

Tactical stock control

Key actions

- ✓ Predict monthly pasture growth in kg DM/ha/day for a range of weather patterns.
- ✓ Continually match animal feed demand to predicted feed supply.
- ✓ Use partial budgets to assess the benefits and costs of options to match supply to demand.

Introduction

Why is tactical control of grazing stock numbers important?

Normal fluctuations in seasons, pasture growth and market prices mean that you need to review the numbers in each herd or mob continually to:

- Ensure that the cattle have the required feed available to meet growth targets (*productivity*);
- Reduce the risks of pasture damage and other adverse environmental impacts (*sustainability*); and
- Maximise your potential to make profit (*profitability*).

Manage stock numbers regularly to improve your productivity, sustainability and profitability

Predicting the amount of pasture that will be available and comparing it to animal performance targets enables you to match feed demand to supply to achieve maximum production. Managing stock numbers on a week-to-week or month-to-month basis is referred to as 'tactical' control (whereas reviewing overall stocking rate for the farm or enterprise each year is 'strategic' control, which is covered in *Module 1: Setting directions*).

'Tactical control' means weekly or monthly management of stock numbers

Forecasting the available feed supply across the farm enables you to take action to increase or decrease stock numbers accordingly. When excess pasture is predicted, additional stock may be purchased or feed can be conserved for times of shortage.

Excess pasture is often under grazed and under utilised because ungrazed pastures are considered a feed reserve ('standing hay') that can be used as a risk management strategy.

Reserving standing feed may not be the most productive and profitable strategy as the value of water and soil nutrients used to grow pasture is wasted while the pasture deteriorates in quality. In the same way, valuable resources can be wasted by choosing not to increase stock numbers or conserve excess feed as hay or silage. The question is how to balance the tactical grazing options to give the highest possible profit, while allowing you to build confidence and manage the risks comfortably.

Reserving feed could be a waste of valuable resources if managed incorrectly

Controlling stock numbers to increase and decrease grazing pressure at appropriate times is also essential to improve the growth capacity of long-term pastures, and to avoid degrading pastures and soil. Varying grazing pressure through stock manipulation can be used to improve the growth of long-term pastures and to avoid pasture and soil degradation.

Control stock numbers to tactically increase and decrease grazing pressure

- Moderate overgrazing reduces leaf area and lowers the carbohydrate stores in the roots. These are needed to maximise pasture regrowth.
- Severe overgrazing can result in the death of desirable plant species, weed invasion, reduced water use efficiency and topsoil loss through erosion.
- Undergrazing can also cause reduced pasture growth because of increased shading and senescence (older leaves dying-off), loss of preferred pasture species and lower animal productivity through poorer feed quality.

You need to allocate each mob to the best pasture option (based on quantity and quality) for the particular production targets set for them, across the farm, to ensure the greatest profit potential from the enterprise. For example, allocate dry cows in good condition to poorer quality pastures and young growing stock destined for sale to better pastures (refer to *Module 6: Weaner throughput* for more detail).

How does this module assist you?

This module describes a process to predict the number of available days of grazing based on current herd requirements and the pasture growth expected, so that stock numbers can be adjusted accordingly. An approach to controlling the risks of over- or under grazing is provided to ensure that animals and pastures are maintained in the best condition for long-term sustainability of the enterprise. The chances of financial loss in poor years are reduced while the profits in good years can be increased.

Grazing pressure is managed by changing the:

- Numbers, type and growth targets of livestock on pasture;
- Numbers, type and growth targets of livestock fed off pasture (such as in a feedlot or on a feeding pad), but available for transfer back to pasture; and
- Pasture-based feed supply and quality through the year using supplements, seasonal feed transfers, and cutting or boosting growth. Growth can be manipulated by applying fertilisers, such as nitrogen, phosphorus and potassium, during growth periods and at critical times of rainfall.

Normally this requires the continual adjustment of stock numbers and pasture management as pasture growth varies, and perhaps periods of supplementary feeding when pasture growth rates are low. The costs and benefits of options to adjust pasture supply and demand vary throughout the year and between years. Forward planning, with routine updating of partial budgets to assess available options, will enable timely and effective decisions to be made that are based on current costs and anticipated benefits.

The strategy of continual adjustment to maintain pastures within limits that allow maximum pasture growth and quality cannot be applied continuously to annual pastures or to some species of perennial pastures. These need to set seed for regeneration of plants in following years. Also, in locations where there is only one or perhaps two short growing seasons, low-quality dry standing pasture can be the most economical feed source during several months of the year.

Linkages to other modules

This module accompanies *Module 1: Setting directions* and *Module 4: Pasture utilisation*.

Module 1 will help you establish initial herd structure, stock numbers to be carried, the predicted use of feed supplements and the priority for removal or purchase of stock classes on a year round basis.

Module 4 describes how to achieve the best pasture growth and utilisation by grazing pastures before the oldest leaf begins to senesce (die), and removing stock while sufficient soluble carbohydrate (stored in the stem and roots) and leaf area remains for rapid regrowth.

Principles of tactical control of stock numbers

Ensure the feed available meets production targets set for the herd



Procedures for tactical control of stock numbers

Procedure 1

Predict pasture availability for a range of weather patterns and compare with stock requirements.



Procedure 2

Take early corrective action when an excess or shortage of pasture is predicted.

Procedures 1 & 2

Predict pasture availability for a range of weather patterns and compare with stock requirements

Take early corrective action when a shortage or excess of pasture is predicted

Guidelines to implementing tactical control of stock numbers grazing pasture

Feed budgeting is the method of predicting whether the feed available to the herd is sufficient to meet requirements. When feed budgeting, refer to Tool 4.3 in *Module 4: Pasture utilisation* for a guide to the daily pasture growth estimates for localities and regions across southern Australia. These mid-monthly estimates of pasture growth rates (kg DM/ha/day) are for average seasonal conditions and can be the basis of feed budgeting if farm records are not adequate.

Use feed budgeting to predict whether pasture availability is sufficient to meet stock requirements

Feed budgeting involves:

1. Predicting pasture availability and comparing it with stock requirements:
 - Estimate or measure the amount and quality of pasture currently available. Add the extra pasture likely to grow with expected average rainfall and the daily minimum and maximum temperature for the coming period. Repeat for below-average rainfall and more than expected rainfall to assess the likely range in seasonal conditions.
 - Estimate the number of days that pasture is required for current cattle classes, numbers and the targets set for their production performance.
 - Compare the number of days that pasture is required with the number of predicted days available for various weather patterns. Choose the pattern that is most suitable for your predicted circumstances.
2. Taking corrective action based on an assessment of the benefits and costs:
 - If the number of days of available feed exceeds that required, increase stock numbers on pasture or utilise the excess pasture by other means. Use a partial budget analysis to determine the method and priority.
 - If the number of days of available feed is less than required to meet targets, decrease stock numbers on pasture or be prepared to supplementary feed. This is determined by a partial budget analysis, which considers all costs and benefits, including any changes to capital.

Match pasture availability with stock requirements

Refer to Tool 1.2 in *Module 1: Setting directions* for a partial budget template to plan, cost and test investment in changes to operating procedures that will impact on the enterprise budget if implemented.

It is important to avoid reaching the point where degradation of pasture or resources by over- or undergrazing can no longer be corrected by adjusting stock numbers or class of stock between and within herds. Overgrazing reduces plant leaf area and carbohydrate stores in the roots and so reduces the capacity for animal growth and production. Undergrazing reduces pasture growth through increased shading and older leaves dying off, and wastes valuable water and soil nutrients. Procedure 1 in *Module 4: Pasture utilisation* discusses this in more detail.

Tactically control stock numbers to best use pastures and achieve production targets

Avoid grazing to the point where resources are damaged and re-growth is compromised

Managing the risks

The amount of pasture required (that is, the 'target' pasture mass at a given date) and the predicted number of days of feed available depend on knowing the required animal performance (both current and future), stock numbers, future pasture growth rates and the critical points when pasture and soil damage occur.

To assist in the control of risk, future pasture growth can be predicted in two ways:

- The first is based on the best estimate of likely seasonal future rainfall. Although less reliable this is an easier and lower cost option.
- The second is based on estimated or actual measured current soil moisture (assuming no more rain) with adjustments made to soil moisture after each rainfall event.

This is discussed in more detail in Procedure 2 of *Module 3: Pasture growth*

When the critical limits for pasture cover have been or are predicted to be broken, you need to use the most cost-effective methods of staying within the target range of pasture available into the future. These methods could include changing animal feed demands or changing feed supply.

Take early corrective action when a shortage or excess of pasture is predicted

Animal feed demands can be changed by:

- Altering stock numbers through selling cattle classes (such as young steers, finishing older steers, or heifers) in a predetermined order or purchasing stock depending on pasture deficiency or excess;
- Varying the intake of animals through allocating feed to classes of stock in a predetermined order;
- Transferring animals to or from a feeding pad or a 'sacrifice' paddock and supplementary feeding;
- Altering physiological demands, for example by early weaning to reduce cow feed requirements.

Feed supply, including transfer of pasture energy between seasons, can be changed by:

- Sowing special purpose pastures (for example, chicory or lucerne) to maintain or boost pasture quantity and quality at critical times of the year, such as late summer/early autumn;
- Adding or removing feed supplements;
- Boosting pasture growth and/or quality through fertiliser application (see Procedure 3 in *Module 3: Pasture growth*) and/or use of irrigation where available;
- Increasing the area allocated for silage or hay production, feeding supplements in periods of supply deficit or selling stock;
- Postponing utilisation to allow seed set for pasture regeneration;
- Setting aside areas for dry standing feed to be used to maintain animals (such as dry females) with low energy demand in satisfactory condition score;
- Pasture topping (chemical or mechanical) as a last resort, and only if cost-effective or used in combination with oversowing;
- Oversowing pastures with sub-clover and superphosphate or perennial grasses;
- Purchasing feed grain options, which provides flexibility to either buy feed grain supplements or forego delivery and on-sell if no longer required.



What to measure and when

The pasture mass is measured by:

- Predicted average pasture mass in kilograms of dry matter per hectare (kg DM/ha) at a specified date in the future; and/or
- Estimated days of feed (pasture plus pasture supplement) available for the herd.

The MLA Pasture Ruler converts pasture height into kg DM/ha. Refer to Tool 4.1 in *Module 4: Pasture utilisation* for a list of paddock aids to assess pasture cover in kg DM/ha.

- 'Days of feed' is the current industry language and is easy to understand;
- Target pasture cover at predetermined dates is an alternative concept that is preferred by some producers.

Both take account of:

Starting pasture mass

+ expected pasture growth

+ supplements available

– projected animal feed demands

– land area to be taken out for crops or supplements

Both options give the closing pasture mass at a specified date or number of days of available feed.

Whichever option you decide to use, you should:

- Run the process weekly, fortnightly or monthly depending on the rate of change in expected pasture growth; and
- Set the measurement limits according to the time of year and expected pasture growth pattern, opportunities to sell or buy stock, critical number of stock needed to continue the core business of the enterprise and your level of comfort with risk.

Guidelines for establishing minimum and maximum limits for whole enterprise pasture availability into the future are provided in Tool 2.1.



Use the MLA Pasture Ruler to convert pasture height into kg DM/ha

Toolkit 2

Tool 2.1 Guidelines for establishing minimum and maximum limits for whole enterprise pasture availability into the future (or days of feed available)

- These limits need to be set by the owner/manager. In rotational grazing systems the predicted future grazing period is set by the rotation length and number of grazing days for each paddock.
- The limits are likely to change throughout the year depending on the reliability of rainfall, cost and availability of feed supplements and the accessibility of markets.
- The minimum limit is the most critical because damage to pasture is likely to occur through overgrazing when too many animals are maintained.
- Predetermined strategies and actions should be implemented once the set limits are reached.
- Factors to consider when setting minimum limit:
 - Critical times of the year when minimum pasture cover values are to be assessed.
 - The effect of reducing pasture intake and/or quality on the ability of each class of cattle to achieve the proposed performance criteria.
 - The accessibility of markets and likely changes in prices for sale of each class of cattle, ie the ease with which stock can be sold at acceptable prices.
 - Pasture mass benchmarks for maintenance or liveweight gain in cattle are much higher than for sheep.
 - Ideally, grazing to leave 500–800kg DM/ha (1–2cm) of green pasture and keeping the pasture near the start of growth phase 2 will aid re-growth.
 - The minimum number of days chosen for future pasture availability will vary with the time of the year in relation to the pasture composition and growth patterns set by the minimum and maximum temperature and the reliability of rainfall. For example, a predicted availability of 10–30 days may be appropriate for late winter/spring and 60–90 days in late summer/autumn.
 - Other factors to consider include the availability of markets for different classes of stock; the cost and availability of supplements; feed supply from complementary enterprises, such as cereal crop stubbles and fodder crops; and the risk profile of the owner/manager.

- Factors to consider when setting the maximum limit:
 - When pasture availability over the whole farm is likely to exceed 2,500kg green DM/ha for a prolonged period and pasture growth rate is likely to be depressed through senescence and shading.
 - The availability of 'buffer stock' by purchase or agistment.
 - The economics and practicality of pasture conservation.

Other tools that will help with the tactical control of stock numbers

Tool 1.2 in *Module 1: Setting directions* – Template for partial budget calculations

This partial budget template provides a means to plan, cost and test investment in changes to operating procedures.

Tool 4.1 in *Module 4: Pasture utilisation* – Pasture rulers, sticks and meters

A list of paddock aids to assessing pasture cover in kg DM/ha.

Tool 4.3 in *Module 4: Pasture utilisation* – Daily pasture growth estimates for localities and regions across southern Australia

These mid-monthly estimates of pasture growth rates (kg DM/ha/day) are for average seasonal conditions and can be the basis of feed budgeting if farm records are not adequate.