managing the average utilisation of key species, such as curly windmill grass, to 30% of the foliage weight
- resting of paddocks to allow seeding of key pasture species
- burning in autumn or spring if fuel is sufficient and invasive native scrub seedlings are establishing
- deferring grazing after a management burn until the foliage of key pasture species has reached a height of 15cm.

Actively monitoring groundcover and pasture utilisation levels is essential. When the pre-determined target levels are reached, de-stocking the paddock should occur. This type of monitoring determines day to day management decisions. (Campbell and Hacker, 2000)

Fence and manage to land type and capability

When determining feed availability, it is necessary to average the amount of feed across the whole paddock. This works best if land types are generally the same throughout the paddock. However, if there are some favoured land types mixed with less favoured areas in the same paddock, overgrazing of the favoured land type will occur. To prevent this overgrazing, fencing to land type is recommended.

Fencing floodplain transitional soils from the heavy clay soils is an example of fencing to land type. The transitional soils are highly erodible, have pastures with high palatability and quality, and they also respond quickly to rain. Consequently, pastures on these soils are favoured by stock while pastures on the neighbouring heavy clay soils may be relatively ungrazed. Fencing to land type and stocking according to feed availability on each of these land types will prevent erosion of the transitional soils.

Manage total grazing pressure

In order to accurately balance available feed with stock numbers, effort must be made to manage total grazing pressure (TGP). This includes all animals grazing the available feed, including native and feral animals, as well as domestic stock.

Some management strategies for controlling TGP are:

- use of mesh-type or electric fencing to control feral animal movements
- trap yards around water points to capture and remove unmanaged goats

- control of water points by mesh-type fencing around ground tanks or using poly tanks and troughs
- turning-off water points in de-stocked paddocks
- control of kangaroo populations
- coordination of feral pig, wild dogs and fox baiting programs
- ripping of rabbit warrens, even when calicivirus is working, to prevent rabbits reinfesting warrens and breeding up to previous numbers.

Figure 2: Hingejoint fencing can be used to manage TGP.



Figure 3: Trap yards can be used to manage TGP.



Look into the paddock

When assessing the available feed, it is important to look into the paddock and determine the palatable species. Often when looking out over the paddock it appears there is a lot of available feed but when assessed more closely, many of the species may be unpalatable. This over-estimation may lead to overgrazing of the key pasture species. When determining feed availability, only consider the key palatable species.

Figure 4: Looking out over the paddock there appears to be a lot of feed available.



Figure 5: However, when looking into the paddock, the apparent feed is mostly unpalatable species such as poverty bush and roly poly.



How to determine feed availability

This is a method of determining how long feed will be available without any further pasture growth:

1. Determine the feed 'demand' on the paddock

- Calculate the total number of Dry Sheep Equivalents (DSE) in the paddock. (Use the DSE ratings below.)
- Multiply the total number of DSEs by 1.1. One DSE requires 1.1kg of dry feed per day to survive.
- This figure will give the total amount of feed in kilograms needed for the domestic livestock per day.

DSE ratings:

Sheep and goats have similar DSE ratings but some breeds of sheep and goats may put higher demands on pasture.

- Wether = 1.0
- Dry ewe/doe = 1.0
- Ram/buck = 2.0
- Ewe/doe late pregnancy = 1.5
- Ewe/doe with single lamb/kid at foot = 2.5
- Weaner cattle = 6.0
- Cow = 10.0

Interestingly the DSE rating for a Kangaroo is 0.75

2. Determine the feed 'supply' in the paddock

The key perennial grasses should not be grazed more than 30%. This corresponds to about 10 cm in height. These utilisation levels should be used when determining feed 'supply'.

- Using a 70 cm x 70 cm quadrat, throw the quadrat randomly in the paddock to get a representative sample.
- Clip only the palatable species within the quadrat to a 30% utilisation level. Remember, by utilising only 30% of palatable species the condition of the pasture will improve.
- Place the clippings in a bag and dry the sample.
- Weigh the dried clippings in grams.
- The figure you have is in grams/0.5m². Convert this figure into kg/ha by multiplying the figure by 20.
- Multiply kg/ha by the hectares in the paddock. This figure is the 'supply' of the paddock.
- Do more samples for a more accurate result.

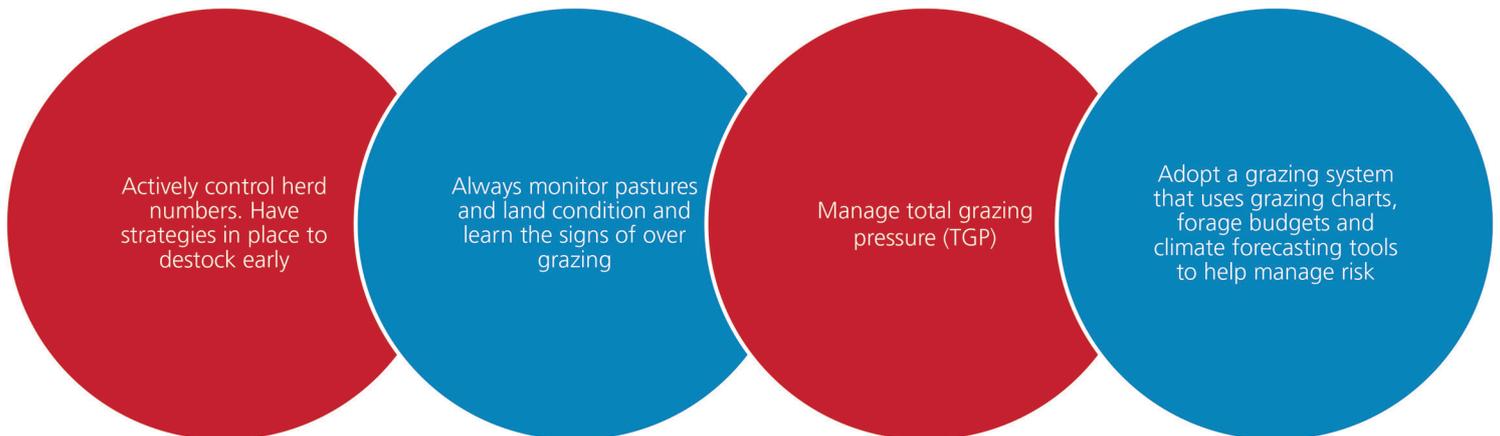
To determine the number of grazing days ahead, divide the 'supply' by the 'demand'. This will give the number of grazing days ahead at current stocking rates and with no more pasture growth.

Knowing the number of grazing days ahead is an important management tool for animal performance and maintaining and improving the health of native pasture.

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What are the consequences of not balancing stock numbers with feed availability?

- Reduced ability to manage risk, particularly in terms of drought mitigation, and the uncertainty on how and when to de-stock.
- Decreased feed quality, leading to greater competition between grazing animals and resulting in low growth rates, fertility decline and poor stock condition.
- Rundown in land condition over time, leading to decreased production and more degradation events.
- Poor recovery of perennial pastures following drought.
- Damaged landscape function and reduced biodiversity values.



Further reading

Other fact sheets in this series

- No.1 Actively control feral animals
- No.2 Control access to watering points
- No.3 Maintain and improve groundcover
- No.4 Manage for drought
- No.5 Manage invasive native scrub (INS)
- No.6 Manage pasture species
- No.7 Total grazing pressure
- No.9 Rest pastures regularly

Case study

Good management, less stress – the Mosely family

DVD

Looking over the Fence – grazing management in the rangelands, Western Catchment Management Authority, 2013

Other fact sheets

- AgFacts – *Grazing Management Following Drought* - NSW DPI, 2007
- AgFact – *Pasture Sustainability During Drought* - Hacker, R, NSW DPI, 2007
- AgFact – *Drought Decision Time* - Graham, P., NSW DPI, 2005

Primefact – *The Role of Climate Science in Drought Management* – Carberry and Graham, NSW DPI, 2007

Primefact – *Using Seasonal Rainfall Outlooks* – Carberry, P, NSW DPI, 2007

Books

- Best management practices for extensive grazing enterprises* – Hacker, R, Beange, L, Casburn, G, Curran G, Gray, P, Warner, J, 2005
- A Grazier's Guide to...* – Local Land Services offices have a number of the guides in this series, including Belah- Bluebush, Saltbush Plains, Mallee, Mulga, Bimble-Box Pine and Saltbush-Bluebush Country
- A grazier's guide to the mulga country of Western NSW* – Jacobs, Irons and Quinlan, Soil Conservation Service NSW, 1988
- The Glove Box Guide to Tactical Grazing Management for the semi-arid woodlands* – Campbell, T and Hacker, R, 2000
- Managing native pastures – a grazier's guide* – Partridge, I, 1992

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