



Enhancing Food Security in the Northeast through Regional Food Systems

Taking a multidisciplinary, systems approach to food security and food systems research, outreach and education

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For more information about the project, or to subscribe to our newsletter, visit: <http://agisci.psu.edu/research/food-security>

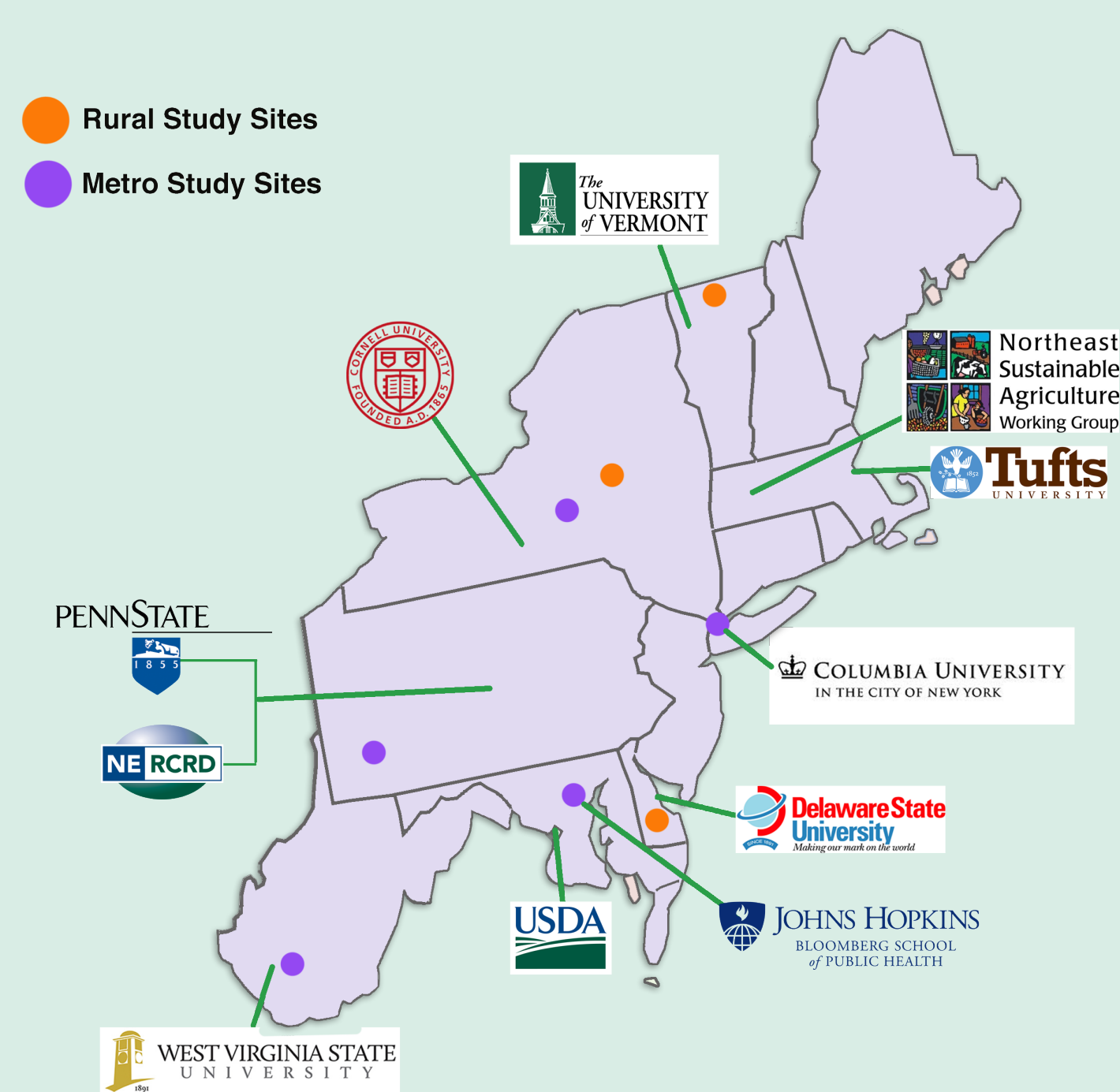
Project Overview

Over 7 million Northeast citizens are food insecure.

Low-income communities are also disproportionately affected by lack of access to healthy, affordable foods. Families in those communities face many barriers to achieving food security. Challenges to food security for everyone in the region also come from climate change, farmland loss, and sourcing most of our food from outside the region.

Enhancing Food Security in the Northeast through Regional Food Systems (EFSNE) seeks to determine whether greater reliance on regionally produced food could improve food access and affordability in disadvantaged communities, while also benefiting farmers, food supply chain firms and others in the food system.

The project focuses on **low-income community sites within eight locations across the Northeast**, defined as 12 states from Maine to West Virginia and the District of Columbia.



The project encompasses two definitions of food security:

- the ability of a country or region to continually produce a significant portion of its staple foods; and
- adequate access to an affordable food supply in low-income communities.

The focal point of all the research teams is a **full-diet market basket** of eight foods that are or could be produced or processed in the Northeast states in significant quantities. These are milk, bread, ground beef, potatoes, apples, cabbage, canned peaches and frozen broccoli.



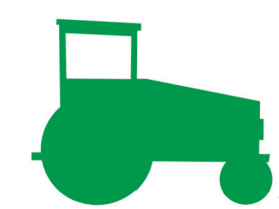
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Any opinions, findings, conclusions, or recommendations expressed here are those of the authors and do not necessarily reflect the views of the U.S. Department of Agriculture or those of other funders.

Map of Northeast US courtesy of Shereeth via Wikimedia Commons

Interdisciplinary Research Teams

A five-year project that began in 2011, EFSNE brings together researchers, educators, entrepreneurs, and community leaders from the Northeast region, engaging the entire food chain from production to consumption in a collaborative effort.



The Production Team

is quantifying the current and potential capacity of the Northeast to produce food that meets consumer needs.

Selected Research Activities:

- assess the current regional production capacity for nearly 200 food items
- evaluate how production of market-basket foods might change under different scenarios
- examine where future production could occur, using computer simulation models and spatial analysis
- regional urban and peri-urban food system activity

Selected Results, To Date:

- An analysis of potato production in the entire region was completed using a team-designed geospatial crop modeling platform. Results indicate that potential potato yields could be increased by as much as 41% above the baseline value, depending on a number of variables.
- Modeling work indicates that under proposed mid-century climate conditions, potato yields will fall by 70% of the team's baseline projection, while corn will fall by 17%, if no adaptation measures are taken.
- Regional self-reliance calculations show:
 - Roughly 60% of the region's farmland contributed directly to the food supply during the last decade.
 - Half of that land was devoted to the production of livestock feed; about one-tenth was devoted to human food crops.
 - The Northeast is far more self-reliant for animal-based foods, like dairy and eggs, than for plant-based foods.



The Distribution Team

is identifying and characterizing supply chains for selected low-income areas of the Northeast, comparing site-specific, regional and global chains and identifying policy interventions.

Selected Research Activities:

- conduct in-depth interviews with supply-chain members
- prepare supply chains case studies for two market basket foods in each store
- perform scenario simulations using regional product-specific supply chain models to simulate the impact of interventions intended to facilitate access of healthy foods by underserved communities on producers, processors, distributors and consumers in the NE

Selected Results, To Date:

- Store owner interviews are complete and interviews with intermediaries (processors, wholesalers, etc.) are ongoing. Models of milk and cabbage supply chains are complete; work continues on other market basket items.
- Our dairy-sector optimization model suggests that the fluid-milk supply chain is practically a regional system, and further localization would imply higher costs to the system, higher retail prices of dairy products, and increased greenhouse gas emissions.
- An emerging important lesson is the difficulties that independent stores (which are usually located in low-income communities) face when competing with larger supermarket chains in terms of operational costs.



The Consumption Team

is assessing current and potential community-level constraints and opportunities for improving access to regionally produced healthy food for people in eight low-income communities.

Selected Research Activities:

- conduct yearly store inventories and store environment measures to assess the type, quality and cost of certain foods available to customers in selected retail markets, and to track changing availability of healthier options and amounts of locally and regionally sourced foods in market basket
- lead focus groups at each project location to capture community members' perspectives and insights with respect to all facets of this project
- conduct brief shopper exit (intercept) surveys at retail markets to determine purchasing habits, access to food stores, perceived quality of foods available, and food assistance program use by shoppers in the stores across the eight study locations

Selected Results, To Date:

- Team members shared summaries of year-one focus group discussions with respective store owners. Preliminary results show that participants have a desire to eat healthy foods, but varying understandings of what healthy food is.
- The year-one intercepts found significant variation between the sites. In five sites more than 50% of respondents reported no barriers to purchasing healthier foods while in six of the sites, at least 30% of respondents reported price as a barrier. In seven of the eight sites, less than 20% reported lack of availability as a barrier.

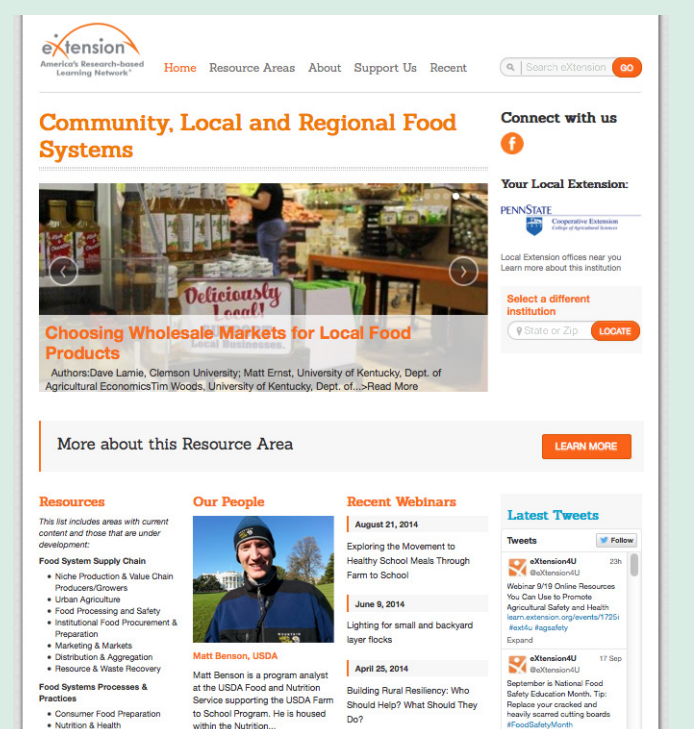
Outreach and Education

The Outreach Team

The Outreach Team engages the project's communities, and will share project learnings with a variety of food system stakeholders.

Selected Outreach Activities:

- **eXtension Community of Practice:** The Outreach Team was instrumental in establishing a national eXtension Community of Practice (eCoP) around Community, Local and Regional Food Systems. The CLRFS eCoP has over 300 members and was launched publicly this summer.



• Topical Learning Community:

The project's innovative use of modeling methodologies inspired the development of a national Food Systems Modeling Learning Community through which researchers are building their understanding and uses of modeling methods. Participants will also engage practitioners to foster understanding and use of modeling in projects on the ground.

• Site-based Learning:

Community readiness assessments and Community Involvement Plans are guiding project communities to enhance their participation in the project and stimulate food-related community involvement activities.

• Newsletter and Website

Our quarterly newsletter shares information about team processes, milestones and results. Stories, presentations, publications, and other outputs are posted and archived on the project's website.

The Education Team

works to prepare students with diverse skills needed to develop sustainable food systems.

- At Delaware State, Penn State, and Tufts Universities, existing courses have been restructured to integrate concepts of food systems, food access, and food security.
- At Tufts University, two new courses have been developed.
- A list of best practices and a protocol for mentoring interns was developed to guide the implementation of an undergraduate internship at Penn State. These were piloted with the first undergraduate intern, and two additional interns have since been placed.
- Graduate students from five institutions have attended the in-person and phone-based meetings, witnessing and contributing to interdisciplinary and trans-disciplinary research.

The Scenarios and Modeling Team

Created in September 2012 and called SCOMO, this team is identifying opportunities to integrate the multiple models used across the project. SCOMO also has defined which food system scenarios the project will work on in its last 16 months.