

Get smarter when buying hay

Frank Mickan
Pasture and Fodder Conservation Specialist
DEDJTR, Ellinbank Centre

Many thousands of tonnes of hay are sold to dairy farmers every year, and this substantially increases with very wet winters and extended dry periods as often experienced across Australia. Even large square baled silage is now being traded more commonly than in recent years. A lot of money changes hands during these transactions so what can you do to ensure it is spent wisely and you are getting value for it?

Traditionally, long-term hay sellers and buyers generally have a good working relationship which has stood the test of time. Both seller and purchaser trust each other with things such as the quality stated at the seller's end and the product that is received at the buyer's end. Delivery is guaranteed, and they negotiate a reasonable price, allowing for the ups and downs on both sides of the fence.

When fodder is in short supply as it is currently, it becomes a seller's market and buyers are open to market forces of supply and demand and paying high prices for fodder. Unfortunately, the majority of the hay trading market is not so sophisticated or refined, so buyers need to be aware of some of the many traps.

Most hay is bought sight unseen, and given the amount of money being spent, ideally the buyer, or at least someone they trust, should inspect the lot before handing over payment. Apart from weight, what species and how much weed is present and what is the nutritive value of the hay?

Quality of the hay is a very frustrating issue for many buyers who believe hay of "x" quality being promised is actually "x-y" quality on arrival. Remember, not all hay is equal in quality and its nutritive value can have a major impact on animal production and animal health. Ask for a feed test analysis of the hay being bought and it is best sampled, if possible, when seller and buyer (or representative) are together to ensure representative bales are chosen. Of course, this still relies on the lot seen and tested, is the lot delivered. Bear in mind also that pasture hays in particular can vary widely in quality even within a paddock so allow a little latitude in the test results.

When looking at alternative feed options to fill a feed gap, the best way to ensure best value for money is to compare all purchased feeds on a cost per dry matter (DM) basis, at the very least. This makes all purchases transparent if the data is up front. Prices can then be compared on a dollar per tonne dry matter (\$/t DM) or cents per kilogram dry matter (¢/kg DM) basis.

Not really good enough for the professional farmer these days. Buyers should be factoring in the nutritive value of the hay being considered. Nutritive value is crucial and perhaps another more expensive lot of hay (or silage) may be a better buy for your given requirement.

Ultimately all feeds should be bought on an energy or crude protein basis with the fibre content also front of mind. Energy is quoted as megajoules of metabolisable energy per kilogram of dry matter (Mj ME/kg DM or ME) and hay/silage should be costed out to cents per megajoule of metabolisable energy (¢/Mj ME) and crude protein in dollars per kg protein (\$/kg CP). Do the numbers, as this effort may save you some grief if not money.

Let's do some numbers and point out some pitfalls.

1. What is the hay's moisture (or DM) content? Bales of hay can vary in moisture content from 10 per cent to 23 per cent (i.e. 77 per cent - 90 per cent DM). A feed test will provide an accurate DM content of the hay but if not doing a full feed analysis, a microwave oven test will be quick and accurate to within two – three per cent DM. Not a major concern for pricing as most bales will only vary within a few per cent of their target moisture levels for safe baling. However, it's an issue if a hay preservative or additive has been used as the bales were likely to have been baled at a higher moisture level than normal, adding substantially to its weight although, hopefully, at a higher nutritive value.

2. What is the average DM weight? Much hay is purchased on a \$/bale and a common term is “three bales to the tonne”. Let's think about this. Bale weights vary substantially due to variation in bale size, bale density and moisture content. Although most commercial suppliers of hay provide a weigh bridge ticket detailing an accurate weight of the load, many bales are still purchased on a cost per bale basis.

Ideally, an indication of bale weight via a selection of individual bales being weighed somehow, somewhere is recommended. With this information the cost/bale can be converted to a cost/tonne basis with delivery costs also included. Delivery costs will depend on truck capacity, distance to be travelled and whether round or large rectangular bales, the latter being more cost efficient to transport.

3. What is the quality of the hay? This is a crucial characteristic when buying any hay or silage. A feed analysis from a reputable feed testing laboratory is the only certain way of knowing the nutritive value of the hay being purchased. Be sure the sample is taken from a range of representative bales. Failing this, a visual appraisal of the hay is next best way to gauging quality, a leafy hay being higher quality than one with a lot of stem. Unfortunately, much hay is bought sight unseen, and often leads to disappointment when it arrives. There is no substitute for proper analysis.

Picking an energy difference of 1 Mj ME is very difficult, even for trained eyes but can mean large differences in milk production. For example, comparing one tonne DM of hay at nine versus ten ME, means 1000 kg x 1 ME difference and, assuming a generous seven ME to produce one litre of milk (allows for substitution, energy for walking, etc.) then the higher quality hay will produce over 140 litres extra milk, and at \$0.40/L results in approximately \$57 extra in milk income. Quality is very important for production but if needing fibre for late lactation or dry cows, lower ME hay is suitable.

Some factors to consider if the hay is provided with a feed analysis by the vendor are:

- How was the sample taken, grab or core?
- How representative was the sampling? i.e. how many bales core sampled
- When was the sample taken? Before or several weeks after harvest?
- How much weed contamination (not picked up by analyses)?

The bottom line is - how representative was the supplied feed analysis of the truckload of fodder that you are buying?

Now the figure work: To calculate and compare accurately the true value of hay, it should be done on a nutritive value (eg. ¢/Mj ME). The buyer needs to know the cost per tonne of fresh weight, the hay moisture content and the ME, CP and NDF contents of the fodder and that of any other feed options being considered. This allows a comparison between hay lots or other feeds on the basis of a \$/tonne DM (or ¢/kg DM) and, preferably, cents/megajoule (¢/Mj ME), etc (See Table 1).

Table 1. Costing a range of fodders

	Baled oaten hay	Baled pasture hay	Baled pasture silage
A. Cost as fresh weight (\$/tonne)	150	220	110
B. DM content (%)	88	85	50
C. Cost (\$/t DM) (A x 100 ÷ B)	170 (15,000 ÷ 88)	258 (22,000 ÷ 85)	220 (11,000 ÷ 50)
D. Cost (¢/kg DM) (C ÷ 10)	17.0	25.8	22.0
E. Energy (Mj ME/kg DM)	9.3	9.3	10.3
F. Cost of ME (¢/Mj ME) (D ÷ E)	1.83	2.77	2.13
G. Protein (% CP)	9	10	14
H. Cost of CP (\$/kg CP) (D ÷ G)	1.88	2.58	1.57

Consider these extra points.: Even though the oaten hay is cheapest in ¢/Mj ME its quality will not provide the same animal production as the slightly pricier pasture silage. In addition, the pasture silage provides the highest and cheapest source of protein. Use this template with your own costs and analyses to calculate the true cost of your feeds.

Cartage is not included in these calculations, but a landed price should be included, as it can have a big impact on the final costs, especially for long transport distances and bulky feeds. Don't ignore the costs and likely losses of various options at feeding out and these can be as high as 30 plus per cent for hay fed out on the ground in very wet conditions.

Consider the above information when purchasing feeds and avoid some of the not-so-obvious traps.