

Costing Fodder Quality: Part 3 - Quality(Protein)

"Do you need energy, protein or fibre next summer or winter?" asks Frank Mickan, Pasture and Fodder Conservation Specialist, DNRE, Ellinbank. In most years you only need to be buying in extra energy or fibre as silage, hay grains, etc. However, many farmers are only concerned that the hay or silage they are buying is high in crude protein. Protein is rarely limiting in pastures over most years although long dry periods are an exception. Two recent articles have discussed buying fodder on the basis of either dry matter in cents per kilogram dry matter (c/kg DM) or more accurately, as energy in cents/megajoule of metabolisable energy (c/MJ ME). The dry matter content and quality of fodder can have a dramatic effect on its final cost. This week I'll look at the same hay and silage purchases as discussed in recent articles, and their possible pitfalls, on a crude protein(CP) basis only.

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).

A feed analysis, eg. FEEDTEST(\$40/sample), is required to enable you to calculate the costs of 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 cost of crude protein as cents per kilogram of crude protein, multiply the cents/kilogram DM by 100, then divide by the crude protein percentage value, . eg. If Harry's FEEDTEST analysis for his hay reported 16 % CP,

and cost 20c/kg DM (from formula 2), then $20\text{c/kg DM} \times 100 \div 16(\%) = 125\text{c/kg CP}$, i.e. \$1.25/kg CP. If his hay had tested at 11% CP, then it would cost \$1.82/kg CP.

Most pasture silages and hays fall within the range of 5% - 22 % CP. Using the c/kg DM as calculated in Formula 2, Monica's silage could be costing her from \$4.64 - \$1.05c/kg CP (using Formula 3), and \$5.80 - \$1.32c/kg CP for Bill's silage. Tim's round bales of hay may cost him \$3.90 - \$0.89c/kg CP, and Tom's hay \$4.00 - \$0.91c/kg CP. When deciding which feed to purchase the dry matter content, energy needs and feed palatability should also be considered.

Although silage is expensive using the figures in these examples hay can be very poor in quality (as can silage also). Decisions, calculations and prices paid should be done on feeds analysed for quality, not on the traditional methods.

If you would like a copy of the last two weeks articles "Costing Fodder: Part 1 - Dry Matter", and "Costing Fodder: Part 2 - Energy" please contact the receptionist at DNRE, Ellinbank, on 03 5624 2222.