Winter Feed Planning w/ Expensive Hay

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State Beef Nutritionist

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A cow with feed has many problems. A cow with no feed only has one problem.
Beef Nutrition Priorities

Feed Intake

Energy (Fat, Fiber, Starch)

Protein

Minerals

Vitamins

Additives & Supplements
Budgeting Hay for Cows

Ample Hay

One large round bale per cow per month

40 lb hay per cow per day

1,400 lb cow

Feed hay @ 3% of body weight per day

Consumes ~2.5%, wastes other 0.5%

33 lb hay & 7 lb waste (17.5%)
How Much Hay do I Have?

Table 1. Estimated dry weight or dry matter (DM) of bales of the most common bale dimensions at different bale densities.

<table>
<thead>
<tr>
<th>Bale Size</th>
<th>---Bale Density, (lbs. per ft³)---</th>
<th>% by Volume</th>
</tr>
</thead>
<tbody>
<tr>
<td>Width</td>
<td>Height</td>
<td></td>
</tr>
<tr>
<td>4.0</td>
<td>5.0</td>
<td>56%</td>
</tr>
<tr>
<td>5.0</td>
<td>4.0</td>
<td>45%</td>
</tr>
<tr>
<td>5.0</td>
<td>5.0</td>
<td>70%</td>
</tr>
<tr>
<td>5.0</td>
<td>5.5</td>
<td>84%</td>
</tr>
<tr>
<td>5.0</td>
<td>6.0</td>
<td>100%</td>
</tr>
<tr>
<td>% of 12</td>
<td>Cu. Ft.</td>
<td>75%</td>
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</table>

Overestimating bale density is a common mistake. So, one should assume bale’s weight is ~10% less than indicated in the above table.
Estimating Density

Loose/Spongy = 9 lbs/ft$^3$
Slight deform = 10 lbs/ft$^3$
Rigid but will give under pressure = 11 lbs/ft$^3$
Deforms only under weight of tractor = 12 lbs/ft$^3$
Poor Quality Hay

Hay below 55% TDN or 7% CP will need supplement

Target 0.5-1.0 lb of crude protein per day
Example: 5 lb of a 20% protein supplement

This is where distillers grains shine
Source of both protein and energy

3-6 lb of an energy supplement will correct energy deficiency

Don’t be afraid to double this if you’re feeding straw, corn stalk bales, or hulls as your forage source
Minimum Hay to Feed

10 lb of hay is a VERY safe place to start
We can go lower, but the risk of bloat & founder increase

$85 a bale hay makes it tough to pencil out
50% TDN hay @ $140 a ton = $0.16 per pound of TDN
  • Cows need 13-20 lb of TDN per day
    – $2.08 to $3.20 a cow per day
85% TDN byproduct supplement @ $175 a ton delivered
  • $0.11 per pound of TDN (31% COST SAVINGS!!!)
Limiting Hay: Unrolling

In a 5 Foot Diameter
Large Round Bale of Hay

33.1% of bale is in outer 6 inches

**33.1% of total bale**

26.4% of bale is in next 6 inches

**59.5% of total bale**

19.9% of bale is in next 6 inches

**79.4 of total bale**

13.2% of bale is in next 6 inches

**92.6% of total bale**

7.4% of bale is in next 6 inches

**100% of total bale**

http://nwdistrict.ifas.ufl.edu/phag/2016/05/13/hay-bale-size-really-does-
<table>
<thead>
<tr>
<th>Item</th>
<th>Treatment</th>
<th></th>
<th></th>
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<tbody>
<tr>
<td></td>
<td>4 hour</td>
<td>8 hour</td>
<td>24 hour</td>
<td></td>
</tr>
<tr>
<td>Hay disappearance, lb/hd/day</td>
<td>22.5</td>
<td>32.2</td>
<td>35.7</td>
<td></td>
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<tr>
<td>Hay waste, %</td>
<td>9.8</td>
<td>13.0</td>
<td>18.1</td>
<td></td>
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<tr>
<td>BCS change</td>
<td>-0.63</td>
<td>-0.25</td>
<td>0.15</td>
<td></td>
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</table>

Cunningham et al., 2005
Considerations if Using Baleage

Not going to unroll
Wet feed (1.75 lb of baleage for every lb of hay)
Misconception about quality
  Not automatically better quality than hay
    Better compared to hay put up late or if it got rained on after swathing
Historical pricing “in the bunker” per ton = 10x corn bushel price

Nitrate test important, especially if N fertilization aggressive
  • Fermentation reduces nitrates 40-60%

Nutrient content 75-90% of well eared silage

Very close to meeting cow nutrient requirements
  65% TDN & 9% CP
2.5 lb of Silage per lb of Hay wt/wt

- Dry Matter
- Water
If Hay is VERY Scarce/Overpriced

I’d start w/ 5-6 lb corn (whole, cracked, etc…)

1 lb corn replaces 2 lb poor quality hay (energy basis)

Don’t go above 6 lb w/out seeking guidance

Do they still have pasture/hay to pick at?

If NO, I’d add another 5-6 lbs of a feed w/ little grain

Soyhulls, Gluten pellets, DDGS

Probably better to work with local feed store to get a custom mix or use one of their products

5-6 lb of byproducts if cows are nursing calves

More corn = more management
30 pregnant spring calvers and hay quality is TERRIBLE (<6% CP & <45% TDN)

Unroll half a bale in the MORNING
Feed 9 lb of 50:50 corn & byproduct blend (wheat midds, soyhulls, gluten pellets) in the EVENING
90% of energy requirements
Free choice salt and mineral

Use a drylot or pasture as your sacrifice area
Rest pasture over the next 60 days PLEASE!!!
How I Would Feed Through This Assumption: 1,400 lb cow heavy milker

30 fall calvers and hay quality is TERRIBLE (<6% CP & <45% TDN)

Unroll half a bale in the MORNING

Feed 9 lb of 50:50 corn & byproduct blend (wheat midds, soyhulls, gluten pellets) in the MORNING & EVENING

90% of energy requirements

Free choice salt and mineral

These feeding rates are flexible. If cows flesh up quickly (30 days), reduce feed offered by 10-20%
FAQ: Ideal “Grain Mix”

Does not exist in right now

What can you feed efficiently?
What can you store?
  How much?
Price?
What has worked in the past?

Work with your local feed dealer!!!
Questions for Feed Dealer

Can they do custom mixes?
  Potential for cost savings
  Downside is little guidance on feeding rate, other issues
  • Worth it for LARGE operations in my opinion

What size loads do they deliver?

Unloading equipment needs?
  Augers

$200+ a ton feed makes more sense to me than $85 /bale hay right now

More nutrients and more consistent than unfamiliar hay
Final Thoughts

Focus on the big need: MEET ENERGY REQUIREMENT
13-20 lb of TDN per day. Get hay tested!

Our biggest problem is letting cow weight slip
Overcomplicating nutrition
Paralysis by analysis

Hay is overpriced right now!

We are here to help. Call anytime!
Email: baileyeric@missouri.edu
Office: 573-884-7873