Strategies for Beef Cattle Winter Feeding in the Southeast

N. DiLorenzo

May 4, 2012
Current issues

ARE YOU WORRIED ABOUT MAD COW DISEASE?

NO, I'M A CHICKEN
• Increasing input costs
• Need for fertilization
• Evaluating cost per lb of nutrient
• Stockpiling
• Molasses based supplementation
• NFREC study on winter grazing vs. supplementation
Optimizing…
Why nutrition?

Total production costs = 465 $/cow/yr

- Direct costs: $394/cow/yr
- Hired labor
- Farm insurance
- Utilities
- Interest & depreciation
- Miscellaneous

Room for improvement

• Depending on location, resources available, etc. feed cost can be 40 to 70% of total production costs in a beef operation

• Calculations for FL indicate approximately $90 to $150/cow/yr for cost of feed to maintain a cow in the herd vs. approx. $290/cow/yr in ND

• Advantages and disadvantages in each system

• These figures emphasize the need to maintain productive animals in the herd
Why do we need to supplement?
1200 lb cow lactating, 20 lb at peak milk prod.

Lb/d of TDN required  Lb/d of CP required
Pasture Production TDN  Pasture Production CP

Month since calving

Need energy supplementation
Need protein supplementation

Why do we need to supplement?
Replacement heifers with 1200 lb expected maturity BW

Lb/d of TDN required
Lb/d of CP required
Pasture Production TDN
Pasture Production CP

Month since calving
Lb/d

Need energy supplementation
Need protein supplementation

How to evaluate the nutrient cost for each supplement?

• Calculating the cost per lb of nutrient provided:

\[
\text{$/lb of nutrient} = \left( \frac{\$}{\text{ton}} \right) \div \left( \frac{\% \text{ DM}}{100} \times \frac{\% \text{ nutrient (CP or TDN)}}{100} \right)
\]

**Corn gluten feed pellets**

- **$225/ton**
- **90% DM**
- **80% TDN**
- **22% CP**

\[
\text{$/lb of TDN} = \frac{225}{2000} \div \left( \frac{90}{100} \times \frac{80\% \text{ TDN}}{100} \right) = 0.156 \$/\text{lb of TDN}
\]

\[
\text{$/lb of CP} = \frac{225}{2000} \div \left( \frac{90}{100} \times \frac{22\% \text{ CP}}{100} \right) = 0.568 \$/\text{lb of CP}
\]
<table>
<thead>
<tr>
<th>Supplement</th>
<th>$/ton</th>
<th>$/lb of TDN</th>
<th>$/lb of CP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corn gluten fed pellets</td>
<td>205</td>
<td>0.137</td>
<td>0.542</td>
</tr>
<tr>
<td>Soybean hull pellets</td>
<td>200</td>
<td>0.142</td>
<td>0.926</td>
</tr>
<tr>
<td>Whole cottonseed</td>
<td>245</td>
<td>0.143</td>
<td>0.544</td>
</tr>
<tr>
<td>Citrus pulp pellets</td>
<td>180</td>
<td>0.122</td>
<td>1.429</td>
</tr>
<tr>
<td>DDGS (dry distillers grain)</td>
<td>236</td>
<td>0.138</td>
<td>0.468</td>
</tr>
<tr>
<td>Bermudagrass (T85) hay</td>
<td>110</td>
<td>0.122</td>
<td>0.647</td>
</tr>
</tbody>
</table>
The most expensive feed ingredient

The cost/lb of CP or TDN will double if waste is ≈ 50%
Evaluating the real cost of a supplement

• The one component we always miss when estimating cost: Labor cost!
FERTILIZATION OF ESTABLISHED
BAHIAGRASS PASTURE IN FLORIDA

Sid Sumner, Wayne Wade, Jim Selph, Jerry Southwell, Vicky Hoge,
Pat Hogue, Ed Jennings, Pat Miller, and Travis Seawright*

June 1992 Circular 916
Florida Cooperative Extension Service
Institute of Food and Agricultural Sciences
University of Florida, Gainesville

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Photo by Yoana Newman
## Stockpiling limpograss vs bahiagrass

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<th>Herbage mas (lb/acre)</th>
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Data from Sollenberger et al. (1998) – Univ. of Florida
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Stockpiling

- Weather dependent
- Quality can be an issue: *cows do not require % of nutrients, they require lb/d*

**Limpograss** stockpiled in October:

\[5,800 \times 0.042 = 244 \text{ lb CP/ac}\]

**Bahiaagrass** stockpiled in October:

\[2,600 \times 0.079 = 205 \text{ lb CP/ac}\]
Stockpiling

• 41 extra lb of CP/acre with limpograss but...
  • Fertilization can change that
  • Intake limitations!
Molasses supplementation

• Rates of 1 to 5 lb / AU / d are common

• Expected ADG can vary... mostly to maintain BCS
• CP may be deficient in pure molasses
• Consider intake limiters (salt) if fed free choice
Winter feeding strategies
UF-NFREC studies

- 48 heifers (average 734 lb) and 12 dormant bahiagrass pastures (3-acre each) used
- 4 heifers/pasture (stocking rate = 1.3 hd/ac)
Winter feeding strategies
UF-NFREC studies

• Treatments:
  1. Supplemented control: heifers received a 50:50 CGF:SH mix at 1% of their BW/d 3x/week and free access to bahiagrass hay
  2. Triticale + ryegrass: heifers grazing a blend of Trical 342 triticale (85 lb/ac) and Diamond R ryegrass (15 lb/ac)
  3. Rye + ryegrass: heifers grazing a blend of FL401 rye (70 lb/ac) and Diamond R ryegrass (15 lb/ac)
Winter feeding strategies
UF-NFREC studies

Methods

• Winter forage pastures planted (no till) on Nov 9, 2010 and grazed from Jan 26, 2011 (day 0) to April 20, 2011 (day 84)

• Fertilized 2x with 50 lb of N and 10 lb of S/ac
Methods

- Heifers weighed every 28 d
- Blood sample taken for plasma urea N analysis (protein nutrition status)
- Hay delivery recorded
### Results: Animal performance

<table>
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<tr>
<th>Item</th>
<th>Treatment</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Triticale + Ryegrass</td>
<td>Rye + Ryegrass</td>
</tr>
<tr>
<td>Initial BW, lb</td>
<td>736</td>
<td>735</td>
</tr>
<tr>
<td>Final BW, lb</td>
<td>869</td>
<td>809</td>
</tr>
<tr>
<td>ADG, lb/d</td>
<td></td>
<td></td>
</tr>
<tr>
<td>d 0 to 28</td>
<td>0.78</td>
<td>0.73</td>
</tr>
<tr>
<td>d 0 to 56</td>
<td>1.16</td>
<td>0.75</td>
</tr>
<tr>
<td>d 0 to 84</td>
<td>1.57&lt;sup&gt;c&lt;/sup&gt;</td>
<td>0.88&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
</tbody>
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<sup>a,b,c</sup> Row means with different subscripts differ ($P < 0.05$).
Results: Animal performance
Winter feeding strategies
UF-NFREC studies

Results: Forage production

Total DM produced lb/ac

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<thead>
<tr>
<th>Treatment</th>
<th>DM produced over the duration of the study (84 d)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rye + ryegrass</td>
<td>5915</td>
</tr>
<tr>
<td>Triticale + ryegrass</td>
<td>4504</td>
</tr>
</tbody>
</table>

Treatment effect $P = 0.34$
Assumptions for cost of gain analysis

• Total planting costs: $183/ac for both triticale and rye
  ✓ Includes seed, fertilizer (2 x @ $55/ac each), fuel and labor
• Calculated for each pen and then averaged across treatments
• Labor and fuel of supplement delivered included
• $223/ton and $225/ton for SH and CGF, respectively
• 2 h/wk/pen for feed and hay delivery
• $100/ton of hay
Winter feeding
Total cost of gain ($/lb) - NFREC study

Supplemented Control
1.84

Rye + ryegrass
1.99

Triticale + ryegrass
1.06

Means without common superscripts differ ($P < 0.05$)
Pasture planted and no rain in sight...
Are we heading for disaster?
Rainfall in Marianna, FL during the last 4 years

![Bar chart showing rainfall in Marianna, FL from 2008/09 to 2011/12 for different months and years. The chart includes bars for October, November, December, January, February, and March.]
Summary (1 of 2)

- Stockpiling/molasses/range cubes continue to be an economical/practical tool
- Evaluate the cost per lb of nutrient when considering supplements
- Pay attention to hay waste during feeding and storage
  - Can convert hay in the most expensive feed in the farm
Summary (2 of 2)

• Take advantage of coproducts when price is low
  – Investment in storage may be an option

• Consider triticale as a winter forage option if it fits in your operation

• Evaluate the cost involved in each decision
  – Include labor costs!

• Take advantage of decision aid tools

http://secattleadvisor.com/
THANKS!