

Forage Management

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Sampling Pastures for Nutritive Analysis

With the increased use of rotationally grazed pastures and interest in improved livestock nutrition on pasture, there is need for standardized pasture sampling methods. To have a meaningful comparison between forage samples, the samples need to be taken and prepared the same way.

Sampling the Field

Obtaining an accurate pasture sample starts in the field. Pasture forage samples should be taken shortly before the cattle are turned into a pasture. Walk over the field and collect 30 to 50 small “grab” samples. Take the grab sample by reaching down and grabbing a small section of forage between the thumb and first finger. Samples need to represent what the cattle will be eating. Remove the forage at the same height that the cattle will graze the pasture.

Each grab sample should be taken at random from the forages that will be eaten by the livestock. Don't select weeds such as thistle or buttercup that livestock will refuse. Don't bias the sample by taking a greater percentage of clover (or grass) than is in the pasture. Take 30 to 50 grab samples over a pasture to get an accurate estimate of the average forage in the field. If there are decidedly different forage associations in the pasture, divide the grab samples proportionally between the forage types by plan or by walking the field in a uniform grid. An example of such a situation would be a field having a flat section and a sloping section, with a greater percentage of clover found on the flat.

To properly identify the samples, some descriptive information is needed. Identify the three most abundant forage species in the composited forage sample. Look at the grass, legume, and forb (broad

leaf weed) components. A subjective estimate of legume content may prove valuable since legumes tend to increase pasture intake by livestock and therefore increase animal performance. To provide an estimate of how much forage dry matter is available per acre at the start of grazing, measure the height of the pasture canopy using a plate meter or ruler. Note the date that the sample was taken to indicate the season of the year. For rotationally grazed pastures, noting the number of days since the pasture was last grazed will indicate the forage's maturity. These descriptive notes should be listed in the notes section of the sample submission form.

Sample Preparation

Once the sample is collected, place it in a plastic bag, remove the excess air, close the bag tightly, and freeze it as soon as possible. The freezing is necessary to prevent the natural plant proteins from breaking down to more soluble forms. It also reduces the respiration and loss of nonstructural carbohydrates in the forage.

If the sample is to be mailed to the laboratory, it can be air dried to prevent the sample from spoiling during shipping. The best way to air dry a sample is to place it on a piece of window screen out of the sun, rain, and dew but where normal breezes can blow around and through it. An alternative is to place an electric fan near the sample on the screen to blow a breeze through it. After the sample is dried, place it in a plastic bag, expel the air, and then seal the bag.

If the sample is not dried, it should be delivered to the laboratory frozen or on ice. Otherwise, the sample may start to decompose, and the analysis will not represent what was taken from the field.

Forage Sample Information Sheet

On the forage sample information sheet, enter the name and return address of persons who should receive the analysis report. Some laboratories will send copies of the results to other people, such as a county agent or nutrition consultant. If you work with these individuals and want them to receive the results, make sure their names and addresses are in the appropriate places on the form.

The dried sample needs to be taken to the sample pickup point or mailed to a certified forage testing laboratory. These laboratories undergo regular quality control checks by the National Forage Testing Association to ensure the accuracy of their forage analyses. A list of labs serving West Virginia is available in the WVU Extension Service Fact Sheet "Forage Testing Labs." A complete list of laboratories certified by the National Forage Testing Association can be found on the WWW (<http://www.foragetesting.org/>).

By developing a farm database of pasture quality samples that represent what the livestock are eating, producers can increase their understanding and management of pasture nutrient quality and know when to feed cost-effective supplements.

Related Fact Sheets

[A Falling Plate Meter for Estimating Pasture Forage Mass](#). Ed Rayburn. WVU Extension Service. November 2003.

[Estimating Pasture Forage Mass from Pasture Height](#). Ed Rayburn and John Lozier. WVU Extension Service. October 2003.

[Forage Testing Labs](#). Ed Rayburn. WVU Extension Service. August 1999.