

***Focus on the Factory***  
Cattle Workshop Series  
3<sup>rd</sup> Session – April 29, 2008

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1. Among **round bales** of hay put up in Medina County during 2007, which best describes the **difference** in bale weights **from lightest to heaviest**?
  - a. less than 200 lb
  - b. 300 lb
  - c. 400 lb
  - d. 500 lb or more
  
2. Which of the following is a **reasonable range of quality** (crude protein content) for Central/South Texas bermudagrass hay?
  - a. 7-14 %
  - b. 6-12 %
  - c. 4-20 %
  - d. 3-26 %

3. It's early January in Medina County, Texas. Your neighbor has a *continuous breeding program* and she wants to know:

In a uniform herd of 4-8 year old F-1 cows (Avg. 1200 lb in BCS=5) fed 25 lb of bermudagrass hay per head per day (11% CP, 54% TDN), **how much** might their performance (**daily weight change**) vary?

- a. 1 lb
  - b. 2.5 lb
  - c. 4 lb
  - d. if they are "uniform", their weight change will be the same
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4. Consider this supplement:  
24% protein  
70% TDN  
1.4% Calcium  
0.5% Phosphorus

It is January 10. Is this a good choice for some late bred cows (BCS=3) grazing dormant winter range and due to begin calving March 15?

- a. Yes
- b. No
- c. I need more information
- d. depends on the price

## Website References

Forage Quality Photo Guide <http://rangeweb.tamu.edu>

Hay Testing <http://soiltesting.tamu.edu>

Cowculator <http://www.ansi.okstate.edu/exten/cowculator/>

Texas AgriLife Extension Service <http://beef.tamu.edu> (beef page)

## Hay Quality & Cow Nutrition for the Winter of 2007-08

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Winter supplementation and hay production are significant production costs for beef producers across the Southern US. Beef producers with an eye on profitability must pay close attention to cow body condition score and winter supplementation expenses. Research shows that mature cows must be in a condition score of at least 5 *at calving* in order to maximize their opportunity to deliver a strong calf and rebreed within 90 days post-calving.

Forage quality (whether rooted in the pasture or offered in a bale) has a major influence on the type and amount of supplement required to meet a cow's daily nutrient requirements. Dry soil conditions this fall robbed many areas of the traditional early fall growth response by warm-season perennial forages. Consequently, forage quantity and quality is lower than 'normal' for early winter in many areas.

Though **hay** is readily available across the state, **quality varies appreciably**. Hay quality (nutrient content and digestibility) is most often guessed at or speculated upon. Though physical appearance and production history (soil moisture conditions, fertilization, stage of maturity at harvest, etc.) provide some indication of quality, there is no substitute for laboratory analysis of hay samples.

Consider the results from the 2007 Wilson County hay show shown in Table 1. A total of 31 bermudagrass and 14 warm season annual grass (sudangrass) samples were entered in the show. Notice the range in protein content observed in these hay samples.

### **Purchasing Hay**

Too often, the only question asked when inquiring about hay is, "How much per bale?". When the purchasing decision is based solely on cost per bale and its physical appearance (color, stem size, presence of seed heads, smell, etc.), there is little incentive for the hay producer to know bale weights or pursue a nutrient analysis of the hay.

Cattle are traded by the pound or head, feed by the sack, hundredweight or ton, and fuel by the gallon. *Why then, is it still common practice to trade hay by a bale of unknown weight?* The relationship between bale weight, cost per bale and cost per ton of hay is shown in Table 2.

<b>Table 1. Wilson County Hay Show Results, 2007</b>		
	Crude Protein, %	Acid Detergent Fiber %
<b>Bermudagrass (n=31)</b>		
Average	9.2	41.2
Range	4.7 – 19.3	32.2 – 47.7
<i>Best Quality*</i>	<i>19.3</i>	<i>32.2</i>
<i>Least Quality*</i>	<i>4.8</i>	<i>47.7</i>
<b>Warm Season Annual Grass (n=14)</b>		
Average	8.8	45.7
Range	4.3 – 17.3	35.3 – 55.6
<i>Best Quality*</i>	<i>17.3</i>	<i>51.3</i>
<i>Least Quality*</i>	<i>4.3</i>	<i>44.5</i>
*as determined for dry cows with FORAGVAL ( <a href="http://forage.tamu.edu/foragval/default.asp">http://forage.tamu.edu/foragval/default.asp</a> )		

### **Protein Supplementation**

As previously mentioned, a significant portion of the hay harvested across Texas in 2007 was mature when cut, may have laid in the field for an extended time after cutting and/or may have been rained on prior to baling. The net result – hay with a relatively low protein content.

A beef cow needs a minimum of 7% crude protein in her total diet. At levels below 7% CP, growth of the rumen bacteria population suffers and forage digestibility is hampered. As digestibility declines, forage intake must follow. And as intake declines, so goes performance (weight maintenance or gain, milk production, ...).

Protein supplementation of low quality forages yields an economically efficient production response. When dietary CP is less than 7%, the primary need of the rumen bacteria is degradable intake protein (DIP). Feeds such as cottonseed meal, soybean meal, and corn gluten feed are just a few options for supplying a natural source of DIP. Supplemental protein facilitates greater intake of low quality forage. With increased forage intake comes increased energy intake and improved animal performance.

For more information on beef cattle supplementation, see Texas Cooperative Extension Publication B-6067, *Supplementation Strategies for Beef Cattle* which can be found at <http://beef.tamu.edu/>.