Cattlemen’s Forage Conference
Cattle Weaning and Feeding Strategies For Traditional and Alternative Markets

Post-Weaning Management and Nutrition Strategies for Beef Calves

Lawton Stewart
The University of Georgia
April 3, 2013

The Beef Cattle Industry
- Cow calf
- Stocker
- Feedlot
- Packer

Movement of Georgia Cattle

Social Perspective

MAD COW DISEASE

Production Practices Important to Consumers

Willingness to Pay Premiums

Dr. Lawton Stewart,
Extension Beef Nutritionist
Cattlemen’s Forage Conference
Cattle Weaning and Feeding Strategies For Traditional and Alternative Markets

Dr. Lawton Stewart,
Extension Beef Nutritionist
Cattlemen’s Forage Conference

Cattle Weaning and Feeding Strategies For Traditional and Alternative Markets

Dr. Lawton Stewart,
Extension Beef Nutritionist

Genetics-Sire Selection

- Breed Type (Purebred or Composite)
- Select for economically important traits!
  - Weaning weight
  - Yearling weight
  - Frame
  - Marbling
  - Muscling

Record Keeping

- Help producer make more informed decisions
- Improved marketing capability
- Contributes to traceability

Weaning Management

- Most crucial point in operation
- Calves have the potential to go North or South
- Dependent on management

Develop a Health Program

Work with your local vet

- Deworm
- Vaccinate
  - IBR, BVD, PI3, BRSV (a 4- or 5-way viral vaccine)
  - 7-way clostridial vaccine (Blackleg)
  - Mannheimia-Pasteurella
- Test for persistently infected BVD
- Implant (depending on market)
- Castrate (do as early in life as possible)

Identifying Sick Calves

- Early recognition is key
- Check cattle daily
- Easy to do at the trough
- Look for loners, unthrifty cattle, nasal discharge
- Do not hold out treatment to maintain “Natural” status

Developing a Nutritional Program

1. Set target gain
   - Should gain ~2-2.5 lb/d
2. Maximize forages as base
   - Pasture
   - Conserved forage
3. Develop an economical supplement
Dr. Lawton Stewart, 
Extension Beef Nutritionist

Cattlemen’s Forage Conference
Cattle Weaning and Feeding Strategies For Traditional and Alternative Markets

Understand Nutritional Requirements
Medium-frame steer calves

<table>
<thead>
<tr>
<th>Wt (lb)</th>
<th>Daily Gain (lb)</th>
<th>Crude Protein (%)</th>
<th>TDN (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>400</td>
<td>1.5</td>
<td>11.5</td>
<td>63.0</td>
</tr>
<tr>
<td></td>
<td>2.0</td>
<td>12.7</td>
<td>67.5</td>
</tr>
<tr>
<td></td>
<td>2.5</td>
<td>14.2</td>
<td>73.5</td>
</tr>
<tr>
<td>600</td>
<td>1.5</td>
<td>9.8</td>
<td>63.0</td>
</tr>
<tr>
<td></td>
<td>2.0</td>
<td>10.5</td>
<td>67.5</td>
</tr>
<tr>
<td></td>
<td>2.5</td>
<td>11.4</td>
<td>73.5</td>
</tr>
<tr>
<td>800</td>
<td>1.5</td>
<td>8.8</td>
<td>63.0</td>
</tr>
<tr>
<td></td>
<td>2.0</td>
<td>9.8</td>
<td>67.5</td>
</tr>
<tr>
<td></td>
<td>2.5</td>
<td>9.3</td>
<td>73.5</td>
</tr>
</tbody>
</table>

Why Supplement?
- Increase stocking rates and forage utilization
- More uniform gains
- Hand-feeding tends to quiet cattle – more manageable
- Forces a closer observation of the cattle

Developing a Nutritional Program for the Feedlot
Goals:
- Keep cattle gaining 3.0 lb/d
- Feed high grain diet (increase marbling)
- Feed some roughage to decrease metabolic disorders (acidosis)

Finishing Beef Cattle in Georgia and Developing a Feeding Strategy
Lawton Stewart
The University of Georgia
April 3, 2013

Transition Period
Stocker ➔ Feedlot
- Diet is changing
- Rumen microbial population is transitioning

Dr. Lawton Stewart, 
Extension Beef Nutritionist
Rumen Acidosis

What does it mean?

Health Rumen

- Long papillae – increase surface area
- Optimal nutrient absorption
- Ideal pH: 6.0-6.2

Unhealthy Rumen

- Papillae are stunted
- Nutrient absorption reduced
- pH < 6.0 - decreased intake, diarrhea, gray manure
- pH < 5.5-5.0 - permanent damage

Avoid Metabolic Disorders

- Step up cattle onto finishing ration
  - Over ~21 days
- Provide source of fiber
  - Hay
  - Grass
  - Cottonseed hulls
  - Silage
- Feed ionophore

Developing a Nutritional Program

Stocker/Backgrounding

1. Set target gain
   - Should gain ~2 lb/d
2. Maximize forages as base
   - Pasture
   - Conserved forage
3. Develop an economical supplement

Finishing

1. Set target gain
   - Usually ~3+ lb/d
2. Maintain ~10% of diet as roughage
3. Utilize high grain to improve quality
4. Utilize byproducts when possible

Nutritional Requirements

Medium-frame steer calves

<table>
<thead>
<tr>
<th>Wt (lb)</th>
<th>Daily Gain (lb)</th>
<th>Crude Protein (%)</th>
<th>TDN (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>400</td>
<td>1.5</td>
<td>11.5</td>
<td>63.0</td>
</tr>
<tr>
<td></td>
<td>2.0</td>
<td>12.7</td>
<td>67.5</td>
</tr>
<tr>
<td>600</td>
<td>1.5</td>
<td>9.8</td>
<td>63.0</td>
</tr>
<tr>
<td></td>
<td>2.0</td>
<td>10.5</td>
<td>67.5</td>
</tr>
<tr>
<td>800</td>
<td>1.5</td>
<td>8.8</td>
<td>63.0</td>
</tr>
<tr>
<td></td>
<td>2.0</td>
<td>9.8</td>
<td>67.5</td>
</tr>
<tr>
<td>1,000</td>
<td>3.0</td>
<td>10.0</td>
<td>85.0</td>
</tr>
</tbody>
</table>

Byproduct Feeding

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

Dr. Lawton Stewart,
Extension Beef Nutritionist
Traditional and Alternative Markets

Cattle Weaning and Feeding Strategies For Cattlemen’s Forage Conference

Byproduct Pricing

“I can get a ton of citrus pulp for $215 and/or curr carrots for $40 a ton. Which one do I get?”

<table>
<thead>
<tr>
<th>Item</th>
<th>DDGS</th>
<th>Carrots</th>
</tr>
</thead>
<tbody>
<tr>
<td>Moisture, %</td>
<td>10</td>
<td>88</td>
</tr>
<tr>
<td>DM, lb/ton</td>
<td>1800</td>
<td>240</td>
</tr>
<tr>
<td>Price, $/lb DM</td>
<td>$0.159</td>
<td>$0.157</td>
</tr>
</tbody>
</table>

How to buy?

- Know the feed:
  1. Price ($/ton)
  2. Moisture (DM %) content
  3. Nutrient content
     - Crude Protein (CP %)
     - Energy (TDN %)

Calculate value

\[ \frac{\text{Price} \times \text{DM\%} \times \text{Nutrient\%}}{2000 \text{ lb}} = \frac{\text{Price}}{\text{lb of nutrient}} \]

Corn Gluten Feed

- $215 / 90% / 25% CP / 2000 lb = $0.478/lb of CP

Soybean Meal

- $462 / 90% / 53% CP / 2000 lb = $0.491/lb of CP

Seasonality of Energy Byproducts

Seasonality of CP Byproducts

Byproduct Handling/Storage

www.ugabeef.caes.uga.edu/tools

Dr. Lawton Stewart, Extension Beef Nutritionist
Dr. Lawton Stewart,
Extension Beef Nutritionist
Cattlemen’s Forage Conference

Cattle Weaning and Feeding Strategies For Traditional and Alternative Markets

Dr. Lawton Stewart,
Extension Beef Nutritionist
Cattlemen’s Forage Conference
Cattle Weaning and Feeding Strategies For Traditional and Alternative Markets

Carcass Characteristics-Quality

<table>
<thead>
<tr>
<th>Item</th>
<th>Treatment</th>
<th>CGF</th>
<th>DDGS</th>
<th>SBM</th>
<th>SEM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lean Color</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>L*2</td>
<td>43.73a</td>
<td>41.21b</td>
<td>40.67b</td>
<td>0.78</td>
<td></td>
</tr>
<tr>
<td>a*3</td>
<td>31.29</td>
<td>29.54</td>
<td>30.74</td>
<td>1.17</td>
<td></td>
</tr>
<tr>
<td>Marbling5</td>
<td>4(3.2)</td>
<td>10(6)</td>
<td>20(1)</td>
<td>20(1)</td>
<td></td>
</tr>
<tr>
<td>Texture4</td>
<td>1.42</td>
<td>1.75</td>
<td>1.50</td>
<td>0.17</td>
<td></td>
</tr>
<tr>
<td>Firmness5</td>
<td>1.67</td>
<td>1.42</td>
<td>1.67</td>
<td>0.20</td>
<td></td>
</tr>
<tr>
<td>pH</td>
<td>5.57</td>
<td>5.64</td>
<td>5.59</td>
<td>0.05</td>
<td></td>
</tr>
<tr>
<td>Maturity7</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lean</td>
<td>140b</td>
<td>145b</td>
<td>155a</td>
<td>3.09</td>
<td></td>
</tr>
<tr>
<td>Skeletal</td>
<td>134</td>
<td>136</td>
<td>135</td>
<td>4.29</td>
<td></td>
</tr>
<tr>
<td>Overall</td>
<td>136</td>
<td>131</td>
<td>145</td>
<td>6.57</td>
<td></td>
</tr>
</tbody>
</table>

1 CGF = corn gluten feed, DDGS = dried distillers grains plus solubles, SBM = soybean meal
2 1=black, 100=white
3 Higher values indicate increased redness
4 100=practically devoid, 200=traces, 300=slight, 400=small, 500=modest, 600=moderate
5 5=course, 1=very fine
6 5=soft, 1=very firm
7 500=E, 100=A

Implications

• Comparable performance at reduced feed cost make DDGS and CGF viable alternatives for Southeastern production systems
• Feedlot cattle fed DDGS as a protein supplement can reach an acceptable compositional endpoint more efficiently than those fed SBM