

tips & tools

FP03 FEEDBASE AND PASTURES

Improving pasture use with the MLA Pasture Ruler

The MLA Pasture Ruler provides the basis for a quick and easy way to estimate pasture mass (quantity) and quality. These estimates become a guide to the performance you can expect from your grazing animals.

Why assess pasture

Pasture assessment is the key to making better grazing decisions. To get the benefit of feed budgeting you need to know:

- **Quantity:** the mass of pasture available to your livestock; and
- **Quality:** the feed value of your pasture.

From this you can estimate the number of stock you can carry, for how long, and how well they are likely to grow. With feed budgeting you can determine when and how many stock you need to buy or sell with changing seasonal conditions; or alternatively how much supplementary feed will be needed.

Pasture mass (kg green DM/ha)

The quantity of green feed on offer has a big effect on how much pasture an animal can eat. If there is not enough pasture available (ie it is too short), animals spend more time and energy walking and grazing but may not be able to eat enough to achieve the performance you want. In contrast, when there is too much pasture for the number of grazing animals, pasture is wasted and quality declines. This reduces future intake and therefore the future performance of your stock.

The amount of green material present in a pasture is measured as kilograms of green dry matter per hectare (kg green DM/ha). This amount also affects the ability of the pasture to grow to its potential. When pastures are too short, there is insufficient leaf to capture sunlight and the energy for growth. If it is too long the lower leaves are shaded and plant growth declines.

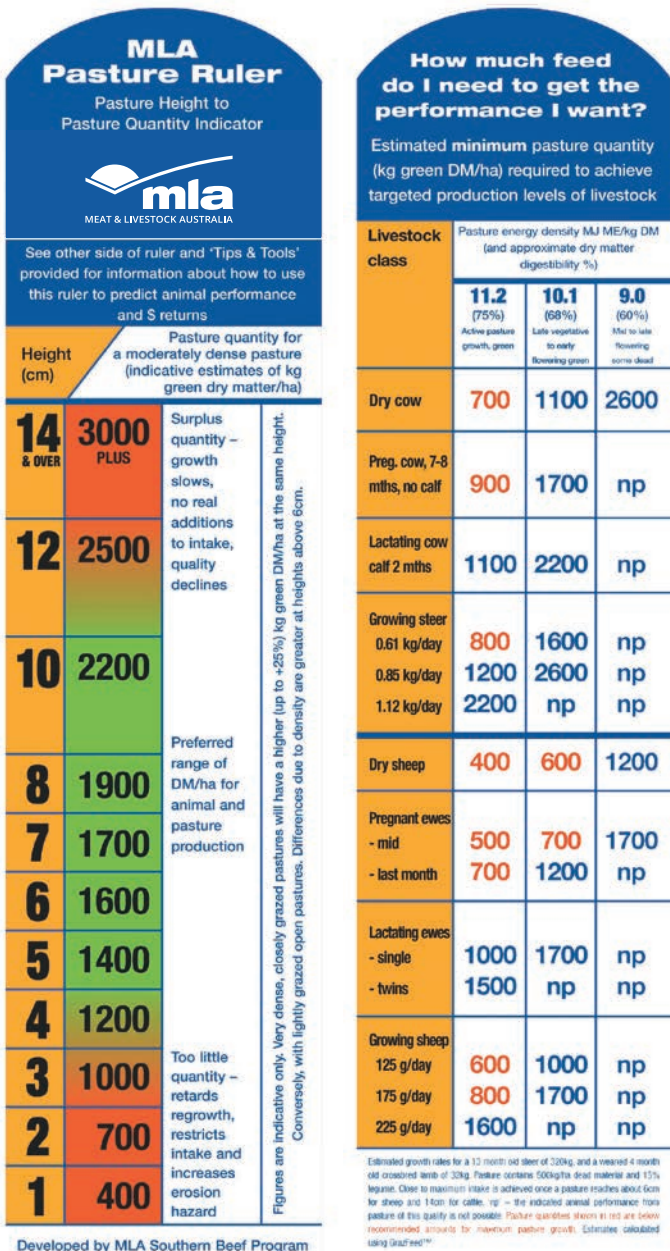
The quantity of green feed on offer is related to a combination of pasture height, pasture density and percentage of dry matter (the non-water component).

Key benefits

- Increase your productivity by making better grazing decisions.
- Better manage stock numbers to increase the utilisation of available pasture.
- Learn to use the MLA Pasture Ruler to predict animal performance and dollar returns.



Figure 1. The MLA Pasture Ruler



Measuring pasture height and converting to pasture mass:

1. Place the MLA Pasture Ruler vertically onto the soil surface. Do not push it into the ground or sit it on top of dead pasture.
2. Slide your thumb down the ruler until it touches green leaves. This measured height will generally be less than that of the taller leaves in the pasture.
3. Do not measure dead stems or leaves or unpalatable weeds like onion grass, as stock do not readily eat these. If no green pasture is present, height is recorded as zero.
4. Measure the height of the green pasture at an appropriate number of sites to get a good representative sample of the pasture availability. Depending on the physical characteristics of the paddock (eg slopes and aspect), the best method might be to walk across the paddock in a zigzag pattern, tossing the ruler out in front of you as you go (to account for variations in pasture height and density), taking measurements where the ruler lands and recording the observations.
5. To convert from the average pasture height in the paddock to kilograms of green dry matter per hectare, simply read the kg green DM figure from the adjacent column on the MLA Pasture Ruler.
6. For information on how to adjust for pasture density and percentage of dry matter, refer to the text below.

Pasture height

Simply by measuring pasture height an estimate can be made of the amount of green feed available in a paddock. Although approximate, this is a quick and easy way to assess the pasture mass.

The MLA Pasture Ruler is specifically designed to help with this assessment. With practice, this assessment can be made 'by eye', assessing the height and density of the pasture and estimating the amount of available herbage (kg green DM/ha). If pasture height is measured in an ungrazed area of the paddock at intervals of a week or so, an estimate can be made of how fast the pasture is growing.

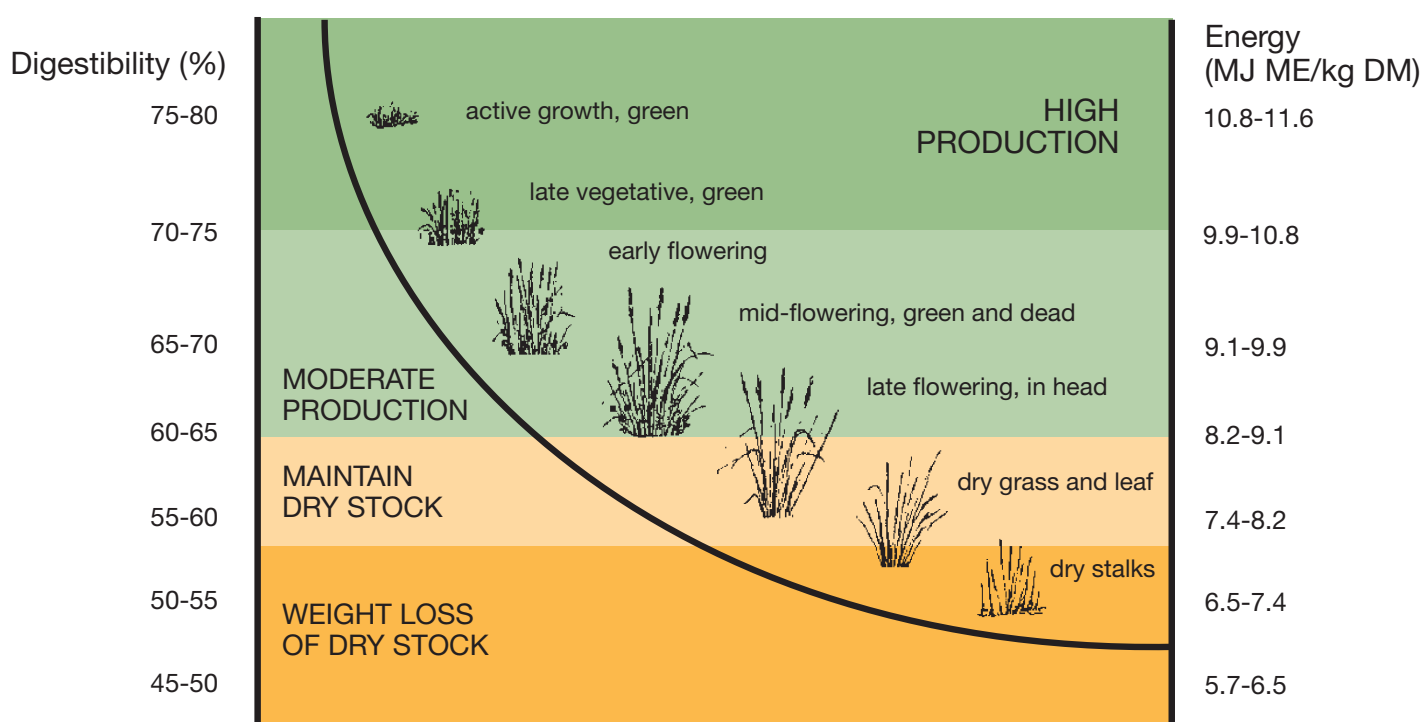
Pasture density

The MLA Pasture Ruler is a guide to pasture quantity for a **moderately dense pasture**. Adjust the estimate of pasture mass (up or down) according to the pasture density. Very dense, closely grazed pastures will have a high (up to 25%) kg green DM/ha at the same height. Conversely with lightly grazed open pastures.

Dry matter percent

The amount of moisture in plant material varies between species, growth phases, seasons and even weeks. There is a tendency to overestimate herbage mass in young actively growing pasture that may contain over 80% water (ie less than 20% dry matter), but as plants mature, dry matter content increases.

Figure 2. A guide to digestibility decline as temperate pastures mature



Pasture quality and animal needs

When pasture mass is assessed, stock numbers can be managed to increase the utilisation of available pasture as long as the quality and quantity is at or above the minimum benchmark for that class of livestock or performance level.

Pasture quality directly influences animal intake and production. This occurs in two ways:

- by influencing the amount of pasture consumed; and
- through determining how much of the feed consumed is converted into animal product.

There is no single measure of pasture quality. It is a combination of the proportion of legume, green and dead material, and digestibility – all of which affect pasture energy content.

Pasture energy content is the main driver of animal production and is measured as megajoules (MJ) of metabolisable energy (ME) per kilogram of dry matter (and is related to digestibility of the pasture). The higher the quality (and therefore energy content) the less the amount animals need to eat to achieve the same growth rate or level of milk production. Also, pasture of high energy (and therefore digestibility) takes less time to break down and moves quickly through the rumen. This allows more pasture to be eaten and therefore used for production.

Green, actively growing pasture is of the highest quality. Legumes such as clover are of higher quality than grasses at the same stage of development.

Figure 2 shows that as pastures mature the energy available for livestock production declines. This means that as pastures mature, animals need to eat more to achieve the same production level. However, it takes longer to go through the rumen so less pasture is consumed and animal production is reduced.

Developing skills in pasture assessment and feed budgeting enables estimation of the amount of feed available and calculation of the stocking rate for a known grazing period. By using the MLA booklet, 'Pasture tools for a profitable beef enterprise', you will be able to:

- Estimate stocking rate over short periods;
- Make better tactical grazing decisions about the short-term stocking rate per hectare;
- Plan seasonal pasture and animal performance to achieve targets; and
- Calculate the gross financial benefit to the grazing business.

This information enables the grazing operation to be more precisely managed and is highly applicable and useful to both cattle and sheep producers.

Balancing performance of both pasture and stock

How can quality and quantity of pasture be managed to maximise intake of nutrients by livestock? In general this is achieved by keeping high quality pasture within the band of 1,500 to 2,500 kg green DM/ha for growing cattle and 1,000 to 1,700 kg green DM/ha for sheep.

The MLA Pasture Ruler provides guidelines for the combinations of quantity and quality required by different classes of stock. By ensuring the right quantity and quality is available, production targets can be achieved. The table on the MLA Pasture Ruler provides a guide to pasture benchmarks indicating how much green herbage mass is required to satisfy the nutritional requirements of stock at various stages of their reproductive cycle, and for growth. The benchmarks provide 'ball park' estimates for the minimum green pasture mass on which stock can graze and still maintain satisfactory levels of production.

Managing natural resources

Managing pastures for highest pasture and animal productivity is also sound natural resource management. If pasture mass is maintained above a total of 1,000 kg DM/ha (green and dead), the surface movement of water, nutrients and soil is greatly reduced. Also, deep drainage of water is least when pastures are growing rapidly.

Further information

Skills in pasture assessment can be developed by participating in a MLA *EDGEnetwork* Grazing Land Management® workshop. Call 1800 023 100 for more information.



To order your free MLA Pasture Ruler call 1800 023 100 or go to www.mla.com.au/creative-commons



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