Grazing Livestock in the Mount Lofty Ranges

Sheep, horses and cattle comprise most of the livestock enterprises within the Mount Lofty Ranges, with an increasing interest in alpacas, deer and goats.

For a successful and sustainable grazing enterprise, consideration is required for appropriate land management. All land owners have a duty and responsibility to care for the land under their control. Inappropriate grazing practices will result in land degradation such as wind and water erosion, dry land salinity and pollution of watercourses.

Proper planning, monitoring and vigilance are important to prevent land degradation. Land degradation will become worse over time. Prevention is more cost effective than remediation.

LAND MANAGEMENT PRINCIPLES

There are a number of essential principles required for sustainable land management, regardless of the type of grazing animal.

- **Healthy soils** – soil needs to be free of compaction, free-draining and not affected by imbalances such as nutrient deficiencies and soil acidity.

- **Pasture management** – good pasture management requires the selection of appropriate plant species, a healthy soil, weed control and grazing management.

- **Grazing management** – always maintain adequate groundcover across the whole paddock and protect sensitive areas at all times.

- **Property planning** – ensure a grazing enterprise is viable while at the same time protecting land. Attention to land types and capability, fence-lines, watering points, shelter belts, wind breaks and watercourses need to be considered when developing a property plan.

Above: Paddocks are tailored to land type through property planning.
PREVENTING LAND DEGRADATION WITH PASTURE AND GRAZING MANAGEMENT

For the sustainable management of pasture you need to consider:

- Soil fertility and structure.
- Pasture mixes (plants).
- Management of wet soils.
- Grazing management.

These factors will vary depending on the type of animal being grazed. Specialist advice should be sought to assist in the selection and establishment of pasture species appropriate to your area, soil condition and type of animals.

As a general rule, to manage pastures, aim to start grazing paddocks when pasture is green and 6 – 10cm high. Graze the pasture to 2 – 4cm in one week (two weeks at the most) then rest the paddock until pasture is 6 – 10cm high. Over the summer month’s aim for a two week grazing period followed by a six to ten week rest. Ensure adequate ground cover at all times. A vital part of successful rotational grazing is to have enough feed ahead of the animals.

When feed quality and/or quantity run low, supplementary feeding will be required to maintain stock condition and protect paddocks from erosion and subsequent soil loss. Types and amounts of supplementary feed will depend on the stock. It is recommended you consult a qualified land management advisor for further information.

The Department of Water, Land and Biodiversity Conservation (DWLBC) have developed a guide to assess suitable levels of ground cover required to reduce the risk of erosion.

### Table 1: Recommended dry matter cover levels for reducing soil loss (DWLBC 2008).

<table>
<thead>
<tr>
<th>Wind Erosion</th>
<th>Minimum Cover %</th>
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</thead>
<tbody>
<tr>
<td>Loam</td>
<td>15</td>
</tr>
<tr>
<td>Sandy Loam</td>
<td>20</td>
</tr>
<tr>
<td>Sand</td>
<td>50</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Water Erosion</th>
<th>Minimum Cover %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level Land</td>
<td>60</td>
</tr>
<tr>
<td>Sloping Land</td>
<td>75</td>
</tr>
</tbody>
</table>

These levels will not prevent erosion occurring during intense rainfall or very windy conditions; however, they will provide soil protection under most conditions if paddocks have adequate cover.

To prevent soil erosion, remove stock from the paddocks, and either place in containment areas, agist off farm or sell.
The following practices are encouraged:

• Minimise tillage and adopt direct drill.

• If cultivation is necessary, leave the soil surface rough. Seed can be sown dry and therefore earlier in the season. Avoid leaving soil bare during wet period.

• Soil conservation structures such as grade banks and furrows may be necessary during establishment on erosion prone land. Never cultivate through a waterway or a drainage line.

GUIDELINES FOR BEST MANAGEMENT PRACTICE TO MAINTAIN A HEALTHY PASTURE

Pastures that consist mainly of annual grasses with little clover are considered poor while those with a high density of perennial grasses, good clover content and few weeds are considered high quality.

• **Monitor** pastures for any changes. Look for an increase in perennial plants and clover, and a reduction in pasture weeds. After two years, review the pasture and determine inputs required to increase its production. If considering an over-sow or a re-sow, consult a land management advisor.

• **Test** soil and plants to diagnose and monitor soil nutrients to ensure optimum fertiliser applications. Monitor soil pH to determine if soil acidity is increasing and if so, how much lime is required to correct the problem.

• **Use** soil amendments and modifications where soil limitations can be corrected. For example, add lime or dolomite to acid soils and trace elements where deficiencies are known. Test soils before undertaking any remedial actions.

• **Encourage** biological activity of soil microbes and earthworms by correcting pH imbalances and increasing soil organic matter.

• **Understand** the growth patterns of pasture species and match grazing to these patterns.

• **Consider** native perennial pasture species as a low input alternative to introduced grasses.

When establishing or renovating pasture or fodder crops, care must be taken to avoid erosion by wind and water.
• Attention to established and new pasture is required, especially if the rainfall season is late starting or if there is a false break. New pastures need special care and management until they are well established. It is recommended to lightly graze a newly established pasture to allow seed to set in the first season. Red-legged earth mites can devastate clovers. Treat as necessary.

• If supplementary feeding, avoid over-grazing during dry periods. It is not recommended leaving gates open for animals to wander through the paddocks as this will result in selective grazing and degraded pastures.

Recommended practices for weed control in pastures include:
• **Crowd them out** – Establish vigorous perennial grass and clover swards by maintaining soil fertility.

• **Don’t buy weeds** – Take care when purchasing hay or grain or when buying stock to avoid the introduction of new weeds.

• **Remember** – Annual weeds can often be controlled by spray topping and broad-leaf weeds by spray grazing. Contact your local agronomist for further information.

**PREVENT TRACKING AND PUGGING**

Tracks used by stock can become bare resulting in the channeling of water leading to erosion.

Pugging, caused by hard hooves on wet soils, damages the soil structure impeding drainage and aeration, making it difficult for pasture plants to establish and grow.

The strategic placing of watering points and proper management of stock will reduce the impact. Areas, which suffer continual tracking or pugging, need to be rubbled or covered with hardwearing vegetation. Protect wet areas by fencing to exclude stock during wet periods.

**MANAGING WATERCOURSES AND DAMS**

To protect water quality and prevent bank erosion, the fencing of watercourses and dams to exclude stock is recommended.

Environmental benefits include:
• Reduced polluted run-off into watercourse. A grassy vegetated buffer of at least 10m can trap silt, nutrients, pathogens and chemicals from paddock run-off. Vegetated buffers can double as shelterbelts, as well as providing habitat for native animals.
• Better water quality for stock, drinking water supplies and the environment.
• Reduced faecal contamination (pathogens and nutrients).
• Ability to prevent stock drinking water contaminated with toxic algae (blue-green) and diseases (e.g. Ovine Johnes disease).
• Reduced likelihood of toxic algal bloom because of less nutrients and turbidity.

STOCKING RATES
The correct number of livestock on a given area of land is critical for sustainable land management as too many animals on a small area of land will result in degradation, exposing soil to rapid deterioration by wind and water erosion.

The number of livestock that can be grazed during the season will vary depending on the season, condition of the pasture and the soil. Feed requirements are determined by the type of livestock and will vary according to sex, lactation and age.

A standard method has been developed to assist landowners to calculate approximately how many animals they can support on their property. A Dry Sheep Equivalent (DSE) is the unit against which other animals are compared.

Table 2 shows the number of DSEs that can be kept per hectare, depending on annual rainfall and pasture condition.

When calculating the carrying capacity of property, consideration needs to be given to the:
• location and the size of the property.
• type of stock.
• pasture mix, annual- or perennial- based.

CALCULATING YOUR TOTAL DSEs
Break your animals into their class, assign a DSE value and calculate the total DSEs.

Once you know the total DSE rate, you can now work out your actual and potential stocking rates.

Above: Protect watercourses by excluding stock.
CALCULATING STOCKING RATE

Stocking rate OR DSE / hectare =
Total DSE’s ÷ Total grazing hectares.

Example: 365.5 DSE ÷ 40 hectares
= 9.0 DSE/ha

The stocking rate in the example property is 9.0 DSE/ha.

PROPERTY PLANNING

Through property planning, the management of each paddock can be tailored precisely to the one land type.

With planning, areas such as watering points, fencelines and gate locations can be sited to avoid erodible areas and minimise tracking by stock.

Property planning will assist in decision making for the best placement of improvements such as fences, yards, troughs and raceways, shelterbelts, windbreaks and revegetation – all of which can contribute to increased productivity, higher property values, better aesthetics and easier management.

When improving the farm layout consider:

- Purchasing an aerial photo to illustrate your plans.
- Fencing to land class.
- Sufficient watering points on hard sites (e.g. gravel pad) at central locations within paddocks.
- Establishing smaller paddocks to control grazing management.
- Fencing watercourses, native vegetation, landslips and areas susceptible to water logging.
- Establishing well-sited shelter belts and wind breaks.
- Incorporating a raceway to improve stock movement areas excluded from stock such as native vegetation, revegetation and dams.

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**Table 2:** This table compares different classes of livestock to a standard DSE. For example, it shows that a dry fallow doe will consume one-and-a-half times more feed than a dry sheep.

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**Above:** Property planning identifies suitable sites for revegetation.