

Cattle Business in Mississippi – January 2012 **“Beef Production Strategies” article**

Tanks, Tubs, Blocks, Cubes, Buckets, and Bales

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Winter is often the time of year when nutritional supplementation of beef cattle herds is at its peak. Just like cattle, supplements come in many forms. Feed products vary widely in nutritive value and cost. Recommended feeding management practices also depend upon the type of supplement used.

Choose according to forage quality and availability

In deciding what nutritional supplements might work best for a particular situation, start by determining the forage situation. The basic concept of supplementation is to provide additional nutrients beyond those supplied by the forage base to meet cattle nutrient demands. If forage availability in pastures is not adequate, then dry matter intake will be limited. Supplementation may be necessary to achieve desired cattle productivity targets. Even if the quantity of grazeable forage is sufficient, the nutritive value must also be adequate to keep from needing to feed nutrient supplements.

Supplements may include stored forage (such as hay or silage), grains (such as corn or oats), oilseed meals (such as soybean or cottonseed meal), commodity-based co-product feedstuffs (such as soybean hulls or corn gluten feed), waste from human food supplies (such as bakery waste or candy), range cubes, protein blocks, syrup tubs, or liquid feed in tanks. Appropriate products and quantities of these products must be supplemented to cattle to complement the nutrients consumed from grazing and achieve cattle performance goals. So, start with a forage quality analysis to determine which nutrients are lacking and how much of a nutrient void needs to be filled using supplements.

Know the nutrient content

The levels of energy, protein, and fiber provided by different supplements vary greatly. Supplemental energy sources might include grains, feedstuffs such as soybean hulls, waste from human food supplies, and stored forages depending on their nutritive value. Supplemental protein sources might include oilseed meals, feedstuffs such as corn gluten feed, range cubes, protein blocks, high-protein versions of syrup tubs and liquid feeds, and stored forages depending on their nutritive value. Although some supplements are suited for providing supplemental protein to cattle consuming low-protein, medium-energy forages, they will not support high levels of animal performance. Stored forages are often a key source of supplemental fiber or roughage, but large quantities of high-fiber range cubes and feedstuffs such as cottonseed hulls or gin trash could also serve as dietary fiber sources.

Within protein supplement categories, crude protein levels vary from around 12 to 48 percent. The percentages in the names of 20 percent and 32 percent range cubes, for instance, refer to the crude protein content of the cubes. The 20 percent cubes are

roughly equivalent to a mix of two-thirds grain and one-third oilseed meal. The 32 percent cubes are roughly equal to a mix of one-fourth grain and three-fourths oilseed meal.

Crude protein percentages do not necessarily refer to only all-natural or true protein. Many liquid feeds, blocks, and range cubes contain non-protein nitrogen (NPN) as urea or biuret. Non-protein nitrogen is only useful if adequate energy is available in the diet for the rumen microbes to use this nitrogen to make microbial protein. Therefore, NPN-containing feeds are not appropriate on energy-deficient diets. If, for example, forage nutritive value is poor (less than 8 percent crude protein and/or less than 52 percent total digestible nutrients), then feeds containing NPN without adequate energy are generally not recommended. Also do not feed NPN-containing feeds in combination with feeds containing high nitrate-nitrogen levels. This is a recipe for nitrate poisoning. Similarly, it is critical to avoid feeding NPN-containing feeds in combination with raw, whole soybeans as this can result in severe health problems and even death in cattle consuming these feedstuff combinations.

The ingredients in manufactured, multi-ingredient supplements such as liquid feeds and lick blocks vary among manufacturers and specific products. Ingredients are listed on the tag in order from greatest to least amount. Ingredients supplying energy may include molasses, condensed distillers solubles, dried distillers grains, or vegetable fat. The energy level is not typically stated on the product label, but the percent crude fat generally appears on the label. Fat contributes to the energy content of the supplement, but total fat levels in the diet should be kept in check to avoid problems with forage digestion and scouring.

The crude fiber content is another item worth noting on the product label. Range cubes are available in both “high-fiber” and “low-fiber” versions. Cubes with less than 10 percent crude fiber are considered “low fiber”. As the crude fiber percentage increases, the digestible energy content of the range cubes decreases.

Some products contain additional ingredients such as prebiotics, direct-fed microbials, fly control products, minerals, or vitamins. Make sure to read the product label closely to understand the purpose of these ingredients and any special feeding instructions. Just because minerals and vitamins are listed in the guaranteed analysis or ingredient list on a product label does not mean that supplement provides adequate amounts of these minerals and vitamins to meet animal needs. In some instances, the amounts of essential minerals and vitamins in supplements are very inadequate compared with cattle nutrient requirements, so additional dietary sources of these minerals and vitamins should be provided to cattle.

Compare cost and convenience

Convenience is worth something. It saves time and labor expense. When comparing the cost of convenience feed products that can be offered free-choice and feedstuffs that require hand feeding on a daily or every other day basis, the cost of labor and fuel for the additional feeding sessions must be considered. Of course, a downside of not feeding daily is less frequent observation of cattle.

In cost comparisons, make sure the products being compared are available in the area. Some product lines or specific products may be regionally specific or carried only by certain vendors. Do not just request a price for “Company X’s lick block”, but instead find out the nutrient composition and relevant feeding management details about the specific product being priced. Use delivered supplement prices or factor in freight expense beyond product price when picking up supplements from a distant location. Determine if there are price breaks for bulk quantities, and consider placing bulk orders with others in the area interested in the same products. Make sure that the cost of feeders, whether tanks for liquid feed or troughs for grain, are considered in comparisons of using different supplements.

Compare supplement prices for the amount of key nutrients provided, for example, by the price per pound of crude protein. This requires knowing the weight and nutrient composition of the product. Two tubs may both cost the same per tub, but the one tub may contain more product than the other, as is the case with 225-pound versus 200-pound tubs. Alternately, two tubs may weigh the same, but one may have a greater percentage of crude protein than the other.

Consider feeder characteristics associated with the use of various supplements. Make sure the feeder is appropriate for the feed. Some supplements are not recommended for galvanized tanks due to corrosion problems. Liquid feed tanks must be kept in good repair, and excessive heat accumulation or moisture contamination inside the tank can damage both the feeder and the feed. Additionally, liquid feed containing vegetable oils must be agitated periodically and should not be allowed to run dry between fillings.

Decide on the feasibility of using different supplements based on the equipment and labor requirements. Large liquid feed tanks that must be moved with machinery are less easily moved to new feeding locations than the smaller tubs that can be readily moved by hand. The frequency of supplement delivery depends upon the supplement type, intake per head, number of cattle fed, and feeder capacity. There is a wide range in the number of gallons of that single liquid feeders can hold.

Follow feeding directions

Pay attention to feeding directions on product labels. Many cattle feed products are not safe for use with other livestock species. So, if a product label specifically states “DO NOT FEED TO HORSES”, then make sure to restrict horse access to the product or choose another product if horses will share the same feeding area as the cattle. Similarly, products with added copper should not be fed to sheep.

Monitor and manage intake

Convenience products are intended to be provided for free-choice access by cattle. Placement of supplements may affect intake. Typically, placing free-choice supplements close to water or loafing areas can increase the number of visits to and consumption of these products by cattle. It is essential that the appropriate number of tubs, blocks, etc. be offered at any given time according to the number and nutrient needs of cattle to be fed. The product label should provide guidance as to how many tubs or blocks are needed for various classes of cattle. Aggressive cattle may dominate tubs or blocks and depress intake of these products by more timid cattle. To allow timid cattle more

opportunity to feed on supplements, increase the number of supplement products and the spread the products out over greater distances in a pasture. Finally, place tubs or blocks away from surface water to keep them from being pushed into the water and floating away or sinking.

The mechanisms of supplement intake limitation vary. The product formulation or physical structure may serve to limit intake by cattle. For illustration, low-moisture (cooked) tubs tend to absorb moisture from the air. This allows the exposed product surface to soften or even liquefy for cattle to readily consume.

Consumption levels can vary widely. Although product labels or literature may list expected average daily intake ranges, actual daily intake can fall outside of these ranges. Initial intake upon first introduction to a supplement may be different than intake after an adaptation period of several weeks. Forage and environmental conditions along with cattle size, condition, and production stage are factors that can affect product consumption rates. When pricing supplements, a miscalculation in average daily intake of a product can change the ranking of products in terms of total supplement cost. Therefore, it is important to monitor intake over time to determine consumption rates on farm to help make more informed future supplement budgeting and purchasing decisions.

For more information about beef cattle production, contact an office of the Mississippi State University Extension Service.