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# FEED FOR THOUGHT

Production Information For Cattlemen From Suga-Lik®, A Product Of U.S. Sugar Corp.

## A Professional Approach to Beef Cattle Performance: Filling Nutritional Gaps

*by Patrick B. Whidden, PAS and Chet Fields, Ph.D., PAS*

Nutrient recommendations for all classes of beef cattle have been established by the National Academy of Sciences, National Research Council, Committee on Beef Cattle Nutrition and published every few years. The committee uses research from around the world to develop collaborated nutrient recommendations for various levels of beef cattle performance metrics. This method may not be perfect, but it is the very best method available.

Using these NRC nutrient guidelines and comparing them with the nutrient composition and the predicted consumption of the forage being provided is the basis for our U.S. Sugar beef supplement recommendations.

Conversely, some people supplement cattle based on mythology. Here are a few common myths:

**"The grass looks good. No supplement is needed."**
We encourage cattlemen to sample pasture forages, using proper sampling technique, and have the samples analyzed for a complete nutrient profile. Over the past few years, we have been assembling a data base of forage assays, cataloged by forage type, month of year and county. This data base, which contains more than 1,500 individual forage samples, is the tool we use in the absence of ranch-specific samples. The forage nutrient compositions, along with the cattle profile, are entered into our nutrient adequacy models to provide supplementation guidelines based on valid data and not visual appraisal alone. Various university research has shown that it is beneficial to supplement protein when the TDN:CP (crude protein) ratio is greater than 7:1. Our data base of Bahia grass assays demonstrates that beef cows need protein supplementation starting by September in order to improve rumen digestibility of the forage.

**"The cows look good. No supplement is needed."**
One Body Condition Score (BCS) equals approximately 75 lbs of body weight on a mature beef cow. Can most people visually detect a change in body weight that is less than this? When cows begin to loose weight (BCS) in late summer, early fall; can the weight loss be seen and noticed?

**"Begin providing winter supplement after the first frost."**
Based on about 65 years of weather data, there is a very high probability that the first frost date in central Florida is by January 15. If data-driven information is ignored and supplementation is withheld until after first frost, in a typical year there may be about 130 days that the cattle will be protein deficient, at least. Using the nutrient adequacy model for a 1200 lb late gestation cow, not fed supplement she will loose 100 lbs or more of body weight during this time. Most cattlemen understand that maintaining BCS is significantly more economical than replenishing it in a short time period with extra purchased feed.

**"'Natural protein' is the best."**
Cattle actually have a requirement for two types of protein: Undegradable Intake Protein (UIP) and Degradable Intake Protein (DIP). UIP can be provided by certain feedstuffs or manufactured synthetic amino acids. DIP can be provided either by feedstuffs or non-protein nitrogen (such as urea). DIP nourishes the rumen microorganisms (see *Feed for Thought* Fall 2006). Why this is good? Protein quality is determined by the amino acid profile. Among the economically viable protein sources, there is no more desirable amino acid profile for mature beef cattle than rumen microorganisms. Thus, what can be wrong with a healthy rumen, supplied with adequate amounts of DIP?

**"Cows do not do well when fed urea."**
This observation may be a result of not providing sufficient adaptation time for the rumen microbe population. Adapting the rumen microorganism populations to any feed change is a fact

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of life; and usually takes more than 30 days. Sometimes even animal scientist researchers can overlook this fact and not provide sufficient adaptation time in their trial design. If this happens in a trial evaluating urea, the results will not be especially useful. U.S. Sugar's year round nutrition programs provide for continual rumen adaptation to all key ingredients used in Fully-Fortified® Suga-Lik® supplements.

**"Cottonseed Meal (insert any commodity) makes good feed."**
Yes, it can; but never by itself. All individual feedstuffs have their strengths and weaknesses. None are nutritionally complete when fed with forage. Using the nutrient adequacy model demonstrates potential effectiveness of several commonly used individual feedstuffs. In the model, a 1200 lb lactating (18 lbs milk/day) cow grazing Bahia grass August thru January was used along with a constant, comparative feeding rate of 5.2 lbs dry matter for each feedstuff.

- **Brewers Grains.** Protein requirement met; energy not met.
- **Citrus Pulp.** Neither protein nor energy requirement met.
- **Cottonseed Meal.** Protein requirement met; energy not met.
- **Distillers Grains with Solubles (DDGS).** Protein requirement met; energy not met.
- **Blackstrap Molasses.** Neither protein nor energy requirement met.
- **Soy Hulls.** Neither protein nor energy requirement met.
- **Wheat Midds.** Neither protein nor energy requirement met.
- **Whole Cottonseed.** Protein requirement met; energy not met.

None of these feedstuffs could prevent the cow from loosing weight. Some of the feedstuffs actually supplied adequate amounts of various macro and micro minerals. None contained adequate sodium (salt), copper, cobalt or selenium. None provide vitamins A, D or E. Thus when fed alone all threaten to compromise effective immunological and physiological processes.

Comparatively, Fully-Fortified® Suga-Lik® Supplement (#509) supplied at least 100% of all the nutrients the cow required and provided for a weight gain of 0.15 lb per day.

**"Free by-product from a local processor is the best choice."**
Question: If something is valuable, why is it being given away? Most of the "free" by-products tend to be high in moisture and are not at all free after freight. Evaluate a feedstuff by its cost per pound of Dry Matter delivered. Some by-products are quite variable in nutrient content and many do not have a guaranteed analysis. Other by-products can contain contaminants and may not meet suitable feed safety guidelines. Sometimes the availability of by-products is inconsistent and leads to cattle adaptation and management problems due to abrupt switching of feedstuffs.

**Management Scenario.** A cattleman is using three components for his winter supplement program: cottonseed meal, manufactured pellets and range mineral. But today there is only time to put one out. Which should be put out? Whichever one is chosen still results in an unbalanced ration. Calculate the economics of three separate trips to feed the cattle essentially one ration. The case for using an appropriate Fully-Fortified® Suga-Lik® supplement is that it, along with your forage, provides at least 100% of all the essential nutrients your cattle need.

Want to make, say, one trip every two weeks to put out supplement? With Fully-Fortified® Suga-Lik® that's OK. It has an effective shelf life of at least three months. Using lick wheel feeders in the pastures prevents shrink as well as rain damage.
*Example:*
A pasture contains 150 head of late gestation cows that weigh about 1200 lbs {180 animal units =[(150 x 1200) ÷ 1000]}. If the appropriate Fully-Fortified® Suga-Lik® supplement you chose was formulated to be consumed at four pounds per animal unit per day, then two weeks' supplement for that pasture would be about 10,100 pounds. This supplement weighs approximately 11.3 lbs per gallon; therefore, about 900 gallons of lick feeder capacity would be needed along with a delivery wagon with 1,000 gallons of capacity. Doable… and the nutritional gaps filled!

*Patrick B. Whidden is U.S. Sugar Molasses & Liquid Feed Dept.'s general manager since 1994. Dr. Chet Fields is U.S. Sugar Molasses & Liquid Feed Dept.'s Manager of Nutrition and Product Development since 1998. You can email Pat at: pwhidden@ussugar.com or Chet at: cfields@ussugar.com.*

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