Using RFQ to Buy and Sell Hay

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This hay season has already been challenging due to the non-stop rain we experienced in early June. As a result, knowing and understanding your hay quality is more important than ever.

Getting the Hay Quality Report

The first step in understanding hay quality is taking a hay sample. All of the Animal Science and Forage Regional Extension agents and many County Extension Offices have hay probes that can be used to sample hay. These probes make it easier to sample the entire hay bale and not just the outer layer. When taking a hay sample, you want to test 10% of the hay lot (hay from the same field, same harvest, and same management). Once collected, these samples can be submitted to any public or private laboratory for analysis. Wait to take your hay samples until after the hay has gone through its initial heat (up to 4 weeks). This is especially important this year when hay was likely put-up wetter than normal. It is important to wait because forage quality will decline during the heating phase, while it is typically a small decline, high-moisture hay (greater than 18% moisture) will heat excessively and have a much greater decline in nutritive value.

Reading the Hay Quality Report

Whether you are buying, selling, or making your own hay, the forage quality report is the key to understanding the value of the hay and how best to use it as feed. Regardless of the laboratory, all hay quality reports will have similar information. Dry matter (DM), crude protein (CP), total digestible nutrients (TDN), neutral detergent fiber (NDF), and acid detergent fiber (ADF). Other components could be included such as relative forage quality (RFQ), nitrate-nitrogen (NO3-N), lignin, among others. The report below is from the Auburn University Soil and Forage Testing Laboratory. It also includes as-fed and dry matter analyses. For all forages, including hay, balance the ration based on the dry matter column. Other feedstuffs like corn or DDGS will use the as-fed column.

So Why RFQ?

When comparing two forage samples, it is often that one has a greater crude protein, while the other has a greater TDN. Determining which one is the better feedstuff can be challenging when having to use both values. Relative forage quality, or RFQ for short, was developed in the early 2000s to easily consider both the energy and protein requirements of livestock when evaluating forages. RFQ is based on an equation that considers dry matter intake, fiber, and protein into an index value ranging from 0-300. Forage can then be split into 4 categories based on the RFQ value, utility, fair, good, and premium. The graphic below shows the range of RFQ values for different classes of livestock, as well as the different classes of hay. As a comparison, a mid-bloom alfalfa would be considered a 150 RFQ. Matching the RFQ to the class of livestock is important to reduce supplementation and reduce over feeding. Higher quality hay should also be

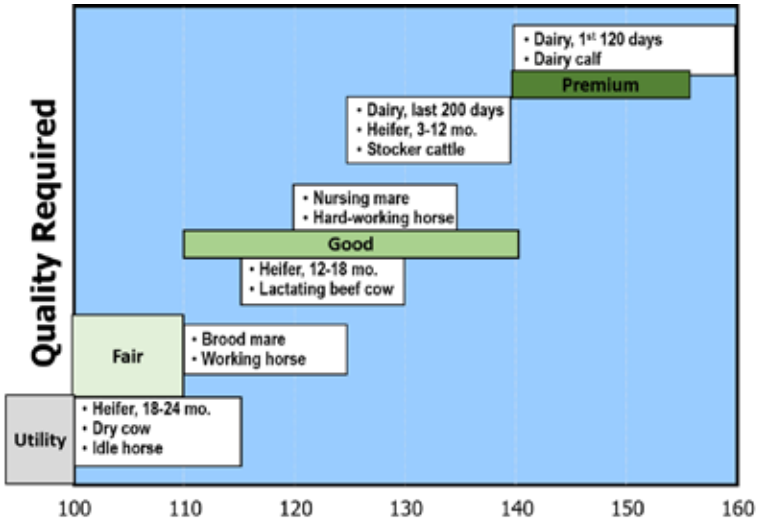
- Crop : Bermudagrass
- Sample ID : EVS Bale Grazing 1_9
- Relative Forage Quality (RFQ) : **82.15**

Near Infrared Reflectance Analysis

Lab ID : 19.F0172

	Dry Matter (%)	As-fed (%)
Moisture	0.00	21.90
Dry Matter (DM)	100.00	78.10
Crude Protein (CP)	10.80	8.43
Acid Detergent Fiber (ADF)	44.62	34.85
Neutral Detergent Fiber (NDF)	77.99	60.91
Total Digestible Nutrients (TDN)	50.53	39.46

* stands for values calculated from current research formula, % stands for parts per 100 of the material, ppm stands for parts per million.



Credit: Dr. Dennis Hancock

fed when animals are off pasture. Lower quality hay can be fed during the fall and spring transition period when pastures are not as productive, but still provide some nutritional value. Hay in the utility category (60-100 RFQ) will have to be fed with supplement for all classes of livestock as it does not meet the nutritional needs of any cattle or horse.

How can I improve my RFQ?

Improving your RFQ value can be achieved in several ways. The largest jump in forage quality can be achieved through timely harvests. Rain delays and other factors that delay hay harvest beyond the optimal window increase non-digestible fiber, decrease digestibility, and decrease crude protein. While some delays cannot be avoided, harvesting at the right stage of maturity will improve forage quality and RFQ. Providing adequate soil fertility will improve forage quality, as well as forage yield. Lastly, change forage variety or species. Each forage species has a specific range of RFQ values that it can produce. For example, bahiagrass will likely never produce an RFQ above 130, but for many cow systems this is adequate. If you need forage to support stocker cattle, you will likely need small grains or annual ryegrass which can produce a much higher RFQ.

Once you get your RFQ over 150, I encourage you to submit your sample to the Southeast Hay Contest. This contest is a multi-state hay quality contest administered through the Cooperative Extension System in each of the Southeastern States. In 2023, there are 8 categories for submission. 1) Warm-season perennial grass hay, 2) Alfalfa hay, 3) All other legume hay, 4) Grass-legume hay, 5) Cool-season annual grass hay, 6) Warm-season annual grass hay, 7) Grass Baleage, 8) Legume baleage. Each category will have a 1st, 2nd, and 3rd place winner announced at the Sunbelt Ag Expo in Moultrie, GA in mid-October. There will also be an overall winner with the highest RFQ of all samples that receives a 1-year lease of a Massey Ferguson hay mower or rake. For more information contact your local Extension agent or visit www.sehaycontest.com. For any of your forage related questions visist www.alabamaforages.com or email alabamaforages@aces.edu .

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