Relative Forage Quality: A new method for evaluating and marketing hay

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Winter feed costs represent 25-40% of total beef cattle expenses and are a major factor influencing beef cattle profitability. Why isn't hay produced in Georgia, Alabama and Florida sold on a quality (or even weight) basis? When hay is sold on a per-bale basis, (1) hay producers are not rewarded for producing quality hay and (2) livestock producers fail to consider the economic value and biological importance of quality hay. One possible reason hay is not marketed on a quality basis is that pricing hay on a crude protein or TDN (total digestible nutrient) basis is cumbersome. Recent work conducted at the University of Georgia has resulted in development of an accurate and simple method to define hay quality. This system is called Relative Forage Quality (RFQ) and should simplify hay marketing and pricing in the future.

What is Relative Forage Quality?

Past hay quality prediction equations were based on the fiber *concentration* of the hay crop. However, hays can have similar fiber content yet have very different digestibility. For instance, Tifton 85 bermudagrass often has a higher fiber concentration than other bermudagrass varieties, yet is more digestible. This improved digestibility results in enhanced animal performance, but is not reflected using traditional hay testing methods. The Relative Forage Quality index was developed by the University of Wisconsin to predict the fiber *digestibility* and animal intake of harvested crops. Unfortunately, these equations were not applicable to warm season forages like bermudagrass, bahiagrass or perennial peanut. The University of Georgia approached the Wisconsin group in 2003 and proposed including warm season forage crops so that a useful equation could be developed for the southeastern United States. Over 200 warm season samples have since been used to develop an RFQ equation for bermudagrass and other warm season forages. Currently, all forage sample results from the UGA Feed and Forage Testing Lab in Athens contain an estimate of Relative Forage Quality. This value is a single, easy to interpret number that improves producer understanding of a forage's quality and helps in establishing a fair market value for the product.

How can Relative Forage Quality help me?

Relative Forage Quality will allow hay producers to easily categorize and price hay lots by quality. Cattle producers can purchase hay lots depending on its end use. For example, there is little need to feed high-end quality hay to livestock that could easily utilize a poorer quality forage. For example, hay with a RFQ of 115-130 can be fed to maintain beef cow-calf pairs, hay with an RFQ of 125-150 is adequate for stocker cattle or young growing replacement heifers, and hay with an RFQ of 140-160 is suitable for dairy cattle in the first three months of lactation. It is also easy to see that Relative Forage Quality could provide the framework for a quality hay marketing system. For example, hay with

RFQ of 155 could conceptually be labeled “premium” hay, while hay with an RFQ of 105 could be labeled “fair”. This simple system could allow producers to price hay consistently and fairly across harvest maturity, fertilization regimes, or even plant species (i.e. bermudagrass, bahiagrass, perennial peanut, or tall fescue).

Relative Forage Quality and the Tri-State Hay Show:
The Relative Forage Quality system has recently been used to evaluate entries submitted to the 2004 American Forage Grassland Council hay contest, held in June in Roanoke, VA and the regional Tri-State Hay Show, held in October 2004 at Moultrie, GA. Several Georgia counties have also used RFQ to rank local hay contest entries. This system may become the standard for hay evaluation and marketing nationwide.

Tri-State Hay Contest Update and Results:
Overall results for bermudagrass and perennial peanut categories in the 2004 Tri-State Hay Show at Moultrie are listed in Table 1. Over 40 total hay samples were received from Georgia, Florida and Alabama. Three hurricanes increased rain-damaged hay throughout the region and likely reduced sample submissions. Note that the winning bermudagrass did not have the top TDN or crude protein content; however, RFQ indicates that this sample would have higher digestibility than other samples. This demonstrates the advantage that the RFQ system has versus older prediction methods that ignore fiber digestibility.

Table 1. Bermudagrass and perennial peanut category winners from the 2005 Tri-State Hay Contest.

	Farm	Crude Protein, %	TDN, %	RFQ
Bermudagrass	**Overall Range**	**8.3-19.5**	**53-64**	**70-116**
1st place	Brantley Farms, Upson Co, GA	12.1	59	116
2nd place	Millstone Farm Hall Co, GA	19.5	64	112
3rd place	Steve Kimsey Morgan Co, GA	17.2	61	109
Per. Peanut	**Overall Range**	**13.8-15.9**	**63 -66**	**107-133**
1st place	Stoltzfus Farm Calhoun Co, FL	15.1	66	133
2nd place	Hudson Farm Madison Co, FL	14.8	64.2	124
3rd place	Parmer Cattle Co. Jackson Co, FL	15.9	63.6	113

Think you can do better?
We will accept entries for the 2005 Tri-State Hay Contest from April through September 2005. Your local county agent will have the necessary forms and contest information at that time. Entry information will also be posted at http://www.georgiaforages.com . In the meantime, the Feed and Environmental Water Testing Lab at UGA is routinely analyzing samples for RFQ. Contact your local county agent for sample submission information.