

Metabolisable Energy



Introduction

The quality of pasture as a feedstuff in New Zealand is generally described by the energy content of the pasture measured in Megajoules of Metabolisable Energy (ME) per kilogramme of Drymatter (DM), or ME/kgDM. This is generally referred to as the ME of a pasture or the M/D value. This value is not the total energy content of the pasture, but the amount of energy available to a grazing animal for metabolic processes.

Energy content of feeds

The total energy contained in feeds is termed the *Gross Energy* (GE). The GE content of most feeds (excluding those containing high levels of fats) is about 18 to 19 MJ/kgDM, but only a portion of this is available to the animal. Much of this total energy is lost or used during the digestion processes or cannot be digested and passes straight through a ruminants digestive system.

Importance of pasture Energy content

The energy content of a feed is important because energy intake is likely to be the first factor to limit grazing livestock production. The metabolisable energy content of a feed is by far the most important aspect of its nutritive value. Generally, as the energy content of a feed increases so will an animals intake of this feed. This creates a 'double gain' situation resulting from increasing the energy content of a feed or a "double loss" to losing feed quality.

Typical ME values of feed stuffs

Feed Type	Typical ME/kgDM Values
Highly quality pasture	11.5 - 12.5
Stalky pasture	8.0 - 9.0
Hay	7.5 - 10
Straw	6.5 - 7
Good quality pasture silage	10.0
Poor quality pasture silage	9.0
Average quality maize silage	10.5 -11.5
Barley or Wheat Grain	12.5 -13
Molasses	12.0
Chocolate	20.0

Management options to maximise pasture ME content

Keeping pasture short and minimising reproductive growth will enhance the ME value of a pasture. Ryegrass cultivars vary in their palatability so choosing a highly palatable cultivar with a high ME content such as Revolution will improve the energy content of a pasture.

Legumes tend to have higher ME levels so ensuring high legume content should maximize the value of pasture as a feed.

The ensiling process uses some of the energy stored in grass, so maximising the consumption of fresh pasture rather than ensiled pasture will ensure that stock capture more of the energy produced.