



The owner of this dairy herd in Maryland switched to Jersey cows because they convert forage to milk more efficiently. They also are more tolerant of summer heat. Photo courtesy of Maryland Cooperative Extension

PUT OUT TO PASTURE

Watershed's dairy, beef producers are learning that grass is indeed 'greener' when they switch to rotational grazing

BY KARL BLANKENSHIP

ON a pleasant evening last September, more than 100 people gathered on Steven Weaver's New York farm to see how his grass was growing. Quite well, it turned out, despite a drought that persisted much of the summer.

Clover, orchard grass, alfalfa, rye and other forage grew so thick it required effort to wade through them on the stroll up the hill to see the Amish farmer's dairy herd contentedly chewing away.

Unlike most dairy farms, Weaver's 50 cows spend almost all of their time in the pasture, which is also where they get almost all of their food. Less than an hour a day is spent in the milking parlor.

He has no need for expensive equipment to haul and spread waste. "Let them haul the manure," Weaver said of his cows. And because he creates new grazing "paddocks" every few days using thin strands of electrified wire, the manure is evenly spread, allowing the nutrients it

contains to be quickly recycled into new grass.

"If we can get the manure out on the sod, that's good for the Bay," said Troy Bishopp, a grazing specialist with the Madison County Soil and Water District. Bishopp, known as the "grass whisperer" for his promotion of what's known as "rotational grazing," had organized the pasture walk to introduce potential

See "Rotational grazing good for Chesapeake" on page 3.

converts to the benefits of Weaver's method of farming.

He stopped to pry apart a cow pie with a stick. "If there are earthworms and insects under that pie, you can pretty much guess how much grass you're going to grow next year," Bishopp said.

Weaver views the soil and the grass it sprouts among the biggest assets of his

PASTURE continues on page 2

PASTURE from page 1

farm, and talked passionately about how nearly every type of plant found in his pasture played a role in his cows' diets. But his bottom line was economics. "We can make milk a lot more cheaply," he said.

Grass, after all, is about as close to a free lunch as one can get. Weaver and others predict that managed grazing will become an increasingly attractive alternative to traditional confined feeding operations as grain, fertilizer and fuel prices soar. "The small, grass-based farmer will have a big advantage if the grain prices stay where they are right now," Weaver told the group.

That's the message being touted across the region. From Weaver's farm on the northernmost fringe of the Bay watershed, to southern Virginia, interest in grazing is on the rise as farmers raising dairy cows, beef cattle, goats and even horses are relearning the value of well-managed pastures.

Rotational grazing is viewed as having a big potential to help reduce the amount of nutrients entering the Bay. (See "Rotational Grazing Good for the Bay" on page 11.) But unlike other nutrient control practices, which typically cost farmers money, green pastures typically mean more green in the pocket as well.

While officials estimate that fewer than 10 percent of dairy and beef operations practice rotational grazing today, they expect that number to grow in the future.

New York has made the promotion of rotational grazing a centerpiece of its tributary strategy for agriculture, and even won one of the EPA's first targeted watershed grants—aimed to promoting cost-effective nutrient reductions—to promote the practice.

In February, the Chesapeake Bay Funders Network, a collaboration of regional nonprofit organizations, recently teamed with the W.K. Kellogg

Foundation to support a new farmer-to-farmer mentoring program in Maryland specifically aimed at promoting grazing.

The low-cost approach to production offered by grazing is attractive to new farmers, especially dairy producers.

"Almost all of the new dairies in Virginia are grazing," said Chris Teutsch, an associate professor at Virginia Tech's Southern Piedmont Agricultural Research and Extension Service. "You don't see people going out and building infrastructure that you saw 30 years ago."

That's true throughout the region.

Dairy herds in the Mid-Atlantic

All they need is capital for cows."

Grazing operations, on average, produce less milk per animal than a conventional animal feedlot, but they make more money per unit of production.

That's because when grass is supplying most of the food, farm expenses drop sharply. The need for equipment such as tractors and harvesters, and infrastructure such as silos, and even barns, is minimal or—for some farmers—nonexistent

That is reflected on the bottom line: The net profit on grazing operations Johnson examined from 2002-06 was



These pastured Holsteins on a Maryland dairy farm average about 19,000 pounds of milk per cow per year. Photo courtesy of Maryland Cooperative Extension

are relatively small: The average herd in Pennsylvania, the fifth largest dairy-producing state, is only 64. In California, the average herd size is 774; in Idaho it is 610. Those large scales of production drive down prices and make it less attractive to make investments in costly new operations here.

Rotational grazing offers a solution, especially for new farmers. They need little more than to rent some land and buy some cows to get started.

"Economically, it makes no sense to go out and start a confinement operation," said Dale Johnson, a farm management specialist with Maryland Cooperative Extension. "But there are young people getting started in grazing.

\$571 per cow compared with an average of \$471 in traditional confinement operations. On average, 100 pounds of milk from grazing operations netted a profit of \$4.43 compared with \$2.33 from confinement operations.

Overall, rotational grazing operations spend less on feed, fertilizer, chemicals, labor and veterinary care than confinement operations.

Cows tend to be healthier—and produce longer with rotational grazing. In Maryland, for example, the cull rate averages 40 percent a year on confinement operations, but only 25 percent on grazing operations, allowing

PASTURE continues on page 3

ROTATIONAL GRAZING GOOD FOR THE CHESAPEAKE

A recent review for the Bay Program has indicated that many agricultural practices are less effective at controlling nutrients than once thought. But a preliminary review of rotational grazing conducted by a team of scientists last year suggested it was actually more effective at preventing nutrient and sediment runoff than previously estimated. That review is expected to be completed later this year.

This is partly because confined animals fed grain imported from elsewhere create a stockpile of manure laden with more nutrients than is needed on the farm. That makes it difficult to manage the manure and keep it out of waterways.

Because they import less feed, farms that rely on grazing have a better nutrient balance: Cows and cattle are in the field spreading fertilizer for a new crop of grass as they feed.

"When we are looking at lowering nutrient inputs within an entire watershed, I think that has a very positive benefit," said Elmer Dengler, Maryland state grazing specialist with the U.S. Department of Agriculture Natural Resources Conservation Service.

Studies tend to show less nutrient runoff from rotational grazing operations than other animal operations.

Even on conventional pastures, runoff can be higher because free-roaming animals may congregate around their favorite grass, or under a shady tree, creating nutrient "hot spots." Rotational grazing keeps them on the move, more or less evenly distributing the manure, reducing or eliminating the need for fertilizer.

That builds a better pasture, literally from the roots up. The taller stubble left on paddocks where animals have grazed and thick grass on "resting" paddocks, reduces



Wildlife also benefits from pastures. Many grassland birds in this region have suffered significant declines from loss of habitat. Typical overgrazed pastures often provide too little grass cover for birds, but the longer grasses regrowing in "rested" areas of rotationally grazed pastures are ideal. In some places, meat and dairy products are marketed as "bird friendly" as an added selling point. The owner of this herd in Maryland noted that the cattle egrets in the background appeared when he started grazing. Photo courtesy of Maryland Cooperative Extension

runoff from rain storms and promotes infiltration into the ground, while reducing rapid runoff into streams, which is devastating to fisheries.

One recent study, Dengler said, showed that a rotationally grazed pasture lost more than a third less nitrogen in runoff than a conventional pasture.

But that's just the beginning of a high-quality pasture. Over time, the microbial community in the soil becomes healthier and more robust in its ability to break down the nutrients in manure into forms more readily used by plants.

More than 90 percent of the nutrients consumed by livestock in rotational grazing are recycled in the form of dung and urine returned

to the pasture, according to Chris Teutsch, an associate professor at Virginia Tech's Southern Piedmont Agricultural Research and Extension Service.

The pastures produce an abundance of earthworms, too: an average of 1.2 million per acre, versus 400,000 in tilled soils.

The vibrant soil life also creates, in effect, a glue that helps hold particles together, making the soil much less likely to erode.

"It's cheap conservation," said Troy Bishopp, a grazing specialist with the Madison County Soil and Water Conservation District in New York. "It helps keep the land in farming, and the soil on the farm for future generations."

PASTURE from page 2

farmers to expand their herd or sell excess cows.

There is nothing new about turning animals loose on pastures to eat. But in recent decades, farms have increasingly relied on hay, corn and other food—often grown somewhere else—and fed it

to animals in feedlots.

Those animals may also be allowed to roam pastures, but left unmanaged, the pastures are usually overgrazed and provide little food for animals, especially after initial spring growth.

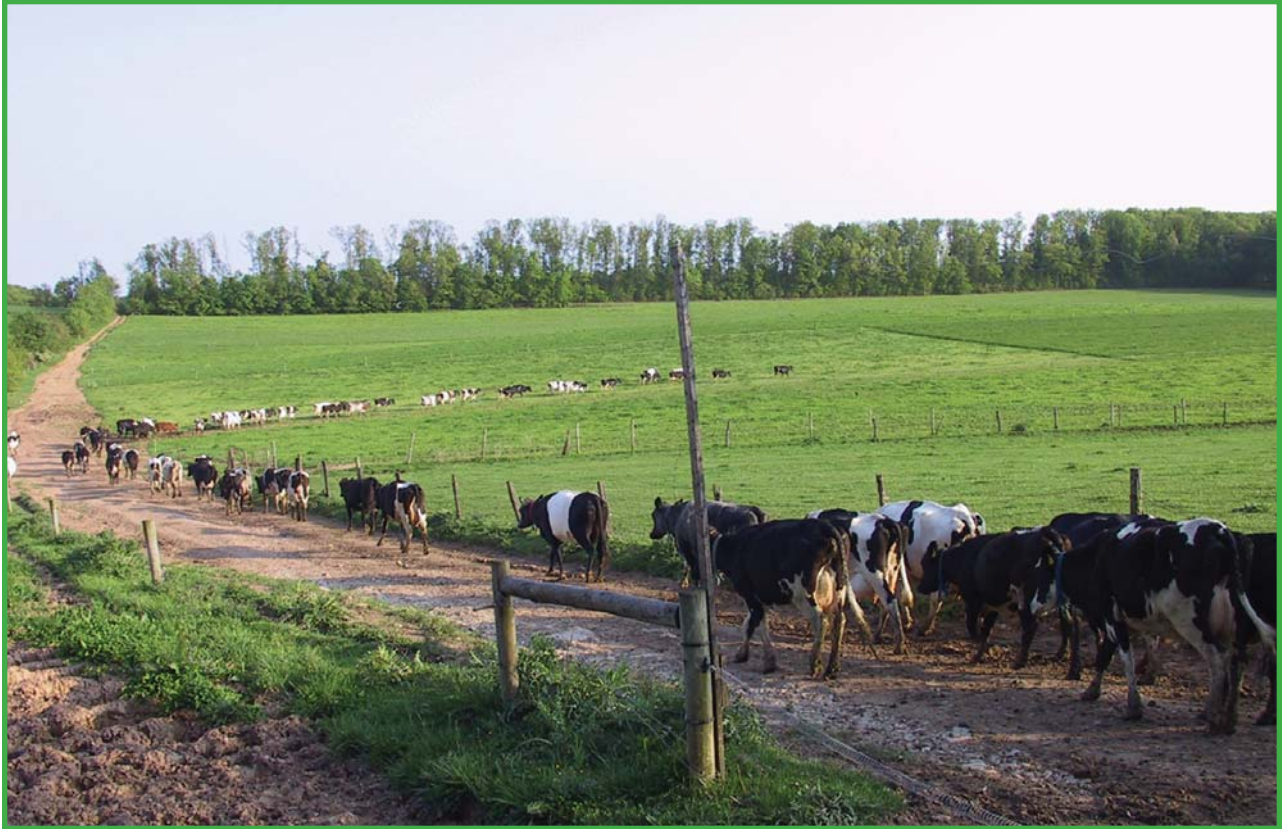
Grazing as a means of providing most of the food for cows and cattle has

been abandoned, and even looked down upon, by many farmers. "They always say that you go to grazing when you're about to lose the farm," Bishopp said.

That was the case for Pennsylvania farmer Glenn Moyer in the mid-1980s

PASTURE continues on page 4

These cows return to pasture after their evening milking. Night pasturing takes advantage of the grasses' natural increased sugar content in the evening hours.
 Photo courtesy of Maryland Cooperative Extension



PASTURE from page 3

when he and his wife were raising 40 cows and growing broke. As he watched his corn crop fail one year, he made a last ditch effort to save the farm: He switched to rotational grazing.

Two decades later, Moyer, his son and one other employee are raising nearly 350 cows on a 270-acre farm in Bedford County.

The operation consists mainly of one structure in the middle of the pasture that contains the milking parlor and a few odds and ends. The first thing visitors say, Moyer said, is “Wow, this is simple.”

He agrees. “It is a simple, low-cost operation, but highly profitable. And that’s kind of what we’re in business for.”

Most farmers have pastures. But left unmanaged, the animals chew grasses down to the ground, curtailing regrowth. By summer, the grass is gone. Further, grasses they like may be overgrazed—inadvertently leaving less desirable grasses as those most likely to rebound.

“Cows are like kids,” said Michael Heller, of the Chesapeake Bay Foundation’s Clagett Farm, who has been grazing cattle for 25 years. “They eat what they like, and they don’t eat

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– Chris Teutsch
 Virginia Tech
 Southern Piedmont Agricultural
 Research & Extension Service

what they don’t like, so the stuff they don’t like goes to seed. Over time, the cows are selecting for the very kind of pasture they don’t like.”

Rotational grazing, or management intensive grazing, relies on putting animals on a relatively small area of the pasture until most of the grass is consumed—but moving the animals before grasses are nipped so close to the roots that it prevents healthy regrowth.

Through rotational grazing, the same pasture can dramatically increase grass production. “What rotational grazing brought to the operation,” Moyer said, “was the knowledge to manage the plant so it would thrive in the grazing operation as well as the cows.”

So why isn’t everyone grazing?
 One of the main sources of

information and support for farmers is salesmen. But they have little to gain in promoting grazing because it requires little equipment or feed.

“The cynical part of me says that part of the reason it’s not adopted by 50 percent of the operations in the country is that there really isn’t a lot of things being sold to support grazing,” Moyer said.

“When I had a confinement operation, it seemed everyone out there had some product that in some way or something was going to improve my production. Nobody is really making a business of promoting grazing.”

It’s also a major change from traditional dairy and cattle farming, where animals are fed prescribed rations and medicines and then produce predictable yields of milk or beef.

In contrast, managing pastures means keeping a keen watch on the grass, and making adjustments on an almost daily basis. Pastures are managed differently based on location, time of year, types of grass grown, weather conditions and other factors. Milk and beef production can go up or down accordingly.

For farmers interested in grazing, in-the-field advice is crucial. Yet support

PASTURE continues on page 5

PASTURE from page 4

from federal agencies and county extension offices has greatly diminished as funding for technical support has declined. Often, grazing positions hinge on the ability to attract grants, rather than dedicated state or federal funding sources, Bishopp said. "We shouldn't have to be grant writers, but we are."

The stakes are high. Farmers can be slow to adopt a new practice. A failed grazing operation can create a domino effect that ripples far beyond an individual farm.

To fill that information void, grazing advocates have created programs to introduce the benefits of grazing. Moyer, for instance, was one of the initial members of Project Grass in Pennsylvania, which organizes "grazing groups" where farmers get together to share experiences, and newcomers can learn how to get in. "There's a lot more one-on-one out there than there was 20 years ago, I can assure you of that," Moyer said.

But in areas without such support groups, breaking in can be difficult.

To address that problem in Maryland, the Chesapeake Bay Funders Network and the W.K. Kellogg Foundation teamed up to provide a \$425,000, three-year grant to establish a Maryland Grazer's Network that pays farmers to serve as mentors to others interested in switching to rotational grazing.

"There is not enough money for technical assistance," Heller said. "One way to solve the technical assistance issue is to let farmers be the mentors for other farmers. You want to talk to the guy who has had to do it and has made the mistakes."

The network is starting with eight mentors who will give on-the-farm advice about grazing. The number of mentors is expected to grow over the next two years.

Although grazing may require more assistance at the beginning,

advocates view it as an effective long-term management program. Unlike other programs that require continual expenses, such as writing nutrient management plans or planting cover crops, grazing offers the promise of lower costs and increased income while improving water quality.

"It is a sustainable project," said Connie Musgrove of the University of Maryland Center for Environmental Science, who helps coordinate agricultural initiatives for the Chesapeake Bay Funders Network. "When the money for this particular project is over, it is a practice that sort

Cooperative Extension, said there's a growing demand for local food: A recent study showed the number of products in meat cases labeled "local" grew 45 percent in the last year, and those products command higher prices.

"People are willing to buy these products even if they cost a little more," Myers said. "Quality is the number one issue, and price comes in second. This is something that grass-based products can certainly offer."

The potential to supply the market with local production is huge. The number of small beef operations is on the rise: In Maryland alone, there are



Portable waterers and movable fencing help to keep animals out of the stream as well as manage grass efficiently. Photo courtesy of Maryland Cooperative Extension

of sustains itself."

Besides normal cost savings associated with rotational grazing, the mentors will also emphasize ways to add value to products to boost income even more. For instance, some grazing dairies become organic operations, which results in a premium being paid for the milk. One producer in the state is even marketing organic ice cream.

Likewise, cattle growers have the potential to add value by marketing their grass-grown beef as a local product, or as one grown with few if any antibiotics and growth hormones.

Ginger Myers, a specialist in marketing with the Maryland

more than 4,000, making them the most common farm type in the state.

Still, most acknowledge that rotational grazing is not for everyone. It's a huge shift for farmers used to the regimens of confined-feeding operations. Grazing advocates acknowledge that managing pastures for maximum production is nearly as much an art as it is a science.

"It takes a whole different mindset for management," said Ginny Ishler, an extension associate at Penn State University who specializes in dairy feed nutrition. "Not everyone is geared

PASTURE continues on page 6

An angus beef herd grazes in Maryland. Cattle growers have the potential to market their grass-grown beef as a local product, or as one grown with few if any antibiotics and growth hormones. Photo courtesy of Maryland Cooperative Extension



PASTURE from page 5

for that.”

And grazing is not without risks. Drought can be devastating, especially for those who didn't or couldn't stockpile enough grass to get through unusually long dry spells. “Short-term drought is a real issue for all grazing operations,” said Teutsch, of Virginia Tech. “You are really counting on forage to supply feed for your animals. You don't have much of a backup.”

He has been experimenting with mixes of warm season grasses—which start growing later in the year but do well during drought—to supplement pastures at grazing operations.

For farmers with deep debts from infrastructure investments, the switch to grazing would prove too much a risk, many agree.

But for others, facing rising fuel

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 costs for tractors and rising grain costs for feed, grazing may become an increasingly attractive option. For those who successfully make the switch, the choice is clear.

“Grazing isn't for everyone, I'll be

the first one to say that,” said Bruce Rivington, who moved to a 625-acre Madison County, NY, farm from Canada nine years ago. “You're making a judgment call everyday.”

During the drought last summer, Rivington said he had to feed his herd of 350 cows some of the grass he had hoped to save for the winter. But with corn prices topping \$4 a bushel, he also believes that many farmers will see more benefits than drawbacks to grazing.

“A lot of people asked why we were growing grass on some of the best corn and alfalfa ground in the state,” Rivington said. “My answer was, ‘This is grass ground, and way too good to grow corn and alfalfa on.’”

Karl Blankenship is the Editor of the Bay Journal.

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