CLIMATE-SMART INNOVATION FOR A SUSTAINABLE FUTURE

EMPOWERING AGRICULTURAL, FOOD, AND FORESTRY SECTORS TO BE MITIGATORS OF CLIMATE CHANGE

BACKGROUND

The New Hampshire Agricultural Experiment Station and UNH Cooperative Extension are leaders in developing and communicating innovative, research-based answers to pressing short- and long-term questions. The NHAES and UNHCE provide critical information about climate-smart solutions that enable agricultural, food, and forest industries to be climate change mitigators while serving as economic foundations for Granite State communities. To strengthen this role and identify specific areas of strengths at UNH and opportunities requiring further investments, a group of Extension professionals and researchers representing diverse agricultural, food, and forestry specializations and communities from across the state were gathered for a coordinated information-gathering process. This process helped provide a community-informed set of goals and needs for improving climate-smart food and forestry management in New Hampshire and the region.

EXISTING STRENGTHS

Agricultural and food sectors

New Hampshire producers are becoming more adept and invested in sustainable land management practices such as cover cropping and no-till technology. The agricultural industry can be a regional leader in demonstrating the economic and climate sustainability of these climate-smart practices and technologies.

New Hampshire's agricultural and food sectors represent highly diversified operations that have long traditions and remain invested in supporting local and regional food systems through direct-to-consumer and business-to-business marketing. As the risk of supply chain disruptions grows due to uncertain and increasing consequences of climate change, and as local food systems become recognized as having potential to decrease the overall environmental footprint of food processing and distribution, the Granite State can play an outsized role in providing a paradigm for climate-smart food systems development.

PERSISTENT GAPS

There continues to be a lack of knowledge by those in the food and forestry industries about the individual benefits of adopting climate-smart practices and technologies.

There is insufficient adoption and use of equipment and associated practices that would support climate-smart production, processing, and distribution. This may be due to the equipment being too expensive, but could also be related to having insufficient research and educational efforts that could allow for the effective adoption and use of climate-smart equipment.

With sufficient resources, addressing these gaps would have the biggest return-on-investment for the sectors to become more climate-smart.

Forestry sector

The diversity of New Hampshire's forests provides broad, cost-effective opportunities to answer questions, test technologies, and develop scientific insights about climate-smart management across a variety of environments. This can allow for significant returns-onresearch-investment because those insights could be applied across many other regions.

New Hampshire has historically had a sustainable forest industry due to the intentional management of forested areas and a diversity of wood products.







WHAT SUCCESS MEANS

If we had all the physical, analytical and workforce resources, the success of climate-smart initiatives would lead to...

A climate-resilient and economically stable regional food system that enables the food and forestry industries to be financially sustainable mitigators of climate change, takes advantage of market opportunities outside of the region while remaining nimble in cases of major supply chain disruptions, and ensures that all consumers have just and equitable access to nutritious foods.

MEASURABLE GOALS

- 1. Increased adoption of climate-smart practices and reduced crop production losses due to climate factors.
- 2. Increased carbon sequestration.
- 3. Regional food system coordination that increases price competitiveness of producers using climate-smart practices.
- 4. Increased proportion of population within a region that consumes food and forest products produced with climate-smart practices.

INCREASING ADOPTION

What actions are needed to increase the adoption of climate-smart practices?

Research and educational efforts are needed to develop a publicly and/or privately supported system of ecosystem incentives (e.g., carbon sequestration credits) that maximizes the adoption of climate-smart practices. While there are existing incentive structures in place, they may not provide sufficient incentives and/or there are other reasons why participation is not sufficiently high. Research is needed to identify adoption behavior, and associated outreach programs are needed to act on those research findings.

Research and educational support are needed for understanding the trade-offs and impacts of developing climate-smart local/regional food systems. These efforts will necessarily need to include on-farm participatory methods, within which farmers, foresters, and forest land owners directly—along with the scientists contribute to the design, implementation and adoption of the research.

UNH INVESTMENTS

What investments will lead to highest returns in meeting climate-smart goals?

Quickly and substantially increase expertise in agricultural economics, life cycle analysis, and behavioral economics, focusing on assessing the intersection of cost-effective adoption of climate-smart equipment and management approaches, and valuing their returns.

Develop an integrated program that enables and incentivizes industries' adaptive management through simultaneous research, data analysis, widespread adoption, and continuous feedback. This requires investments in technical support and engagement expertise.

Diversify course offerings to ensure workforce development of individuals who are experts in developing, supporting, operating within, and leading an integrated climate-smart food and forest industry.

ANTON BEKKERMAN Director, NH Agricultural Experiment Station **AMY PAPINEAU** Team Leader, Extension Food & Agricultural Program