August 2022

Genesee River Demonstration Farms Network

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American Farmland Trust
SAVING THE LAND THAT SUSTAINS US

Great Lakes RESTORATION

NY farm viability INSTITUTE

USDA United States Department of Agriculture
Natural Resources Conservation Service

NEW YORK CORN & SOYBEAN GROWERS ASSOCIATION

Year in Review

The Genesee River Demonstration Farms Network highlights the impacts of practical and innovative conservation practices on farm viability, water quality, and other natural resources, demonstrated on real working farms. In 2022, the Network has grown to 12 demonstration farms with support from USDA NRCS, Great Lakes Restoration Initiative, New York Farm Viability Institute, and the New York State Corn and Soybean Growers Association.

Key Components of the Network

- Farmer delivered demonstration of conservation systems that support farm viability, build soil health, and benefit the environment.
- Quantification of economic and environmental impacts of soil health management systems.
- Farmer-led research opportunities to evaluate and demonstrate conservation practices.
- Farmer-to-farmer discussions and learning opportunities.
- Sharing technology, information, and lessons learned with farmers, agribusiness, conservation agencies, landowners, and the public.
- Farmer payments for soil health practices and engagement, and net returns guaranteed for field trial yield loss.
- Incentive payments for conservation on rented land.

Network at a Glance

12 DEMONSTRATION FARMS span five counties in the Genesee River watershed. The network includes:

- 48,000 acres
- 15,700 dairy/beef cattle
- 7 dairy farms (one organic)
- 4 cash/grain vegetable farms (two raise beef cattle; two provide feed for dairy partnerships)
- 1 small-scale organic vegetable farm

SOIL HEALTH PRACTICES

- No-till, strip-till, cover crops, adaptive nutrient management, diversified crop rotation, pollinator habitat

DEMONSTRATION PLOTS

- Planting green vs. conventional termination method and timing of cover crops
- Adaptive nutrient management in corn using dynamic nitrogen model
- Soil health measurement including CASH test, bulk density, and in-field assessment
- Economic and environmental evaluation using partial budget analysis and USDA modeling
- Cover cropping, pollinator habitat, and reduced tillage on organic vegetable production farm

Year Three Partnership Highlights

Since 2018, the Genesee River Demonstration Farms Network has accomplished several notable outcomes that provide a foundation for ongoing success. From the initial NRCS-NY investment, American Farmland Trust has obtained an additional $1.42 million in funding to date, greatly increasing the impact of the program in the watershed.

THE PROMISE OF PLANTING GREEN

Early results from Demonstration Farms field trials have shown real promise for the practice of "planting green," or planting a cash crop into a living cover crop. In the first completed year of our study, evidence shows that planting green allows for drier and more stable soil conditions in a wet spring. Extending the cover crop growing season also produces more above-ground biomass, increases soil organic matter, provides additional potential nitrogen release to the following cash crop, and the thicker mulch suppresses late season weeds. Planting green can also help with nutrient management by allowing farms with manure to spread earlier in the spring. In the year ahead we will continue to collect and report on data from this increasingly adopted practice and monitor changes in soil health over time.

OUTREACH EVENTS EDUCATE FARMERS, SERVICE PROVIDERS

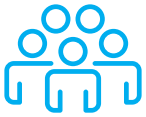
Through the network, American Farmland Trust has held eight Women for the Land Learning Circles and presented at 57 local and regional outreach events, many of them virtually. Our Soil Health Field Day at Mulligan Farm was attended by over 90 people. Total outreach efforts, including six videos and four economic case studies, reached 2,617 farmers, service providers, policy makers, and researchers.

An award-winning webinar series featuring regional climate change experts was well attended, and project partners were interviewed on a local radio station, discussing how climate change affects New York farms and the steps farmers are taking for climate smart agriculture. Major announcements and media content are posted to American Farmland Trust (AFT) social media outlets and sent through email newsletters. Currently, 210,000 people receive email from AFT. 45,000 individuals are connected via Facebook and another 18,700 by Twitter.

Additional resources, including videos, webinars, and case studies are available on the Genesee River Demonstration Farms Network webpage. Upcoming field days and events can also be found there.

PROJECT OUTREACH

57
local and regional outreach events



2,617
farmers, agricultural service providers, policy makers, and researchers participated in outreach events

CASE STUDIES HIGHLIGHT BENEFITS OF SOIL HEALTH PRACTICES

American Farmland Trust worked with farmer Forrest Watson of Mulligan Farms in Avon, New York to quantify economic, water quality, and climate benefits associated with his shift to adopting soil health practices.

The Mulligan Farm case study highlights practices such as no-till, cover crops, and nutrient management on a dairy operation, and ultimately demonstrates how Forrest saw a $75 per acre increase in net income per year due to soil health management, equating to $196,350 over the 2,618-acre study area, achieving a 129% return on investment. Using a 35-acre field from the study area, AFT estimated that Forrest has reduced nitrogen, phosphorus, and sediment losses by 4%, 33%, and 60% respectively, while reducing total greenhouse gas emissions by 252%—the equivalent of taking two cars off the road annually.

This case study, along with thirteen others that include different cropping systems across six states, have been promoted through press outreach and have been made available on USDA NRCS' Soil Health website and American Farmland Trust's Farmland Information Center.

Forrest Watson

THE DEMONSTRATION FARMS NETWORK LEADS THE WAY

With continued support we have expanded our programs in the following ways:

- The Network grew from 11 to 12 farms, increasing research, outreach, and educational opportunities through more demonstration trials, case studies, and farmer-to-farmer networking.
- AFT's Women for the Land Initiative connected women in agriculture to one another and their service provider network, increasing conservation on working lands. To date, eight women Learning Circles have been held and over 400 women representing nearly 14,000 acres have joined this community.
- The Landowner Incentives Program targets conservation on rented land while offering incentives that include up to $4,500 in reimbursement for the implementation of activities agreed to by the owner/operator pair. To date, the program has implemented projects on 24 farms and 1,682 acres of rented land, including 1,517 acres of cover crops. These projects have resulted in a reduction of 2,255 pounds of nitrogen, 654 pounds of phosphorus, and 497 tons of sediment entering the local waterways. (STEPL)

$75
per-acre increase in net income

129%
return on investment

REDUCED
nitrogen, phosphorous, and sediment losses

WOMEN FOR THE LAND GROWTH

Our Women for the Land program saw steady growth with on-farm conservation Learning Circles and virtual events. Nearly 250 women are actively engaging with this community in western New York and beyond. We aim to elevate women in the Demonstration Network by adding female-led farms to host Learning Circles, directly connecting with the agricultural women community. Starting in 2022, our first female-owned small vegetable operation, Wild Hill, will be added to the Network and will host their first Learning Circle focusing on farmland preservation and beginner farmer land access. AFT is actively seeking additional funding to grow the program to increase representation of women farmers in the Network.

In cooperation with the farms and the project team, which includes experts from the Cornell Cooperative Extension Northwest New York Dairy, Livestock and Field Crops staff, Soil and Water Conservation Districts, and Cornell University, American Farmland Trust will continue to make the case for the economic and environmental benefits of soil health management through on-farm research and farmer case studies documenting their stories and results. Our goal remains to reach new farmers and landowners with the message that adopting soil health practices pays off while providing off-farm benefits such as water quality, mitigation of extreme weather, and farm viability.


Demo Farm Participant Meghan Hauser hosts a Women for the Land Learning Circle.

REBECCA DROBIS

Mid-summer cover crop residue between rows of corn after planting green.

KEVIN KEENAN

Soil health practices reduce impacts to water quality.

REBECCA DROBIS

Forrest Watson planting green with a 40-ft, 16-row corn planter.

KEVIN KEENAN

ON-FARM DEMONSTRATION PLOTS EVALUATE ECONOMIC BENEFITS OF USING AN ADAPTIVE NITROGEN MANAGEMENT TOOL

Application of nitrogen fertilizer accounts for a significant on-farm cost while losses through leaching, runoff, and denitrification into the atmosphere can result in adverse environmental and economic impacts for both the farm and society. Two demo farms examined the potential economic benefits of using Adapt-N, an adaptive nitrogen (N) management tool for corn. The tool examines soil, weather, crop, and field management data to provide an up to the minute, field-specific N recommendation and has been shown to improve financial and environmental performance.

Cover crops were planted in the fall of 2020, prior to the corn cash crop the following spring. The cover crops included a legume, brassicas, and grasses that either winter killed or were terminated with herbicide. In the summer of 2021 four N rates were applied at corn side-dress time: 1) N rate estimated using Adapt-N and the potential N adjustments needed from the cover crops and reduced tillage, 2) the conventional N rate, 3) twice the conventional rate, and 4) a zero-nitrogen check plot. Yield from each of the trial plots was taken in the fall of 2021.

The yield and N-rate data were used to calculate each trial's economic optimum nitrogen rate. Our first-year evaluation determined that, on both farms, the Adapt-N recommendation was short of the optimum rate, and therefore, more N could have been applied than was recommended. Although the tool accounted for cover crop effects, it underestimated the supplemental N needs later in the season due to abnormally high rainfall (200–300% of normal). The abnormal rain caused regional issues and, in general, is not easily managed. In this case, a second late season side-dress application may have been appropriate in this wet year.

In 2022, we will add a third farm to the evaluation, and we are collaborating with Cornell University to evaluate Adapt-N while deploying a new robot technology with under-canopy sensors. Supplemental information from the sensors can detect potential mid-season N deficiencies that could lead to recommending a 'rescue' second side-dress N application in a wet year.

Looking Ahead

Through our ongoing partnership with USDA NRCS, the Great Lakes Restoration Initiative, the New York Farm Viability Institute, and the Corn and Soybean Growers Association, American Farmland Trust will broaden our efforts in the coming year with the addition of new farms to the network. In response to feedback on the Network, we will expand our support of women landowners and operators and broaden our range of farm types overall, including smaller farms, vegetable and grazing farms, and farms representing greater socioeconomic diversity.

FOR MORE INFORMATION PLEASE CONTACT

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LOCAL FARMS
HEALTHY SOIL
CLEAN WATER
Great Lakes
IN PARTNERSHIP WITH AMERICAN FARMLAND TRUST