

COSTING SILAGE AND HAY - DRY MATTER

"How much are you really paying for your delivered hay or silage from other parts of Victoria or interstate?" asks Frank Mickan, Pasture and Fodder Conservation specialist with NRE at Ellinbank.

Many farmers could buy other feeds much cheaper if costed out on the basis of dry matter and quality. Let's look at some some purchases and their possible pitfalls. This week I'll look at some some possible hay and silage purchases, and their possible pitfalls, on a dry matter (DM) basis only. Be aware that this is only half the story! I'll cover the other half, quality aspects, over the next two weeks.

Harry paid \$140/tonne for high quality clover hay. Monica was on a "winner" paying \$45/bale of silage while Bill was quietly confident by paying \$80/tonne for round bales of silage. Tim paid about \$45/roll (5' x 4') of hay and was told that there were "3 bales/tonne". Tom paid \$3.50/small square bale and worked on the basis of 40 bales/tonne. A transport charge, eg. about \$30/tonne, needs to be added before doing the final calculations although I have ignored it here. The only person who knew what he was actually buying was Greg. For silage bales weighing 500kg and containing 55% DM and 10 MJ ME/kg DM, he paid 18c/kg DM (delivered), which costed out to 1.8c/MJ ME (mega joules of metabolisable energy).

The actual price paid for what the animal requires, ie energy, protein and fibre on a dry matter basis, is greatly affected by the weight (dry matter + water) and quality of the respective feeds. The dry matter content of hay is reasonably consistent at about 85% DM although this can vary from about 78% to 88% DM. Chopped silage can vary from about 20% to 40% DM for long chopped silage, or up to 50% DM for very short chopped (precision chopped) silage.

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 $\$140/t \times 100 \div 78(\%) = \sim\$180/t$ DM, and $\$159/t$ DM at 88%.
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 $\$180/t$ DM (and $\$159/t$ DM), then $\$180/t \text{ DM} \times 100 \div 1000 = 18c/kg$ DM (and $15.9c/kg$ DM).
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 9.8 MJ ME, then $18c/kg \text{ DM} \div 9.8 = 1.84c/MJ \text{ ME}$ (and $15.9c/kg \text{ DM} \div 9.8 = 1.62c/MJ \text{ ME}$). This will be more fully explained next week.

Monica's \$45/bale of silage could be anywhere from 35% DM (too wet) to 55% DM. Depending on how tight the bale was baled, and whether it is 4', or 3'10", or 4'6", it may weigh from about 750kg (35% DM) to about 480kg (55% DM). At these above dry matter percentages this would equate to about 262kg DM in each case. At \$45/bale this is equivalent to about \$172/t DM or 17.2c/kg DM. However, transport is on an "as is" basis, ie wet weight basis. So Monica is needlessly carting and paying for about 270kg water (750-480kg) at a cartage rate of approximately \$30/tonne.

Bill's \$80/tonne silage could, using the 35% and 55% DM of Monica's bales, actually be costing him about \$229/t DM (22.9c/kg DM) down to about \$145/t DM (14.4c/kg DM) respectively depending on DM content. He will also pay to transport excess water.

Tim's bales could vary greatly in weight depending on DM content, and particularly on how tightly the bales were pressed. His bales could weigh anywhere from about 290kg to 400kg, which is 3.4 to 2.5 bales to the tonne! If he is paying cartage on a per bale basis, fine, but on a number of bales/tonne basis, he may be "doing" money.

Tom is in a similar boat with his square bales. At 40 bales/tonne, bales must weigh about 25kg each, but many are often as light as 20kg each. At \$3.50 each, 25kg bales may cost \$170/t (\$30 cartage included), but the 20kg bales will cost \$205/tonne. At 85% DM. This works out to 20.6c/kg DM and 24.1c/kg DM respectively.