

In forage-based programs where grazing management is practiced, grazed forages often come pretty close to meeting nutrient requirements for cattle. At least they do during the growing season. The need for supplemental feeding varies with forage quality and quantity; but, during periods when cattle graze dormant pastures or when harvested forages are delivered to them, the importance of supplements may increase.

Conscientious cowboys like to think they do a good job of meeting the nutrient requirements of their cow herds, but what about their herd sires? Do producers put the same amount of thought and effort into year-round nutrition programs for bulls?

Near Walden, Colo., Lucy and Danny Meyring headquarter their spring-calving herd at 8,300 feet (ft.) of elevation. Winter usually comes early and stays late, with plenty of snow, so cattle are fed for seven months of the year. Fortunately, the Meyrings' mountain meadows yield high-quality hay.

"We want our cattle well-bred and well-fed," says Lucy, "and we're blessed with native hay that's high in protein — usually running around 12% — so we don't have to buy a lot of supplement."

In the winter the Meyrings divide their cows into two groups to ensure younger, still-growing females receive adequate hay. They winter their mature bulls with the young cows. Still, nutritional needs are met with daily feedings of hay plus mineral supplement.

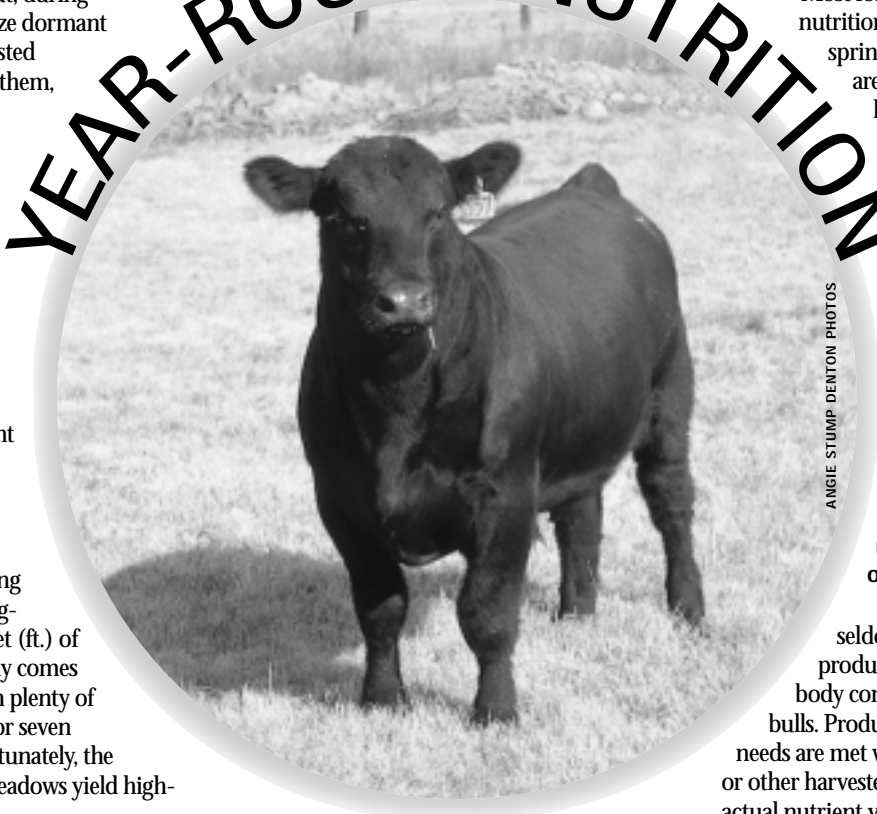
"The 2-year-old bulls and some 3s need a little extra care and are wintered in a lot where the racks are kept full of the very best hay," Lucy adds. "Yearlings are kept separate where they can be fed some corn. Everything gets a mineral supplement high in phosphorus (P) and potassium (K), and we see every animal every day. We want them gaining weight through the winter."

#### ■ Off-season care

Likewise, Bodie Means wants his bulls to put on flesh during the off-season. This

# BULLS NEED

## YEAR-ROUND NUTRITION



ANGIE STUMP DENTON PHOTOS

BY TROY SMITH

west-Texas rancher runs a range-and-cake outfit in the rolling hills near Valentine. His breeding season begins in February. Bodie says the bulls really draw down by late spring when they are pulled from the breeding pastures. For the bull battery's recovery period, he saves some of his best grama grass pasture. While they graze dormant range, the bulls are supplemented with cake.

"We'll feed 6 pounds (lb.) a day of grain cubes with 20% protein," explains Bodie. "That's for the older bulls; but yearlings are kept separate and fed a custom grain mix. It's the same mix we use for a calf-growing ration, and those yearling bulls get up to 20 pounds a day. And we use a high-phosphorus mineral all year long."

Differences in management practiced by the Meyring and Means operations reflect differences in climate and forage resources. Different still are conditions in the

southeastern United States, where Auburn (Alabama) University veterinarian and associate professor Allen Heath says there is tremendous variation in forage quality due to rainfall, levels of fertilization and stage of harvest.

"Most forage grazing systems meet nutritional requirements during spring and early summer. In this area it's not hard to monitor how bulls are doing on grass, since we often run an animal unit to every 2 to 2½ acres, but too many bulls come into the breeding season in poor body condition," says Heath. "Too often bulls are pulled [after breeding season] and isolated, but their nutrition is neglected so they never regain enough body condition."

#### ■ Condition often overestimated

Heath says the neglect seldom is intentional. Some producers simply overestimate body condition on heavily muscled bulls. Producers may think their bulls' needs are met with ample quantities of hay or other harvested forages, but the feed's actual nutrient value is unknown.

"I encourage producers to initiate a positive plane of nutrition five months prior to turnout so their bull's body condition score (BCS) is a strong 6. That often means supplementing a forage diet," says Heath.

"Right now corn probably is the cheapest supplemental energy source. Cotton byproducts are excellent sources of energy and protein. With whole cottonseed, the rule of thumb is to avoid feeding over 4 pounds per day, since there is a minor toxicity risk. Research suggests that's mainly associated with growing bulls rather than mature bulls," he explains.

Heath says the necessity for supplemental feed depends on what nutrients might be lacking in the forage. For example, the Bermuda grass hay often fed in his area can contain as much as 11% protein, but it may run as low as 7%.

"You have to start with forage evaluation. Test it for nutrient value. Know what is lacking, and then balance a feeding program for the individual operation," Heath advises. "Go ahead and test for nitrate or prussic

Above: To be ready for breeding season, bulls should rate a body condition score (BCS) of 5 or 6, says University of Nebraska beef specialist Ivan Rush. He recommends limiting the breeding season for yearling bulls, pulling them early to provide nutrition needed to recover condition and continue growth.

acid toxicity, too. That's really important for sorghum forage or Johnsongrass hay, especially if the plants were stressed prior to harvest."

Ivan Rush, University of Nebraska beef specialist, agrees that bulls fit for breeding season should rate a BCS 6. A BCS of 5 is the very least. He reminds producers to pay particular attention to the condition of yearling bulls. Limiting the breeding season for yearlings is recommended. Pull the bulls and provide the kind of nutrition needed for recovery of condition and for continued growth.

"To help yearlings and thin 2-year-olds regain body condition, some supplemental energy might be needed, and protein levels should be higher than maintenance requirements. For most situations I'd recommend 11 to 11½% protein," offers Rush. "Diets with 8 to 9% protein might be adequate for maintaining older bulls, unless you're really trying to put some condition back on them. Then the higher level might be indicated."

Rush also says forage analysis is the first step to developing a mineral supplementation program. Ideally, producers should know what levels of important minerals are present in the forage and provide supplemental minerals to meet



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requirements listed in the *Nutritional Requirements of Beef Cattle* published by the National Research Council (NRC).

■ **Mineral needs**

"Phosphorus usually is the major mineral of concern," states Rush. "Most forages are relatively high in calcium (Ca) and potassium but low in phosphorus. Alfalfa does have more phosphorus, however. The kind and quality of forage and the mineral content of other feed in the diet will determine what needs to be added."

Rush says a mineral mix consisting of 10

grams (g)/day of supplemental phosphorus will be adequate for many situations. Analyses for trace minerals often show copper (Cu) and zinc (Zn) to be present at low levels in most forages. NRC requirements for copper are set at 10 parts per million (ppm) provided no other antagonizing minerals, such as molybdenum (Mo), or nitrates are present at levels high enough to interfere with copper absorption. Situations vary, but Rush often recommends playing it safe by offering copper levels equal to 15 ppm.

"It's known that zinc plays a role in testicular development and maintenance of testes," Rush adds. "The NRC requirement is 30 ppm, but I think 40-50 ppm might be better."

The experts agree that no single program for bull nutrition will fit every operation. It all depends on the resources available. Regardless of how good a producer *thinks* his bull nutrition program is, it pays to analyze feedstuffs and know for certain. Test forages close to the time they are fed, particularly harvested forages that have been held over or stockpiled, since nutrient content diminishes over time. It pays to monitor bulls individually for body condition during the off-season, as well as while they are at work.



**Table 1: Nutrient requirements for growing bulls\***

Body Weight, lb.:	660	880	1,100	1,325	1,545	1,765
<b>Maintainance Requirements</b>						
Net energy for maintenance (NE <sub>m</sub> ), Mcal/day	6.38	7.92	9.36	10.73	12.05	13.32
Metabolizable protein (MP), g/day	274	340	402	461	517	572
Calcium (Ca), g/day	9	12	15	19	22	25
Phosphorus (P), g/day	7	10	12	14	17	19
<b>Growth Requirements for 2.20 lb. ADG</b>						
Net energy for growth (NE <sub>g</sub> ), Mcal/day	3.68	4.56	5.39	6.18	6.94	7.67
Metabolizable protein (MP), g/day	303	272	222	175	130	86
Calcium (Ca), g/day	23	19	16	12	9	6
Phosphorus (P), g/day	9	8	6	5	4	2

\*Assumes Angus type with mature weight of 1,962 lb. Source: Nutrient Requirements of Beef Cattle, National Research Council, 1996.

## **Pull those yearlings**

For yearling bulls, the first breeding season is a metabolically stressful period. For one thing, they are shedding teeth and growing new ones. Too often yearling bulls are developed on rations excessively high in concentrate. If not allowed an acclimation period before breeding season, they may lose condition quickly and may suffer permanent physiological damage.

Don Cain Jr. and his associates specialize in herd-bull medicine and surgery in Broken Bow, Neb. Cain says future semen production can be jeopardized if young bulls are left in unsupplemented breeding pastures all season long. A condition called "Retained Droplet Syndrome" may develop. The condition can irreversibly lower fertility and the viability of the semen when frozen for use via artificial insemination (AI).

Cain cautions against overusing yearlings and suggests that the bull-to-cow ratio be kept at 1-to-25 or less. Frame size of the cows as compared to the bull should be evaluated, too. Young bulls may abandon their duty if cows are two to three frame scores taller than they are. Also, the chance of bull injury is greatly increased.

"Sixty days should be the maximum breeding season length for yearlings," advises Cain. "Then good grass and protein/mineral supplement may be all that is necessary to put the bloom back on a bull. A lot of people think they should feed some corn, but it's usually not energy that's needed most. Focus on protein. Good alfalfa will work if you've got it, but an easy way to feed free-choice supplement is with protein blocks or lick-barrels."