

What's that hay worth?

By [Jeff Lehmkuhler](#)

The author is an extension beef cattle specialist with the University of Kentucky.

Beef cow-calf, stocker, and backgrounding enterprises rely on the forages available to keep production costs low. In the 1990s, when several states were collecting Standardized Performance Analyses data, it revealed that feed inputs were the largest expense and comprised roughly two-thirds of the total costs of production. High fertilizer prices will lead to higher costs for supplements and hay production in the upcoming year.

Do you know what your hay is worth?

As a ruminant nutritionist, I always recommend testing stored forages for nutrient content. The information from a forage test is the foundation of constructing a strategic supplementation plan. As an example, this year's Eastern Kentucky Hay Contest had over 500 entries, and 176 of these were requested to be evaluated for beef cattle.

Of the 176 forage samples evaluated, 114, or 65%, of the entries did not require supplementation for spring-calving, dry, mid-gestational cows in good body condition. However, the number of samples not requiring supplementation was cut in half for fall-calving, lactating beef cows. A total of 126 forage samples required some level of supplementation to meet the nutritional needs for lactating cows. Forage testing helps to develop targeted supplementation plans.

Unexpected results

In some instances, producers do not observe the level of performance they anticipated based on a forage test. The hay's worth may not always be the same as the forage test would suggest. As an example, I conducted an on-farm trial this past winter with a yak producer. We were looking at the difference in forage type on the growth rate of yaks. Alfalfa, orchardgrass/red clover, and a mixed-grass hay were evaluated. The level of crude protein and total digestible nutrients (TDN) are shown in Table 1.

Table 1. Crude protein, total digestible nutrients (TDN), and net energy for gain (NEg) concentrations in hays offered to growing yaks.

	Mixed grass	Orchardgrass/Red clover	Alfalfa
Crude protein, %	10.8	17.0	17.6
TDN, %	58.4	62.5	57.6
NEg, mcal/lb	0.69	0.81	0.66

Given that the energy content for the mixed grass and alfalfa were similar, one would have anticipated comparable rates of gain. Granted, the alfalfa was much higher in crude protein than the mixed-grass hay. However, the crude protein requirement for these animals growing at a rate of 0.6 pounds per day was estimated to be less than 10.8% based on limited published literature. Yet the observed daily gain was higher for the alfalfa hay, being 0.42 pounds per day while the mixed-grass hay resulted in a daily weight loss of minus 0.23 pounds. The orchardgrass/red clover hay offered similar performance to alfalfa at 0.48 pounds per day gain. The true biological value and the forage quality test did not quite pan out as expected. Why?

Our calculated intakes could have been off slightly given the subjectivity in estimating waste. As this was an on-farm trial, intakes were not measured but rather bales were weighed and offered. Waste was visually estimated and subtracted from the amount offered to arrive at hay disappearance. Hay disappearance was slightly higher for alfalfa being 2.7% of body weight while the other two hays were similar at 2.3%. Greater dry matter intake can lead to higher calorie intake and performance. However, this slight improvement in intake for alfalfa doesn't explain the gain differences between alfalfa and the mixed grass hays.

Other factors could have played a role. The crude protein requirement for growing yaks could be greater than that reported in the literature. Both the alfalfa and orchardgrass/red clover hay were similar, being about 17%, and may be more closely matched to the animals' needs. The mixed hay may not have supplied sufficient crude protein for growth.

The mixed grass hay also contained a significant amount of weeds. In some bales, the weeds appeared to have been about 15% to 20% of the biomass in the bales. Most of the weeds were not consumed, resulting in greater waste for these higher weed-containing bales. We were throwing money on the ground with these weedy bales that were purchased, lowering their worth.

Monitor body condition

Don't rely solely on a forage test and animal nutrient requirement tables to feed your cow herd. Monitor animals for changes in body condition and weight. This can be done subjectively through body condition scoring or objectively using a scale to capture weights.

With higher crop input costs and hay prices, purchasing and selling hay without a forage test is a greater financial risk. However, a forage test alone won't tell you about the true feeding value. Inspect hay prior to purchase for weeds, mold, and other quality detractors that may impact intake and animal performance.

Remember, forages are the base of beef feeding programs. They comprise the largest portion of the diet in cow-calf enterprises, and winter feeding is often the largest expense. Armed with the information on forage nutrient levels, we can appropriate different forage lots/cuttings by stage of production to better match nutritional needs and develop strategic supplementation programs.

Again, I ask, what is your hay worth?

This article appeared in the February 2022 issue of *Hay & Forage Grower* on page 16.