

# Grass Gains

Grass feeding can offer efficiency, environmental and economic benefits.

by *Troy Smith*

**F**or years, Mark DeBoo and his parents, Don and Janet, have bucked the current of mainstream cattle production with their Diamond D Angus operation. The Valier, Mont., family's "kind" of cattle was a little bit smaller than most seedstock breeders produced. Genetic selection emphasized maternal traits and fleshing ability. The DeBoos wanted some muscle in their cattle, but "low maintenance" held priority over "high growth."

For years it was difficult for Diamond D to grow its market beyond a modest customer base.

"We went through the 1980s and '90s selling bulls for \$500 under the average of our competition," DeBoo says. "It was discouraging, but things have turned around in the last few years."

At Diamond D's November production sale, bulls averaged \$3,500, and commercial bred females brought \$2,000. The apparent growth in demand for their seedstock is not

due to any change in the direction of the breeding program. The DeBoo philosophy remains the same, but ways of thinking have changed on some commercial cow-calf outfits.

"I think economics are kicking in for more ranchers. Input costs keep going up, so they're looking for more efficiency. They've decided the big-framed, high-growth cattle don't work well in their environment — don't fit their resource base," DeBoo states.

"The other thing that has affected our business is growing interest in producing grass-finished beef. At least a third of the buyers at our sale were seeking the kind of cattle that fit that market. And, they bought close to half of the bulls at our recent sale," he adds.

## New interest

Other breeders from across the country are reporting new interest from seedstock buyers with a grass-production mind-set.

For many, like Litchfield, Neb., producer Kevin Fulton, production of grass-finished beef grew out of an effort to make operations more viable and sustainable. Fulton started out on a fairly traditional farming and cattle operation, but worried about long-term profitability.

"I really wasn't happy raising corn and soybeans. The cost of production kept going up, but the return [on investment] did not," Fulton explains. "I was inspired by others who were converting cropland back to forage to graze cattle."

After two years of careful planning, Fulton embarked on a five-year transition, turning some former grain fields into permanent pasture. Some irrigated ground is devoted to production of summer annuals, such as oats, millet and sorghum-Sudan grass. Production of winter annuals, including rye and triticale, allowed him to extend grazing beyond the traditional summer season.

Initially, Fulton grazed his own cattle and provided custom grazing services to other cattlemen. Through a network of fellow graziers, he honed his skills as a forage manager and became interested in producing for the grass-finished beef market.

"Ideally, animals are finished on green, growing grass, so winter presents a challenge. I try to extend grazing throughout as much of the year as possible, using winter annuals and stockpiled forage supplemented with dairy-quality alfalfa," Fulton says.

After finishing cattle for producers who market their own grass-finished product, Fulton also ventured into direct marketing. He sells quarters, halves and whole beef, with price based on hanging carcass weight. Customers pay the cost of processing. While he plans to pursue direct marketing more aggressively, he knows there is a limit to the amount of beef he can sell locally. Therefore, he also works with Tallgrass Beef Co. LLC, a Kansas-based firm that continues to build a supply chain of seedstock producers as well as graziers who grow and finish cattle for grass-finished beef. The company also develops retail markets for beef bearing the Tallgrass Beef trademark.



► Allen Williams, vice president of the Jacob Alliance LLC, uses ultrasound coupled with Beef Image Analysis software to help direct genetic selection in clients' herds. The technology has been applied to production systems targeting a variety of branded beef programs and particularly for production of high-quality grass-finished beef.

Like many branded beef programs, Tallgrass requires that producers meet protocols for product verification. To qualify, animals may not be weaned earlier than 60 days of age and, from weaning through finishing, diets must consist of any combination of grass, legumes and forbs that are grazed or fed as hay or haylage. Some protocols, including that of Tallgrass, prohibit the feeding of feed-grade antibiotics, fly-control products and ionophores, or the use of growth-promoting implants.

Generally, individual animal identification (ID) is required, along with a documented history of breed, birth and weaning dates, movement, veterinary interventions, and ultrasound data.

Live animal specifications established for Tallgrass Beef include:

- ▶ Steers and heifers must be younger than 30 months of age and have a carcass weight within the range of 500 pounds (lb.) to 900 lb.
- ▶ Fat cover must be ultrasound-verified at a minimum of 0.25 inches (in.), a maximum of 50 days prior to harvest.
- ▶ Actual ribeye area (REA) must be a minimum of 10 square in. (sq. in.).
- ▶ Minimum percent intramuscular fat (%IMF) must be 3.5%.
- ▶ Ribeye shape score must equal or exceed 0.5.
- ▶ Tenderness score must be 25 or less.

“Finding the right kind of cattle can be difficult,” Fulton states. “Networking with Tallgrass has helped source cattle to finish, as well as [source] seedstock. I’m building my own cow herd so I can be assured of a minimum supply of cattle.”

### Predicting quality

Increasing numbers of seedstock breeders, including DeBoo, are turning to Allen Williams for help in determining how well their genetics match the needs of the grass-finished beef market. Williams has been involved in building supply chains for various branded beef programs, including Tallgrass Beef. The former Mississippi State University genetics and reproduction specialist now serves as vice president of The Jacob Alliance LLC. Williams applies ultrasound technology, using Beef Image Analysis (BIA) software, to measure backfat thickness, ribeye area and marbling and to evaluate and score other traits, including ribeye shape, beef tenderness and susceptibility to stress.

Compared to its size, Williams considers the shape of the longissimus muscle (ribeye) a better indicator of retail beef yield. Based

on how closely it matches the ideal elongated oval shape, a ribeye is scored from 0.0 to 1.0. Scores of 0.5 or above are preferred, with lower scores associated with less desirable round or banana-shaped ribeyes.

From a longitudinal image of the ribeye, BIA measures tenderness according to the angle and texture of muscle fibers and the density of connective tissue. Resulting tenderness scores range from 10 (very tender) to 50 (tough). Williams says studies have demonstrated how BIA-derived tenderness scores from live cattle correlate closely with Warner-Bratzler shear force (WBSF) measurement of beef from the same animals. Consequently, he says, a live animal’s phenotypic expression of tenderness can be predicted.

Williams says another trait that affects beef quality is an animal’s susceptibility to stress. This is detectable and measurable because of the way animals respond to extended periods of stress. Whether due to sickness, injury or environmental factors causing nutrient deprivation, animals compensate by metabolizing body fat. The process always starts with intramuscular fat.

Based on the predictable pattern of fat metabolization, the BIA software calculates stress scores ranging from 10 (no stress) to 50 (severe stress). Williams notes that an animal’s stress score is an excellent indicator of subsequent health and performance.

“Stress compromises immune system function. Animals with stress scores of 25 or



▶ Mark DeBoo, Valier, Mont., is among the Angus seedstock producers whose customers include a growing number of producers seeking genetics that fit a grass-finished production system.

higher are candidates for the hospital pen,” Williams states. “They’re more likely to get sick. In general, they won’t gain well. They will have a higher cost of gain and produce carcasses of lower quality grade.”

As long as they weigh 500 lb. or more and are at least 7 months old, Williams says, weanling calves can be scanned and evaluated for the typical carcass traits, as well as for ribeye shape, tenderness and stress. Even at a light weight and young age, he contends, ultrasound image analysis can

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## Why grass-finished beef?

Consumer preferences vary, and some consumers prefer grass-finished beef. Allen Williams of The Jacob Alliance LLC and Tallgrass Beef Co. says market research suggests that as much as 25% of all consumers prefer its flavor vs. that of grain-fed beef. But, other factors certainly influence preferences.

Grass-finished beef often is touted as being more healthful, lower in total fat and lower in calories. Timothy Carr, University of Nebraska associate professor of nutrition and health sciences, says putting the wrong spin on the health benefits of grass-finished beef may be misleading. Compared to grain-fed beef of the same quality grade, neither the total fat nor caloric content of grass-finished beef would be significantly different.

Carr says grass-finished beef does contain more of certain fat components. Some sources claim it contains two to six times more omega-3 fatty acids, which are thought to be beneficial in reducing the risk of heart disease and cancer. Grass-finished beef is also higher in conjugated linoleic acid (CLA), which is believed to have cancer-fighting properties. But, are there enough additional goodies in grass-finished beef to have a real effect on human health?

“Probably not,” Carr says. “There is not enough scientific data to link human health with eating grass-finished beef. The total amounts [of omega-3 fatty acids and CLA] are still small enough that it’s unlikely that humans could consume enough to make a difference. Let’s put it this way: A human would probably have to eat 100 pounds of ground beef per day to get the same amount of CLA that prevents tumors in laboratory rats.”

Beyond the health issue, consumer preferences also are influenced by the way beef is produced. Some people don’t like the concept of confinement feeding and believe raising animals on pasture is more environmentally friendly and conducive to animal welfare.

“Dr. Gary Smith (from Colorado State University) has said ‘story beef’ is the wave of the future — that consumers will like the idea of knowing where their beef comes from and how it is produced,” Williams says. “Grass-finished production systems offer a story that many consumers will like to hear.”

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predict — with a reasonably high degree of accuracy — which animals are likely to perform well and hit carcass quality targets. However, Williams says the most exciting application of the technology may be for genetic selection.

He notes that ribeye shape is a highly heritable trait, while both tenderness and stress susceptibility are moderately to highly heritable. Therefore, it is possible to identify bloodlines that produce stress-prone calves or less-tender carcasses and use that knowledge to influence seedstock selection and management. Williams says some producers are routinely using the technology to improve the numbers of cattle that qualify for specific branded beef programs, including grass-finished beef.

And, while growing numbers of seedstock breeders are having herd sires scanned and evaluated for these additional traits, he warns against putting too much stock in the scores of individual sires.

“It is far better and much more accurate to scan progeny of sires than the sires themselves to determine what they can actually transmit to their offspring,” Williams explains. “Scanning individual sires only provides a snapshot of their potential. Scanning their progeny tells you what they can actually do. To provide a really accurate, repeatable measure of a sire’s true prepotency, one

must scan several progeny groups from multiple herds.”

### The right type

Williams estimates that 40%-50% of cow-calf producers seeking to enter the grass-finished beef market have the right biological type of cattle. The market is hungry for cattle capable of producing tender beef of higher quality grade. Grass-finished product has been frequently criticized for a lack of consistent tenderness and a top-end quality grade of USDA Select. However, Williams maintains, grass-finished animals can be tender, and they can grade Choice — given the right genetics and the right management.

University of Missouri (MU) animal scientist Fred Martz agrees, calling early maturing, small- to medium-framed cattle best for a grass-finished production system. Generally, easy-fleshing cattle of frame score 4 to 5.5 can work.

“You don’t want to go too small, or you sacrifice growth and gainability,” Martz adds. “Our research indicates 60 to 80 days longer to reach market weight of 1,050 to 1,100 pounds and grade Select or better. They’re usually only moderately finished by grain-fed standards, but it is possible to achieve Choice. Management is a key factor.”

Idaho-based grazing consultant and former MU faculty member Jim Gerrish says cattle should be gaining in excess of 2 lb. per day during the last 60 to 90 days on pasture to reach acceptable harvest weights and grade high-Select or low-Choice.

“We’re talking about the difference between grass-fed and grass-finished here,” Gerrish offers. “Finishing cattle on pasture requires a manager whose forage management skills are farther up the learning curve than most if they are going to have consistent results.”

Martz says there was a time when he thought that production systems could be developed that would produce beef as economically as when feeding grain. As long as grain is cheap, he now says, that’s probably not going to happen.

“But, there are consumers that prefer grass-finished beef and are willing to pay more for it. It’s not a very big market, but it’s growing. So what grass-based producers are trying to do is add value and seek premiums,” Martz adds. “It can be a way for some producers to use grass farming instead of more traditional crops and make their operations more profitable and sustainable.”



► Market research suggests that 25% of consumers prefer grass-finished beef, Williams says. Supply falls short of demand; however, due to its higher cost, the product is likely to remain a niche market.

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