



Forage Management

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Sampling Hay and Haylage

Using laboratory analysis to measure forage quality is an effective way to determine what supplements, if any, are needed to optimize animal performance. A laboratory analysis is good only if the sample submitted is representative of the forage the animal will eat. Proper collection and preparation of the forage sample are important.

Sampling Hay

When taking samples from hay bales, you need to have the right tools if the samples are to be representative. Purchase or borrow a forage sampler, such as the Penn State Forage Sampler (Fig. 1). Forage samplers contain a sharpened tube that is drilled into a hay bale to cut out a sample. These tools may look expensive, but compared to the cost of feeding supplements they are a good investment.

When sampling hay, divide the hay into lots based on the date of the cut and the maturity of the forage species in the field (orchardgrass versus timothy, grass-legume mixes versus nitrogen fertilized grass). Two fields cut on the same day, having similar forage species and legume content, can be combined into one lot. From each lot, randomly select 15 to 20 bales. Using the forage sampler, take a core from each bale. When sampling large round bales stored outdoors, take the sample from below the weather-damaged "cap" of hay if the animals will not be force to eat this material. Combine these 15 to 20 core samples and mix them to make the sample to be sent to the lab.

Haylage

Baled haylage should be sampled the same as dry hay bales. Haylage stored in a silo should be sampled after removing the exposed outer silage. Then take several grab samples out of the feed wagon or bunk. If forage from different fields has been layered in a bunker, take grabs from across the height and width of the face to ensure a representative sample for analysis. Or take a sample after the silage has been mixed in a mixer wagon.

Sample Preparation

Wet silage samples can spoil rapidly in warm weather. Proper care needs to be taken when preparing and mailing the sample if you are to obtain a meaningful report. Put the haylage sample into a plastic bag, press the sample to remove all the air, and then seal the bag. The acid in the silage will continue to preserve it if there is no oxygen in the bag to cause secondary fermentation. It is important not to dry silage or haylage samples since the organic acids that preserve these feeds evaporate during drying.

Hay samples can be put into a plastic bag and sent directly to the laboratory since they should be adequately dry.

Sample Submission

Fill out the information sheet provided by the forage testing laboratory. Some laboratories will send copies of the report to other people, such as Extension agents or nutrition consultants. If you

work with these individuals and want them to receive a copy, make sure their names and addresses are in the appropriate places on the form.

Next you need to select the analysis to be conducted. Most forage testing laboratories can measure many nutritional components in samples. Since not everyone wants the same information, the labs offer different testing packages. Which package to request depends on your livestock type and management goals. A beef operator may want only an estimate of digestible or net energy, protein, and major minerals. This analysis can be conducted at a low cost using near infrared (NIR) analysis. However, a dairy operator probably also wants neutral detergent fiber (NDF), protein fractions, and trace minerals, which will require a more expensive combined NIR and wet chemistry procedure.

After completing the submission sheet and properly preparing the sample, you can send them to the laboratory. A copy of the results will be returned to the addresses listed on the sample information sheet.

Fig 1. Penn State Forage Sampler.



Proper forage sampling will ensure that the forage sample represents what the animals are being fed. The forage analysis can then be used with confidence to develop a ration that meets the animals' nutritional requirements and your management goals.

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