



KENT COUNTY
MARYLAND

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

Fair Hill Farms

FARM: Fair Hill Farms, a 600-acre organic dairy farm milking roughly 600 cows.

OWNERS: Ed and Marian Fry, Matt and Megan Fry

LOCATION: Kent County, Maryland

BASELINE PRACTICES: The 200 acres of cropland converted to pasture were originally used to grow a mixture of corn, triticale, and alfalfa. Manure was applied to the cropland and existing pastures.

ON-FARM CHANGES: In 2016, roughly 200 acres of cropland were converted to rotationally grazed pasture so the percentage of time the dairy herd spent foraging on grass would comply with organic dairy standards.



Environmental benefits of switching to rotational grazing:



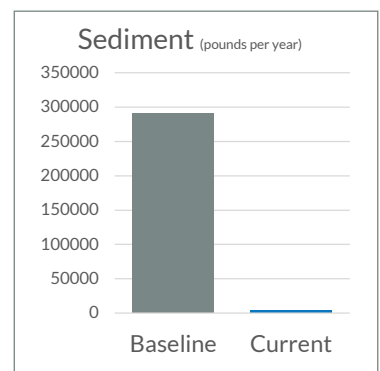
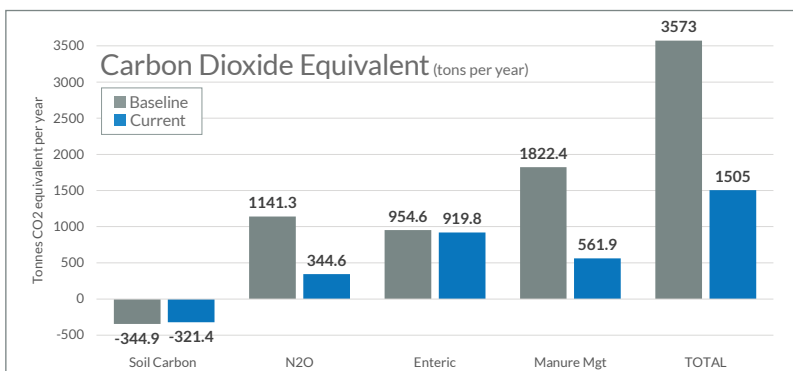
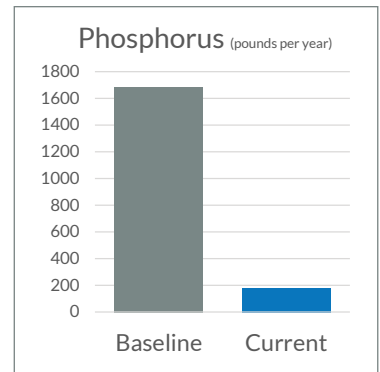
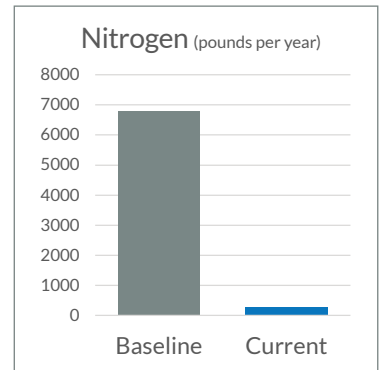
WATER QUALITY: A farm-scale modeling tool was used to estimate-water quality benefits. Nitrogen, phosphorus, and sediment pollution decreased by 96 percent, 89 percent, and 99 percent, respectively.



SOIL HEALTH: Soil health is determined by measuring several physical, biological and chemical indicators, including the amount of organic matter in the soil and how well it can resist erosion. These indicators result in a rating from 0 to 100, where higher scores are better. The farm's soil health rating increased from 52 to 65 between 2016 and 2018 and experienced significant improvements in organic matter and aggregate stability.



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 60 percent, mostly due to increases in soil carbon sequestration and decreases in nitrous oxide (a very potent GHG) emissions, reflecting changes in available soil nitrogen. The overall change is equivalent to the amount of carbon that would be stored annually by 16 acres of mature forest.



FARMER'S VIEW

Matt Fry

The Fry family has been operating Fair Hill Farms on its current site since 1960 as a dairy and grain operation and first began transitioning the land to organic in the late 1990s. The farm now supplies milk to the Horizon Organic Milk brand.

Why did you choose to convert to a pasture system?

We had a conventional dairy but were running an organic cash grain business as well. In 2015, we were approached to transition the dairy to organic because there was a shortage of organic milk in the marketplace. When we sat back and ran the numbers on it, it was the right move for our business. We'd been comfortable operating on the row crop side, and we'd done intensive grazing on yearling and bred heifers for 15 to 20 years as a cost control method. For us, a lot of it was about streamlining our operations and our comfort within the organic world.

What changes have you seen on your farm?

During grazing season, it brings an added level of management to the dairy. We're rotating the cows so every time they leave the milking center, they are getting a new break of pasture. That takes labor to make that happen—moving fences, moving water—and we're consistently checking those cows. Another thing that's been very noticeable is we have a pond on the farm that drains a relatively large area that was historically row crops. Now that much of that ground is in pasture, there's a big change in water quality. There's much less sediment, and that pasture ground takes up water quicker. There's also been a significant increase in bird activity, specifically song birds.

What do you think are the biggest barriers or challenges to grazing and switching to an organic system?

One big challenge right now is access to milk markets. You want to make sure you have that market secured before you transition from conventional to organic. That 12-month transition in your dairy is an extremely challenging time, when you have to manage the cows organically and are still selling milk at a conventional price. We do see a decrease in milk production when we start grazing, due to the energy output of those cows when they're walking out to pastures. However, we see income over feed cost increase. We're more efficient with our feed dollars—that's what puts value on.

What would you tell other farmers interested in grazing?

If you are switching from conventional to organic, I really cannot stress enough the significance of having your budget for that transition period done properly. For grazing in general, you have to be critical of your cow herd. When we went through that transition, we did see attrition of our older, larger cows. Doing that type of walking was tough for them, so we changed the focus of our breeding and genetics to focus on smaller frames and more health and fitness traits. Much like any type of farming, doing things with a purpose and intention will yield the results you're looking for.



“Much like any type of farming, doing things with a purpose and intention will yield the results you're looking for.”

—Matt Fry (on far right with his family)
Fair Hill Farms

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.

CBF.ORG

MOUNTAINS-TO-BAY



GRAZING ALLIANCE

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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