Understanding a forage test report

Because they can vary in their nutrient content, it is important to have forages and by-product feeds analyzed. Any feedstuff can be analyzed by a forage testing laboratory, not just forages. A basic analysis usually includes what you see in this report. For additional fees, more testing is usually available, including more mineral concentrations. Forage reports vary by lab.

1. Moisture is the percent water in the feedstuff. Feeds vary widely in their moisture content. Fresh plants and silages are high in moisture, while dry forages and grains are low (~10%). An “as-fed” diet includes the moisture and is what your feed to your sheep and goats.

2. Dry matter (DM) is the non-moisture portion of the feed. It contains the nutrients. It is a very important concept in animal nutrition, as animal requirements are based on dry matter (not as-fed). Feed comparisons need to be done on a DM basis.

3. Crude protein (CP) is an estimate of the feed’s protein content. The lab measures the nitrogen content of the feed and multiplies it by 6.25. This is because protein is 16 percent nitrogen (100 ÷ 16 = 6.25).

4. Acid detergent fiber (ADF) is a measure of cellulose and lignin. It is negatively correlated with digestibility. The higher the ADF, the lower the digestibility. Low ADF values suggest higher energy content and better feed quality.

5. Neutral detergent fiber (NDF) measures three cell-wall components (cellulose, hemicellulose and lignin). Because of its bulk, NDF is negatively correlated with feed intake. The higher the NDF, the lower the intake. Usually, a low NDF means more energy available to the animal.

6. Feedstuffs vary significantly in their mineral content. Knowing mineral concentrations can help determine supplementation needs and correct for imbalances. Most rations are balanced for calcium (Ca) and phosphorus (P). The ratio is important.

7. Total digestible nutrients (TDN) is a measure of the relative energy content of a feed for an animal. It is commonly used to formulate rations for livestock. Energy is usually the most limiting nutrient in sheep and goat diets.

8. The net energy (NE) system separates energy requirements into fractional components used for maintenance, growth and lactation. It is a more precise system than TDN and can also be used to balance rations for sheep and goats.

9. Relative feed value (RFV) is a measure of forage quality relative to full bloom alfalfa. A high RFV is desirable for animals with high nutritional requirements, such as lactating ewes/does.

CUMBERLAND VALLEY ANALYTICAL SERVICES

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CVAS

Farm:	American Sheep Farm	Copies to:	Lab ID:	31398 309
Desc.	4th cut orchardgrass		Sampled:	12/6/2024
Submitter:	Farm Manager		Arrived:	12/7/2024
Account:	ASF01		Completed:	12/7/2024
			Reported:	12/20/2024

SAMPLE INFORMATION			
Lab ID:	31398 309	Version:	2
Crop Year	2024	Series:	
Feed Type:	ORCHARD GRASS	Cutting #	4
Package:			

NIR ANALYSIS RESULTS			
Moisture			10.5
Dry Matter			89.5
PROTEINS	**% SP**	**% CP**	**% DM**
Crude Protein			12.1
Adjusted Protein			12.1
Soluble Protein		26.5	3.2
Ammonia (CPE)	7.6	2.0	0.24
ADF Protein (ADICP)		10.4	1.25
NDF Protein (NDICP)		27.7	4.55
NDR Protein (NDRCP)			
Rumen Degr. Protein		63.1	7.6
Amino Acid Protein, Total			
FIBER		**% NDF**	**% DM**
ADF		58.7	31.2
aNDF			53.2
aNDFom			49.5
NDR (NDR w/o sulfite)			
Crude Fiber			
Lignin		6.24	3.32
NDF Digestiblity (12 hr)			
NDF Digestiblity (24 hr)			
NDF Digestiblity (30 hr)			
NDF Digestiblity (72 hr)			
NDF Digestiblity (120 hr)			
NDF Digestiblity (240 hr)			
uNDF (12 hr)			
uNDF (30 hr)			
uNDF (120 hr)			
uNDF (240 hr)			
CARBOHYDRATES	**% Starch**	**% NFC**	**% DM**
Ethanol Soluble CHO (ESC-Sugar)		39.7	10.6
Water Soluble CHO (WSC-Sugar)			14.3
Starch		7.8	2.1
Soluble Start			
Soluble Fiber			
Starch Dig. (7 hr, 4 mm)			
Crude fat			3.66
Fatty Acids, Total			
C16:0			
C18:0			
C18:1			
C18:2			
C18:3			
Unsaturated Fatty Acids (RUFAL)			
Faty Acides (% Fat)			

MINERALS	
Ash (% DM)	9.05
Calcium (% DM)	0.50
Phosphorus (% DM)	0.32
Magnesium (% DM)	0.26
Potassium (% DM)	2.76
Sulfur (% DM)	
Sodium (% DM)	
Chloride (% DM)	
Iron (PPM)	
Manganese (PPM)	
Zinc (PPM	
Copper (PPM)	
Molybdenum (PPM)	
QUALITATIVE	
pH	
Total VFA (% DM)	
Lactic Adid (% DM)	
Lactic as % of Total VFA	
Acetic Acid (% DM)	
Butyric Acid (% DM)	
1, 2 Propanediol (% DM)	
Nitrate Ion (% DM)	
Nitrate-Nitrogen, ppm	
Soil Contamination Probability	
NIR Statistical Confidence	
ENERGY & INDEX CALCULATONS	
TDN (% DM)	64.1
Net Energy Lactation (Mcal/lb)	0.66
Net Energy Maintenance (Mcal/lb)	0.69
Net Energy Gain (Mcal/lb)	0.42
ME (Mcal/lb)	1.09
AA Protein as % of Total Protein	
NDF Dig. Rate (Kd, %HR, Van Amburgh, Lig. 2.4)	
NDR Dig Rate (Kd, % HR, uNDF)	6.1
Starch Dig. Rate (Kd, %HR, Mertends)	
Relative Feed Value (RFV)	113
Milk per Ton (lbs/ton)	
Dig. Organic Matter Index (lbs/ton)	
Non Fiber Carbohydrates, ESC (% DM)	26.6
Non Structural Carbohydrates, ESC (% DM)	12.7
Non Structural Carbohydrates, WSC (% DM)	16.4
DCAD (meg/100 gdm)	
Summative Index % (Mass Balance)	

Additional samle information, submitted documents and lab pictures linked to QR code