Forage Quality/Availability and Cow Requirements

Justin Waggoner
Forage Quality and Availability
Forage Scenarios

➢ Abundant supply of high quality forage

➢ High quality forage, but limited supply

➢ Abundant supply of low quality forage

➢ Low quality forage, limited supply
Energy and Protein

➢ Energy
  – Often more limiting than protein
  – Drives cow condition

➢ Protein
  – Improves forage digestibility of dormant forage
  – increases intake, energy availability and cow condition
“What’s in Your Pasture”
Energy Requirement and Supply
(Dormant Forage, No Protein Supplement)

Net Energy Maint., Mcal/d

1200 (20) lb Cow
1400 (20) lb Cow
1400 (30) lb Cow

Calving
Weaning

0.35 Mcal/lb forage @ 1.8% BW (8.8 Mcals)

Beef NRC, 2000
Protein Requirement and Supply

- **1200 (20) lb Cow**
  - 6 lbs of 20% CP Supplement (1.08 lbs)
  - 4 lbs of 20% CP Supplement (0.72 lbs)

- **1400 (20) lb Cow**
  - 11% CP Forage @ 2.2% BW (3.4 lbs)

- **1400 (30) lb Cow**
  - 7% CP Forage @ 2.2% BW (2.2 lbs)

**Crude Protein, lbs/d**

**Month**

- Calving
- Weaning

*Beef NRC, 2000*
Energy Requirement and Supply
(Dormant Forage, With Protein Supplement)

- 1200 (20) lb Cow
- 1400 (20) lb Cow
- 1400 (30) lb Cow

Energy Requirement:
- 0.35 Mcal/lb forage @ 2.2% BW (10.8 Mcals)

Beef NRC, 2000
Energy Requirement and Supply
(Green Forage)

0.35 Mcal/lb forage @ 2.2% BW (10.8 Mcals)

0.65 Mcal/lb dry matter from green forage @ 2.2% BW (20.8 Mcals)

Beef NRC, 2000
Energy Requirement and Supply
(Earlier Calving)

- **0.35 Mcal/lb forage @ 2.2% BW (10.8 Mcals)**
- **0.65 Mcal/lb Forage @ 2.2% BW (20.8 Mcals)**

**Net Energy Maint., Mcal/d**

**Month**

- **1200 (20) lb Cow**
- **1400 (20) lb Cow**
- **1400 (30) lb Cow**

*Beef NRC, 2000*
Energy Requirement and Supply
(20% Reduction in Available Forage)

- **1200 (20) lb Cow**
- **1400 (20) lb Cow**
- **1400 (30) lb Cow**

**Energy Requirement**
- 0.35 Mcal/lb forage @ 2.2% BW (10.8 Mcals)
- 0.65 Mcal/lb Forage @ 1.76% BW (16.01 Mcals)

**Net Energy Maint., Mcal/d**

**Month**

- Beef NRC, 2000
Key Points

➢ Higher producing cows
  – Nutrient Supply = Nutrients Required

➢ Small reduction in forage availability limits energy (protein?)
  – High quality forage but limited supply scenario
  – What happens to stocker cattle on short wheat?
BEEF COW SUPPLEMENT DECISION GUIDE*

Does each cow have all she can eat in the pasture?

YES
Forage supply is adequate

What color is the forage?

GREEN
No supplement
• Protein is sufficient
• Energy is sufficient

NO
Forage supply is inadequate; energy deficient
• Reduce the forage needs of herd by lowering stocking rate and/or feeding supplement

What color is the forage?

GREEN
Supplement energy with <20% CP
• 0.4 to 0.8 % BW/day
• Protein is sufficient
• Energy is deficient
• Price $/lb TDN

BROWN
Protein is likely <7% and limiting forage intake and digestion

ARE cows in adequate body condition (i.e., ≥4.5)?

GREEN
Supplement energy with <20% CP
• 0.4 to 0.8 % BW/day
• Protein is sufficient
• Energy is deficient
• Price $/lb TDN

BROWN
Protein is likely <7% and limiting forage intake and digestion
• 0.25 to 0.40 % BW/day
• Improve rumen efficiency
• Provide extra energy
• Consider $/lb TDN and $/lb CP

Supplement with ≥22% CP
• 0.1 to 0.3 % BW/day
• Improve rumen efficiency
• Price $/lb CP

Supplement with 28-32% CP
• Protein is deficient
• Consider $/lb TDN and $/lb CP

If forage shortage is severe
Supplement with <20% CP
• 0.4 to 0.8% BW/day
• Price $/lb TDN

This decision guide is a general tool and is not as accurate as measuring actual forage quality and quantity to develop a strategic supplementation program for a specific class of cattle.
Thoughts

➢ Recognize and “*adjust to fit the situation*”
  – Body condition scoring

➢ Maximize use of forage base !!!
  – Can a Cow eat all she wants (Intake)
  – Strategic use of forage resources (hay and grazed)
  – Supplementation
    • Substitution
    • Technology = Rumensin
Can we manage cow requirements?
(1400 lb cow, 20 lb milk)

### Annual ME requirements, Mcals

<table>
<thead>
<tr>
<th>Month</th>
<th>Months Since calving</th>
<th>Total ME</th>
<th>Class</th>
<th>calf age</th>
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<tbody>
<tr>
<td>April</td>
<td>1</td>
<td>858.45</td>
<td>Lactation</td>
<td>30</td>
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<tr>
<td>May</td>
<td>2</td>
<td>905.85</td>
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<tr>
<td>June</td>
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<td>90</td>
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<td>July</td>
<td>4</td>
<td>845.37</td>
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<td>120</td>
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<tr>
<td>August</td>
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<td>793.8</td>
<td>Lactation</td>
<td>150</td>
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<tr>
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<td>763.62</td>
<td>Lactation</td>
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<tr>
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<tr>
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<td><strong>9099.09</strong></td>
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- **Lactation**: 56%
- **Third Trimester**: 24%
- **Dry**: 20%
Annual Maintenance Energy
(1400 lb cow, 20 lb milk, Early Weaned)

Annual ME requirements, Mcals

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Maintenance Energy Savings = (9099.09) - (8765.67) = 333.42 Mcals
When Forage Supply is limited....

➢ Do you turn out the same number of cows for less days?

➢ Turn out fewer cows to match available forage resources?
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