2009 Georgia Grazing School:

Grazing herd management issues for beef cattle

Pasture-Based Nutrition Considerations for Beef Cattle

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Developing a Feeding Strategy

1. Understand your production system
   - Fall Calving
   - Spring Calving
2. Understand your forage system
   - Pasture
   - Conserved forage
3. Develop an economical supplement

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Reproductive Efficiency

- The most important factor affecting profitability
- Highly dependent on proper nutrition

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Nutrient Priorities

1. **Maintenance**
2. **Growth**
   (Steers & Heifers)
3. **Lactation**
4. **Reproduction**

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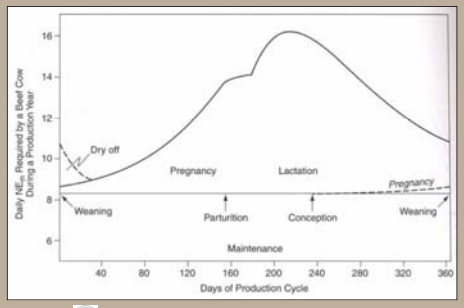
Energy Requirements



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Available Forages

- Hay produced?
  - Storage
  - Testing
  - Inventory

Hay Cutting	Production Phase
1. CP 14% TDN 60%	Dry Cow
2. CP 10% TDN 55%	Late Gestation
3. CP 6% TDN 47%	Early Lactation

TEST FORAGES!!!!

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Byproduct Feeding

- **What's available**
- **Price**
  - Evaluate on DM basis
  - Look at $/nutrient
- **Handling / Storage**
- **Minerals???**

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Potential Byproducts

1. Grain
   - Corn gluten feed
   - Distiller's grains
   - Soy Hulls
   - Wheat middlings
2. Cotton
   - Whole seed
   - Gin trash
   - Hulls
3. Sugar and starch production
   - Cane, beet & corn molasses
   - Salvage candy
4. Vegetable
   - Cull vegetables

Corn

- Grain is about 10% CP and 90% TDN
- Can also be high moisture or ground ear corn
- Most popular concentrate
- High starch

Corn Gluten Feed

- Results from wet milling of corn to produce corn starch, oil and syrup. Probably 6 million tons per year.
- About 24% CP and 80% TDN
- Low Calcium; High Phosphorus
- Low starch
- High sulfur
- LIMIT TO 30% of intake

Distiller's Grains

- Byproduct of ethanol production
- Available:
  - Wet (~47% DM)
  - Dry (~90% DM)
- Very similar to corn gluten feed (↑CP, ↑TDN, ↑P, ↑S)
- Higher rumen undegradable protein (bypass protein)

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Wheat

- 105% value of corn
- May pack in stomach if ground too fine
- Generally not over 50% of ration

Wheat Middlings

- Seven million tons of flour by-products available
  - 18% CP, 83% TDN (20 – 30% starch)
  - Do not store well – readily absorbs moisture from the air
- Feed with caution due to the rapidly fermentable starch content
- Low Calcium, High Phosphorus

Whole Cottonseed

- High energy due to oil content
- Doesn't have to be processed
- Doesn't flow well in feeders; should be fed in troughs

Cottonseed Hulls

- Low TDN and CP
- Good source of roughage
- Doesn't flow

Soy Hulls

- Excellent palatability
- Less starch content than grains; therefore, less negative effect on forage utilization
- Safer, less incidence of founder

Effect of Increasing Corn on Hay Intake and Digestibility

	Corn, lbs/day			
	None	2.2	4.4	6.6
Hay DMI lbs	19.3	18.0	14.1	11.2
Total DMI, lbs	20.9	21.1	18.6	17.2
DOMI, lbs	7.5	8.4	7.1	7.3
Hay OM Digest, %	36.5	35.1	23.6	18.9

JAS 65:557

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Effect of Increasing Soybean Hulls on Hay Intake

	SH, lbs/day			
	None	**2.2**	**4.4**	**6.6**
Hay, OMI, lbs	21.4	22.3	21.6	19.9
DOMI, lbs	10.6	11.8	12.3	12.7

JAS 68:4319

Byproduct Pricing

"I can get a ton of DDGS for $155 and/or cull carrots for $25 a ton. Which one do I get?"

Item	DDGS	Carrots
Moisture, %	10	88
DM, lb/ton	1800	240
Price, $/lb DM	0.086	0.105

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Byproduct Pricing

Ingredient	$/ton	% DM	% CP	% TDN	$/lb CP	$/lb TDN
SBM 48	$ 350.00	88.0	47.7	87.0	$ 0.416	$ 0.229

$/ton of nutrient / % DM / % nutrient / 2000 lb = $/lb of nutrient

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Byproduct Pricing

Ingredient	$/ton	% DM	% CP	% TDN	$/lb CP	$/lb TDN
SBM 48	$ 350.00	88.0	47.7	87.0	$ 0.416	$ 0.229
Corn Gluten Feed	$ 140.00	90.0	25.6	83.0	$ 0.304	$ 0.093
Distillers Grain	$ 165.00	90.0	28.0	88.0	$ 0.327	$ 0.104

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Corn	$ 165.00	90.0	10.0	90.0	$ 0.917	$ 0.102
Soyhulls	$ 140.00	90.0	12.1	77.0	$ 0.642	$ 0.101
Wheat Middlings	$ 175.00	90.0	18.4	83.0	$ 0.528	$ 0.117
Whole Cottonseed	$ 250.00	90.0	23.0	95.0	$ 0.604	$ 0.146

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Byproduct Handling/Storage



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Byproduct Minerals

- Supplement Ca to for proper Ca:P ratio
  - Avoid urinary calculi
- Monitor sulfur levels
  - Avoid polioencephalmalacia
  - Cu deficiency
- N and P excretion
  - Environmental impact



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How much do I feed?

Stage of Production/ Requirement	Poor Forage, 7% CP, 48% TDN	Average Forage, 10% CP, 50% TDN	Excellent Forage, 13% CP, 56% TDN
	lb supplement		
Dry Cow			
6% CP, 48% TDN			
Late Gestation			
9% CP, 56% TDN			
Early Lactation			
11% CP, 60% TDN			
Late Lactation			
8.5% CP, 55% TDN			

-50:50 mix of corn gluten feed and soyhulls

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Take Home Message

- Understand changing nutrient needs throughout production cycle.
- Know your forages.
- Use economic strategies when supplementation is needed
- NOT ALL FEEDS ARE CREATED EQUAL

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Thank You!

Questions?

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