

Cost silage and hay correctly

Frank Mickan

Pasture and Fodder Conservation Specialist, Vic DPI, Ellinbank

Many farmers buy in truckloads of hay and even baled silage. Most of this is purchased on a \$/bale or \$/tonne basis. But what are you actually getting for your money? Paying on the above basis may mean that you are actually paying too much.

When fodder is in short supply as it has been for several years now, it becomes a seller's market and buyers are often "forced" to pay market driven prices for fodder. This discussion assumes that energy (and possibly protein) and fibre are needed in the animal's diets, so cereal grains, which supply mainly energy, is not an option.

At the very least, all purchased feeds should be compared on a dry matter (DM) basis. It is a standard that everyone can relate to and saves a lot of confusion. Prices can then be compared on a cents per kilogram dry matter (\$/t DM or ¢/kg DM) basis. Ultimately all feeds should be bought on an energy, or crude protein (CP) basis. Energy is metabolisable energy and costed out to a cents per megajoule of metabolisable energy (¢/Mj ME) and protein in dollars per kg protein (\$/kg CP). For the sake of some arithmetic, this approach may save you many \$\$\$.

Before doing the figurework, be aware that there are some pitfalls in pricing.

1. What is its DM content? Bales of hay vary in moisture content from 10% to 23%, i.e. 77% - 90% DM. Round bales of silage can vary from about 30% DM (too low) to over 60% DM (too high). A feed test (more accurate but involves time) or a microwave oven test (quicker and accurate to within 2-3% DM) will supply a DM content.

2. What is its DM weight? Endeavour to get a weight via a selection of individual bales being weighed or a weigh bridge ticket on delivery of every load of hay or silage. "Three bales to the tonne" can be very misleading and doesn't take into account the real variation in bale size and weights. Silage bales, in particular, vary greatly in weight depending on their DM content, size, tightness of baling and whether chopped or not!

3. What is its quality? This is a most important feature when buying any feed! The only sure way of knowing the nutritive value of the silage or hay that you are buying is to have it bought on the basis of a feed analysis from a reputable feed testing laboratory. A visual appraisal can ascertain that a "leafy" fodder will be better than one with a lot of stem but is no substitute for an analysis.

Picking an energy difference of 1 Mj ME is very difficult, even for trained eyes and can mean large differences in milk or meat production. For example, silage testing at 9 Mj/kg DM will allow an approximate liveweight gain of growing steer of about 60-80 kg/tonne DM of silage but at 10 Mj/kg DM, will achieve weight gains of about 110-130kg/tonne DM of silage. A similar difference in silage ME can mean an increase of 2-3 litres/cow/day. Quality is very important!

If provided with the feed analyses by the vendor, ask such questions as “How was the sample taken?”, “When was the silage sample taken, before or soon after or several weeks after ensiling?”, “Was the sample sent early or late in the week?”, etc. Bottom line: How representative is the supplied feed analysis of the truckload of fodder that you are buying?

For silage, did it undergo a good or poor fermentation? Two new tests are now available, upon request, at the major feed testing laboratories, pH and ammonia nitrogen as percentage of DM (NH₄-N %). These are good indicators of the fermentation quality of silages. Poorly fermented silages can lead to reduced intakes and animal performance. The NH₄-N should be below 10%, or less. The pH will depend on the DM content but at 35% DM, should be 4.65 or below.

Now the figurework: To calculate and compare accurately the true value of silage or hay, it should be done on a nutritive value (eg. ¢/Mj ME). The buyer must know the cost per tonne of fresh weight, the DM content and the ME content of the fodder to be bought and of that to be compared. These figures can then be used to calculate the cost of the fodder on the basis of a \$/tonne DM (or ¢/kg DM) and, preferably, cents/megajoule (¢/Mj).

Table 1 shows examples of calculations for hay and silage indicates the effect of DM and energy value on the final price. Cartage is not included in the costings below, but a “landed” price should be used as it can have a big impact on the final costs, especially for long transport distances.

Table 1. Costing fodder on a DM (\$/t DM) or energy (¢/MJ) basis

	Baled cereal hay	Baled pasture hay	Baled pasture silage
A. Cost as fresh weight (\$/tonne)	120	150	50
B. DM content (%)	88	85	35
C. Cost (\$/t DM) (A x 100 ÷ B)	136 (12,000 ÷ 88)	176 (15,000 ÷ 85)	143 (5,000 ÷ 35)
D. Cost (¢/kg DM)* (C ÷ 10)	13.6	17.6	14.3
E. ME/kg DM (MJ/kg DM)	8.4	8.9	9.9
F. Cost of feed/MJ (¢/MJ) (D ÷ E)	1.62	1.98	1.44

*eg. \$136 x 100 = 13,600 cents/t DM ÷ 1000 kg DM/t = \$136 ÷ 10 = 13.6 ¢/kg DM

NSW DPI has developed an easy-to-use ‘Feed cost calculator’ program that is available on the internet (www.agric.nsw.gov.au/reader/4439). The program compares the value of feeds on an **energy** and **crude protein** basis. The program allows the user to select from a range of feeds that have default values or to change these values to match their own DM, ME and crude protein figures from feed test results. The user is able to enter a price per tonne for up to four different feeds and the program will then calculate the value of each feed on an energy and crude protein basis.