




UNDERSTANDING FORAGE QUALITY

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- Overview of forage quality
 - Taking a Forage Sample
 - Reading a forage quality analysis
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Forage Quality has High Value Now

Supplementing a Lactating Beef Cow

Crop	Maturity
Bermudagrass	4 weeks
	6 weeks
	8 weeks
Tall Fescue	Late boot
	Early head
	Dough

Assuming 50:50 corn gluten:soy hulls supplementation for forage quality on low end of the range.
Approximate prices for Oct. 2013 (\$230/ton).




Forage Quality has High Value Now

Supplementing a Lactating Beef Cow

Crop	Maturity	CP		TDN		Supplement ¹ lbs/hd/day	Cost ² \$/hd/day
		-- % --	-- % --	-- % --	-- % --		
Bermudagrass	4 weeks	10-12	58-62	0	\$0		
	6 weeks	8-10	51-55	4.8	\$0.55		
	8 weeks	6-8	45-50	7.5	\$0.93		
Tall Fescue	Late boot	14-16	66-70	0	\$0		
	Early head	11-13	60-63	0	\$0		
	Dough	8-10	50-54	5.3	\$0.61		

Assuming 50:50 corn gluten:soy hulls supplementation for forage quality on low end of the range.
Approximate prices for Oct. 2013 (\$230/ton).


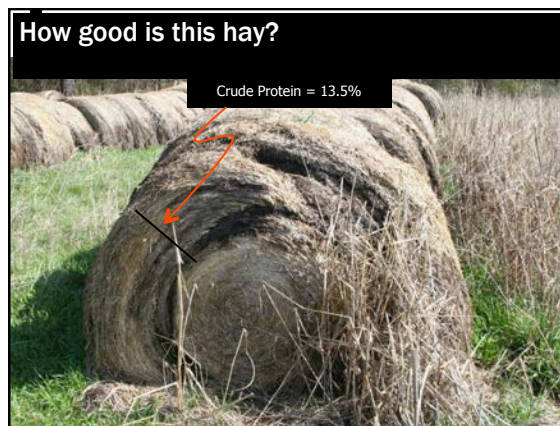


Maturity Matters

Forage Quality Parameters for Selected Forage Crops

Crop	Maturity	CP	TDN	NDF	ADF
Bermudagrass	4 weeks old	10-12	52-58	33-38	63-68
	8 weeks old	6-8	45-50	40-45	70-75
Alfalfa	Bud	22-26	64-67	28-32	38-47
	Early Flower	18-22	64-64	32-36	42-50
	Mid Bloom	14-18	58-61	36-40	46-55
	Full Bloom	9-13	50-57	41-43	56-60
Ryegrass	Vegetative - Boot	12-16	63-68	27-33	47-53
	Boot - Head	8-12	59-63	33-39	53-59
Red Clover	Early-Flower	14-16	64-67	28-32	38-42
	Late Flower	12-14	59-64	32-38	42-50

Source: Adapted from J.C. Henning and G.D. Lacefield, University of Kentucky

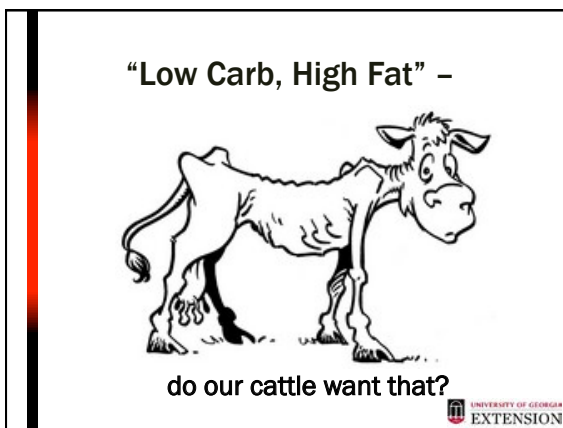


Crude Protein and Hay Quality

- CP is the most overrated measure of quality!
 - $Total\ N \times 6.25 = CP, \%$
- Tells you nothing about the form nitrogen is in
 - Protein (AA), Bound Protein, Nitrates etc.
- Protein requirements are (typically) easily met
- Somewhat related to maturity

Tells you very little about energy content

- Important- just overemphasized

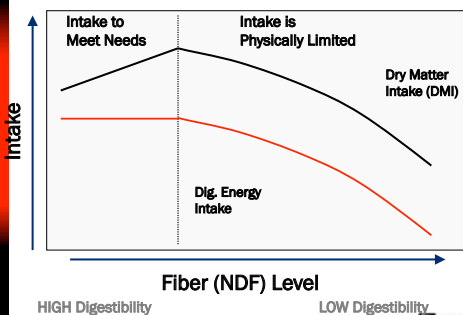


How do we get enough energy in the animal?

- The animal eats more forage.
 - What is the physical limit?
 - Can a cow eat enough straw to meet her energy needs?
- What forage the animal eats must be high in energy.
 - High digestibility -> High energy
- Bottomline: Every bite has to count!



The Relationship between Fiber (NDF) and Dry Matter Intake (DMI)



What is “High Quality Forage”?

- Results in high intake
 - Consumed in large amounts
 - High DMI
- Is digestible
 - Large amounts of nutrients
 - High TDN
- Contains proper balance of needed nutrients




$$\text{Relative Forage Quality (RFQ)} = \frac{\text{TDN} \times \text{DMI}}{1.23}$$




Matching Animal Requirements and Forage Quality

Stage of Production	TDN % Required	CP % Required
Dry Pregnant	48	7
Peak Lactation	60	12
Late Lactation	55	9




Source: M.K. Mullerix, ACES



Matching Animal Requirements and Forage Quality

Stage of Production	TDN % Required	CP % Required	Hay % TDN	Hay % CP	Supplement Needed
Dry Pregnant	48	7	48	7	No*
Peak Lactation	60	12	48	7	Yes
Late Lactation	55	9	48	7	Yes

Source: M.K. Mullerix, ACES



Unless you Test...




It's Just a Guess!

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Photo credit: Bobby Smith, Morgan CEC

The least used and least understood element of a good forage management plan.

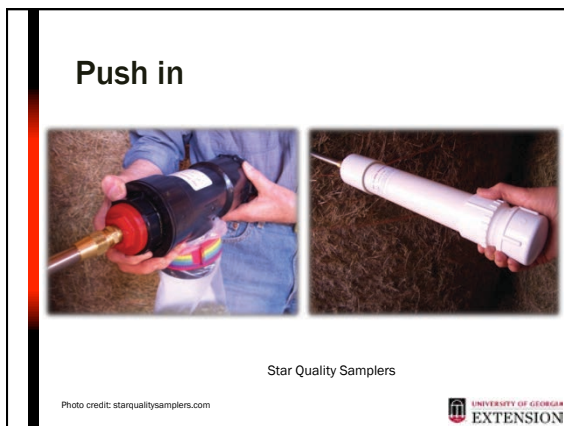
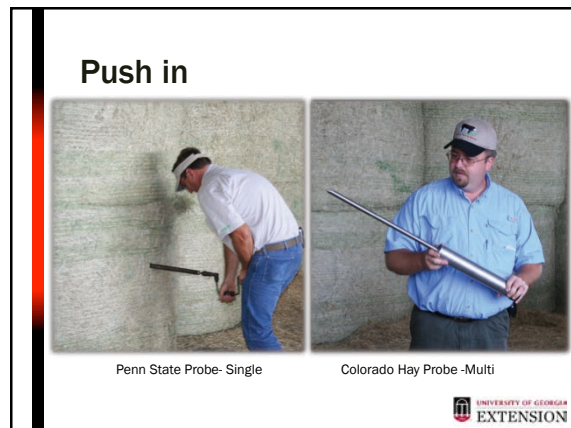
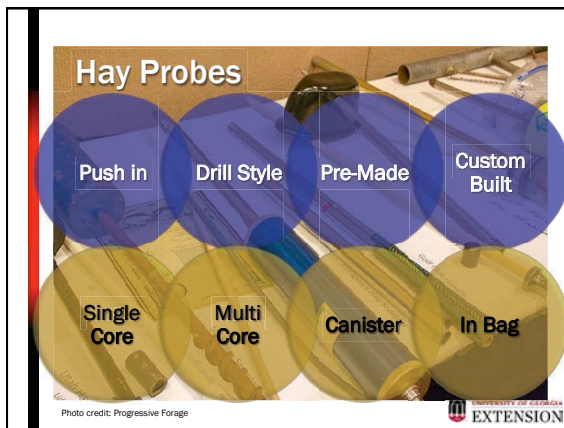
FORAGE SAMPLING DO'S AND DON'T'S

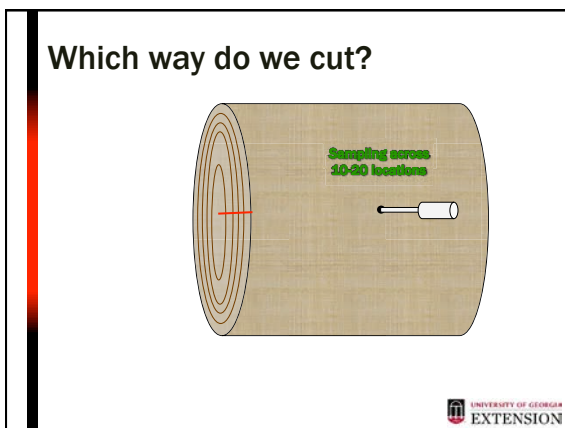
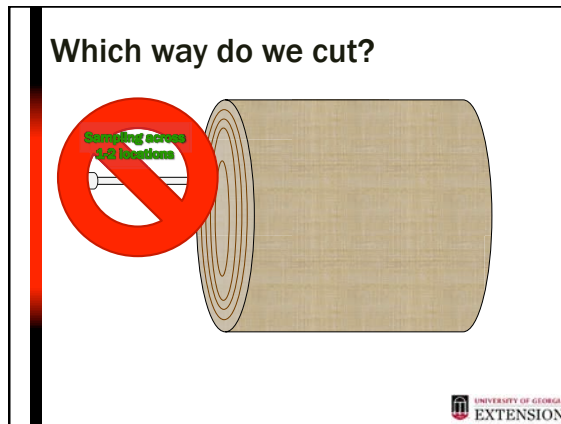
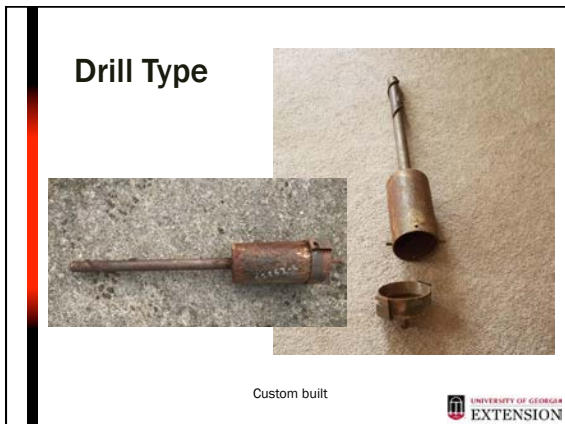
Obtaining a Representative Sample



Grab sampling



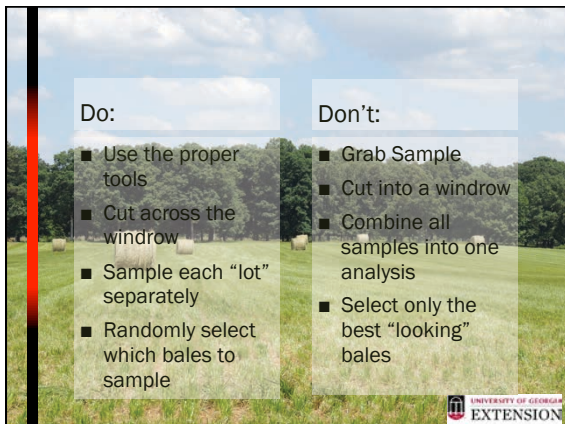


How To Take a Forage Sample

- Sample from each field AND cutting ("Lot" of hay).
- Use bale corer to get a representative sample from 20 bales per lot.
- Insert the sampler fully and cross-ways to the stems.

How To Take a Forage Sample

- Fill a clean quart-size plastic bag with about 1/2 lb of forage.
- Label each bag with details.
- Send to an accredited lab (National Forage Testing Association), such as the UGA Feed and Environmental Water Lab.
- For details, see the FAQ page on www.georgiaforages.com

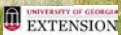


Do:

- Use the proper tools
- Cut across the windrow
- Sample each "lot" separately
- Randomly select which bales to sample

Don't:




- Grab Sample
- Cut into a windrow
- Combine all samples into one analysis
- Select only the best "looking" bales




Other Tips and Tricks

- Get a Good Drill with a GOOD battery
- Buy extra tips/adapters



OR have a way to sharpen/fix them








Sampling Baleage

- At Harvest
 - Quality changes?
- As close to feed out as possible
- Be sure to properly "seal" the plastic!
 - Use **Baleage Tape**
 - Two layers in an "X"





**Ladies –
You can do it...
just put your hips into it!**






Reading a Forage Quality Analysis

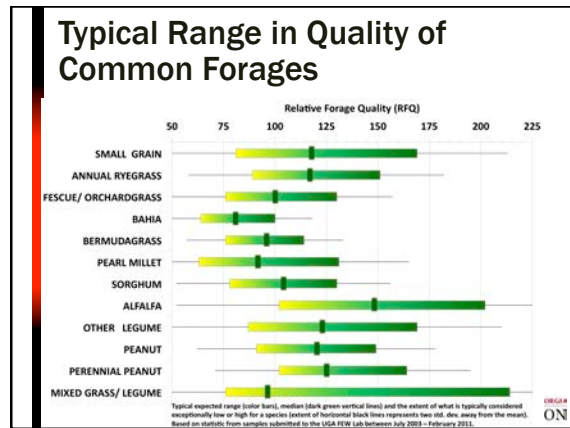
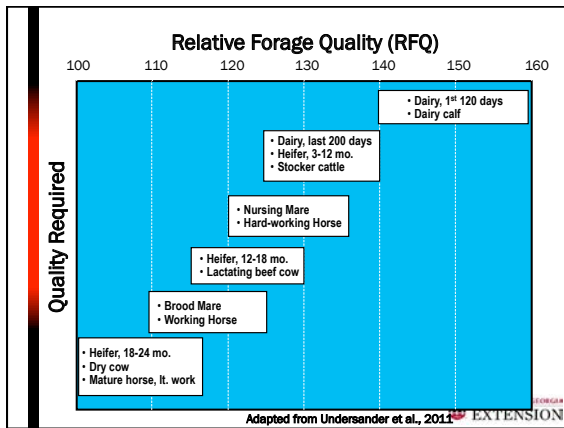




Nutritive Value

- The potential for supplying nutrients
 - i.e Nutrient concentration, digestibility, and end-products
- Nutrient concentration can be determined through lab analysis
 - Wet Chemistry (Van Soest)
 - Near Infrared Reflectance Spectroscopy (NIRS)
 - Crude Protein, Acid Detergent Fiber, Neutral Detergent Fiber, and In-vitro Dry Matter Digestibility





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Questions?

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