

Metabolisable Energy, the driver behind your pasture

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Metabolisable Energy, (ME), is the energy that is available to animals from pasture and other feeds. This is usually expressed as Megajoules of Metabolisable Energy, (MJ/ME).

The level of energy varies significantly between feed types which is important when that feed type makes up a reasonable proportion of the diet. We have shown below some direct cost comparisons of MJ/ME between different feed types based on 1,000 Kgs/DM, and these figures are important to ensure you are getting value for money.

Table One

Product	Pasture	Oats – Grazing	Pasture Silage	Barley – Grain
Approximate cost per tonne	\$120	\$120	\$140	\$300
ME Value per KG/DM	11	9	10	12
MJ/ME units per tonne	11,000	9,000	10,000	12,000
MJ/ME Cost per unit	1.1 cents	1.3 cents	1.4 cents	2.5 cents

To maximise your animal production it is important to focus on offering the highest quality feed at the lowest cost wherever possible. As can be seen from the table above, the use of silage as a component of the supplement feeding program over the summer period could save considerable cost compared to Barley or other grain options.

In this situation the management of pastures to maximise the silage quality will return good dividends in the longer term.

The other issue to consider is the significant losses in milk production that will occur when pasture quality declines in the late spring summer period. In dryland areas where there is reasonable moisture through to mid spring the use of later flowering annual ryegrass varieties such as Surrey, Missile and Progrow will arrest the decline in quality. Whereas pasture under irrigation systems can be manipulated more easily to largely avoid the same decline in quality due to the lesser influence from the factors that enhance this decline, eg moisture stress.

Where control is lost the decline in pasture quality can be significant as illustrated in table two.

Table Two

Factor	Mid spring pasture	Early summer pasture	Comments
Digestibility	80%	60%	Mid spring pasture 33% better
Metabolisable Energy (ME)	12	9	Estimated ME seasonal value
Dry Matter (DM) cow intake	14	9	Increased DM intake on higher quality feed
ME cow intake (MJ/ME per day)	168	81	Multiplication of previous two boxes
Cow energy req. per day for maintenance	54	54	Based on a 500 kg cow
Energy available above maintenance	114	27	MJ/ME intake of cow minus maintenance
Potential milk production (litres/day)	23	5.5	4 times the milk production

Adapted from "Milk Production from Pasture" Holmes & Wilson (1987)

Whilst this table reflects the decline in pasture production that occurs in New Zealand in the late spring period there are similarities to Western Australia that are important to note. Some of these are as follows:

- In WA we have the same decline in pasture quality, except ours is most likely earlier and more pronounced due to the climatic conditions
- As pasture quality declines so does the MJ/ME that is available in pasture to animals
- The pasture varieties used have similar growth habits to varieties used in NZ
- The daily energy required for animal maintenance will be similar. In the northern areas this requirement will be higher due to the hotter conditions

If you use the table above as an example of the losses that will occur with the decline in pasture quality these can accumulate to a nasty shock. For example if 100 cows were producing 23 litres/day = 2300 litres @ .27 cents per litre, income would be \$621.00 per day.

If the same cows only produced 5.5 litres/day income would be \$148.50 per day.

A loss of \$472.50 per day or 76%.

It is therefore critical to understand the management strategies to retain pasture quality as a result of the reproductive switch in late spring, and the consequent decline in ME value that will result in lower milk production. Using a mixture or selecting varieties that suit the length of growing season available are two strategies that can assist in the retention of higher quality pastures.