



The Climate-Resilient Agriculture Initiative

Cultivating Climate Solutions in the Hudson Valley

Laura Lengnick | Cultivating Resilience, LLC | March 2019

EXECUTIVE SUMMARY

The Climate-Resilient Agriculture Initiative is a project of Scenic Hudson, whose mission is to “preserve land and farms and create parks that connect people with the inspirational power of the Hudson River, while fighting threats to the river and the natural resources that are the foundation of prosperity in the Hudson Valley.”

Scenic Hudson undertook the Initiative to explore the potential for land conservation organizations to support and enhance public agricultural conservation incentive programs that promote climate resilience and carbon neutrality on working lands, and to offer these organizations a new strategy for sustaining resilient landscapes over the long term.

The document reports on the results of a six-month project designed to encourage the collaboration of the Hudson Valley agricultural community in the development of a portfolio of potential pilot projects for the Initiative. The project used mixed-methods research to integrate literature review and analysis, program assessment, and stakeholder outreach and engagement to accomplish this collaborative work.

This Initiative extends Scenic Hudson’s work to enhance the climate resilience of the Hudson Valley through innovative programs such as its Hudson Valley Conservation Strategy and Hudson Valley/New York City Foodshed Conservation Plan. In addition, it supports the goals of other regional climate resilience planning efforts, and amplifies the work of the many government and community-based organizations working to cultivate a sustainable and resilient food system in the region.

KEY FINDINGS

Literature Review

A review and analysis of relevant technical literature was conducted to understand the potential for voluntary agricultural conservation programs to promote on-farm greenhouse gas (GHG) mitigation and climate resilience. Review topics included agricultural adaptation to climate change, climate solutions in agriculture, agricultural resilience, emerging systems of climate-resilient agriculture and financing the transition to climate-resilient agriculture. Several themes emerged from this analysis:

- **Although agriculture is a significant driver of climate change, it also can be a source of climate-change solutions.** There is growing agreement that agriculture has a unique potential to produce climate-change solutions through the use of *ecosystem-based conservation practices* that promote carbon capture and storage in soils and plants, and cultivate the climate resilience of farm operations.
- **Despite the widespread recognition that healthy soils and diversified cropping systems enhance the climate resilience of farm operations, U.S. producers have been slow to adopt these practices.** This reluctance stems from a variety of factors, but for many farmers and ranchers, a major barrier to taking adaptive action is *lack of access to the technical and financial resources needed* to transition successfully to more climate-resilient production systems.
- **Although emerging systems of climate-resilient agriculture go by different names—climate-smart, carbon-neutral, carbon farming and regenerative—they share many sustainable agriculture practices that produce effective GHG mitigation and climate-resilience benefits.** This means that all farmers and ranchers, regardless of production system, scale or geographic location, can adopt conservation practices that enhance the capacity of their farm to mitigate GHG emissions and cultivate climate resilience.



Robert Rodriguez, Jr.

Program Assessment

An assessment of New York State (NYS) voluntary agricultural conservation incentive programs was conducted to examine the structure and relationships in the network of organizations responsible for delivering conservation incentives; the sources and amount of funding moving through this network; and the potential for existing programs to promote farmer adoption of conservation practices that achieve GHG-mitigation and climate-resilience objectives. This assessment found that:

- **Two NYS conservation incentive programs—the Agricultural Environmental Management Program (AEM) and the Climate-Resilient Farming Program (CRF)—are uniquely positioned to promote climate-resilient agriculture in the Hudson Valley.** The whole-farm planning framework used in the AEM program provides a strong foundation for farm-based resilience planning. The CRF program provides a valuable “test-bed” for piloting new agricultural conservation strategies that produce climate mitigation and adaptation benefits to farm and community.
- **Additional financial support for AEM and CRF, focused on new initiatives to increase farmer adoption of ecosystem-based conservation practices,** offers great potential to amplify and expand the social benefits of public investments in agricultural conservation programs.
- **Federal and state conservation incentive investments are dominated by “resistance” adaptation strategies** (which protect the existing production system) **and there were no transformation investments** (which change the production system to enhance resilience) **during the period studied.** This reliance on resistance strategies will become less effective, more costly and more likely to fail if climate change accelerates as projected. Shifting conservation priorities to increase incentives for resilience and transformation investments may enhance the climate-resilience of NYS agriculture.

Outreach and Engagement

Four months of outreach and engagement efforts with almost 200 agricultural stakeholders in the Hudson Valley generated a wealth of information about the barriers and opportunities for promoting GHG mitigation and climate resilience on working lands through existing conservation incentive programs. Three key themes emerged from this work:

- **Voluntary conservation incentive programs have great potential to enhance climate-resilient agriculture in the Hudson Valley.** Agricultural stakeholders in the valley were enthusiastic about the potential to add GHG mitigation and climate resilience to existing conservation program goals. Offered suitable technical and financial assistance, many farmers in the region would likely be willing to adopt conservation practices that promote a transition to climate-resilient agriculture and food systems.
- **Many widely-recognized barriers to farmer participation in voluntary agricultural conservation incentive programs were identified by agricultural stakeholders in the Hudson Valley.** In personal interviews and listening sessions, farmers and other agricultural stakeholders shared many frustrations with existing conservation incentive programs, including complex and inflexible program requirements, limited technical and financial resources, and program criteria that favor production systems most likely to contribute to natural resource quality impairment.
- **Land conservation organizations are uniquely positioned to lead new models of collaborative action that promote ecosystem-based agricultural climate solutions.** Land conservation organizations have the knowledge, skills and experience to develop effective partnerships with agricultural stakeholders designed to strengthen public conservation incentive programs and create complementary private incentives that amplify the GHG mitigation and climate resilience benefits of public investments in agricultural conservation, sustainable community development and regional resilience planning.



Most Favored Climate-Resilient Conservation Practices

Source: Chaseholm Farms



Guided by the goals of the Initiative and drawing on stakeholder input, a set of 24 proposed conservation practices—some existing, some new—were identified as potential strategies to enhance climate-resilient agriculture in the Hudson Valley. These proposed practices address specific barriers to farmer participation in voluntary conservation incentive programs, encourage farmer adoption of production practices that cultivate ecosystem services to achieve GHG-mitigation and climate-resilience goals, and enhance farm profitability by encouraging farmer participation in high-value regional markets.

Twelve conservation practices were identified by agricultural stakeholders who participated in project outreach as most likely to be useful to Hudson Valley farmers seeking to enhance on-farm GHG mitigation and the climate resilience of their farms. The three most-favored technical practices were: *existing voluntary agricultural conservation-incentive programs*; *whole-farm planning* (a sustainable agriculture practice that integrates environmental, social and economic goals); and *specific-resource planning* (whole-farm planning that focuses on a single resource of interest—e.g., nitrogen, carbon or water). Participants favored four financial incentive practices: *existing 75% cost-share programs*, *a new 100% cost-share program*, *low-cost loans and grants to purchase new equipment*, and *agricultural tax incentives*. Three production practices were most favored by participants: *production system diversification*, *improved water management* and *increased energy efficiency*. Two marketing practices were most favored by participants: the *development of new regional markets* and *the addition of value-added processing on-farm*.

Proposed Pilot Projects

The ultimate goal of this project was to identify a suite of potential pilot projects to guide Scenic Hudson's implementation of the Climate-Resilient Agriculture Initiative. The recommended pilot projects put an emphasis on working with farmers managing land subject to agricultural easements, to advocate for new programmatic directions in public programs, and to create new models of collaborative action that promote ecosystem-based climate solutions in agriculture. The projects are grouped into three complementary paths of engagement designed to address the barriers and build on the opportunities in existing federal and state voluntary conservation incentive programs identified in this project and described below:



Path #1: Advocate for Climate-Resilient Conservation Incentives. The goal of this path is to increase the capacity for voluntary conservation incentive programs in New York State to support farmer adoption of climate-resilient agriculture practices. It focuses on *identifying state policy- and program-driven solutions to reduce the barriers and build on the opportunities* identified in this project to promote farmer adoption of conservation practices that cultivate ecosystem services to produce GHG-mitigation and climate-resilience benefits. Some initial work in this path includes:

- Supporting state policy and programs that increase the capacity for Soil and Water Conservation District (SWCD) staff to offer technical and financial assistance designed to encourage the implementation of conservation practices that promote climate-resilient agriculture in the Hudson Valley.
- Policy and program analysis to explore the feasibility of making changes to existing state conservation incentive programs, and developing new programs to promote farmer adoption of the “most favored” conservation practices identified in this project.

Path #2: Increase Farmer Participation in Conservation Incentive Programs. The goal of this path is to promote climate-resilient agriculture in the Hudson Valley by developing effective models of collaborative action to increase farmer participation in voluntary conservation incentive programs. It focuses on exploring how land conservation organizations can *reduce the barriers and build on opportunities* identified in this project *to increase farmer access to the technical and financial assistance they need to adopt conservation practices that exploit ecosystem services to produce GHG-mitigation and climate-resilience benefits*. Some initial work in this path involves:

- Increase public awareness of and appreciation for the potential benefits of farmer participation in voluntary conservation incentive programs through outreach that teaches about the off-farm benefits of ecosystem-based GHG-mitigation and climate-risk management on farms.
- Provide technical assistance to farmers interested in learning more about how adopting ecosystem-based conservation practices can reduce climate risks and enhance the climate resilience of their operations.



Source: NRCS

Develop and pilot modified state conservation incentive program procedures to:

- Streamline financial assistance application and reimbursement processes;
 - Increase the flexibility of practice standards;
 - Promote farmer adoption of options within practice systems that exploit ecosystem services to produce GHG-mitigation and climate-resilience benefits; and
 - Provide technical and financial support for farmers who wish to adopt climate-resilient conservation practices but are not eligible to participate in state conservation incentive programs or are not likely to be competitive for incentives because their operations are not contributing to a resource concern of the State of New York.
- Increase awareness among the general public and agricultural stakeholders of the potential for healthy working lands to contribute to community-based climate mitigation and adaptation as well as rural economic development.

Path #3: Community Conservation to Promote Climate-Resilient Agriculture. The goal of this path is to promote climate-resilient agriculture in the Hudson Valley through community conservation programs designed to generate local knowledge and increase local capacity for innovation. It focuses on exploring *new models of effective collaboration to support on-farm research and demonstration programs that address barriers and build on opportunities* identified in this project. The projects included in this path are designed to produce the knowledge and tools needed to increase the implementation of ecosystem-based climate-resilient conservation practices by farmers in the Hudson Valley.



Source: Fishkill Farms

Some initial work in this path involves leadership of a community conservation project to conduct on-farm research and demonstration projects in collaboration with farmers managing land subject to agricultural easements, local Soil and Water Conservation District staff and other local partners as appropriate to project goals. These research and demonstration projects should be designed to:

- Demonstrate effective farmer adoption of conservation practices used in climate-resilient agriculture systems on farms that represent the diversity of Hudson Valley agriculture.
- Document the return on investment of conservation practices that exploit ecosystem services to mitigate GHGs and enhance climate resilience in the Hudson Valley.
- Identify effective tools for monitoring the costs and multiple benefits of implementing climate-resilient conservation practices on Hudson Valley farms.
- Identify effective strategies for transitioning existing Hudson Valley production systems to climate-resilient systems through the use of ecosystem-based conservation practices that are eligible for public and/or private conservation incentives.

Conclusions

The lessons learned in this project are clear and compelling: land conservation organizations have an opportunity to play an important role in promoting climate-resilient and carbon-neutral agriculture in the regions that they serve. Voluntary conservation incentive programs can be extended to promote climate resilience and carbon-neutrality as an explicit goal of land management and offer an effective strategy for sustaining resilient landscapes over the long term. As climate change effects grow more intense and public support for farmers and working lands grows increasingly uncertain, land conservation organizations are in a unique position to lead new public-private collaborations that capture the powerful climate-change solutions in agriculture.



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Source: Stone House Grain