

2018 Georgia Grazing School: Supplementation Options and Limitations

Dr. Lawton Stewart
Assoc. Prof. and Ext. Specialist

**Supplementation options and
limitations**



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The University of Georgia
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What we want




What we DO NOT want





Feed strategies can be intimidating...

Its hard to dig out of a bad situation, but...





Feed strategies can be intimidating...

We can learn a lot from our mistakes!

Developing a Nutritional Strategy

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







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Reproductive Efficiency



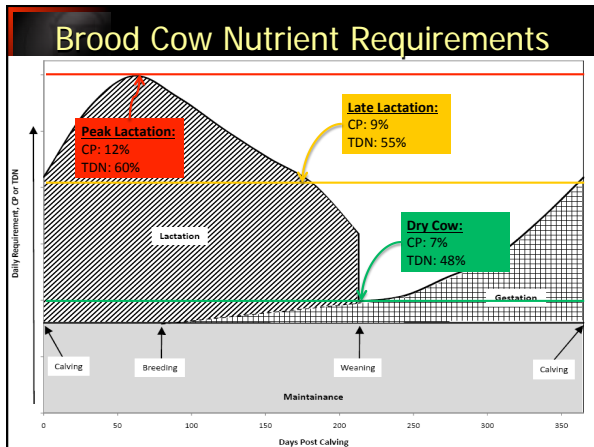


- The most important factor affecting profitability
- Highly dependent on proper nutrition



Nutrient Priorities

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


Minerals

Macro (major)

- Calcium (Ca)
- Phosphorus (P)
- Magnesium (Mg)
- Potassium (K)
- Sodium (Na)
- Chlorine (Cl)
- Sulfur (S)

Micro (minor)

- Iron (Fe)
- Manganese (Mn)
- Copper (Cu)
- Selenium (Se)
- Zinc (Zn)
- Iodine (I)
- Cobalt (Co)
- Molybdenum (Mo)



Macromineral requirements

Mineral	Lactating Cows	Dry Cows	Max Tolerable
			Level
-----%-----			
Calcium	0.31	0.18	-----
Phosphorus	0.21	0.16	-----
Magnesium	0.20	0.12	0.40
Potassium	0.70	0.60	3.0
Salt	0.10	0.07	-----
Sulfur	0.15	0.15	0.40

Micromineral requirements

Mineral	Lactating Cows	Dry Cows	Max Tolerable
			Level
-----ppm-----			
Iron	50.0	50.0	1,000
Zinc	30.0	30.0	500
Manganese	20.0	40.0	1,000
Copper	10.0	10.0	100
Iodine	0.50	0.50	50
Selenium	0.10	0.10	2
Cobalt	0.10	0.10	10



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How do we visualize nutrition?

- Compare animal production to a rain barrel.
- Slats = nutritional components
- Water capacity = Animal Performance
- Performance is only as good as most limiting nutrient

Body Condition Scoring???

- 1-9 – Assess the energy reserve status of a cow.

Body Condition Scoring???

BCS	Pregnancy Rate, %
≤3	~30
4	~60
5	~90
≥6	~80

So what's the big deal?

I have BCS-4 cows, and they have a calf every year

Each year, calf weights drop 43

YR 1- WW 515
YR 1- 472
-\$77/calf

YR 8- 215
-\$340/calf

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

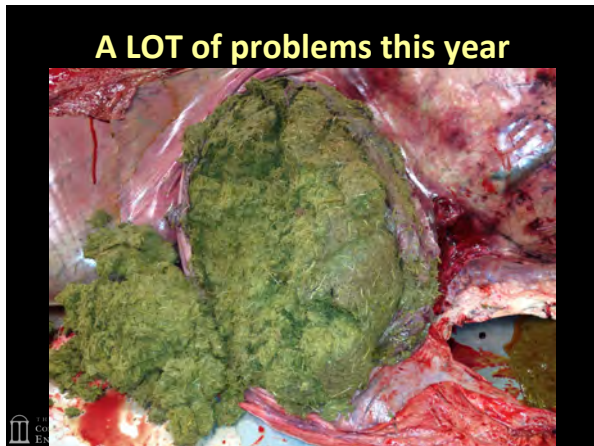
TEST FORAGES!!!!

A LOT of problems this year



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Byproduct Feeding

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

Price What's Available

Soyhulls	\$185
Soyhull Pellets	\$180
Corn Gluten	\$180
Citrus Pulp	\$250
DDG	\$255
Peanut hull pellets	\$160
Cottonseed Hulls	\$280

THE UNIVERSITY OF GEORGIA
COOPERATIVE EXTENSION
UGA Basic Balancer Program

Feed Library
Feed Cost Analyzer
Brood Cows
Bulls
Heifers
Stockers
Analyzer

UGA Beef Team
Phone: (706) 542-2446
Fax: (706) 542-2441

County: _____ State: _____
Agent: _____ Station: _____
Contact: (706) 542-2113

How much do I feed?

Stage of Production/ Requirement	Poor Forage, 7% CP, 48% TDN	Average Forage, 10% CP, 50% TDN	Good Forage, 13% CP, 56% TDN
Dry Pregnant 7% CP, 48% TDN	0	0	0
Peak Lactation 12% CP, 60% TDN	15.5	11.5	5.8
Late Lactation 9% CP, 55% TDN	7.6	5.8	0

.....lb supplement.....

What if hay is not available or you need to stretch hay?
Hay replacement/extender rations

- Utilize a roughage source such as peanut hulls, cottonseed hulls, cotton residue, corn residue, gin trash

Ingredient	Dry Cow	Early Lact.	Late Lact.
Roughage	60	30	45
Energy and/or byproduct feed	40	45	45
Protein Source	--	25	10

-----% of ration-----



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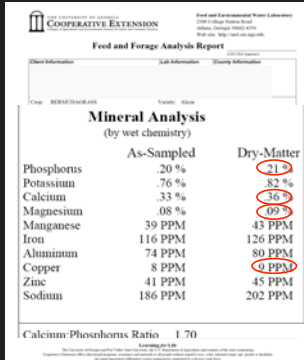
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Developing a Feeding Strategy

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What's in the forage?



- P is marginal
- Ca is adequate
- Mg is low
- Cu is low

What's our strategy?

Mineral Analysis (by wet chemistry)		
	As-Sampled	Dry-Matter
Phosphorus	.20 %	.21 %
Potassium	.76 %	.82 %
Calcium	.33 %	.36 %
Magnesium	.08 %	.09 %
Manganese	39 PPM	43 PPM
Iron	116 PPM	126 PPM
Aluminum	74 PPM	80 PPM
Copper	8 PPM	9 PPM
Zinc	41 PPM	45 PPM
Sodium	186 PPM	202 PPM

Calcium-Phosphorus Ratio = 1.70

Generally like to see 10-20% more in mineral than required to be safe.

Phosphorus:
- Can't add any without adding Ca (maintain ratio)

Magnesium:
- K is higher than requirement

Copper:
- Also need to deal with potentially high sulfur (try to get above 1000 ppm)

Calculating mineral needs

Phosphorus:

- Requirement = 0.21% → 15% adj = 24%
- DMI = 30 lb/d
- Mineral intake = 4 oz OR ~1% of DMI

Forage Mineral Req

$$0.99 * (0.21\%) + 0.01 * (x\%) = 0.24\%$$

$$x = 3.5\%$$

- Additional Ca to maintain >1.5:1 ratio = 3.5 x 2 = ~7% Ca

Calculating mineral needs

Magnesium:

- Requirement = 0.20% → 15% adj = 23%
- DMI = 30 lb/d
- Mineral intake = 4 oz OR ~1% of DMI

Forage Mineral Req

$$0.99 * (0.09\%) + 0.01 * (x\%) = 0.23\%$$

$$x = 14\%$$

Need 14% Magnesium with this forage



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