

## Costing Fodder Quality: Part 2 - Quality(Energy)

"Farmers are often paying too much for certain silages and hays, and may even be better off buying grain instead", says Frank Mickan, Pasture and Fodder Conservation Specialist, DNRE, Ellinbank. You need to understand the importance of quality and be able to price your feed purchases in terms of energy and protein, and on a dry matter basis. Last week's article examined the dramatic effect that the dry matter percentage (DM%) can have on the delivered price of fodder. This week I'll look at the same hay and silage purchases, and their possible pitfalls, on a quality basis in terms of energy only. Next week I'll cover them in terms of protein costs.

Harry paid \$170/tonne (includes \$30/tonne for transport) for high quality clover hay (85% DM). Monica thought she was on a winner by paying \$45/round bale of silage (4' x 4', 50% DM) weighing 520 kg, which is equivalent to about \$116/t(\$86/t + \$30/t cartage). Bill paid \$110/t(\$80/t + \$30/t cartage) for round bales of silage weighing 600 kg(4' x 4', 40% DM). Tim paid about \$45/roll of hay (5' x 4', 85% DM) weighing 330 kg, equivalent to \$166/t(\$136/t + \$30/t cartage), Tom paid \$3.50/small square bale weighing 25 kg(85% DM), equivalent to \$170/t(\$140/t + \$30/t cartage).

Each person needs to know how much they have paid for their energy in cents per mega joules of metabolisable energy (c/MJ ME), and \$/kg protein on a dry matter(DM) basis. If they are after energy and/or protein, they can now compare their fodder price to that of other sources of energy and/or protein such as cereal grains, lupins, brewer's grain, carrots, bread, etc. If fibre is the limiting factor, then they would need to examine fibre sources only such as silage and hay.

However, farmers need to have access to a FEEDTEST analysis(\$40/sample) in order to calculate their feeds on a quality basis. FEEDTEST kits are available from most DNRE offices. The results are reported in terms of dry matter and moisture percentages, percentage digestibility and crude protein, and metabolisable energy as MJ ME/kg DM.

To enable you to complete the above calculations based on quality you need to be able to calculate the dry matter quantity in each feed.

**1. To calculate the final price/tonne DM, multiply the price/tonne(include delivery cost if appropriate) by 100, then divide by the DM percentage value.** eg. Using Harry's hay from above, we get  $\$170/t \times 100 \div 85(\%) = \sim\$200/t$  DM.

**2. To calculate the cost as cents per kilogram DM, multiply the price/tonne DM by 100 and then divide by 1000.** eg. Using Harry's final hay price/tonne DM of \$200/t DM then  $\$200/t \text{ DM} \times 100 \div 1000 = 20c/kg$  DM. This cost alone can vary tremendously depending on the DM %! Using the same formula Monica's silage cost 23.2c/kg DM, Bill's silage cost 29 c/kg DM, Tim's hay cost 19.5c/kg DM, and Tom's squares cost 20c/kg DM.

Now for more large variations in costs of which you need to be aware.

**3. To calculate the ultimate cost of cents per mega joule of metabolisable energy, divide the cents/kilogram DM by the MJ ME value of the feed.** eg. If Harry's hay tested at 9.4 MJ ME/kg DM, then  $20\text{c/kg DM} \div 9.4 = 2.13\text{c/MJ ME}$ . If it tested out at 10.5 MJ ME/kg DM then  $20\text{c/kg DM} \div 10.5 = 1.90\text{c/MJ ME}$ .

The quality of most pasture silages and hays fall within the range of 7.5 - 10.5 MJ ME/kg DM. Using the c/kg DM as calculated in Formula 2, Monica's silage could be costing her from 3.1 - 2.21c/MJ ME (using Formula 3), and 3.87 - 2.76c/MJ ME for Bill's silage. Tim's round bales of hay may cost him 2.60 - 1.86c/MJ ME, and Tom's hay 2.67 - 1.90c/MJ ME. When deciding which feed to purchase another consideration may be the feed's palatability. That is, how well the animals will clean it up. Poorer quality silages will be more palatable than poorer quality hay and so there will be less waste at feeding out.

These figures are examples only. Use your own actual feed quality values for your calculations.