Calculating dry matter intakes for various classes of stock

The amount of dry matter (DM) an animal will eat will depend on its body weight, quality of the feed and class of stock. It is important to calculate the average daily intake to ensure that you are feeding the correct amount by weight or that the animal is able to obtain enough nutrients from a certain feed determined by intake limits.

Cattle and sheep generally consume between 2-3% of their live weight in DM daily.

Guidelines for % of body weights used to determine DM intake for various classes of stock are as follows:

- Animal on dry pasture or poor quality feed: 2%

- Animal on average quality pasture or hay: 2.5- 3%

- Feedlot animal with a high component of grain in the diet: 4%

Dry matter intakes may vary from these depending on the type of feed and the animal. Factors that influence DM intake included the following: amount of water, digestibility, neutral detergent fibre (NDF), nitrogen (Rumen Degradable Protein), insufficient sulphur, sodium, cobalt or selenium, high environmental temperatures, palatability, trough space, access to feed, feeding time and disease.

Example 1

A group of 100 ewes with multiple lambs at foot weigh 60 kg liveweight each. How much DM will I need to supply per day to ensure they are fully fed?

60kg (Liveweight of ewe) x 3% (percent of body weight) = 1.8kg DM per day per ewe

1.8 Kg DM per day per ewe x by 100 ewes
= 180 kg DM per day for the group.

Example 2

I want to supplementary feed the group some silage with a DM of 50% how much silage will I need to feed the group as fed?

180 ÷ 50% =360 Kg as fed per day for the group.

Example 3 - using NDF to predict intake

An accurate way of measuring intake is using the neutral detergent fibre (NDF) value. To get this figure you can use an 'average' value from a feed table or ideally use the value obtained from a feed analysis you have taken. The base equation is as follows:

120/NDF of the feed = % of body weight used to determine the dry matter intake of that feed.

I have lucerne hay and the feed test report states the NDF value as 33.8%. How much lucerne hay can my 300 kg steer consume a day?

120/33.8 (NDF) = 3.6% of body weight as dry matter

300 x 3.6% = 10.8 kg DM/day consumed

Example 4

I have barley straw that has feed tested at 77.3% NDF and 6 MJ ME/KG DM. How much would my dry 60 kg ewes consume and would this meet their energy requirements assuming their energy requirement was 8 MJ ME/day for maintenance?

120/77.3 = 1.6% of body weight as dry matter

60x1.6 % = 0.96 KG DM/day consumed

0.96 (kg DM consumed) x 6 (MJ ME /KG DM)
= 5.8 MJ ME/day obtained from the straw.

The requirement of the ewe is 8MJ ME/day and the ewe can only obtain 5.8 MJ ME/day from the straw based on the restrictions to intake from the NDF content of the straw. A deficit of 2.2 MJ/ME/day will result in the ewe not maintaining her body weight and weight loss will occur.

Government of South Australia

Natural Resources
SA Murray-Darling Basin