



## Cattle and Grass Management Make it Work

**F**or half my lifetime, we were breeding the legs off cattle and getting rid of tall, warm season grasses—now I'm trying to get the cattle tall again and encourage the grass back."

Longer legs and taller grass is an oversimplification of the progress George Halterman has made at The Meadows Farm in the past two decades. The point, though, is

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*Angus females at The Meadows Farm must perform under conditions that parallel those in a commercial operation. George Halterman keeps his ideas and management approaches simple—maximum forage use is a key to his operation.*

that he has combined a performance program and pasture management to make Angus cattle work for him in the mountains of West Virginia.

The results of recent bull tests and sales at the Wardensville station speak well for the program. Meadows bulls have led in rate of gain, topped sales and produced sons that have done the same.

Perhaps just as important to co-owner and manager Halterman are the increase in average weaning weights of the entire calf crop and the acceptability of the finished market cattle.

Complete records are kept on the purebred and commercial cows in this opera-

tion—cows are in the herd for one purpose, to wean a heavy calf every year. Calves there follow one of three paths: top females are selected as herd replacements, top bulls go on feed test, and the remainder of the calf crop is fed to slaughter weight.

Halterman keeps his management practical—his cows must earn their keep under strict commercial conditions; offspring must be able to pay their way in a feedlot. This approach provides a built-in assurance that Meadows cattle will work for the commercial cattleman to produce red meat.

"Our Angus cattle are handled as near to commercial conditions as possible. This is

Editor's note: George Hallerman centers his successful grass management program around some very basic ideas and facts. While discussing forage management practices in action at The Meadows Farm, he referred to several points covered in the "Grass Makes Its Own Food" brochure which follows. Although the explanations contained in the article are simplified, the information is well worth considering and remembering. (Agriculture Information Bulletin No. 223 of the U.S. Dept. of Agriculture, Soil Conservation Service)

**Grasses**, like all green plants, live and grow on food manufactured primarily in their own green leaves. Ranges, pastures, lawns, or other grass crops can flourish and conserve soil only as the individual plants have an opportunity to make food for their own growth.

Plant food is manufactured in the leaves, and not, as many people suppose, drawn from the roots or the soil. The plant gets the "raw materials" to make food from the soil and the air. Because the plant's "food factory" is above the ground grazing, mowing, or clipping promptly stops production to the extent that green foliage is removed.

An explanation of the main steps in manufacturing food within a grass plant follows. Anyone who cares for grass—rancher, farmer, lawn-keeper—needs to know something about this process.

Water, entering the soil, forms a film around each soil particle and dissolves some of the minerals present. Tiny root hairs come in contact with these films of water and absorb the mineral solution. A network of small roots carries this mineral solution to the main roots. The roots transport it to the stems; stems carry it to the leaves.

Plants use phosphorous, nitrogen, potash, calcium, magnesium, and sulfur in large quantities to manufacture their food. They use other minerals such as iron, manganese, molybdenum, copper, boron, and zinc in only small quantities but must have them for good plant growth. All these minerals are in the solution the roots carry to the "plant food factory" inside the leaves.

Minerals from the soil make up about 5 percent of the solid material in plant roots, stems, seeds, and leaves. Carbon, hydrogen, and oxygen from the air and water make up most of the other 95 percent.

The leaves take in carbon dioxide from the air through tiny pores. Using energy from the sun, the leaves recombine the carbon with oxygen and hydrogen to make sugars, starches, and fiber. The sugars then combine with the mineral elements from the soil to make proteins, plant oils, and fats. Unused oxygen and water vapor escape through the leaf pores.

The plant uses sugars, starches, proteins, oils, and fats to grow and reproduce itself. Animals get these foods when they eat the foliage or seeds.

A perennial grass stores food in its roots after it has made the season's main growth. It uses these reserves to live on while the plant is dormant, to make the first growth next season, and to start new growth after its green leaves and stems are closely grazed or cut.

The ability of perennial grasses to recover quickly after grazing or mowing makes these plants especially valuable for forage production and soil conservation. This same ability often deceives the user of grass into thinking he can repeatedly remove any amount of leaves without injury.

What happens to grass plants that repeatedly lose their green leaves during the growing season? Since no "food factories" are left to receive and combine the raw materials from the soil and air, the plant keeps drawing on food stored in the roots to grow new leaves. It robs the storehouse until the supply is exhausted and then dies of starvation.

Research shows that many grasses will not reach their maximum vigor and growth when more than half their leaf surface is removed by frequent grazing or mowing.

Repeated removal of green foliage causes a corresponding reduction in the plant root system. Top growth that is kept small cannot feed a large root system; neither can a stunted root system supply enough raw materials to support a large growth of stems and leaves.

A grass cover that is weak does not make efficient use of soil moisture and nutrients. As a result it does not provide the maximum amount of livestock feed. And it is not able to protect the soil from erosion by wind or water.

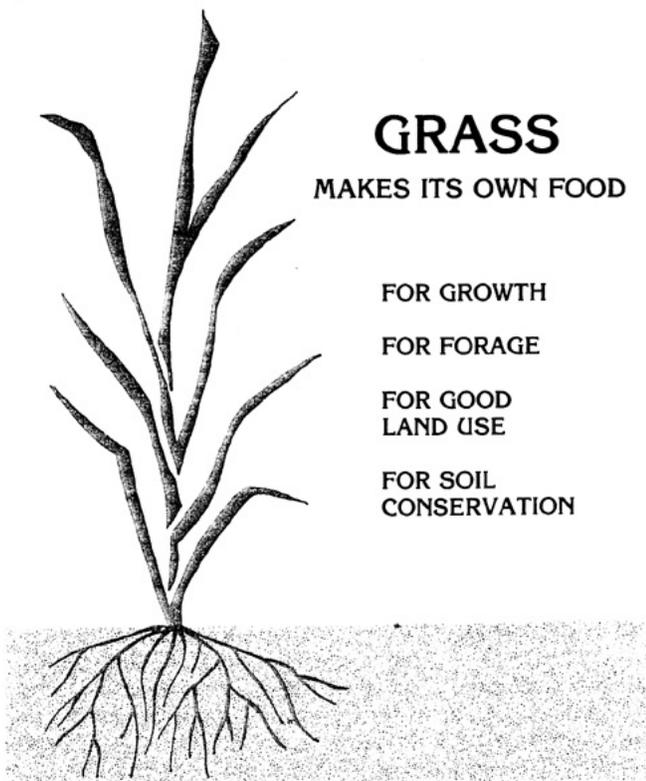
A dense cover of grass protects the soil from the battering, splashing action of rain. The leaves break up the raindrops and allow more water to soak into the soil, thus preventing erosion, conserving moisture for plant growth, and restoring underground water supplies. The higher and denser the grass, the better it shades the soil and keeps it cool. This reduces loss of water by evaporation and enables grass to grow better in hot weather.

For every pound of growth above ground, most grasses produce a pound or more of roots. Some of the better forage grasses send their roots down 10 to 15 feet. Some lawn grasses may penetrate as deep as 3 to 4 feet.

Decaying grass roots, leaves, and stems and the manure produced by grazing animals supply organic matter to the soil. This maintains its tilth and fertility, makes it more absorptive, and reduces erosion. To the extent that grass reduces the amount of water running off the land, it helps reduce floods.

During the drought of the 1930's and again in the 1950's wind erosion occurred largely on land that had little or no plant cover because of cultivation or too close grazing. Wind-tunnel studies have shown that a good growth of grass breaks the force of the wind before it can reach the ground and move the grains of soil.

Thus, the man who values grass sees to it that his "food factory" is large enough. Everywhere, grass plants must have adequate green leaves to survive and grow. 





*George Halterman (left) and his brother Charles made a few quick calculations while they watched Meadows-bred bulls tip the Wardensville scales for the 112-day weigh. The brothers have been testing bulls in the West Virginia station since it got started in 1967.*

the thing that I'm kind of proud of," remarks the lifetime cattleman.

In fact, George Halterman was strictly a commercial producer himself until 13 years ago. At that point the West Virginia Cooperative Extension Service became interested in starting a performance bull test station in the state and Halterman realized he would have to produce some registered stock to participate in that program.

#### **Founded on Commercial Cows**

His background in Angus cattle and farming traces back to his father, W.C. Halterman. A native West Virginian, W.C. homesteaded in North Dakota, then returned to West Virginia and established a hardware business. In the early 30s he purchased 2,500 acres near Mt. Storm and got in the commercial cattle business. Located about 30 miles west of and at a much higher elevation than the current Moorefield headquarters of The Meadows Farm, this tract of land is still an important summer unit for the operation, which has expanded to include some 5,600 acres in Hardy and Grant counties. The tough mountain conditions are the reason for Angus cattle at The Meadows today.

"We started with Angus because of the lower wintering costs—it's cold and high up there," George offers as he points towards a mountain ridge from a pasture which slopes across a mountain itself. "Everyone had Angus cattle in high Allegheny country because they would do better in the winter time."

George and his brother Charles took over the hardware business and farm when their father died. In 1942, they bought the Moorefield farm. Today, the two brothers are still partners in the expanded operation—Charles manages the hardware store and handles the farm records and accounts;

George runs the farming operation with the help of his sons, George II and Charles.

The Meadows Farm centers around 1,000 head of cattle. Nearly 350 brood cows, 300-350 market cattle fed annually, plus herd sires, replacement females and calves make up that total.

Currently, the majority of the cow herd is purebred, but the transition from strictly a commercial herd has been gradual, and management has remained basically the same. Although he had Angus cattle from the start, George Halterman was unimpressed with the direction of purebred Angus breeders when he got into the cattle business. Strong in his belief that practices of pampering registered stock didn't improve the cattle industry, and in effect were detrimental to commercial producers, he believed his commercial Angus were more valuable producers than most registered stock in Virginia or West Virginia.

#### **Purebreds for the Bull Test Station**

Halterman was buying and using registered Angus bulls, many from the early performance tests in Culpeper, Va., and when plans to start a test station in West Virginia began to shape up, he was sold on performance testing.

In fact, as a member of a livestock advisory committee with the University of West Virginia, he was one of a few breeders instrumental in initiating the feed test. From the first dozen bulls they tested in Morgantown, this test has continued to grow to the high caliber set of 240 bulls representing 79 herds and the impressive facilities at Wardensville today.

"I wanted to get with this test and had to get some purebred females if I was going to participate. The first performance testing program, as we know them today, was started in Rockingham County, Va., and the

Charles Wampler family of Harrisonburg, Va., had some of the first cattle on the program. Wampler was a prime believer in performance testing . . . so that's where I went to get my first females.

"We bought 15 or 20 females from Wampler and Fred Carter, (Buena Vista, Va.), and have just grown into the purebred business since then. We started with those few and kept some daughters—never bought very many females after that."

That was in 1969 and among the cows Halterman selected was a 1,400 lb. matron that has since left 8-10 daughters in the herd—one of them is a 1,500 lb. cow that has had several top performing sons. Halterman knew what he was looking for in a cow then, and he hasn't changed his ideals, philosophies or selection criteria much since that time. If anything, he places more emphasis on frame and cow size today; this is a reflection of his changing role as a purebred stock producer.

"Right now, the average commercial cow needs more size—the rank and file of commercial Angus cattle, that is. I'm looking at that with steer and heifer carcasses in mind. The average commercial cow has got to be in the 1,100-1,200 lb. range; then the commercial breeder can use a 1,200 lb. yearling bull on them to get his cattle finishing out at 1,250-1,300 lb. For a purebred breeder, these 1,500 lb. cows aren't too big. I've got to be producing those bulls that will weigh 1,200 lb. at a year of age.

"But I've also got to sell my fat steers and heifers. And I think we have to sell these heifers—the carcasses of straightbred Angus steers are big enough, but you've got to market your heifers too, and right now they're finishing too early."

Registered females in the Meadows herd have had to compete and perform alongside the commercial cows. Selection has been on production and performance, with the greatest degree of stress on weight and frame size. Halterman visually appraises his replacement heifers, too—liking a feminine, trim, angular individual (what he calls the "dairy look").

#### **Forage Program Caters to Needs**

Halterman has selected for an extended growth pattern in his cattle and gears his feeding to grow females out well so they are large cows. Far from pampering, he concentrates a management program around grass and forage usage that caters to various nutrition levels and needs of his cattle.

Highest quality feeds produced at The Meadows go to the market cattle on full feed (and all feed except protein supplement is produced on the farm); calves and young cows hold next priority for quality feeds; mature cows are maintained on the less potent hays and silage.

His operation is centered around maximum utilization of grasses and for his efforts in combining cattle and grass management successfully, he has received such recognition as Conservation Farmer of the Year in West Virginia, 1978, and dedication

of the West Virginia State University Little Eastern National Annual in 1972.

There are no feeding secrets or stringent rules in Halterman's mind—"Circumstances dictate what you feed and when. We make feed in the summer and feed it in the winter.

"You can do a lot with grass on the right kind of cow—good succulent grass and plenty of it."

Once again, the philosophies of George Halterman are rather simple and have applied for many years. The results are obvious and can be measured where it counts—in the production of his cattle. Halterman looks at grass as an energy factory and storage unit. Just as he stays aware of varying needs of cattle for maximum production, he respects the requirements of different grass species and coordinates them in order to get maximum production and extended grazing periods.

Pastures are rotated with different grasses in mind; grazing pressure is altered to encourage warm season, cool season, tall and short grass alike.

Halterman is always ready to illustrate the reasoning behind his practices; whether it's comparing grass types while you're in the pasture studying cattle; looking at a "Grass Makes its Own Food" brochure; or discussing pasture rotation.

"For example," offering more of his simple logic, "if you let the grass grow tall, tall species can live—such as timothy, orchard grass and some native summer grasses. When you put heavy grazing pressure on

taller, early grasses heavily and the short warm season grasses can recover their foothold.

"Grazing can be extended up to 11 or 12 months a year in some areas. With careful management here at The Meadows, we extend grazing to a degree. We'll make hay once and then let the aftermath grow up the rest of the summer. After the first frost, that grass has performed its function of storing energy in the roots, so we can graze it off. Certain pastures can last us into January that way, so we never feed the cows at the Patterson Creek unit until after they calve. Round bales provide forage even longer in some pastures."

#### Managing for Maximums

Halterman tries to maximize usage of pasture, facilities and herd sires by dividing his calving season. Mature cows calve into two groups; first-calf heifers calve later.

Cows kept at the Patterson Creek unit, where hay and silage are plentiful and good barns are available, are bred to calve in January and February. The remainder of the cows calve after March 10 and heifers start calving in April.

Several things are accomplished by this arrangement, although calves range in age at weaning. Since all natural service is used, the staggered breeding season allows use of mature herd sires in at least two of the seasons. Proven sires can then be used to settle 60-70 cows.

By breeding his 2-year-olds to calve in April, Halterman is assured that sufficient

right while they raise their first calf as a 2-year-old, then the next year they've had time to rebuild themselves and they'll cycle back in with the cowherd. Unless you've really got high-quality feed for them as coming-two's, they'll get poor as a hound if you calve them earlier than the cowherd."

Growing cattle are fed to meet their higher requirements; however Halterman never creep feeds. "That is distasteful to me—that practice can mask a cow's maternal ability."

He does separate his cows that are nursing the heaviest bull calves though, and stocks them lighter. Since those cows, who have already shown themselves to be good producers, are not as apt to be set back by short grass supply, bull calves have the best available growing conditions up until weaning when they go on feed test.

All calves are weaned together in the fall (once again circumstances dictate). Top bull calves go right on test at the Wardensville station; a few bulls are sold to local commercial breeders. Other calves go on a ration of alfalfa hay and silage for the winter and the following spring they go back on pasture—to make maximum use of forages. The yearlings, which include replacement heifers and feedlot-bound heifers and steers, continue to gain on good quality pasture.

#### Feedlot Heifers are Spayed

Approximately 100 heifers from each calf crop are fed for slaughter and they are spayed as yearlings—a practice rather unique to The Meadows Farm. Again, it is one that Halterman began 30 years ago and has continued for practical management reasons. Spayed heifers can easily be handled alongside steers in the feedlot, they are quieter and riding is reduced; Halterman, therefore, is convinced the heifers gain better.

The spaying operation (ovaries are surgically removed) is done by George and his sons. And since the cattle are on grass at the time, no special treatment is required. In fact, after the single incision is stitched up, George believes exercise on clean, short pasture is the only treatment needed. Expenses are minimal; success rate is virtually 100%; and the benefits outweigh any setback in growth or gain.

Steers and spayed heifers enter the feedlot after summer grazing decreases. They are put on full feed supplemented with protein and Rumensin. Marketing of finished cattle is staggered—the heaviest cattle are pulled from the main feedlot and pushed harder for the last few weeks. Halterman hand picks 30-50 head every 2 or 3 weeks, as they finish. The cattle are bred and fed with the goal of producing a 600-lb. carcass that will grade choice; and they are sold accordingly.

The steers, sold weekly at local auction, average 1,250-1,300 lb.; heifers will average over 1,100 lb. This final product is bred for, selected for, managed for—it takes best

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*The Haltermans are making Angus cattle and their West Virginia pastures work for them. Management has not changed a great deal over the past 30 years, but progress in the breeding program is evidenced by the performance of the cattle. From left are George, his two sons Charles and George, and his brother Charles.*

grass, or clip it often, the first grass you kill is the tallest because it can't get the sunlight it needs. Shorter grasses, Kentucky Bluegrass for instance, can flourish at a much lower level.

"Now cheat grass, if you kill that, you've killed everything and all you have is erosion."

On these basics, Halterman varies his pasture rotation each year. "If you rotate your herd through three pastures, by the time they reach the third field the grass is tall—and those tall species are encouraged. Then in another year you want to graze that pasture early so that the cattle graze the

grass will be available during their early lactation. The delayed breeding also gives yearling heifers a little extra time to grow out. Encouraging growth of his females is of primary importance to Halterman—in fact, he recently started feeding the replacement females (the top third of the heifer crop) an extra Rumensin supplement after weaning.

Yes, the late calves of first-calf producers are lighter, but Halterman accepts this.

"They aren't in top production yet anyhow and it's more important to give them that opportunity to grow out—by growing these cows out better and treating them

advantage of the land, labor and resources that are available.

And with a breeding and management program that has been consistent for many years, the 300-350 cattle sold annually at the stockyards are uniform. Lighter cattle, such as calves of 2-year-old cows, may be carried longer before going on full feed. Extremely small-framed cows, as long as they produce well, are bred to a Simmental bull so that the resulting crossbred calves are comparable to the straightbred Angus calves out of larger cows.

#### **Uniform Product Earns Premium**

Logical management decisions like these help keep the cattle on feed uniform; in turn the product is uniform. That fact is recognized by repeat buyers at the market, local or from Pennsylvania. And yes, the heifers guaranteed to be spayed normally bring a few cents extra.

A few steers from The Meadows have made their way to Eastern shows since George and Charles took over the farm. The brothers started showing baby beef steers at the Baltimore Stockyards; George's sons showed in 4-H and now several juniors purchase steer projects from The Meadows each year. The list of steer champions and champion carcasses is lengthy; straightbred Angus calves are still adding to that list, despite tough crossbred competition.

Progress in the Meadows herd is most evident though in the bull test results from Wardensville. George Halterman set out 13 years ago to find some top performance animals—now he is producing them.

Bulls carrying the Meadows name have been among the top gainers in this test station; those bulls in turn have sired calves that topped the test. Halterman fills a test pen of 25 bulls each year—the sale-topper has come out of that pen five times in the last 13 years; Halterman-bred bulls sired the high-sellers two other years.

In 1980, a Meadows bull adjusted to 1,200 lb. at a year of age—in 1981 a bull calf adjusted over 700 lb. at weaning. Perhaps those are not national records . . . but national headlines are not the goal of the Meadows program. In an operation where production is maximized and expenses are minimal, conditions are parallel to a commercial operation. The straightbred Angus are pushed and bred for performance—but they must perform in a working world. If bulls are to be sold to cattlemen who raise feeders with minimum care in the hills of West Virginia and then feed those calves to market weight . . . then the Meadows seed stock bulls must be bred to do the same.

George Halterman's goals are directly reflected by the commercial cattleman's needs. He is a commercial cattleman himself and his management is practical.

Cattle and grass make his land work for him; he has a few simple philosophies and has stuck with them. There's a lot to be said for that . . .

