

Forage Terms and Explanations From the UVM Forage Testing Lab:

As Fed Basis:

All values under this heading show the content of nutrients with the moisture in the forage included. Because of the dilution with water, the values will be lower than the dry basis column. Forages should not be compared on an as received basis unless they have the same percent dry matter.

Dry Matter Basis:

Values in this column give the nutrient information with the water removed. This allows comparisons to be made between forages (moisture/water no longer a factor). It is the best indication of nutrient value because animals tend to eat on a dry matter basis, i.e. dry matter intakes vary with milk yields and size of cows but range between 2.5% - 3.5%.

Dry Matter (DM):

100% minus the moisture in the feed.

Crude Protein (CP):

The total protein content of the feed. By analysis, it is the nitrogen content times 6.25.

Acid Detergent Insoluble Crude Protein (ADICP):

Also called Bound Protein. The protein bound to the acid detergent fiber fraction of the feed. Protein that has been heat damaged and is unavailable to the animal. About 1% is naturally occurring in forages.

Available Protein (AV CP):

Crude protein minus % ADICP above 1.0. For example: 19.0% CP, 1.5% ADIN = 18.5% AV CP

Soluble Protein (SOL PRO):

The protein fraction that is rapidly broken down in the rumen. When expressed as protein solubility it is expressed as a % of the CP.

Acid Detergent Fiber (ADF):

This value refers to the cell wall portions of the forage that are made up of cellulose & lignin. These values are important because they reflect the ability of an animal to digest the forage. As the ADF increases, digestibility of a forage decreases along with the energy.

Neutral Detergent Fiber (NDF):

This value is the total cell wall, which is comprised of the ADF portion plus hemicellulose. These values are important in ration formulation because they reflect the amount of forage the animal can consume. As NDF increases, dry matter intake (DMI) will decrease. $DMI \text{ as a \% of body weight} = 120/NDF$.

Lignin:

Lignin is a complex strengthening material in the cell walls of plants. Lignin reduces the digestibility of plant tissues; as lignin increases, the digestibility of the forage decreases.

Net Energy Lactation (NEL):

The energy value of the feed for milk production, expressed as megacalories (Mcal) per pound of feed. It is calculated from the ADF of the feed. Different forages use different equations to determine NEL, therefore correctly identifying forages is important (i.e. grass, mixed grass/legume, or legume haylages).

Total Digestible Nutrients (TDN):

An older system of estimating the energy value of a feed. Equations also differ depending on type of forage.

Non-Fiber Carbohydrates (NFC):

Determined by the following equation: $NFC = 100 - ((CP + (NDF - NDICP) + Fat + Ash))$. Ash represents the mineral content of the feed.

Relative Feed Value (RFV):

An index of feed quality relative to feed with an ADF of 41% and NDF of 53% having an RFV of 100%. This term is not used in ration balancing but serves as a simple, yet crude means of forage comparison.

Digestible Energy (DE):

The energy value of hay for non-ruminants, expressed as Mcal (megacalories) per pound of feed. The equation determining DE involves CP, NFC, NDF and Fat.

Mineral Components:

The abbreviations of minerals are as follows:

Macro Minerals: The major minerals, reported on a percentage basis:

Ca: Calcium
P: Phosphorus
K: Potassium
Mg: Magnesium
S: Sulfur
Na: Sodium

Micro Minerals: The minor minerals, reported in parts per million:

Fe: Iron
Mn: Manganese
B: Boron
Cu: Copper
Zn: Zinc

Neutral Detergent Insoluble Crude Protein (NDICP):

Nitrogen expressed as protein in the neutral detergent fiber residue. An estimate of the portion of the rumen undegradable protein that is potentially available to the animal.

Non-Structural Carbohydrates (NSC):

$NSC = Sugar + Starch$