

# Forage Issues: Lessons Learned and Strategies for the Future

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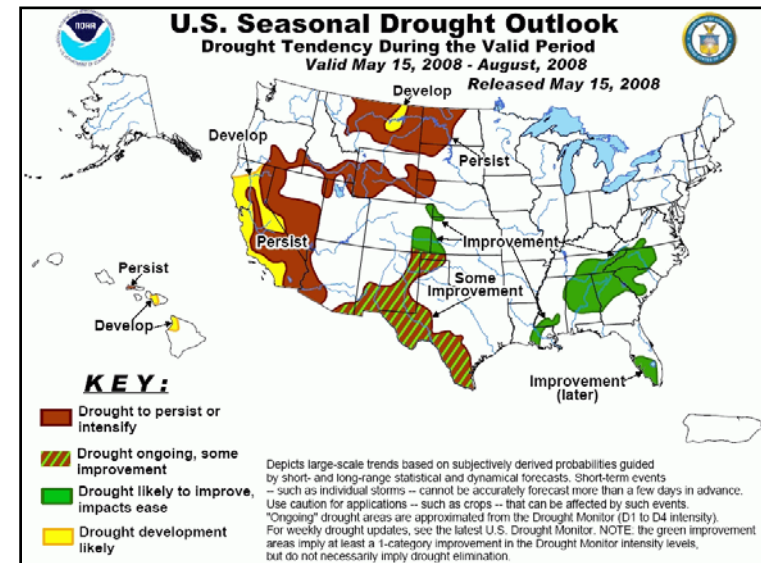


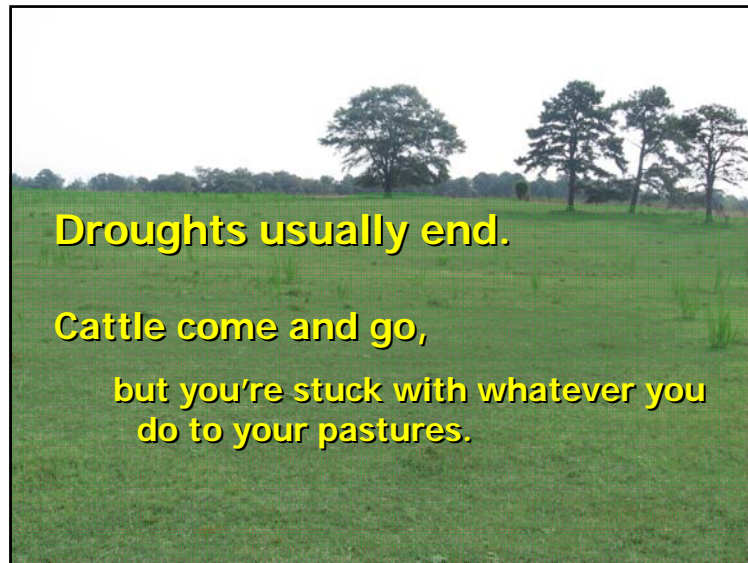
## The New “Low Water Mark”



## A few generalizations...


- Delayed decisions led to overgrazing
- Ground cover became very low
  - Soil erosion potential was high
- Body condition scores slipped severely (< 5)
  - Poor conception rates!
  - Problem was worse where tall fescue is the base
- A lot of poor-quality and/or expensive hay was fed
  - Hay availability was extremely low
- Difficulty in establishment – spring & fall 2007





### Proactive Drought-Stress Management

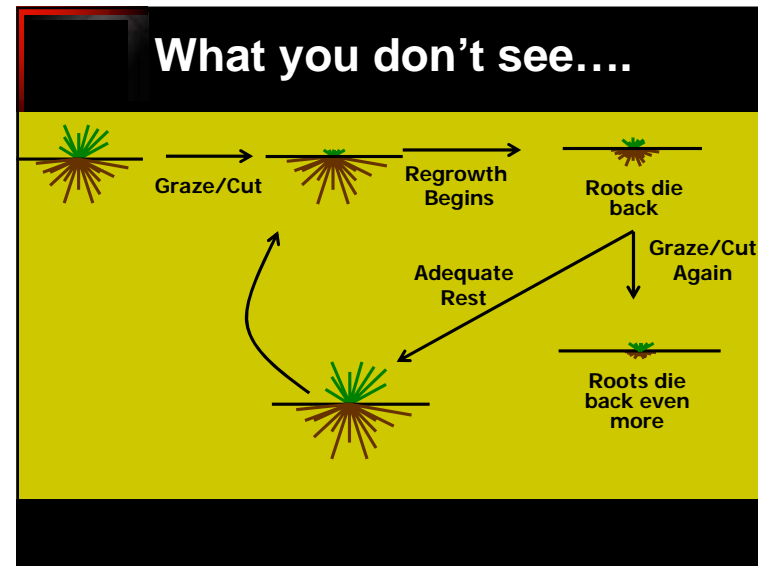
- First, do no harm!
- Recognize early
- De-stock
- De-populate
- Set up sacrifice areas
- Best Defense is a Good Offense.



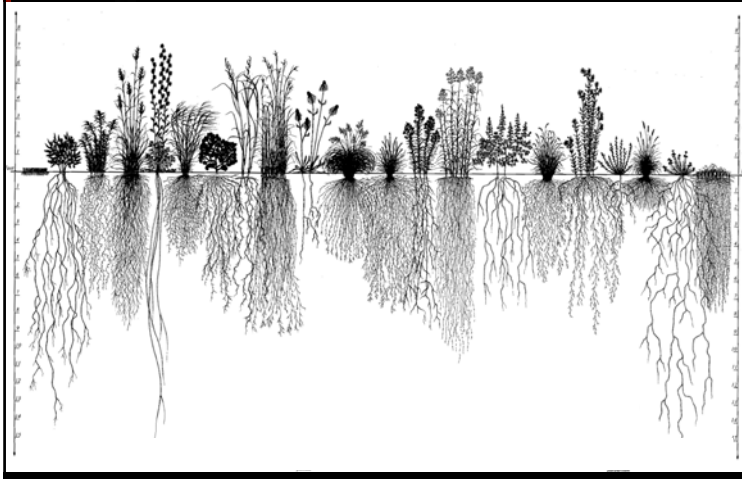
### The Most Popular Question in 2007:

“Why are my hayfields green and my pastures brown?”

Get to the root of the problem.



**Weeds have the competitive advantage.**



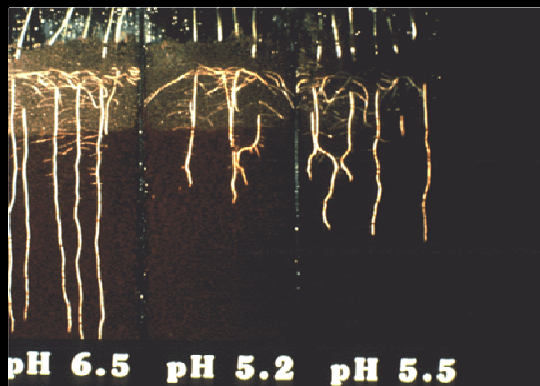
## Drought Tolerance

Species	Water Use Efficiency DM lbs/inch	Max. Root Depth inches
Coastal Bermudagrass	1646	78
Pensacola Bahiagrass	1194	79
Tall Fescue	1064	48
Ladino Clover	480	38
Red Clover	436	45

From: Southern Forages, as adapted from Doss et al. (1960; 1962; 1963)



**Soil pH Problems  
Exacerbate the Drought**



**Potassium Stress is Expensive**

Not Competitive    Leafspot Diseases  
 Poor Winterhardiness  
 Grows Very Slow  
**Poor Stress Tolerance**  
 The Stand is Gone!

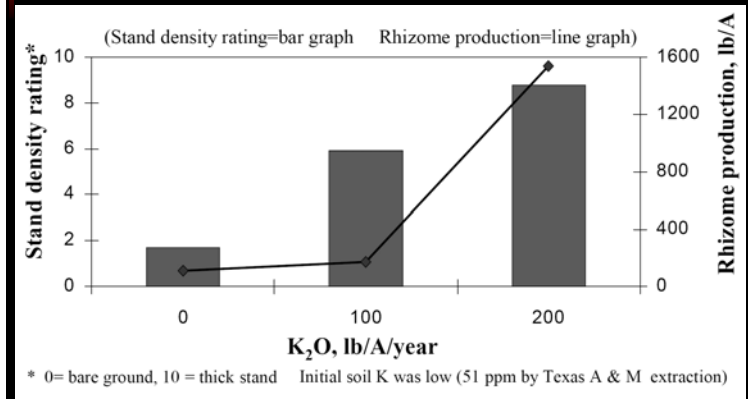


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## Potassium Stress is Expensive



## K is the Key to a Good Stand



Nitrates can spike, even if no N has been applied.



- Rains will cause rapid N-release and uptake
  - High nitrate levels for first 3 – 7 days.

Nitrate in forage fed to beef cattle.

Forage Nitrate (ppm dry forage)	Guidance
< 4500	Safe to feed with adequate feed and water
4,500 to < 6,500	Safe under most conditions, but if feeding pregnant animals limit to half (1/2) ration
6,500 to < 9,000	Limit to half (1/2) ration
9,000 to < 15,000	Limit to third (1/3) ration
15,000 to < 18,000	Limit to quarter (1/4) ration
> 18,000	Potentially lethal, very risky



## Nitrate in rations fed to dairy cattle.

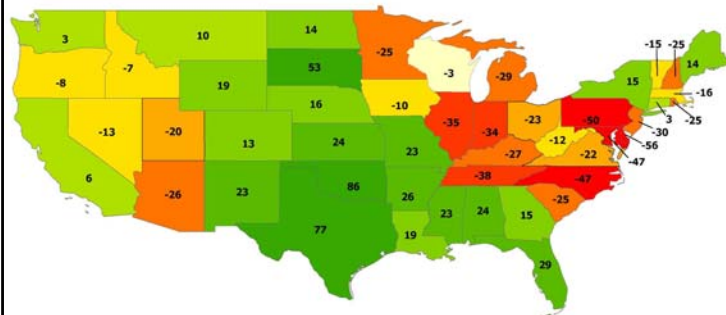
Classes of Livestock	Max. Nitrate (ppm) in Total Ration (DM Basis)
Calves to 6 months of age	700
Calves 6 months to breeding age	1000
Bred heifers	1500
Lactating dairy cows (postpartum & up to 180 d pregnant)	1500
Lactating dairy cows (last trimester of pregnancy)	2500

Smith and Guthrie, 1997

Peanut growers pay attention to hay prices.



## Percent Change in Hay Stocks From Dec. 1, 2006 - Dec. 1, 2007



## Peanut Hay Quality

Variable	n	Mean	Units	Range
RFQ	26	129.5		69.8 - 222.1
TDN	26	58.1	%	46.3 - 72.0
CP	26	10.1	%	5.5 - 15.0
NDF	26	41.0	%	28.0 - 55.0
ADF	26	34.7	%	22.6 - 45.5
Lignin	26	10.9	%	8.0 - 13.4
NO <sub>3</sub>	23	1939	ppm	0 - 4787



## Peanut Hay Mineral Content

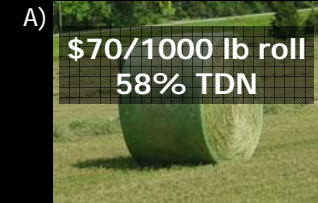
Nutrient	n	Mean	Range	Std. Dev.	C.V.
		----- % -----			
N	27	1.64	0.88 - 2.40	0.390	24%
P	7	0.12	0.08 - 0.21	0.050	41%
K	7	2.14	1.46 - 2.74	0.410	19%
Ca	7	0.91	0.63 - 1.22	0.196	21%
Mg	7	0.31	0.21 - 0.42	0.072	24%



## Cheap hay is EXPENSIVE!

Scenario: Lact. Cows

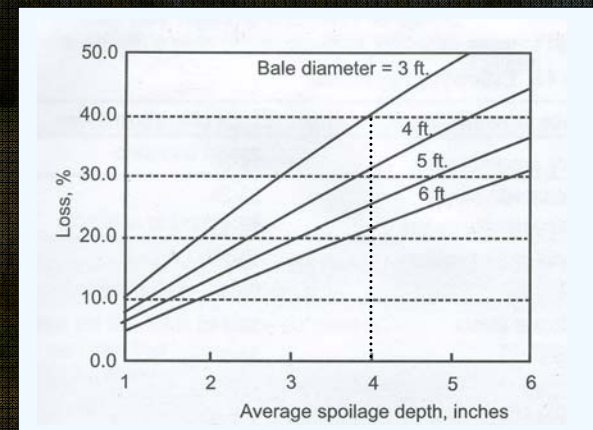
- Bale A cost: ~\$70/bale
  - Little or no supplement
- Bale B cost: **\$81/bale**
  - Substantial supplement/bale



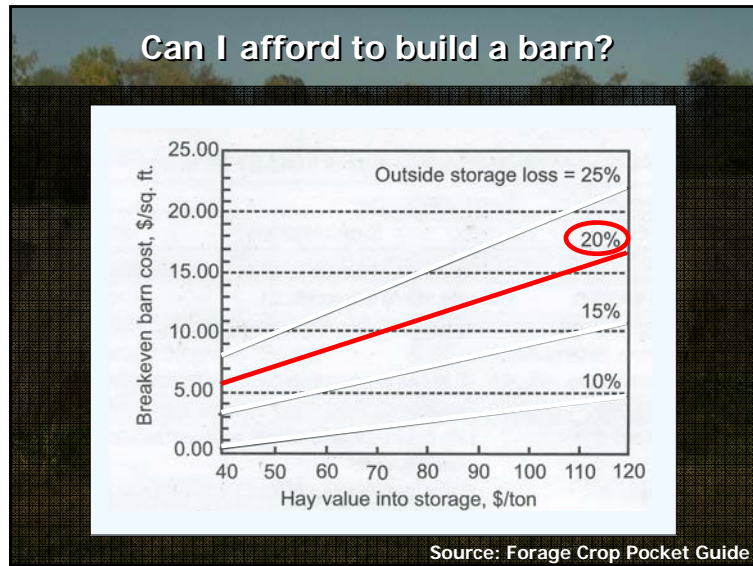
## The True Cost of Storage and Feeding Losses



## Storage Losses



Source: Forage Crop Pocket Guide



### Storage Options

- Tarped Stacks
- Hay Sheds
- Hoop Structures

The images illustrate three storage options with their respective cost ranges:
 

- Tarped Stacks:** A stack of hay bales covered in a silver tarp, costing \$1.50 to \$2.50.
- Hay Sheds:** A long wooden structure with a red roof filled with hay bales, costing \$3.50+.
- Hoop Structures:** A large white plastic-covered structure filled with hay bales, costing \$2.00 to \$3.00.

### Hay is too expensive to waste

Losses > 40%

**Vs.**

Losses < 7%

### Feeding Losses

Item	% Waste
Cone	2 - 5
Ring	4 - 7
Trailer	10 - 13
Cradle	15 - 20

Adapted from: Southern Forages (4<sup>th</sup> ed.) and Buskirk et al., 2003. J. Anim. Sci. 81:109-115

Strategies for 2008 and beyond...



You are among the few who have noticed...



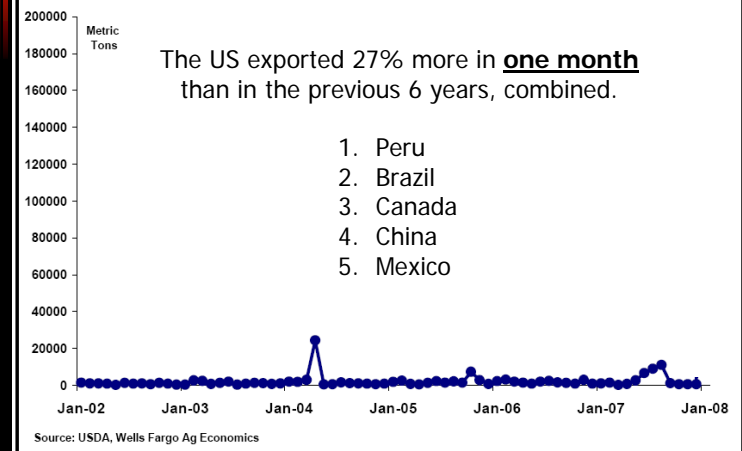
the world has changed.

Hard Hits...



Dr. Dennis Hancock  
Extension Forage Agronomist

US Nitrogen Exports








## Strategies for 2008 and beyond.

1. Feed less hay and graze more.



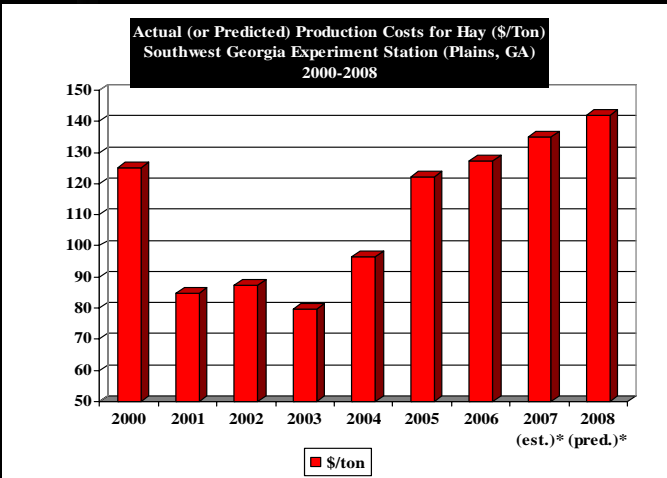
## Get a Grip on Your Hay Costs





Dr. Dennis Hancock  
 Extension Forage Agronomist

## Costs of Producing Hay



## Costs of Feeding Hay

$$1200 \text{ lbs/cow} \times \frac{1.8 \text{ lbs of hay}}{100 \text{ lbs of b.w.}} = 21.6 \text{ lbs/hd/d}$$

$$21.6 \text{ lbs/hd/d} + \begin{matrix} 10\% \text{ feeding loss} \\ 30\% \text{ storage loss} \\ 25\% \text{ other losses} \end{matrix} = 25 \text{ lbs/hd/d}$$

$$\frac{\$130/\text{dry ton of hay}}{2000 \text{ lbs}} \times 25 = \$0.065/\text{lb of hay}$$

$$\underline{\$1.63/\text{hd/d}}$$

## Costs of Feeding Hay

**\$1.63/hd/d**

I have 100 cows.

If I cut out 30 days of feeding hay... ?

$$100 \text{ cows} \times \$1.63 \times 30 \text{ days} = \mathbf{\$4890}$$

That's like having a 10% increase in your calf crop!!!

## Strategies for 2008 and beyond.

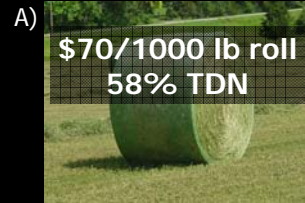
1. Feed less hay and graze more.
2. What hay you feed needs to meet your animal's need for quality.



## Cheap hay is EXPENSIVE!

Scenario: Lact. Cows

- Bale A cost: ~\$70/bale
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## The Effect of Maturity on the Bottomline: Supplementing a Lactating Cow

Crop	Maturity	CP	TDN	Supplement	Cost
		-- % --	-- % --	lbs/hd/day	\$/hd/day
Bermudagrass	4 weeks	10-12	58-62	0	\$0
	6 weeks	8-10	51-55	4.8	\$0.45
	8 weeks	6-8	45-50	7.5	\$0.72

+ \$1.63/hd/d



## Strategies for 2008 and beyond.

1. Feed less hay and graze more.
2. What hay you feed needs to meet your animal's need for quality.
3. Get more forage into your animals.



## Feeding vs. Grazing



## Efficiencies of Grazing and Mechanized Harvest

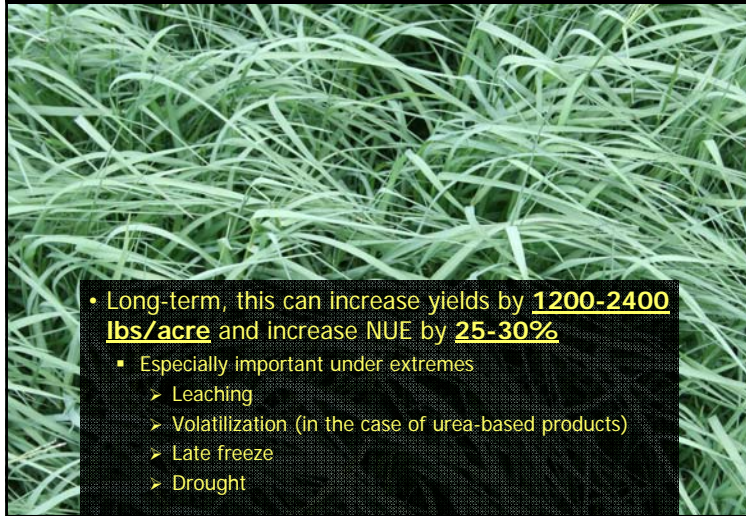
Method	Efficiency
Grazing	
Continuous Stocking	30-40%
Slow Rotation (3-4 paddocks)	50-60%
Moderate Rotation (6-8 paddocks)	60-70%
Strip Grazing	70-80%
Mechanical	
Hay	30-70%
Silage	60-85%
Green Chop	70-95%

## Strategies for 2008 and beyond.

1. Feed less hay and graze more.
2. What hay you feed needs to meet your animal's need for quality.
3. Get more forage into your animals.
4. Be more efficient with your fertilizer
  - a) Soil test and follow recommendations
  - b) Adapt N recommendations to forage needs
  - c) Maintain soil pH
  - d) Split your N applications



## SPLIT YOUR NITROGEN APPLICATIONS!



- Long-term, this can increase yields by **1200-2400 lbs/acre** and increase NUE by **25-30%**
  - Especially important under extremes
    - Leaching
    - Volatilization (in the case of urea-based products)
    - Late freeze
    - Drought

## The Effectiveness of Some Alternative N Sources at Low, Medium, and High Fertilization Rates on Hybrid Bermudagrasses (Relative to Ammonium Nitrate).

Nitrogen Source	Fertilization Rates		
	< 200 lbs*	250-350 lbs	> 400 lbs
Ammonium Nitrate	100%	100%	100%
Amm. Sulfate	95-97%	95-105%	60-70%
Anhyd. Ammonia	92-94%	93-95%	94-95%
UAN Solution	70-75%	85-92%	92-95%
Urea	79-82%	82-92%	88-93%

\* Actual lbs of N per acre per year.  
Source: Burton and Jackson, 1962; Silveria et al., 2007.

## Take-home message:

- 1) If you have to use a urea-based product, be careful about cutting your rate back too much.
  - They are relatively less effective at low rates.
- 2) Split your N applications.



## Fertilization Strategies New N Fertilizer Products

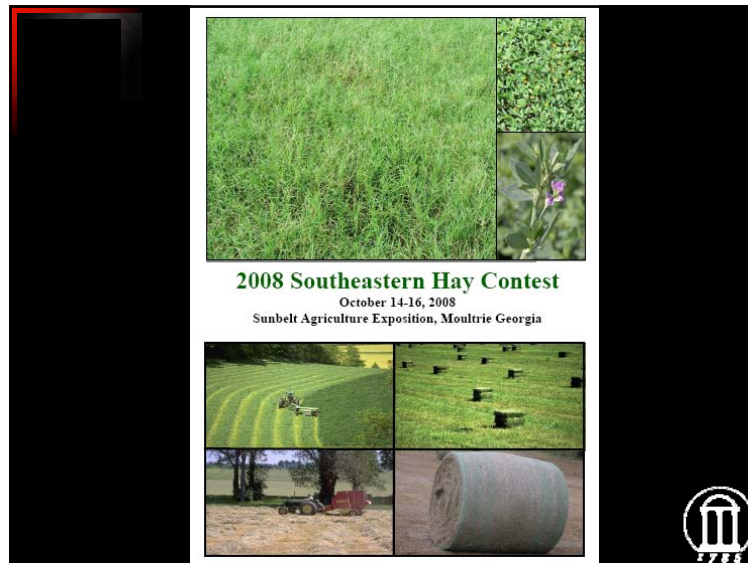


## New N Products



## New N Products





**2008 Southeastern Hay Contest**  
 October 14-16, 2008  
 Sunbelt Agriculture Exposition, Moultrie, Georgia

The banner features a collage of images: a large field of green hay, a close-up of a plant with purple flowers, a tractor in a field, a field with hay bales, a tractor in a field, and a large roll of hay. The University of Georgia logo is in the bottom right corner.

# Categories

Hay and baleage samples will be evaluated in the following categories:

Category	Description
1.	<b>Warm Season Perennial Grass Hay</b> (e.g., bermudagrass, bahiagrass, etc.)
2.	<b>Perennial Peanut or Alfalfa Hay</b>
3.	<b>Cool Season Perennial Grass Hay</b> (e.g., tall fescue, orchardgrass, etc.)
4.	<b>Mixed, Annual Grass, or Other Hay</b> (e.g., clover/fescue, clover/ryegrass, millet, ryegrass, etc)
5.	<b>Grass Baleage</b> (high moisture grass forage ensiled in wrapped bales)
6.	<b>Legume Baleage</b> (high moisture legume or grass/legume ensiled in wrapped bales)

The University of Georgia logo is in the bottom right corner.

## Info on the SE Hay Contest

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Commodities: Field Crops: Forages  
**2008 Southeastern Hay Contest**

In conjunction with the SunBelt Ag Expo, Moultrie, GA

[2007 Results](#) | [2008 Results](#)  
 Check out this brief (< 6 min.) [video](#) on the Southeastern Hay Contest.  
[Guidelines and Entry Form](#) are now available. To submit a sample or for additional information, please contact your [your local County Extension Agent](#).

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**Introduction**

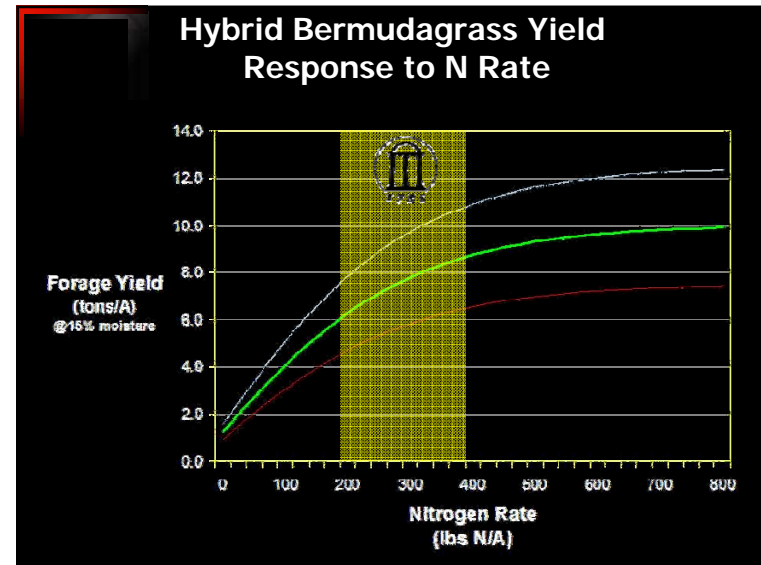
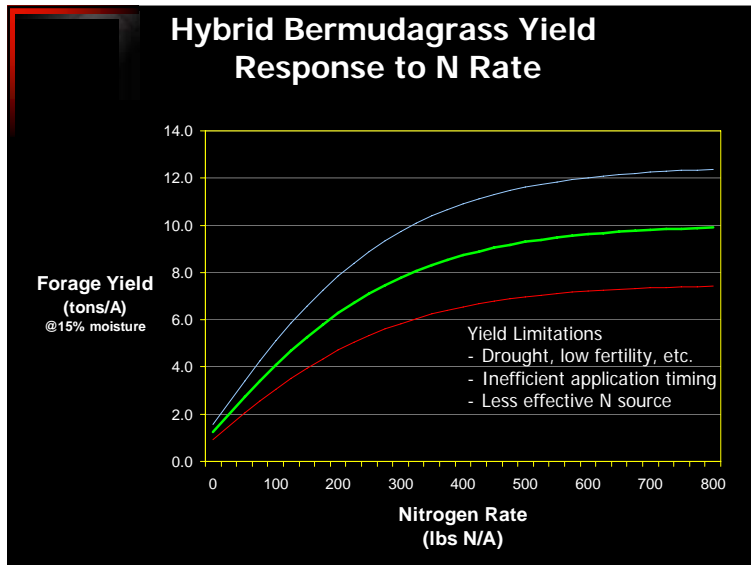
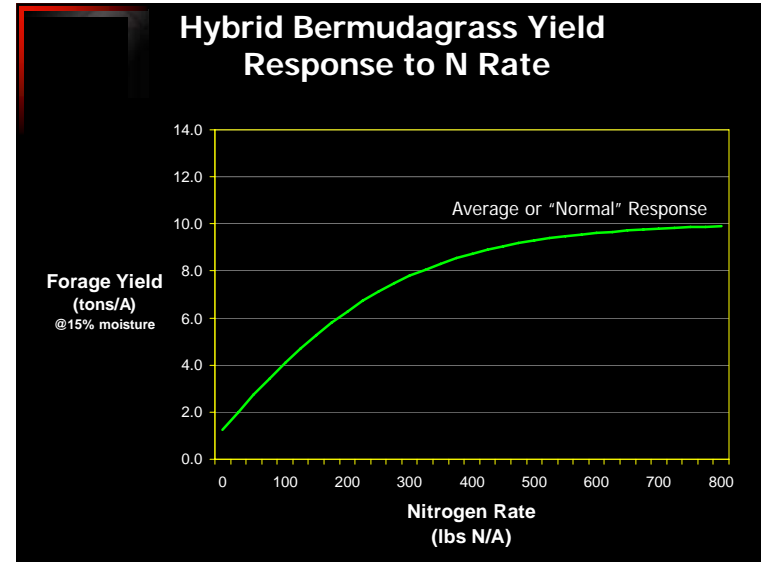
The Georgia Forages website is your window to information on a wide variety of forage management issues. This information is extended to you by scientists from the University of Georgia, who continue to research all aspects of forage and livestock management. The recommendations found in this website are based on peer-reviewed research conducted in Georgia and throughout the world. We hope you will find this website provides accurate and up-to-date information about all forage management issues facing producers in Georgia and the Southeast. Please check this website regularly for updates and "Hot Topics."

Dr. Dennis Hancock  
 Extension Forage Agronomist

**QUESTIONS?**

[www.georgiaforages.com](http://www.georgiaforages.com)  
1-800-ASK-UGA1

**GRASS**



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