

Forage Sampling and Analysis

Submitted by: David Kehler, County Extension Director/Agriculture Agent

Feed costs represent the lion's share of a cow/calf and stocker operator's expenses and are an ideal starting place to implement and maintain cost-control measures. Forage grazing systems are vulnerable to unpredictable precipitation patterns as well as the seasonality of pasture and range forage quality. Simply put, forage is harvested to hedge against periods of time when the base forage supply is low or when animal nutrient requirements are elevated relative to what is available. However, forages are grown, harvested and stored under a variety of conditions that can dramatically affect feeding value. A nutrient analysis is the only means by which to properly establish the feeding value and determine if additional nutrient supplemental programs are necessary.

The foundation of feed cost control is the results of a forage analysis collected from a representative sample of the forage lot being analyzed. A forage lot consists of forage harvested from one field at the same cutting and maturity within a 48-hour period and usually contains fewer than 100 tons of hay. A forage lot should be similar for forage type, field, cutting date, maturity, variety, weed infestation, type of harvest equipment, weather during growth and harvest and storage conditions. In the case of crude protein, improper forage sampling techniques can affect profitability and productivity from two different perspectives (1) a false high analysis of crude protein which actually is low, will result in a potential crude protein deficiency and (2) a false low analysis of crude protein, which actually is high, can result in excessive supplementation expenses. Based on a recent study conducted by Kansas State University to determine the extent of nutrient variation that can exist in a forage lot, sample sizes were determined for large round bales of various forage types to achieve various degrees of precision and confidence intervals. Producers are advised to subsample 20 percent of the bales in a forage lot. Forage should be sampled as near to the time of feeding or sale as possible.

Be sure to allow time for test results to be returned for formulation of a ration or determination of supplement needs. As a general rule, allow 2 to 3 weeks for results of the analysis. Information turnaround will be affected by the particular analysis requested, methods employed and the overall number of samples received.

It is recommended to submit forage samples to an accredited laboratory of the National Forage Testing Association (NFTA). The report from the laboratory should clearly indicate the moisture (as-received) basis and dry matter basis.

When coupled with environmental variability, feed cost control represents a moving target that can only be bulls-eyed with appropriate planning and evaluation of existing options. The first step towards efficient feed cost control is knowing the quality of the forage. The key to getting that information is submitting a forage sample that is representative of the forage used in the feeding program.

Forage sampling tools and an instruction sheet for sampling are available at our office.

A new K-State Extension publication on Forage Sampling is available at:
<http://www.ksre.ksu.edu/bookstore/pubs/MF3177.pdf>