# Beef Briefs

(Continued from Page C4)

82% dry matter, 59% TDN, 11% crude protein, priced at $70 per ton.

• Grass hay: 3rd cut, 82% dry matter, 38% TDN, 10% crude protein, priced at $50 per ton.

The purpose of dry forages like these is normally to supply energy, so we are most interested in the TDN values. Differences in protein value are minimal, and dry matter contents are the same, so the easiest way to compare dollar value is by dividing the TDN values of one hay by the other (in this example, 38/59= 0.644) and then dividing the price of the second hay by this number($50.00/.644=$77.63). This is the equivalent per-ton value of the two hays, so the grass legume hay, at $70.00/ton, is the cheaper feed.

**Table 1.** Nutrient composition of hard and soft wheat

| | Hard Wheat | Soft Wheat |
|---|---|---|
| Crude protein % | 13.5 | 10.8 |
| Crude fiber % | 3.0 | 2.8 |
| Ether extract % | 1.6 | 1.6 |
| Ash % | 2.0 | 2.0 |
| Digestible energy Kcal/kg | 3402.0 | 3402.0 |
| Total phosphorus | 0.41 | 0.30 |
| Sodium % | .06 | .06 |
| Magnesium % | .11 | .11 |
| Potassium % | .50 | .50 |
| Copper ppm | 10.6 | 10.6 |
| Iron ppm | 50.0 | 43.0 |
| Manganese ppm | 62.2 | 51.3 |
| Selenium ppm | .06 | .06 |
| Zinc ppm | 14.0 | 14.0 |
| Vitamin E mg/kg | 15.5 | 15.5 |
| Biotin mg/kg | 100.0 | 100.0 |
| Choline mg/kg | 778.0 | 778.0 |
| Niacin mg/kg | 56.1 | 48.4 |
| Thiamine mg/kg | 5.2 | 4.8 |
| Riboflavin mg/kg | 1.1 | 1.2 |

Alternatively, the value of the grass hay relative to the other calculates out at only $45.08 ($70 x .644)/ton. If the dry matter contents of the hays under comparison differ, we must determine the value per unit of TDN. If the grass-legume mixture was 82% dry matter, and the grass 88% dry matter (and all other things as before), the value per unit of TDN for each of the hays is calculated by first calculating the pounds of dry matter in a ton (multiply 2,000 by dry matter percentage), and then taking this figure times each hay's TDN percentage. This gives the total pounds TDN in the load and the price per unit is the price per ton divided by this factor.

The grass-legume mixture above contains 1,640 lbs DM (2,000 x .82 = 1,640) and 967.6 lbs TDN (1,640 x .59). The per-pound price is $0.072 ($70/967.6=$.072). Similar calculations for the grass hay show the TDN price to be $0.074 (2,000 x .88) x .38=668.8; $50.00/668.8=$.074. This method can be used to compare any two feeds, whether for TDN, crude protein, or mineral content, as long as the nutrient of interest and the drymatter contents are known.

These methods are useful in comparing two feeds for a particular nutrient. It should be remembered, however, that a feedstuff contains a unique combination of many nutrients. Least-cost computer ration formulations are available through feed dealers, extension agents, and home software programs. They will help to "fine-tune" the ration and account for all of the nutrients in the feed and their ability to meet a particular set of animal requirements.

| Feed | Dry Matter | Nutrient Energy | Factor Protein | Value Energy | Factor Protein |
|---|---|---|---|---|---|
| ***Dry forages*** (standard value: mid-bloom alfalfa hay at $100 per ton) | | | | | |
| alfalfa hay | | | | | |
| early bloom | 89% | 104 | 108 | $104 | 108 |
| mid-bloom | 89% | 100 | 100 | $100 | 100 |
| late bloom | 89% | 96 | 97 | $ 96 | 97 |
| brome hay | 89% | 94 | 66 | $ 94 | 94 |
| orchardgrass hay | 88% | 102 | 57 | $102 | 57 |
| timothy hay | | | | | |
| early bloom | 88% | 106 | 50 | $106 | 50 |
| mid-bloom | 88% | 100 | 49 | $100 | 49 |
| late bloom | 88% | 100 | 48 | $100 | 48 |
| oat straw | 89% | 94 | 26 | $ 94 | 26 |
| clover hay | 89% | 107 | 87 | $107 | 87 |
| ***Grains*** (standard value: dry shelled corn at $107 per ton) | | | | | |
| shelled corn | 89% | 100 | 100 | $107 | 107 |
| ear corn | 89% | 99 | 101 | $106 | 108 |
| wheat | 89% | 97 | 123 | $104 | 132 |
| oats | 89% | 84 | 147 | $ 90 | 157 |
| barley | 89% | 90 | 121 | $ 96 | 129 |
| potato chips | 97% | 81 | 86 | $ 87 | 92 |
| popcorn | 94% | 80 | 158 | $ 86 | 169 |
| pasta | 94% | 83 | 84 | $ 89 | 90 |
| whole potatoes | 23% | 90 | 100 | $ 96 | 107 |
| ***Wet forages*** (standard value: corn silage (35% dry matter) at $20 per ton) | | | | | |
| corn silage | 35% | 100 | 100 | $ 20 | 20 |
| alfalfa haylage | 40% | 73 | 193 | $ 17 | 44 |
| Sorghum sudan haylage | 30% | 99 | 99 | $ 17 | 17 |
| apple pomace | 21% | 77 | 53 | $ 9 | 6 |
| potato silage | 25% | 117 | 94 | $ 17 | 13 |
| ***Protein feeds*** (standard value: soybean meal (44% crude protein) at $300 per ton) | | | | | |
| soybean meal | 90% | 100 | 100 | $300 | 300 |
| whole soybean | 90% | 103 | 95 | $309 | 285 |
| whole cottonseeds | 90% | 108 | 52 | $324 | 156 |
| distillers grains (dried) | | | | | |
| barley | 90% | 78 | 68 | $234 | 204 |
| corn | 90% | 97 | 52 | $291 | 156 |
| brewers | 90% | 74 | 58 | $222 | 174 |
| wheat mids | 90% | 78 | 64 | $234 | 192 |
| dried bean canning waste | 35% | 75 | 50 | $ 88 | 58 |
| corn gluten feed | 45% | 93 | 102 | $140 | 153 |
| feather meal | 90% | 71 | 198 | $213 | 593 |
| fishmeal | 90% | 82 | 152 | $246 | 457 |
| poultry litter | 89% | 67 | 66 | $203 | 200 |