Balancing Cow Nutritional Needs & Forage Quality

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Understanding the Metabolizable Protein System

• Crude Protein is simply the nitrogen content * 6.25

• Crude protein does not tell us where or how the protein will be used
Metabolizable Protein

• Metabolizable protein consists of protein broken down in the rumen
  • Feeding the “Bugs” and the “Factory”

• Undegradable Protein (RUP) + bacteria flowing out of the rumen to be digested in the abomasum and absorbed in the small intestine
  • Feeding the “Animal”
Concepts to Remember
Nutritional Needs Go Up When...

- Cattle are cold
- Cattle are growing
- Cattle are pregnant
- Cattle are milking
- Cattle are active
Concepts to Remember
Pregnancy Rates Goes Up When...

• Breeding on an inclining plane of nutrition (flushing effect)

“I would rather breed a thinner cow on a diet that is increasing, than a fat cow on a diet that is decreasing.”

• Order of Nutritional Needs: Maintenance, Growth, Milk, Pregnancy
Body Condition Score- Fat is Money in the Bank

For cows: BCS 5 (at breeding, what at calving?)

For heifers: BCS 6 at calving
What happens to a heifer after calving?
The Milk Dilemma

• 30-60 days after calving- starting to ramp up milk
  • What else?

• 8 weeks after calving- Milk Peak
• If calve March, then peak lactation RIGHT before breeding
Passage Rate
How quickly does the feed digest in the gut?

- Cattle eat less (fewer pounds of forage) on a poorer quality diet
- Cattle will eat more (more pounds of forage) on a higher quality diet
Concepts to Remember- Forage

• Forage value changes through the year & from year to year
• More leaves fewer stems & seedheads, ↑ forage value
• Plants not mature usually have higher protein & energy
• Understand when and what is growing
  • Cool season vs Warm season
• Forage value may or may not fulfill cow needs
Forage Quality Through the Year

- Sandhill Upland Range
- Sandhill Wet Meadow
- Smooth Brome
Crude Protein (CP)
<table>
<thead>
<tr>
<th>Jan</th>
<th>Feb</th>
<th>March</th>
<th>April</th>
<th>May</th>
<th>June</th>
<th>July</th>
<th>August</th>
<th>Sept</th>
<th>Oct</th>
<th>Nov</th>
<th>Dec</th>
</tr>
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<tbody>
<tr>
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</table>
Crude Protein & Energy for

<table>
<thead>
<tr>
<th></th>
<th>600 lb calf</th>
<th>Heifer (1100 lbs) dry</th>
<th>Cow (1400 lbs) dry</th>
<th>Mature Bull (2000 lbs)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CP</strong></td>
<td>12.1%</td>
<td>7%</td>
<td>6.5%</td>
<td>6.5%</td>
</tr>
<tr>
<td><strong>TDN</strong></td>
<td>68%</td>
<td>50%</td>
<td>48%</td>
<td>50%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Heifer (1100 lbs) 3(^{rd}) Trimester</th>
<th>Cow (1400 lbs) 3(^{rd}) Trimester</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CP</strong></td>
<td>9.5%</td>
<td>9.5%</td>
</tr>
<tr>
<td><strong>TDN</strong></td>
<td>55%</td>
<td>52%</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Heifer (1100 lbs) Milking</th>
<th>Cow (1400 lbs) Milking</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CP</strong></td>
<td>10.5%</td>
<td>10.3%</td>
</tr>
<tr>
<td><strong>TDN</strong></td>
<td>61.1%</td>
<td>59.1%</td>
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</tbody>
</table>
Match Cattle Needs on Grazing Charts
What to do about “holes” in the forage?

• Cover Crops
• Irrigated Pivots
• Crop Residue
• Proximity to Distillers
(or other high energy/high protein)
Resources

beef.unl.edu

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Body Condition Scoring Cattle- Rick Rasby

Table of Cattle Nutritional Needs