



PENNSYLVANIA

Let Them Eat GRASS

Grazing in the Chesapeake Bay Watershed

Farmers play a critical role in reducing pollution that contributes to poor water quality in local streams, rivers, and the Chesapeake Bay. The same practices that keep fertilizers, manure, and sediment out of the water can also increase profitability, improve soil health, increase resilience to severe weather, and help fight global climate change, benefiting both farmers and environmental restoration efforts.

One of the farming practices most effective for achieving these multiple benefits is rotational grazing. By frequently moving livestock between grass pastures and allowing plants time to regenerate, this form of grazing helps build healthy soils and plants that act like a sponge to soak up rainfall, trap nutrients and soil on the land, require less fertilizer, and store carbon-rich organic material in the ground.

With support from the federal Natural Resources Conservation Service (NRCS), the Chesapeake Bay Foundation has focused on increasing adoption of rotational grazing in Virginia, Maryland, and Pennsylvania by enhancing outreach efforts, leveraging private funding to assist farmers, and quantifying some of the environmental benefits on farms across the Bay watershed.



CHESAPEAKE BAY
FOUNDATION

Saving a National Treasure

CASE STUDY

Blue Mountain View Farm

FARM: Blue Mountain View Farm, a 198-acre organic dairy farm with 95 milking cows plus 60 heifers and calves.

OWNER: Matt Bomgardner

LOCATION: Lebanon County, Pennsylvania

BASELINE PRACTICES: 50 acres of cropland with a mixture of corn, alfalfa, and rye with manure and fertilizer applied



ON-FARM CHANGES: Between 2008 and 2016, Bomgardner converted this cropland to rotationally grazed pasture so he could increase the percentage of time his dairy herd spent foraging on grass and comply with organic dairy standards. He also eliminated the use of synthetic fertilizer.

Environmental benefits of switching to rotational grazing:



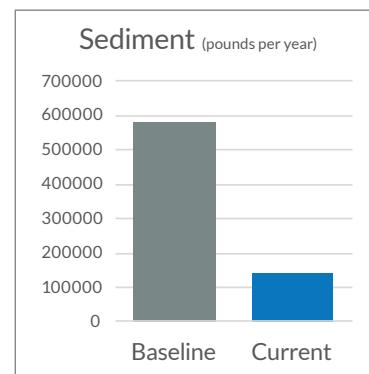
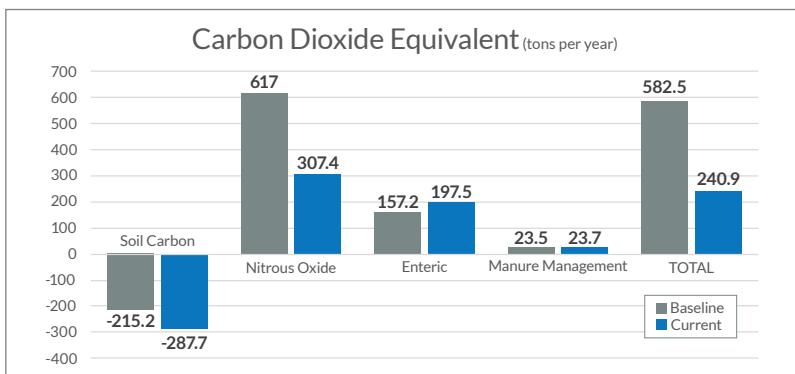
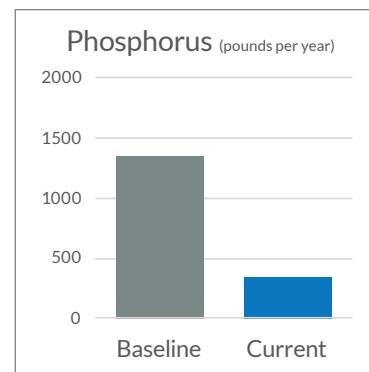
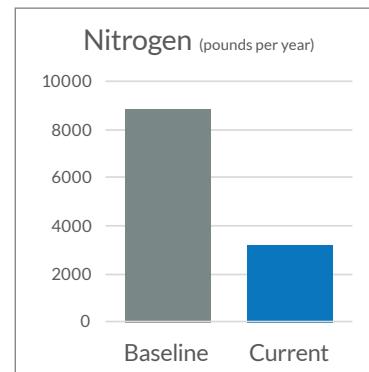
WATER QUALITY: A farm-scale modeling tool was used to estimate water-quality benefits. Nitrogen, phosphorus, and sediment pollution decreased by 64 percent, 74 percent, and 75 percent, respectively.



SOIL HEALTH: Soil health is measured by several physical, biological, and chemical indicators, including the amount of organic matter in the soil, health of microbial communities, and how well it can resist erosion. These indicators result in a rating from 0 to 100, where higher scores are better. Blue Mountain View Farm's soil health rating increased from 86 to 92 between 2016 and 2018, including significant improvement in key indicators like organic matter.



GREENHOUSE GAS (GHG) EMISSIONS: A farm-scale tool was used to estimate changes in GHG emissions. Overall, GHG emissions from the farm decreased by roughly 59 percent, mostly due to increases in soil carbon sequestration and decreases in fertilizer use that resulted in less nitrous oxide (a very potent GHG) emissions. The overall change is equivalent to the amount of carbon that would be stored annually by three acres of mature forest.



FARMER'S VIEW

Matt Bomgardner

Matt Bomgardner grew up on Blue Mountain View Farm, where he now lives with his own family. He sees grazing as one way to help ensure Lebanon County's small farms continue into the next generation, and is a Dairy Grazing Apprenticeship Coordinator with the Pennsylvania Association for Sustainable Agriculture.

Why did you choose to rotational graze?

Grazing helps you compete by lowering your feed cost. This is really the way the small farms are going to be able to survive and thrive, especially in today's volatile dairy economy. I can maintain milk production while getting at least 40 percent of the herd's diet from pasture, so that's a big cost-saver. Additional benefits are that the cows spread their manure, don't need bedding, and almost always have better health when they go outside, leading to longer productive lives. While management requirements often increase in a grazing system, many see less labor since field work and cow husbandry are reduced.

Infrastructure can be far less expensive, varying from a million-dollar barn to a \$50,000 really good pasture system with mixed forages, fences, lanes, and waterways. Our farm had outdated facilities, so instead of building a whole new barn, we can just send the cows out to improved pastures. That saved us hundreds of thousands of dollars.

What changes have you seen on your farm?

With managed grazing, the cows are excited to move to a new paddock with fresh forage, so eat better and maintain yield. They don't congregate in one area, so they spread out the nutrients from their waste. With grass growing and recovering more quickly, the rain isn't hitting soil causing erosion. I can't tell you the last time I saw a gully that washed out, and we've even been doing a little plowing. So just having the higher organic matter and going back into a perennial [grass] as soon as we could after an annual [crop] is beneficial.

What do you think are the biggest barriers or challenges to grazing?

Right now, especially with dairy, it's the finances. Low and fluctuating milk prices, even in the organic sector, make any investments a challenge. It's difficult to hire help or an apprentice.

What would you tell other farmers interested in grazing?

Grazing is both an art and science, and isn't as simple as putting cows on grass and walking away. Having mentors and attending grazing pasture walks and conferences helps you learn a lot. By visiting a local grazer, you'll see their grasses and legumes, height when cows start, when they pull the cows out, and stocking rate. You can ask about their production, ideal type of cow, and how they breed for that cow. You'll see the paddock layout, lane system, and watering system. You'll also be able to get sound advice on making the conversion to grazing.

Plenty of resources are available to help. NRCS has been really involved here with funding and technical assistance, and the County Conservation Districts and Penn State Extension also can help with advice.



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—Matt Bomgardner
Blue Mountain View Farm

LEARN MORE about grazing in the Chesapeake Bay watershed and resources available for farmers through the Mountains-to-Bay Grazing Alliance by visiting m2balliance.org.



CHESAPEAKE BAY FOUNDATION

Saving a National Treasure

For more than half a century, the **Chesapeake Bay Foundation** has led a landmark effort to save the Chesapeake Bay—a national treasure on which the health and wellbeing of nearly 20 million people and 3,000 species of plants and animals depend. Grounded in science and focused on local waterways, we educate tens of thousands of people each year, advocate for better public policy, hold governments and polluters accountable, and perform essential hands-on restoration.

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The **Mountains-to-Bay Grazing Alliance** brings together private and public partners within the agricultural community to promote wider adoption of rotational grazing and related conservation practices that benefit water quality, improve soil health, and boost farm economies in the Chesapeake Bay watershed. It connects current and new grazing farmers through outreach, technical assistance, farmer-to-farmer mentoring, on-farm demonstrations, and other resources.

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