



BY RACHEL ENDECOTT, BEEF CATTLE SPECIALIST



COW SENSE CHRONICLE

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INTERPRETING FORAGE ANALYSES FOR BEEF CATTLE

Most winter feeding programs are well underway, and in drought areas, cattle may have been consuming hay diets since late summer. Due to the drought, many producers have purchased hay, sometimes from long distances and previously unknown sources. While recommended every year, obtaining a forage nutrient analysis on hay becomes even more important in this situation. In order to manage, one must first measure. A forage nutrient analysis is a critical step in determining least-cost rations for wintering beef cows. This month's newsletter will cover how to interpret forage nutrient analyses for beef cattle. Below is an example nutrient analysis for a grass hay, including minerals. Definitions of important terms are found on the next page, along with energy and protein requirements for a 1400-pound cow.

Sample ID: FL 2698
Feedstuff: GRASS HAY

ANALYSIS RESULTS		
Component	As Sent	Dry Wt.
Moisture (%)	12.58	//////
Dry Matter (%)	87.42	//////
Crude Protein (%)	6.92	7.92
Acid Detergent Fiber (%)	35.3	40.4
Total digestible nutrients (%)	49.4	56.5
Net energy-lactation (Mcal/lb)	0.50	0.57
Net energy-maint. (Mcal/lb)	0.48	0.55
Net energy-gain (Mcal/lb)	0.28	0.32
Sulfur (%)	0.13	0.15
Phosphorus (%)	0.18	0.20
Potassium (%)	1.55	1.77
Magnesium (%)	0.15	0.18
Calcium (%)	0.36	0.42
Sodium (%)	0.06	0.07
Iron (ppm)	443	507
Manganese (ppm)	50	58
Copper (ppm)	6	6
Zinc (ppm)	17	20

IMPORTANT FORAGE ANALYSIS TERMS

MOISTURE

As Fed – Values in the “As Fed” or “As Received” column include the moisture contained in the submitted sample. Because of the dilution effect of the water, values in this column will be smaller than the Dry Matter column.

Dry Matter – Values in the “Dry Matter” column give nutrient information with the water removed. To accurately compare forages of differing water content, they must be compared on a dry matter basis.

PROTEIN

Protein (or Crude Protein) – A measure of the amount of nitrogen in the feedstuff. Laboratories measure the nitrogen in a sample, then multiply by a factor of 6.25 to get the crude protein value.

FIBER

Acid Detergent Fiber (ADF) – Refers to the cellulose and lignin components of the forage cell wall, and relates to the ability of an animal to digest the forage. As ADF increases, digestibility of a forage usually decreases.

Neutral Detergent Fiber (NDF) – Refers to the total cell wall – cellulose, hemicelluloses and lignin. NDF values reflect the amount of forage an animal can consume. As NDF increases, dry matter intake will generally decrease. Labs often analyze for ADF but may not include NDF values unless specifically requested.

ENERGY

Total Digestible Nutrients (TDN) – An estimate of the digestibility of the forage and one measure of the energy content of a feedstuff. The higher the TDN value of a forage, the more energy it contains.

Net Energy for Maintenance (NEm) – The net energy system is an alternative way to assign energy values to feedstuffs, based on how the energy is partitioned for different uses. NEm describes the ability of a forage to meet the maintenance energy requirements of an animal.

Net Energy for Growth (NEg) – NEg describes the amount of energy in a forage available for growth after the maintenance needs have been met.

Net Energy for Lactation (NEl) – NEl describes the ability of a forage to meet the energy requirements of lactation.

ENERGY AND PROTEIN REQUIREMENTS FOR A 1400-POUND COW, 1996 NUTRIENT REQ'TS OF BEEF CATTLE

Physiological Stage	Diet Nutrient Density		Daily Nutrients per Animal	
	TDN (% DM)	CP (% DM)	TDN (lbs)	CP (lbs)
20-lb peak milk				
Early Lactation	58.0	9.9	17.6	3.00
Late Lactation	54.2	8.3	16.0	2.45
Post-Weaning	47.4	6.6	12.2	1.68
Late gestation	52.3	7.9	14.4	2.15
30-lb peak milk				
Early Lactation	60.9	11.3	20.1	3.38
Late Lactation	56.3	9.3	17.4	2.88
Post-Weaning	47.4	6.6	12.2	1.68
Late gestation	52.3	7.9	14.4	2.15

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Sun	Mon	Tue	Wed	Thu	Fri	Sat
		1	2	3 Gallatin Beef Producers Three Forks	4 Fort Benton	5 Cabin Fever Havre
6	7	8	9	10	11	12
	Southeastern Montana Winter Ag Series					
	Jordan Circle	Broadus Ekalaka	Baker Wibaux	Glendive Terry	Miles City Forsyth	Bitterroot Stockgrowers Stevensville
13	14	15	16 Winter Grazing Seminar Harlowton	17	18	19
20	21	22 Extension Program Helena	23 Young Stockgrower Legislative Conference Helena	24	25	26
27	28	29 Scobey	30 Plentywood	31 Shumacher Day, Malta	Feb 1 Beef Breeders Bull Show Miles City	