Chapter 7
Grazing Management

Paul Hutchings
Senior Natural Resource Officer (Landscape Management)
NSW Department of Land and Water Conservation

Introduction
There is an old saying that “80 percent of the breeding is in the feeding”. Without arguing the numbers, it makes a valid point that feed is an important part of livestock production.

In the western Riverina, “feed” is the vegetation (grass, forbs and shrubs) that grows on your property. The quantity, quality and type of feed you have will be a reflection of soil type, rainfall and past management history. Understanding and managing the vegetation on your property will help you to maximise feed.

Grazing management involves both animal management and land management. This chapter will focus on the management of land and vegetation and will not attempt to address animal management issues such as husbandry, production targets, etc. This is because stocking decisions should be made on the basis of the condition of the land and not only on the condition of livestock. Stock will generally start to lose condition at a slower rate than the change in vegetation condition.

Many of the examples in this chapter relate to the central and northern areas considered in this Guide. However, the basic principles and theory outlined are relevant to the entire study area.

Grazing systems
Grazing is an inexact science, but there have been numerous systems developed which aim to boost production and maximise feed availability.

Set stocking, crash, continuous, cell, strip, deferred, rotational, time-controlled, block, mob and rational grazing are all terms used to describe different types of grazing systems.

Each of these grazing systems is based on the manipulation of stock numbers and stocking density in the context of feed availability and plant recovery from grazing.

Regardless of the specific details, grazing systems in semi-arid rangelands are all variants of the following:

- **Continuous grazing (set stocking)** – Under continuous grazing, all paddocks are grazed without spelling for long periods of time. Stocking rates need to be adjusted to seasonal conditions and graziers often practice “conservative” grazing regimes to ensure feed rationing for the dry times (i.e. stocking well below the maximum carrying capacity).

- **Deferred grazing** – Under deferred grazing, paddocks are regularly spelled (rested). The spelling of paddocks is usually done for management reasons such as to avoid grass seed problems or encourage the regeneration of perennial plants. At any one time, more of the property will be subject to grazing than spelling.

- **Rotational grazing** – Under rotational grazing systems, herds of
animals systematically graze one paddock at a time at relatively high stocking densities. Stock movements are based on feed availability and a specified plant recovery period for the grazed paddock. At any one time, more of the property will be subject to spelling than grazing.

The choice of grazing system will depend on the natural resources and infrastructure (water and fencing) of your property. However, native grasslands and shrublands respond well to a period of rest, and paddock spelling should always be adopted as normal grazing management.

Principles of grazing management
Regardless of the grazing system used, there are several key principles of grazing management that should be applied in the western Riverina, as follows:

1. Adopt a planned approach to grazing.
2. Know the plants that grow on your property and understand their response to grazing.
3. Manage to increase perennials.
4. Avoid overgrazing.
5. Manage total grazing pressure.
6. Provide evenly distributed and reliable water supply.
7. Keep good records and monitor rangeland condition.

1st PRINCIPLE: Adopt a planned approach to grazing
Good grazing management requires forward planning. Issues such as how many stock can be run on the available feed, which paddocks need to be spelled and when, or the timing of destocking in a drought are all important decisions that can be made easier by careful planning.

The paddock is the basic planning unit of a property and each paddock is likely to have different characteristics that will affect grazing management decisions.

For each paddock being managed for grazing:
- set an objective or goal for what you want to achieve for the paddock in terms of soil and vegetation condition.
- determine a plan or strategy to achieve the objective.

Example objectives for a paddock could be to “increase the abundance of Saltbush”, “reduce the spread of Dillonbush”, “maintain a drought reserve” or just to “maintain the paddock in its present condition”.

The objective will reflect the strengths and limitations of the paddock.

The grazing strategy applied to achieve the objective will be based on the general principles of grazing management, and must be flexible to accommodate changing circumstances.

2nd PRINCIPLE: Know your plants
A knowledge of the vegetation in the paddock - its value and limitations and how the plants (feed) respond to grazing is vital to maximising production without causing land degradation.

Most paddocks will have a variety of vegetation communities and grazing will reflect the needs of the important plants and the management objective for the paddock.

For each paddock it is worth noting:
- what are the dominant plant species in summer/autumn and winter/spring (ie. what feed is available).
- what other desirable, important or “key” plants are present.
- what problem plants are present.
There are several key factors to consider for each species of plant:

- Nutritional value.
- Response to grazing.
- Limitations of plant life cycle.
- Value for land stability, drought reserve etc.

### Plant nutritional value

Understanding the nutritional value of a plant is important when managing grazing for production. The main measures of plant nutrition include:

- **Palatability** – Indicates how attractive a plant is to stock. Plants of high palatability will be grazed in preference to plants of low palatability. Palatability does not necessarily reflect nutritional value but plants of high palatability are generally more nutritious.
- **Digestibility** – An estimation of the proportion of a consumed plant that is used by an animal (Figure 1). Digestibility is directly related to the energy content of feed.

### Plant response to grazing

Plants tend to either increase or decrease in abundance in response to grazing. The higher the grazing pressure, the greater the chance that the species composition of a paddock will change. Knowing if a plant is an “increaser” or “decreaser” species is important in managing grazing. Decreaser species tend to be more desirable and palatable plants or those that are sensitive to grazing pressure. Decreaser plants in the western Riverina include:

- Bladder saltbush (*Atriplex vesicaria*)
- Old man saltbush (*A. nummularia*)
- Native millet (*Panicum decompositum*)
- Native Yam (*Microseris lanceolata*)
- Thorny saltbush (*Rhagodia spinescens*)
- White-top (*Austrodanthonia* spp.)
- Pearl bluebush (*Maireana sedifola*)
- Black bluebush (*Maireana pyramidata*)

Increaser plants tend to be the less desirable and unpalatable plants, or plants that have a competitive advantage under higher grazing pressure. Increaser plants in the western Riverina include:

- Cottonbush or Canegrass have less feed to offer. Many chenopod shrub species like Saltbush provide a maintenance diet with other species that grow between the bush providing the production.

Tables 1 and 2 provide palatability and nutritional information for common plant species.

**Crude protein** is an important nutritional requirement for stock health.

Vegetative green feed is more nutritious than dead or dry feed. Leaf has more nutritional value than stem so plants with little leaf like Cottonbush or Canegrass have less feed to offer. Many chenopod shrub species like Saltbush provide a maintenance diet with other species that grow between the bush providing the production.
Table 1: A general indication of relative palatability for selected species.

<table>
<thead>
<tr>
<th>Plant Species</th>
<th>Relative Palatability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medics</td>
<td>Annual pasture (green) Very high</td>
</tr>
<tr>
<td>Annual ryegrass</td>
<td>Wild oat Very High</td>
</tr>
<tr>
<td>Fairy grass</td>
<td>Barley grass Very High</td>
</tr>
<tr>
<td>Box grass</td>
<td>Native grass (before seeding) Very High</td>
</tr>
<tr>
<td>Blue crowfoot</td>
<td>Early spring grass Very high</td>
</tr>
<tr>
<td>White top</td>
<td>Bottlewashers High</td>
</tr>
<tr>
<td>Common crowfoot</td>
<td>Sida High</td>
</tr>
<tr>
<td>Spear-grass</td>
<td>Windmill grass High</td>
</tr>
<tr>
<td>Button grass</td>
<td>Slender fissure weed High</td>
</tr>
<tr>
<td>Buckbush (young)</td>
<td>Australian carrot High</td>
</tr>
<tr>
<td>Yellow buttons</td>
<td>Hairy pod cress Moderate - High</td>
</tr>
<tr>
<td>Satiny bluebush</td>
<td>Grey copperburr Moderate - High</td>
</tr>
<tr>
<td>Creeping saltbush</td>
<td>Rigid panic Moderate</td>
</tr>
<tr>
<td>Climbing saltbush</td>
<td>Hairy panic Moderate</td>
</tr>
<tr>
<td>Plains grass</td>
<td>Curly windmill grass Moderate</td>
</tr>
<tr>
<td>Thorny saltbush</td>
<td>Old man saltbush Moderate</td>
</tr>
<tr>
<td>Ruby saltbush</td>
<td>Annual pasture (“dry”) Moderate</td>
</tr>
<tr>
<td>Plains lantern bush</td>
<td>Short winged copperburr Moderate</td>
</tr>
<tr>
<td>Nitre goosefoot</td>
<td>Slender fruited saltbush Moderate</td>
</tr>
<tr>
<td>Foxtail</td>
<td>Pearl bluebush Moderate</td>
</tr>
<tr>
<td>Cannon ball</td>
<td>Water weed Moderate</td>
</tr>
<tr>
<td>Bladder saltbush</td>
<td>Fuzzweed Low - Moderate</td>
</tr>
<tr>
<td>Caustic weed</td>
<td>Wire-grass Low</td>
</tr>
<tr>
<td>Black bluebush</td>
<td>Lignum Low</td>
</tr>
<tr>
<td>Quena</td>
<td>Woolly buttons Low</td>
</tr>
<tr>
<td>Dillon bush</td>
<td>Annual saltbushes Low</td>
</tr>
<tr>
<td>Common white sunray</td>
<td>Pale beauty heads Very Low</td>
</tr>
<tr>
<td>Cottonbush</td>
<td>Canegrass Very low</td>
</tr>
<tr>
<td>Small copper wire daisy</td>
<td>Round-leaf pigface Very low</td>
</tr>
<tr>
<td>Slender glasswort</td>
<td>Grey sunray Very low</td>
</tr>
<tr>
<td>Black royolpol</td>
<td>Poverty bushes Very low</td>
</tr>
<tr>
<td>Buckbush (mature)</td>
<td>Galvanised burr Very Low</td>
</tr>
<tr>
<td>Onion weed</td>
<td>Black crumbweed Unpalatable</td>
</tr>
<tr>
<td>Wards weed</td>
<td>Rosinweed Unpalatable</td>
</tr>
</tbody>
</table>

This is a generalised indication of relative palatability based on published observations of various authors. With some species, the information on palatability is contradictory. Information is generally related to sheep. Palatability varies with the stage of plant growth as well as reflecting the influences of soil and weather. Pictures sourced from Driver and Porteners, (1993), Cunningham et al. (1981), Steling, (1998).
<table>
<thead>
<tr>
<th>Species</th>
<th>Digestibility (%)</th>
<th>Crude Protein (%)</th>
<th>Crude Fibre (%)</th>
<th>Fodder Production</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hays</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lucerne</td>
<td>55-70</td>
<td>16.3</td>
<td>-</td>
<td>-</td>
<td>For comparison.</td>
</tr>
<tr>
<td>Oaten</td>
<td></td>
<td>6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pasture (grass)</td>
<td></td>
<td>7</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pasture (clover)</td>
<td></td>
<td>10</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grains</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lupins</td>
<td>&gt;80</td>
<td>31.2</td>
<td>-</td>
<td>-</td>
<td>For comparison.</td>
</tr>
<tr>
<td>Oats</td>
<td></td>
<td>10.6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sorghum</td>
<td></td>
<td>13.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wheat</td>
<td></td>
<td>13.8</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Annual pasture</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Short vegetative</td>
<td>80</td>
<td>25</td>
<td>-</td>
<td>Seasonally High</td>
<td>Generalised information for a mixed annual pasture.</td>
</tr>
<tr>
<td>Flowering</td>
<td>60</td>
<td>12</td>
<td></td>
<td>High</td>
<td></td>
</tr>
<tr>
<td>Dry stalks</td>
<td>50</td>
<td>8</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Medic</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Leaf</td>
<td>&gt;80</td>
<td>10</td>
<td>-</td>
<td>Moderate</td>
<td>Nutritious. High in protein.</td>
</tr>
<tr>
<td>Burr</td>
<td>30-35</td>
<td>18.7</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Barley grass</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Green</td>
<td>65.7</td>
<td>-</td>
<td>-</td>
<td>Seasonally High</td>
<td>Value declines greatly after seeding.</td>
</tr>
<tr>
<td>Dry</td>
<td>56</td>
<td></td>
<td>-</td>
<td>High</td>
<td></td>
</tr>
<tr>
<td>Fairy grass</td>
<td>Similar to annual pasture</td>
<td>17.2</td>
<td>-</td>
<td>Moderate</td>
<td>In one study, fairy grass made up only 0.5% of available feed but contributed 82% of sheep's diet.</td>
</tr>
<tr>
<td>Early spring grass</td>
<td>-</td>
<td>12.2</td>
<td>-</td>
<td>Moderate</td>
<td>Palatable and nutritious.</td>
</tr>
<tr>
<td>Box grass</td>
<td>-</td>
<td>11-15.5</td>
<td>-</td>
<td>Low</td>
<td>Very nutritious.</td>
</tr>
<tr>
<td>Native millet</td>
<td>40.2</td>
<td>2.2-10.6</td>
<td>-</td>
<td>Moderate</td>
<td>Produces a large bulk of forage.</td>
</tr>
<tr>
<td>Spear-grass</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Green</td>
<td>43-54</td>
<td>-</td>
<td>-</td>
<td>Moderate</td>
<td>Feed is good when green, but poor once dry.</td>
</tr>
<tr>
<td>Dry</td>
<td>39-47</td>
<td></td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Windmill grass</td>
<td>&gt;60</td>
<td>-</td>
<td>-</td>
<td>Moderate</td>
<td>Good nutritive value. Becomes harsh and unpalatable with age if not grazed.</td>
</tr>
<tr>
<td>Hairy panic</td>
<td>-</td>
<td>6.4-18.1</td>
<td>-</td>
<td>Moderate</td>
<td>Can cause Photosensitisation in sheep. Moderate nutritive value.</td>
</tr>
<tr>
<td>Old man saltbush</td>
<td>68-74</td>
<td>17-21.9</td>
<td>10.4</td>
<td>High</td>
<td>High nutritive value and digestibility. Value varies with age and season. 19-26% dry matter and up to 40% salt.</td>
</tr>
<tr>
<td>Slender fruited saltbush</td>
<td>-</td>
<td>5.5-10.3</td>
<td>20.3-34.1</td>
<td>Low</td>
<td>Heavily utilised in dry times.</td>
</tr>
<tr>
<td>Thorny saltbush</td>
<td>-</td>
<td>6.1</td>
<td>38</td>
<td>High</td>
<td>Good forage in dry seasons.</td>
</tr>
<tr>
<td>Bladder saltbush</td>
<td>52-54</td>
<td>11.1-18.4</td>
<td>31.3-36.2</td>
<td>High</td>
<td>Low variability in nutritive value. Higher crude protein and digestibility than dry grass. 23 to 30% salt.</td>
</tr>
<tr>
<td>Neverfail</td>
<td>-</td>
<td>3.13</td>
<td>50</td>
<td>Low</td>
<td>Valuable feed plant.</td>
</tr>
<tr>
<td>Black bluebush</td>
<td>58</td>
<td>15.1-22</td>
<td>10</td>
<td>High</td>
<td>Least valuable of saltbush/bluebush species in terms of nutrition due to the low palatability. Favoured by rabbits.</td>
</tr>
<tr>
<td>Round leaf pigface</td>
<td>-</td>
<td>6.9</td>
<td>-</td>
<td>Low</td>
<td>Little forage value.</td>
</tr>
</tbody>
</table>
Figure 2: Life cycle of selected species.

Livestock are selective grazers and will pick at the most palatable plants in preference to the least palatable. Sheep, goats and rabbits are more selective than cattle. It is through selective grazing that certain species can increase or decrease in abundance even under light or moderate stocking rates.

Plant life cycle

An understanding of a plant’s life cycle (germination, growth, flowering, seed set) will enable you to target grazing to either suppress or promote growth of a species, or to plan stock movements (Figure 2). Knowing when plants will produce green feed is also useful.

Spelling paddocks prior to and during flowering and seed set will encourage a plant to produce seeds and thus become more prolific. Conversely, heavy grazing at these times can suppress plant growth and reproduction.

Other values

It is important to know the value of a plant in terms of:

- Dillon bush (*Nitraria billardierei*)
- Poverty bush (*Sclerolaena* spp.)
- Black rolypoly (*Sclerolaena muricata*)
- Barley grass (*Hordeum leporinum*)
- Windmill grass (*Chloris truncata*)
- Cottonbush (*Maireana aphylla*)
- Annual saltbushes (*Atriplex* spp.)
- its role in stabilising soil.
- the bulk of feed it produces.
- its resilience to drought.

It is a diverse and healthy pasture with a mix of plants that ensures response to rainfall all year round, and the best return from grazing.

3rd PRINCIPLE: Manage to increase perennials

Grazing management should aim to promote the growth, abundance and health of perennial plants.

Perennial vegetation such as Saltbush and White-top grass provide stability in the grazing system where rainfall can fluctuate seasonally and from year to year. Annual grasses and forbs give enormous feed boosts, but normally only in the cooler months and only when favourable rains occur. Perennials can provide green feed in any season and will protect the soil from erosion and minimise invasion by undesirable species.

The decisions to move stock or spell paddocks should be based on the condition of perennial plants.

4th PRINCIPLE: Avoid overgrazing

If perennial grass is grazed too low, or shrubs heavily browsed during the dry seasons, then recovery will be slower when the season improves.

Grazing grass to small tussocks on a continual basis slows plant regrowth in response to rain as there is no leaf to capture energy from the sun, or root system (which mirrors the plant top) to harvest nutrients and water from the soil.

Heavy grazing will also change the species composition of the paddock (increasers and decreasers).

In both grasslands and open shrublands, the desirable perennial grasses are a good yard-stick to monitor the condition of your land. If the grass tussocks are grazed down to little bumps then the country has been pushed too hard. For good response to rain, the grass should have enough feed in the tussock so that you can grab it with your hand.

As a general rule, the key perennial grasses should not be grazed more that 20 to 40 percent by weight. Most of the weight of a grass plant is near the base of the tussock and as Figure 3 shows, 30 percent utilisation of a grass plant by weight is different to 30 percent by height.

Figure 3: Grass Utilisation (30%) (Source GRASS Check).

Chenopod shrubs like saltbush can be grazed in different ways. Some graziers have found that saltbush and bluebush thrive on a good pruning or heavy grazing and then being spelled. The spelling is important to allow bushes to recover, and seedlings to germinate. Caution must be exercised under such grazing regimes for two reasons:
1. Many shrubs such as Bladder saltbush will die if heavily defoliated; and
2. Forcing stock to utilise the low palatability shrubs will place even higher grazing pressure on more palatable herbs.

Under conservative set stocking of shrub country, the bush is naturally rested over winter and spring, as the stock prefer to eat the more palatable herbage. The shrubs are then more heavily utilised over the drier times, and effectively act as a drought feed reserve.

It is important that you have well planned drought management strategies in place for your property to avoid overgrazing.

5th PRINCIPLE: Manage total grazing pressure
Plants respond to the total grazing pressure placed on them. All grazing animals, including livestock, kangaroos and rabbits must be managed. It only takes seven rabbits to have the same grazing impact as one sheep, so their contribution to total grazing pressure should not be underestimated.

6th PRINCIPLE: Provide adequate water supply
The distribution of water supply will determine grazing pressure in a paddock. Grazing pressure is heaviest near watering points and declines with distance.

When deciding on an appropriate stocking rate, only consider the watered area of the property. Sheep will walk about 3 kilometres and cattle 5 kilometres from a watering point during dry seasonal conditions.

Sheep will preferentially graze the windward (predominantly west and south west) end of a paddock and so watering points should be situated in the north, east or centre of a paddock to encourage more even grazing pressure.

7th PRINCIPLE: Keep good records and monitor rangeland condition.
Keeping good records that may be used in grazing management decisions should be standard practice. This includes rainfall, stock movements and general observations of feed availability.

For each paddock it is useful to record:
- stock movements (time spent grazing paddock); and
- production figures (eg. wool clip and lambing percentage).

It is also vital to monitor the condition of your land and vegetation by establishing photopoints or through more detailed techniques of rangeland condition assessment (refer to Chapter 4). This will aid in measuring the success of grazing management strategies.

Determining stocking rate
The challenge in grazing management is deciding how many stock to run in a paddock, and for how long. Keeping in mind the principles of grazing management outlined earlier, the decision comes down to several factors:
- quantity and quality of feed available;
- rate of feed growth/seasonal conditions;
- type and class of stock;
- grazing pressure from feral animals and wildlife;
- drought reserve “safety net”; and
- animal production targets.

There are a number of different ways for setting stocking rates, including:
- referencing past records;
- using a long term average;
- using the Rural Lands Protection Board rate;
- personal experience; and
feed budgeting exercises.
(each with adjustments for seasonal conditions.)

Data from the 37 Rangeland Assessment Program sites in the western Riverina showed that stocking rates varied significantly between sites and over time in response to seasonal conditions as shown below:

<table>
<thead>
<tr>
<th>Year</th>
<th>Lowest Rate (DSE/ha)</th>
<th>Highest Rate (DSE/ha)</th>
<th>Average (DSE/ha)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1990-92</td>
<td>0.3</td>
<td>2.0</td>
<td>-</td>
</tr>
<tr>
<td>1994-97</td>
<td>0.3</td>
<td>1.5</td>
<td>-</td>
</tr>
<tr>
<td>1990</td>
<td>-</td>
<td>-</td>
<td>0.95</td>
</tr>
<tr>
<td>1997</td>
<td>-</td>
<td>-</td>
<td>0.65</td>
</tr>
</tbody>
</table>

DSE = Dry sheep equivalent.

There are several actions any grazier should undertake to help in determining stocking rates:

1. Experiment with reducing stock numbers to see if fewer, better fed stock produce greater profits per hectare.
2. Keep the number of herds to a minimum so that more paddocks can be spelled and others more effectively grazed.
3. Visit landholders in the district whose properties are in good condition and find out how they manage their grazing.

Feed budgeting can take some of the guess work out of setting stocking rates. Different forms of feed budgeting can be found in “GRASS Check”, “Prograze” and “The Glovebox Guide to Tactical Grazing Management”.

Allan Savory’s “Holistic Management” has an easy approach to feed budgeting. It relies on the concept of Animal Days per Hectare (ADH) as a measure of the quantity of feed that livestock will eat from an area of land in a specified time. The process as outlined below enables the grazier to relate vegetation on the ground to the daily feed requirements of one animal.

**Feed Budgeting** (after Savory, 1999)

**STEP 1**
To answer the question “is there enough feed for my stock?” you need to know:
- The number and class of stock in the paddock (“Animal”).
- The length of time that you plan to graze the paddock (“Days”).
- The size of the paddock (in hectares).

**STEP 2**
Animal Days per Hectare (ADH) =

Number of Stock × Number of Days
Area of Paddock (in hectares)

**STEP 3**
Calculate the area of land that must feed 1 animal for 1 day =

\[\text{Area to feed 1 animal} = \frac{10 000 \text{m}^2}{\text{ADH}}\]

**STEP 4**
Pace out and mark this area in the paddock.

The length of the one side of the paced square = square root of STEP 3.

**STEP 5**
Look at the pegged area. Is there enough vegetation/feed in the square to feed 1 animal for 1 day and still leave enough for kangaroos, rabbits etc. and without degrading the land? If there is, then the paddock is not overstocked for the length of time you are planning for.

**STEP 6**
If there is insufficient feed in the square to feed 1 animal for 1 day, you can:
- Reduce stock numbers.
- Reduce the time of grazing by spelling the paddock.
For example, a grazier wants to know if there is enough feed in a 300 hectare paddock to feed 220 ewes for the next 90 days.

Animal Days per Hectare (ADH)
\[ \text{ADH} = \frac{\text{220 ewes} \times 90 \text{ days}}{300 \text{ ha}} = 66 \]

This means that after 90 days, each hectare of land will have the equivalent grazing pressure of 66 ewes grazing for 1 day.

To calculate the area of land required to feed 1 ewe for 1 day
\[ \frac{10,000 \text{ metres}}{66} = 152 \text{ m}^2 \text{ (which is a square of 12.3 metres x 12.3 metres in size)}. \]

The grazier can then peg out this square and decide if the feed is of sufficient quality and quantity to carry 1 ewe for 1 day – which is a lot easier than deciding on the feed availability for 220 ewes over 90 days on 300 hectares. This calculation should be done in a number of locations across the paddock to account for variability in pasture.

To demonstrate the effect of time in grazing pressure, if each ewe in this example eats 1.5 kg of feed per day, then 29,700 kg of feed will be taken from the land over the 90 days. Alternatively, the same amount of feed would be utilised in the 300 hectare paddock if 19,800 ewes were grazed for only 1 day.

Using this approach to setting stocking rates on a regular basis, especially in periods of drought, will help minimise damage to the vegetation through overgrazing.

**Conclusion**

Good grazing management is more of a mind set or a way of thinking than a specific process or recipe. It relies on careful observation and an understanding of the land.

Remember, your land is your productive asset so manage your land and not just your livestock.

**References and further reading**


