

Supplement Considerations for Beef Producers

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Often when faced with winter supplementation decisions, such as what to feed and when to feed it, producers may become overwhelmed by the numerous options available. There are a few simple rules of thumb that can aid in the decision making process. First it is important to consider the needs of your animals, secondly it is important to know the nutrients already available to the animals in the form of hay or available grass and lastly considering potential feedstuffs based on the nutrient your animals are most in need of is a good way to compare supplement options.

Supplementing to meet the requirements of your herd is a concept often overlooked, and may cause added feed expense. It is important to consider that the same cow will have dramatically different requirements depending upon her stage of production. For example, when she is at the peak of lactation, her protein requirements will be almost double that of when she is dry in her middle third of pregnancy. It is very important, and will ultimately save money, to match her nutrient intake, from both forage and supplement, to her requirements. In growing cattle, requirements are highly influenced by weight, gain, frame size, and sex. As expected, as cattle grow larger and faster their requirements will increase, and it is a good practice to supplement based on the average weight of growing cattle over a feeding period rather than targeted final weights. A more thorough discussion of estimating requirements of beef cattle can be found at <http://msucares.com/pubs/publications/p2528.pdf>.

Often when the time comes to make supplementation decisions, many producers neglect to consider the hay or forage cattle are consuming. Forage testing provides producers of the knowledge of the nutrients and helps to eliminate guesswork when it comes to supplementation decisions. This aids producers in matching forage quality to animal requirements, and aids in designing a supplemental feeding program. With a wide variety of forages used for hay production in Mississippi, comes a wide range of hay nutrient quality. A low quality hay might require extra supplementation. For example, if a hay falls below 7% protein a cow's intake will be drastically decreased, but if a protein supplement is provided to meet her needs she will not only consume that supplement, but also more of the hay provided.

Another consideration is how supplement feeding will affect hay intake. Ultimately, we would want that animal to make the best use of the forage available to them. However, when some high energy supplements are fed, cattle will consume the supplement rather than consume the available hay or forage. A general rule of thumb is that for every additional pound of high energy feed fed over 3 lb/day, forage consumption will be reduced by 1.5 to 2 lbs/day.

In 1992, a Memorandum of Understanding was signed by the Mississippi Agricultural and Forestry Experiment Station and the LSU AgCenter allowing Mississippi producers to submit feed and forage samples to the LSU AgCenter Forage Quality Laboratory for a minimal fee. A basic analysis includes dry matter (DM), crude protein (CP), acid detergent fiber (ADF), neutral detergent fiber (NDF), and total digestible nutrients (TDN), and for a small extra fee a basic mineral analysis can also be included. This knowledge provides a producer with the tools needed to more accurately match forage and supplement to an animal's needs. More information on forage testing can be found at: <http://msucares.com/livestock/beef/mshay.html>

Many producers struggle with the best way to compare the many options available to supplement animals. Often feeds are compared simply based on a price per ton basis, which doesn't take into account the fact that not all feeds are created equal when it comes to nutrient content. It is helpful to compare feeds on a cost/unit of nutrient basis. To calculate the price of a feedstuff on a \$/lb of crude protein (CP) basis:

For a 20% CP supplement at \$233/ton:

$$2000 \text{ lb} \times 0.20 \text{ CP} = 400 \text{ lb CP}$$

$$\$233/\text{ton} \div 400 \text{ lb CP} = \$0.58/\text{lb CP}$$

Using this basic calculation a variety of feedstuffs can be compared on a nutrient equivalent basis, and this calculation can be applied to other nutrients as well. Total digestible nutrients (TDN) is useful to compare the energy value of feeds. If we use recent commodity prices from Feedstuffs magazine and average values for CP, several popular supplement options can be compared on a nutrient equivalent basis. The chart below gives some examples of common feeds and how they compare on a \$/lb of protein basis.

Table 1. Example calculations of \$/lb of CP for common feedstuffs

Feedstuff	\$/ton	CP %	lbs CP/ton	\$/lb CP
14% CP pellet	320	14	280	1.14
28% CP tub	800	28	560	1.42
Soybean hulls	304	12	240	1.26
Corn gluten feed	193	25	500	0.39
Cottonseed meal	320	45	900	0.36
Dry distillers grains (DDGS)	256	28	560	0.46
Whole cottonseed	375	23	460	0.82

If we needed to supplement our cattle for protein, and had the above feeds available, our best option would be cottonseed meal, followed by corn gluten feed.

There are many factors to consider when making supplementation decisions, and the supplement choice for one producer may not work well for another. It is important to consider several factors when choosing a supplement. A good place to start is determining the requirements of the animals you are supplementing. Requirements for growing cattle differ greatly based on weight, frame size, sex, breed type, and expected

gain. It is a good rule of thumb when determining feeding amounts for growing animals to target supplement based on both the average of the herd, and the average weight during the feeding period. Once the animal's requirements are determined, it is next important to consider the value of the hay or forage available. Forage testing is relatively simple and inexpensive, and offers valuable knowledge that can greatly influence supplementation decisions. Another good practice is the comparison of supplements based on costs per unit of nutrient. It is a good idea to price supplements based on the nutrient that cattle are most in need of. If our forage analysis revealed a protein deficiency, we should compare supplements based on \$/lb of CP or if our forage is energy limiting, we should compare on a \$/lb of TDN basis.

With rising commodity prices, it becomes more important than ever to make the most economical supplementation decisions possible. Arming yourself with knowledge about both animal needs and feedstuffs available is a good strategy for combatting these issues. More information about many of these topics can be found at:

<http://msucares.com/livestock/beef/beefpubs.html>.