How's Your Forage Quality This Year?

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This year has been quite challenging for sheep producers to manage forage quality in pastures and hay. Some areas across the country have seen much higher than normal rainfall and little sunshine. This can really impact forage quality both on pasture and in hay and makes this year's hay especially important to analyze in order to balance rations.

In some cases, forage fiber content limits the ability of animals to eat enough to meet their nutrient requirements. We refer to this as dry matter intake, the completely dry portion of a feed that animals consume. For those of us who live in the Eastern United States, this year has been exceptionally wet. So, instead of fiber limiting dry matter intake, we now see water content in pasture forages limiting intake. Local forage labs have seen a general trend for lower than normal energy and protein levels. Sheep produces will need to account for these deficits when balancing rations this winter.

Most pasture forages contain 75 to 90% moisture, while dry hays usually have less than 15% moisture. We measure moisture content so that we can compare nutrient contents from different feeds on an equal basis. Let's look at an example that compares nutrient contents of grass pasture and grass hay on an as fed basis versus a dry matter basis. The pasture and hay contain the same levels of protein, but we would not be able to determine this without comparing the forages on a dry matter basis.

Nutrient Density Basis

	% Nutrient Content			
	DM	Protein	NDF	ADF
Grass Pasture: As Fed	20	2.2	11.0	8.0
Dry Matter	100	11.0	55.0	40.0
Grass Hay: As Fed	90	9.9	49.5	36.0
Dry Matter	100	11.0	55.0	40.0

Information taken from Determining Forage Quality: Understanding Feed Analysis written by Dr. Robert VanSaun: https://extension.psu.edu/determining-forage-quality-understanding-feed-analysis

Whenever we compare the forages on an as fed basis, or in other words as the forage is fed to animals, we see that dry matter is 20% for pasture and 90% for hay. Looking at the protein content of the forages, pasture is 2.2 % protein and the hay 9.9% protein as fed. However, these forages actually contain the same percent of protein, 11%, when you remove the water content and consider the forage on a dry matter basis.

The next columns in the table discuss fiber contents expressed as NDF or neutral detergent fiber and ADF or acid detergent fiber. Neutral detergent fiber measures all the fiber components in a forage. These components make up the plant cell walls and include hemicellulose, cellulose and lignin. As the NDF measurement increases, this tells us that the fiber content increases also. This causes dry matter intake to decrease and the animals chew their cud for longer periods of time. Acid Detergent fiber measures the highly indigestible fibers and as this number increases, digestibility decreases.

To put this into perspective, a legume forage would be considered good quality if the NDF is below 40%. Anything above 50% would be considered poor quality. On the other hand, high quality grass forages should have an NDF below 50%. Low quality grass forages have NDF levels higher than 60%.

The only way to correctly evaluate forages is to have them analyzed. This allows sheep producers to correctly balance rations in order to boost feeding efficiency and profitability. Under feeding nutrients results in slower growth rates, decreased milk production and could even impact lambing percentages. Over feeding nutrients could result in wasted money through feeding more nutrients than the sheep require.

The first step to analyzing forages starts with collecting a representative sample. Forage test results must represent what the animals eat. Samples should be collected from each field and each cutting. Test results vary greatly throughout the year! Use a bale core sampler and insert the sampler to its full depth into the end of each bale you are sampling. Collect at least 20 samples from each field and cutting. Mix samples from each group separately in a clean bucket and place in an airtight plastic bag. Label each bag before sending to your local forage testing laboratory.

Once you receive the forage test results you can then balance rations to make sure sheep receive adequate nutrients throughout different production stages. For more information on forage testing and balancing rations, contact your local Extension Office or a nutritional consultant.

Producers should test forages in order to correctly balance rations to meeting sheep nutritional requirements.