

Productivity Highlights

No 14 January 2004

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Understanding Pasture Quality

Pasture quality is as important as the amount of pasture growth. Grazing management and good plant nutrition can maximise the quality and productivity of pastures.

Quality varies within a season, between seasons, between pasture species, with different grazing pressures, and is also affected by fertiliser applications. Pasture quality is commonly measured in terms of energy, protein and fibre.

Energy

Energy is the driver of animal production and is expressed in terms of metabolic energy (ME), measured in megajoules per kilogram (MJ/kg).

Pasture energy levels are at their greatest before flowering, when digestibility is also at its greatest, and decline with plant senescence. Energy levels of 11-13 MJ/kg during the vegetative growth phase can fall to 6-8 MJ/kg over the summer months.

While clovers and grasses may contain up to 13 MJ/kg before flowering, capeweed and kikuyu may only supply 8 MJ/kg. Pastures with a high ratio of leaves to stems have high ME levels. The youngest growth at the upper part of the pasture sward has higher ME levels than older parts of the plant. Growth and consumption of the high energy new growth can be exploited through rotational grazing management.

The application of phosphorus and nitrogen fertilisers can also enhance the energy levels of pastures.

Protein

Protein is important for the production of muscle, wool and milk and is usually expressed in terms of crude protein (CP). Like energy, CP is high before flowering. It can be as high as 20-30% in clovers and grasses during vegetative growth. Capeweed is usually only around 14%, while dry grassy pasture may only have 6% CP.

In general, a minimum of 8-10% CP is required for the maintenance of sheep and cattle condition. For growing animals, 12-14% CP is required, with up to 16% during lactation.

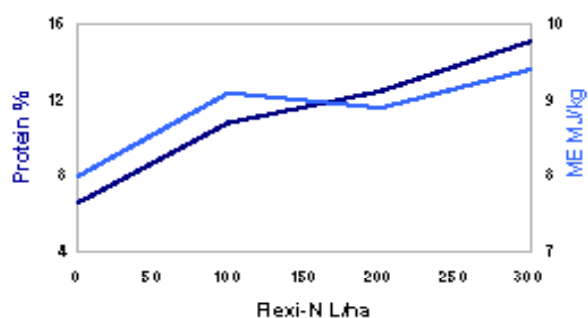
The application of nitrogen fertiliser to pastures can have a large and immediate impact on protein content, especially if the pasture is dominated by grasses.

Fibre

Fibre is an important part of a balanced diet but excessive levels will limit food and energy intake. It is usually measured in terms of digestibility (%) and/or neutral detergent fibre (NDF). Fibre levels vary between pasture species.

Digestibility is positively related to energy content. Digestibility decreases and NDF increases following flowering.

A 'good pasture' in winter with high clover and grass contents might have a digestibility of 70-80% and 40% NDF. A 'poor pasture' dominated by unproductive grasses and capeweed may have a digestibility of only 60-70% and 50% NDF.



Effect of Flexi-N on protein and energy of a grass dominant pasture at Badgingara 2002.