

# 2014 Southeast Hay Convention

## Categorizing Hay for Sale Using Quality Standards



### Categorizing Hay for Sale Using Quality Standards



**Dr. Dennis Hancock**  
Extension Forage Specialist  
Crop and Soil Sciences – UGA



### Challenges for Quality-Based Marketing of Hay in the Southeast U.S.

- Most hay production in the SE is (or has been) on farms where:
  - Off-farm income exceeds farm income,
  - Forage-based livestock enterprises are supplementary to other farm enterprises, and/or
  - Hay making is often a recreation/hobby.



### Challenges for Quality-Based Marketing of Hay in the Southeast U.S.

- Simultaneously (or perhaps, as a result), total hay production (hay stocks) are disproportionate to animal needs.
  - "We produce more hay than is used in our region." - Generally



### Challenges for Quality-Based Marketing of Hay in the Southeast U.S.

- Disconnect between the nutritive and monetary value of the forage.
  - Contrast with areas where use/fate of hay is predominantly dairy.
    - Hay prices are strongly correlated with nutritive value.
  - In the Southeast, we colloquially have two hay quality categories:
    - Horse hay
    - Cow hay



### Challenges for Quality-Based Marketing of Hay in the Southeast U.S.

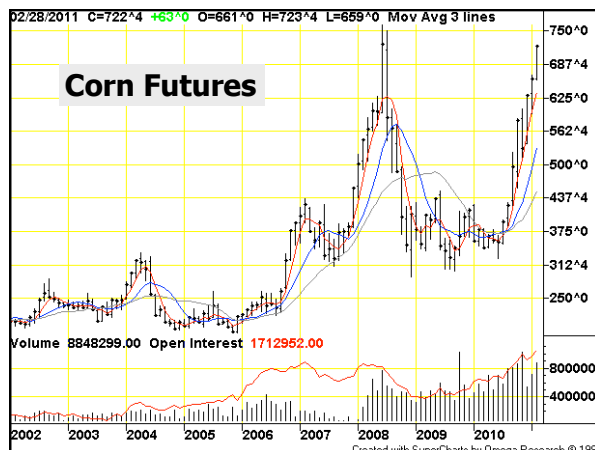
- Hay is (has been) valued for aesthetic and physical condition
  - Color, texture, "dust," package size, cultural norms/mythology, etc.



**So, is that going to change?**

# 2014 Southeast Hay Convention

## Categorizing Hay for Sale Using Quality Standards



### Forage Quality has High Value Now

Supplementing a Lactating Beef Cow

Crop	Maturity	CP	TDN	Supplement†	Cost‡
Bermudagrass	4 weeks				
	6 weeks				
	8 weeks				
Tall Fescue	Late boot				
	Early head				
	Dough				

† Assuming 50:50 corn gluten:soyhulls supplementation for forage quality on low end of the range.  
 ‡ Approximate price = \$230/ton (current as of 3-2014).

**+ \$2.00/hd/day in hay fed**

**Everybody knows what Forage Quality means, RIGHT?**

### Quality Standards

AFGC's Hay Market Task Force, 1988.

Quality Standard <sup>a</sup>	RFV <sup>b</sup>	CP	ADF <sup>c</sup>	NDF <sup>c</sup>	DDM <sup>d</sup>	DMI <sup>e</sup>
			% of DM			% of BW
Prime	>151	>19	<31	<40	>65	>3.0
1	125-151	17-19	31-35	40-46	62-65	2.6-3.0
2	103-124	14-16	36-40	47-53	58-61	2.3-2.5
3	87-102	11-13	41-42	54-60	56-57	2.0-2.2
4	75-86	8-10	43-45	61-65	53-55	1.8-1.9
5	<75	<8	>45	>65	<53	<1.8

<sup>a</sup> Standard assigned by Hay Market Task Force of AFGC.  
<sup>b</sup> Relative feed value (RFV) calculated from (DDM X DMI) / 1.29.  
<sup>c</sup> Reference RFV of 100 = 41% ADF and 53% NDF.  
<sup>d</sup> ADF = acid detergent fiber, and NDF = neutral detergent fiber.  
<sup>e</sup> Dry matter digestibility (DDM, %) = 88.9 - (.779 X ADF%)  
 Dry matter intake (DMI, % of body weight) = 120 / forage NDF (% of DM).

### What is "high quality forage?"



- Forage that is highly digestible (i.e., high TDN)
- Large amounts of the forage can be consumed (i.e., high DMI).
- Relative Forage Quality (RFQ) =  $TDN * DMI / 1.23$

# 2014 Southeast Hay Convention Categorizing Hay for Sale Using Quality Standards



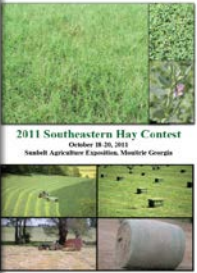

## RFQ Simplifies Comparisons

- Relative Forage Quality
  - Predicts energy based on fiber quality and intake
- Combined into a single value
  - RFQ of 100 is ~ = to full-bloom alfalfa
  - RFQ allows comparisons to be made across forage species

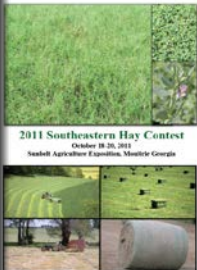

## Southeast Hay Contest

- RFQ has been the basis for the SE Hay Contest
- SEHC has been conducted with the Sunbelt Ag Expo annually since '04.
- Six categories:
  - Warm Season Perennial
  - Cool Season Perennial
  - Alfalfa/Perennial Peanut
  - Annual or Mixed Hay
  - Grass Baleage
  - Legume Baleage


## Southeast Hay Contest

- Entries accepted until Sept. 30.
  - Fee (\$15) is same as for NIR + Nitrate analysis through the UGA FEW Lab
  - Entry form and check must accompany sample
  - Sample must be obtained using a core sampler
  - Local Extension Agent must take and sign off on your entry
- Results announced at Sunbelt Ag Expo



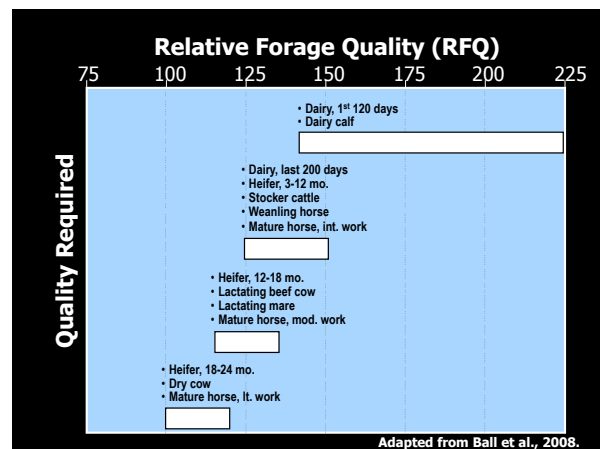
## Southeast Hay Contest Results - 2010

Category	Farms	Grude Protein, %	TDN%,	RFQ
Warm Season Perennial Hay	Cherry Farms	19.9	56.2	124
238 Entries	Walker County, GA	18.7	60.1	118
	Paul Ausler	18.4	57.3	117
	Waynes College	18.4	57.3	117
Grand Mean		18.4	57.3	117
	Edgewood County, SC	18.4	57.3	117
Perennial/Balage Hay	Vickers Hill Farm	16.7	66.8	208
23 Entries	Walker County, GA	15.4	70.0	190
	Walker County, TX	15.0	65.1	180
	Walker Hill Farm	14.0	64.4	170
Grand Mean		15.0	65.1	180
	Walker County, GA	15.0	65.1	180
Cool Season Per. Grass Hay	Duncan Gregory Farms	17.0	54.2	125
22 Entries	Carroll County, GA	16.7	57.3	118
	Walker County, GA	14.0	54.4	110
	Upper County, GA	14.0	54.4	110
Grand Mean		15.0	57.3	118
	Walker County, GA	15.0	57.3	118
Mixed and Annual Grass Hay	Silver Farms	16.0	66.4	208
20 Entries	Upper County, GA	14.6	58.0	158
	John Armstrong	9.6	57.0	147
	Grady County, GA	12.4	58.0	158
Grand Mean		12.4	58.0	158
	Grady County, GA	12.4	58.0	158
Grass Baleage	Venice Farms	13.4	61.4	182
23 Entries	Morgan County, GA	13.1	60.7	170
	Franklin County, GA	17.0	62.0	185
	Calfee County, GA	12.4	58.0	158
Grand Mean		13.4	61.4	182
	Franklin County, GA	13.4	61.4	182
Legume Baleage	Ray Prokop	15.6	52.3	112
2 Entries	Walker Co., SC	9.8	50.4	81
	Red Creek Angus Farms	9.8	50.4	81
Grand Mean		12.7	51.4	91.5
	Walker Co., SC	12.7	51.4	91.5



## RFQ Simplifies Comparisons

- Relative Forage Quality
  - Predicts energy based on fiber quality and intake
- Combined into a single value
  - RFQ of 100 is ~ = to full-bloom alfalfa
  - RFQ allows comparisons to be made across forage species
  - Allows hay to be easily assigned to appropriate physiological stages

# 2014 Southeast Hay Convention

## Categorizing Hay for Sale Using Quality Standards



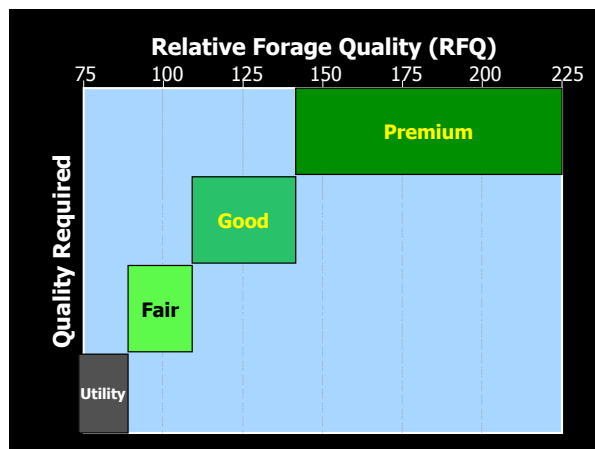
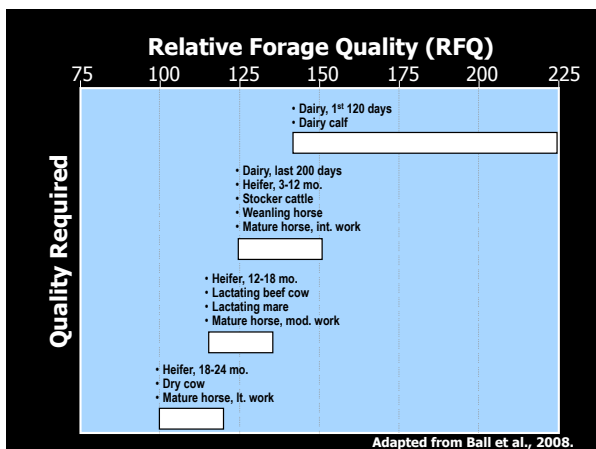
### RFQ Simplifies Comparisons

- Relative Forage Quality
  - Predicts energy based on fiber quality and intake
- Combined into a single value
  - RFQ of 100 is ~ = to full-bloom alfalfa
  - RFQ allows comparisons to be made across forage species
  - Allows hay to be easily assigned to appropriate physiological stages
  - Could simplify marketing




### Southeastern Forage Quality Categories

Category	RFQ
Premium	≥ 140
Good	110-139
Fair	90-109
Utility	< 90



### Aspects of this Categorization System

- Because it is RFQ-based it is a more robust method for categorization
  - RFQ is the only tool that is useful in comparing energy and intake across species



### Aspects of this Categorization System

- It is a categorization system...
  - It does not favor certain species
    - Analogous to cattle market reports (weight, sex, but not typically breed)
  - It is a first approximation
  - It has indirect links to ration balancing
    - RFQ is not used for ration development
    - Final valuation can be fine-tuned



# 2014 Southeast Hay Convention

## Categorizing Hay for Sale Using Quality Standards

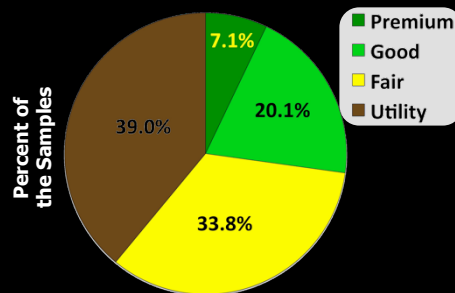


### Aspects of this Categorization System

- Provides at least 3 forage quality categories appropriate for each of the major livestock enterprises:
  - Dairy (choice, prime, and supreme)
  - Horse (standard, select, and choice)
  - Beef (standard, select, and choice)
  - Etc.
- It also isolates hay that is unlikely to be nutritionally sufficient without substantial supplementation (Utility)

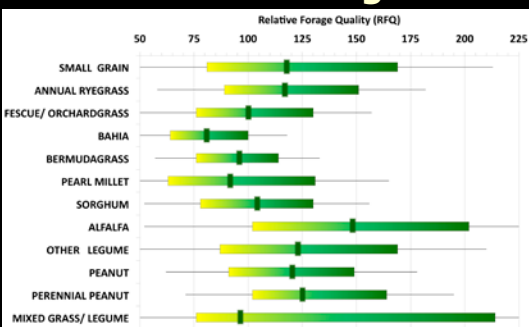


### How Are Samples Currently Distributed in this Categorization System?



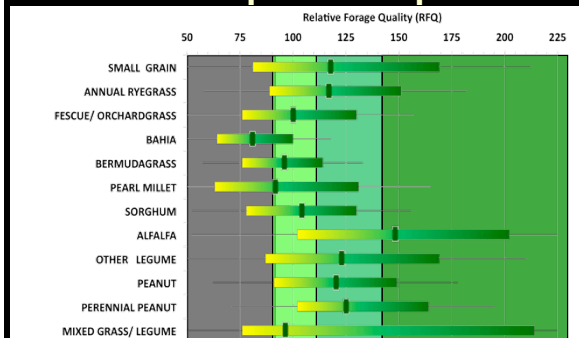
Frequency of Quality Grades of All Samples Submitted between July 1, 2003 – February, 2011

### Typical Range in Quality of Common Forages



Typical expected range (color bars), median (dark green vertical lines) and the extent of what is typically considered exceptionally low or high for a species (extent of horizontal black lines represents two std. dev. away from the mean). Based on statistics from samples submitted to the UGA FEW Lab between July 2003 – February 2011.

### How Do Species Compare?



Typical expected range (color bars), median (dark green vertical lines) and the extent of what is typically considered exceptionally low or high for a species (extent of horizontal black lines represents two std. dev. away from the mean). Based on statistics from samples submitted to the UGA FEW Lab between July 2003 – February 2011.

### Proposed RFQ Structure Summary

- Forage value needs to be more closely correlated with forage quality (and producer effort/input)
- RFQ enables categorization
- The proposed categorization system is a first approximation:
  - A compromise between simplicity and a detailed look at nutritional value



### QUESTIONS?

