



# Grazing Management **Forage Quality Testing Illinois**

**What** It is important to know the quality of pasture if animal performance is going to be optimized. The difficulty is that pasture plants are constantly changing in growth and physiological maturity. Also, through the growing season, environmental changes affect forage quality. Grazing pressure affects the degree of selectivity by the grazing animal, thus, influencing the quality of the forage consumed.

**Why** Greater net profit is the primary reason livestock producers need to know the quality of forages their animals are grazing. Not knowing the exact quality of forages the animals are consuming acts as a two-edge sword that can cut into profits either way it swings. It is very important to know the quality of forages that animals are consuming as this help you determine the amount of forages that animals are consuming and if it is meeting the nutritional demands of the animal.

**How** If pasture forage is to be tested for chemical constituents, the sampling method needs to be such that it closely approximates what the animal will consume. This approach would be near impossible to achieve in continuous grazing systems where animals have a high degree of selectivity. With intensive or rotational grazing, sampling which closely approximates the animal should be possible. One approach would be to observe the most recent post-grazing paddocks and then samples the next pre-grazing paddock accordingly. by occasionally sampling throughout the season, one could develop a good picture of pasture forage quality in a particular system. Of course, sampling will need to continue if botanical composition changes during the grazing season or over years.

**Sampling techniques.** Different techniques for taking pasture samples can be used, but the basic principles will be the same for each technique. Sample strips of 1 ft. wide by 2 ft. in length at random throughout the paddock, or sample a 2.5 sq. ft. area. Take 3-5 samples per acre or 10-15 samples from a 5 acre area and combine samples to make one composite sample for grazing area.

Collect each paddock sample and place in a plastic bag. Then properly identify sample and mail to testing laboratory carefully avoiding weekend mail or over holidays.

## **Sample Analysis**

Once you have gone to the effort of collecting a sample correctly, how can you insure the results you receive from the testing laboratory are accurate? Concerns about laboratory testing often focus on methods used for determining forage quality. Concern should be focused, however, on the accuracy of results and not on the technique used. To help you determine if test results are accurate listed below are some questions to ask the laboratory.

1. Is the lab certified or does it participate in a check sample program. The National Forage Testing Association has a certification program that compares a laboratory's performance with that of other labs to warn of potential inaccuracies.
2. Does the lab include duplicate samples analyzed? One of the easiest ways for a laboratory to monitor results is by analyzing replicates of a sample. If the analysis

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## **Sample Analysis** (Continued)

for replicates is not similar, there is a problem in the testing procedure. In addition, the inclusion of standards or check samples (material of known quality) in each group of samples analyzed can indicate if the analytical procedure is working correctly or not.

3. What analytical methods does the laboratory use? There is more than one method of analysis for most plant constituents. Laboratories should use methods that are well validated and approved by the Association of Official Agricultural Chemists.

Laboratories that use infrared reflectance spectroscopy (NIRS) to analyze forage for quality can be asked three additional questions that will help determine if the results are accurate. Like other laboratory analyses, NIRS analysis is sophisticated and should be conducted and monitored by trained personnel.

4. How often are NIRS instruments and calibration equations monitored? NIRS Running a check sample daily should monitor instruments or after every 25<sup>th</sup> sample, whichever is more frequent.
5. Does the laboratory do chemical analysis in addition to NIRS? NIRS methods are based on calibrations derived from chemical methods. NIRS labs without a chemical analytical capability has no way to monitor the reliability of their calibration equations.

## **Where To Get Help**

For more information about forage testing contact your local office of the USDA Natural Resources Conservation Service, listed in the telephone Directory under "U.S. Government," or the University of Illinois Extension.

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