

Cattle Business in Mississippi – November/December 2010 “Stocker Cents” article

Nutrition for Beef Bull Development – Part 1

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Bull Development Options

Developing beef bulls can be both challenging and rewarding. Sale of breeding age bulls is often a significant source of revenue for seedstock producers. Nutrition, health, and management strategies are all important components of bull development programs. There are several effective nutritional approaches for developing young bulls.

Bull development programs differ based on target rates of gain, length of development, and feedstuffs (forages and grain-based feeds) used in the diets. Bull development diets must be capable of supporting adequate rates of gain, typically at least 3 pounds of weight gain per head per day, to accurately test genetic differences for selection and marketing. For all bull development programs, make sure that bulls have access to clean water and a complete mineral supplement at all times.

Developing bulls at a moderate rate of gain can be achieved with excellent quality pasture or hay and supplemental feed. Hay and average quality pasture generally do not contain enough nutrients to provide more than one and a half pounds per day gain for growing bulls. Hay and average quality pasture are therefore not acceptable as sole feed sources for bull development.

Forage-based bull development programs can utilize one or multiple forage species in a single program. Seasonal forage growth patterns, forage availability, and quality must be properly managed to successfully develop bulls on pasture-based systems. Cool-season annual grass pastures such as annual ryegrass, wheat, and cereal rye can support bull rates of gain in excess of 2 pounds per day. Legumes (for example, clovers and alfalfa) and cool-season perennial crops (for example, novel endophyte-infected tall fescue) provide additional forage options for bull development. Warm-season perennial grass pasture such as bermudagrass, bahiagrass, dallisgrass, and crabgrass is generally not sufficient to provide acceptable rates of gain for developing bulls without supplementation.

Many bull development programs utilize daily rations of grain-based feedstuffs. Providing developing bulls in these programs with access to forages during development can benefit digestive health by providing an effective fiber source in the diet. Otherwise, cottonseed hulls or a similar effective fiber source need to be added to the ration. Some high-fiber feedstuffs have very little or no nutritional value in a bull development program. Examples of such feedstuffs include rice hulls and peanut hulls.

Commercially available supplements can be purchased from local feed suppliers, or custom supplements can be blended at local mills or on the ranch with locally available feedstuffs. Begin with a nutrient composition analysis of pasture and stored forage when designing a grain-based (concentrate) feed supplement for developing bulls. The proper nutrient composition and feeding rate of the supplement can be more accurately determined when designed using forage analysis results. Consider that forage nutrient content and availability of pasture will change over time, particularly as forages become more mature. Factor changing forage conditions into supplement planning decisions.

Determine how much feed to offer bulls each day based on feed nutrient composition and bull nutrient requirement tables. Periodically weigh growing bulls during a development program to monitor growth performance and determine if the nutritional program is providing a desired rate of gain. Feed and forage intake levels increase as bulls grow. As a bull gains weight, a set amount of supplement represents a diminishing amount of their intake as a percentage of body weight. Adjust the level of supplementation periodically throughout the development period to account for this. Establish supplemental feeding levels on bull weights adjusted for the expected average daily gain over the feeding period instead of just using bull weights at the start of the period. For percentage body weight calculations of feed amounts, use a true average bull weight over the feeding period.

Note the ingredient composition of supplements used in bull development programs. Many highly-fermentable grain-based feeds have bloat or acidosis potential and require daily feeding of limited quantities and/or adjustment periods where feed intake levels are slowly increased over time. Developing bulls on a high-grain diet for rapid weight gain requires careful feeding management to utilize high levels of concentrate feeding without causing digestive problems during the process. Bulls adapted forage-based diets must be slowly adapted onto high-grain diets without inducing acidosis or founder. Dividing the grain portion of the ration into at least two feedings per day (morning and evening) can help reduce the chances of digestive problems. Put digestive upset prevention measures in place before a bull development testing period begins.

For a feed-based test, use a minimum 3-week warm-up period to adjust bulls onto the test ration is vital to maintaining the digestive integrity of the animals. Adapt bulls slowly to the test ration by starting them off with a small amount (5 to 10 pounds per head per day) of the test ration. Increase the amount of the test ration by approximately 1 pound per head per day every other day until the bulls eventually start leaving feed in the trough. Do not increase the daily feeding level if feed remains in the trough. For a forage-based bull development test, use a 2- to 3-week diet warm-up period during which bulls are gradually shifted from their pretest nutritional program to the test nutritional program. This allows time for bulls to adjust to the forage and supplementation program before initial test weights are taken.

Use a 3- to 4-week step-up period for adapting bulls to a high-grain diet. If bulls are already adapted to grain supplementation, such as creep feeding prior to weaning, the 3-week diet adjustment period may be sufficient. An easy method of stepping bulls up to

a high-grain diet is to limit feed the high-grain ration and provide free-choice access to good quality, long-stemmed hay. Start grain feeding at about 50 percent of a bull's intake, if the bull is not adapted to grain and the final ration being limit fed contains adequate roughage such as chopped hay or cottonseed hulls. If the bull is not adapted to grain and the final ration being limit fed does not contain adequate effective fiber, then start the grain feeding amount at 4 to 5 pounds per head per day. Increase the feeding rate of the grain ration by up to 15 percentage units each week until on full feed starting week 5, or by 0.5 pounds per day every other day until bulls reach full feed.

Some bull development programs allow bulls free-choice access to grain-based feed supplements after an adjustment period, allowing them to consume as much supplement as they desire. While this may facilitate the use of self-feeders and reduce labor needs for bull development, it is often not economically justified. The use of self-feeders also increases the risk for digestive disorders and problems with accumulation of stale or moldy feed in feeders.

Developing bulls are an important class of stocker cattle. Next month, *Stocker Cents* will continue discussing beef bull nutritional management. For more information on stocker cattle production, contact an office of the Mississippi State University Extension Service.