

Forage Philosophy

Developing bulls under typical working conditions.

by **Troy Smith**

Bulls developed on a high-roughage ration.” That claim has appeared in countless seedstock breeders’ advertisements. It usually means the breeders are trying to differentiate their bulls from those developed on high-grain diets. They’re trying to assure potential buyers that nutrition was managed to avoid soundness and fertility problems that may be associated with overfat bulls that had copious amounts of corn poked down their necks.

Often with the help of professional nutritionists, breeders blend forage, grain or commodity byproduct ingredients into rations that will allow bulls to grow and develop to their genetic potential without hindering adaptability to their future working environment. And, most working environments — those inhabited by commercial cow herds — are forage-based.

That’s why some seedstock breeders have adopted a forage philosophy. They believe bulls should be developed under conditions that mimic the working environment, on a forage-based diet. But, even “forage-based” bull development programs vary.

Identifying performance

Various programs are popular in the southeastern U.S. where, barring drought and hurricane effects, grass grows throughout much of the year. In South Carolina, Clemson University has conducted its Forage Bull Test for more than 20 years. Larry Olson, who manages the program, says it wasn’t designed as a gain test, but as a means of developing bulls adapted to the region. The bulls are born in late winter and early spring, developed for 168 days and sold in October as coming 2-year-olds. Many go directly into service on fall-calving commercial cows.

“A lot of buyers take bulls directly from the sale and unload in a breeding pasture. They generally prefer longer-age bulls,” Olson says. “The bulls usually average about 1,600 pounds (lb.), and they’re not fat. They’re tougher than yearlings. They know they’re bulls and get down to business.”

While the program is based on grazed forage, bulls are supplemented with commodity byproducts. Pelleted citrus pulp, soy hulls or corn gluten, as well as hominy



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feed, are fed at a rate of 1% of bodyweight. Hay is also fed when grazed forage is limited.

Louisiana State University (LSU) organized its forage bull test at the urging of area producers. Conducted at Jackson and managed by James Devillier, the LSU program typically accepts bulls in November, running them on annual ryegrass pastures for a minimum of 150 days.

“The bulls receive nothing but grass and free-choice mineral, and average over 3 pounds of gain per day,” Devillier explains. “The program provides an opportunity to identify genetics that are adapted to the way commercial cow-calf operations are managed here in the Gulf Coast region, quantifying performance on grass. And, generally, genetics that perform well on grass will do well in the feedlot, too.”

Challenging development

Southwestern Minnesota doesn’t have an abundance of grazing land, summer or winter. The area around Walnut Grove is known more for corn, soybean and pork production, but that’s where Bruce Johnson operates Evergreen Angus. His May- and June-calving cows spend their summers grazing creek-bottom pastures and winter on corn and soybean stubble, supplemented with harvested forage — much of which would be considered low quality.

“I don’t worry much about supplemental protein, except while cows are nursing in the fall. I do wean late, in November or December,” Johnson

states. “I’ve forced cows out of the herd that way. Some fall out and others stand out for fertility and fleshing ability. I keep seedstock from the cows that can make it.”

Johnson’s development program also challenges the bulls he will market as 2-year-olds. Weaned bull calves are wintered on low-quality hay or baled cornstalks, supplemented with alfalfa hay. As yearlings, they’re rotated through pastures consisting of a grass-legume mixture. During their second winter, they receive baled cornstalks and grass hay.

Johnson caters to grass-fed beef producers who also calve their herds in late spring or early summer. Most of his customers don’t want bulls until June or July, so the bulls are on grass again until then. Johnson says his bulls are smaller and lighter than many breeders’, but they generally gain 200 to 300 lb. during their first breeding season.

“I think we have the tools to select the genetics that will work in low-input production systems. I trust EPDs [expected progeny differences] and progeny testing, but not gain tests for bulls,” Johnson notes.

“There are too many bulls, industry-wide, that just don’t last. Too many fall out in the first year because they’ve been fed too hard.

“I think longevity is a huge issue,” he continues. “Genetics are a factor in longevity, but forage-developed bulls just last longer.”



Kit Pharo

Handling the workload

One of the most adamant advocates of forage-tested bulls is Kit Pharo of Cheyenne

Wells, Colo. Pharo Cattle Co. markets more than 600 bulls annually, including more than 300 Angus. Roughly two-thirds of the bulls are forage-tested. And that's different, Pharo maintains, than being forage-developed.

Some breeders develop bulls on forage, but provide large amounts of high-quality hay or protein supplements. Unless the bulls are challenged, Pharo says, nothing is proved. A forage test, he says, needs to be tough enough that some of the bulls fail.

Typically, bull calves from Pharo Cattle Co. and its cooperator herds are fenceline weaned on pasture and roughed through their first winter on dry grass with a limited amount of alfalfa hay as protein supplement. Their average winter gain seldom exceeds 3/4 lb. per head per day. In May, bulls that have passed the first-winter challenge are started on a grass forage test lasting 100 to 120 days. During this period, they typically gain an average of 2.5 lb. per day. The target weight for yearling bulls is 900 lb.

At the end of the test period, bulls are individually weighed, measured for frame score and ultrasounded. They are evaluated for disposition, fleshing ability, conformation, structural soundness and scrotal development. Some survivors of the culling process are offered for sale in the fall, while the rest are roughed through a second winter on native pasture prior to being

offered for sale the following spring.

"Although the program has an extremely high fallout rate, we still believe it is the best way to performance-test our maternal genetics," Pharo states. "It eliminates the inefficient and the unadapted animals that cannot perform well in a low-input, grass-based environment.

"With enough high-quality feed, we could improve the perceived performance of our bulls, but that defeats everything we have built our program on. If we don't make it tough on our cattle and don't challenge them nutritionally, we will never be able to sort the good genetics from the bad genetics," he adds.

Pharo says bulls that have proven their ability to survive and perform in an all-forage environment should pass that ability to their offspring, allowing producers to genetically improve the efficiency, foraging ability and profitability of their cow herds.

The major disadvantage to the forage-test program, Pharo admits, is the amount of land or grazed forage resources required. Time also is a factor, since the bulls generally cannot be marketed until they are long yearlings or 2-year-olds. However, older and more mature bulls can handle a heavier workload. Pharo recommends turning out forage-tested bulls with 30-50 cows during the breeding season.

Demanding change

Kansas State University Extension Beef Specialist Twig Marston believes demand among commercial cow-calf producers is trending toward harder and more physically fit bulls than some breeders have offered in the past. And, more breeders are responding



Twig Marston

by changing their bull development programs to emphasize forages more. However, programs based strictly on forage diets, particularly grazed forage, probably won't become mainstream anytime soon.

"It shows that breeders are listening and responding to what customers want, and I

think commercial producers want bulls that are fit and ready to work, not overfat and soft," Marston says. "But, while some producers want bulls developed in the same kind of environment in which they will perform, others want bulls developed in a way that gives some indication of how their progeny will perform in a feedlot on a grain-based diet. Development programs can be different and still be valid, as long as they satisfy the customer."



A forage market

A former district representative for a large feed company, Larry Sansom now shuns the use of creep feed, high-concentrate supplements and grain in his own registered Angus operation near Hartford, Ky. He strives to produce cattle that perform on forages only. Sansom is involved in direct marketing of grass-finished beef and provides seedstock to commercial producers serving that market.

"Now," Sansom says, "we run them on grass and see who survives."

Some didn't. In application of his forage philosophy, Sansom culled his 150-head cow herd by nearly half. Today, the herd numbers 84 head of 1,100- to 1,200-pound (lb.) cows — all frame score 5 or less. He calls that moderate for size, but admits that a lot of people think it's too small.

"Mother Nature did the testing, and I identified genetics that fit a low-input operation based on forages," Sansom notes.

Sansom's bulls grow up grazing fescue-clover pastures managed under frequent rotation to maintain the quality of grazed forages. In the winter, bulls are supplemented with haylage. He sells the bulls at about 18 months of age, but also leases out a handful of yearlings. So far, Sansom says, none of his forage-developed bulls have failed a semen test.

Dick Diven, an Arizona-based nutritionist and grazing consultant, believes high-concentrate diets are to blame for fertility problems in many young bulls. He advises clients to avoid grain-fed bulls.

"There has been considerable work in Canada showing how fat deposition in the scrotum increases when bulls are developed on grain. And that affects fertility," Diven says.

Studies at Lethbridge Research Centre in Alberta, Canada, compared postweaning dietary energy effects on spermatogenesis

for bulls fed moderate-energy diets of 100% forage vs. bulls on high-energy diets consisting of 80% grain and 20% forage. At 15 months of age, bulls on the strictly forage diet exhibited 13% greater efficiency of sperm production, 19% greater daily sperm production and 52% greater epididymal sperm reserves.

As reported in 1997 in the *Journal of Animal Science*, the Lethbridge research suggests that excess fat in the neck of the scrotum and/or scrotal tissues insulates the testes and increases testicular temperature, thereby decreasing sperm production and semen quality.

South Dakota State University animal scientist Dick Pruitt was involved in similar research in 1985.

"At that time we did not see the detrimental effects on semen quality shown by the Lethbridge work. But by today's standards, the bulls we looked at weren't fat," Pruitt says.

"We did find that weight gains of less than 1 pound per day could delay puberty in some bulls," he adds. "All-forage [development] works if you're selling bulls at 18 months to 2 years of age, but probably not if you want to sell yearlings."

Pruitt fears too much emphasis on marbling scores may have led some breeders to make bulls too fat. He also believes one of the things ultrasound technology has done for the industry is show how fat bulls really are. As a result, some bull developers have changed their development programs to emphasize forage more.

With today's expected progeny differences (EPDs) to help guide selection, Pruitt says bulls don't have to be fed high-energy rations for buyers to make genetic comparisons of their performance. However, it often comes down to marketing. And, in many cases, fat sells.