

News Column for Use Week of 11/23/2020  
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## **Forage Sample Results**

Getting a feed analysis on forage is important to determine the feed quality. When you get an analysis done, the most basic values you will get are dry matter, neutral detergent fiber (NDF), acid detergent fiber (ADF), crude protein, and total digestible nutrients (TDN). To me, the most important of all these values is the dry matter. It is also the easiest value to get. If you have a scale and an oven, you can calculate the dry matter. Weigh out a small amount of the forage (I refer to this as the “as-is basis”) and put it in the oven at a low temperature (we don’t want to cook it, just dry it out). Make sure you weigh the container first (aluminum tins work great for this). Once the forage is dry, weigh it again and subtract the weight of the container. Take the dry weight divided by the as-is weight. If the as-is weight was 100 grams and the dry weight was 90 grams, then the dry matter is 90% on a dry matter basis ( $90/100=.90$ ). Cattle will drink less if the ration has higher moisture content and vice versa. Therefore, all rations should be formulated on a dry matter basis.

The next two parts of a feed analysis are the NDF and the ADF. These two cannot be calculated at home like the dry matter. To get these two parts of a forage sample, they get washed with two different solutions. One sample gets washed with a neutral detergent solution and the other with an acid detergent solution. NDF will contain three fiber portions (hemicellulose, cellulose, and lignin) while ADF will contain just two fiber portions (cellulose, and lignin). The order of the most digestible to least digestible goes hemicellulose, cellulose, and lignin. Lignin is virtually indigestible.

NDF and ADF are also indicators of how digestible a forage is. A forage with a high NDF and ADF values are less digestible and provide fewer nutrients to the animal. Two extreme examples of this would be wheat straw compared to first cutting alfalfa that is cut at the early bloom stage. Wheat straw will have about 75% NDF and 50% ADF and the early bloom alfalfa will be about 45% NDF and 35% ADF.

TDN is the sum of the digestible fiber, protein, lipid, and carbohydrates in the forage, and typically is calculated using ADF. This can be used in beef cow rations that are high in roughage. If you are formulating a finishing ration, using the net energy system is more appropriate.

My last note to make is on relative feed value (RFV) and relative feed quality (RFQ). These two values are not used to formulate rations. They are a prediction of the feeding value a forage has. RFV should only be used to compare legume hays such as alfalfa. Keeping these things in mind when you are putting a ration together will help keep your animals on track for the gains that you are targeting, or the body condition score you want to obtain.