Enhancing the Food Security of Underserved Populations in the Northeast U.S. through Sustainable Regional Food Systems (EFSNE)

Funded by USDA/NIFA (Global Food Security Program)
Prepared for the March 26, 2013 PD Meeting, Washington, DC

Grant No. 2011-68004-30057
Introduction

• The Food Paradox
  – 7+ million food insecure consumers in Northeast
  – Food-related health disparities in low income areas
  – Most food coming from outside the region
  -- Continuing farmland loss
  – Growth in farm numbers (small, niche)

• Interest in Local and Regional Foods
  – Supply chain analyses, traceability
  – CSA, Farm to Fork, School, Institution, etc.
  – Economic development impacts
  – Dynamic changes in food retailing

http://www.usgcrp.gov/usgcrp/Library/nationalassessment/images/NE.jpg
Introduction

• Basic question: Can regional supply chains provide “healthy” foods to low-income consumers, at a price they can afford?

• Hypothesis of underlying market failure
**EFNSE Project Sites and Collaborators**

**Advisory Council**
- Robert King, Professor, Univ. of Minnesota
- Toni Liquori, NYC School Food FOCUS
- David Marvel, President, Fruit and Vegetable Growers Assoc. of DE
- Joyce Smith, Operation Reachout Southwest, Baltimore

**Evaluation Design Consultant**
- Ed Wilson, The Headwaters Group

*Map showing locations of study sites and collaborators.*
Objectives

1. Assess current and potential community-level constraints and opportunities for improving access to regionally produced food for people in urban and rural disadvantaged communities.

2. Identify and assess best food supply chain practices for some underserved areas of the Northeast, compare site-specific, regional and global chains, and identify policy interventions.
3. Quantify the current and potential capacity of the Northeast to produce a specific market basket of foods.

4. Disseminate knowledge and research insights to policy-makers, communities and others.

5. Work with community members to enhance knowledge of food sources.

6. Prepare students with the diverse skills needed to research and develop sustainable foods systems.
1. Consumer and store-level primary surveys; market baskets; focus groups
2. Supply-chain surveys (retailer, intermediary and producer)
3. Regional Simulation models (dairy, apples)
4. Consumer expenditure estimates (counties)
5. Econometric models of consumer behavior
6. Farm-/region-level productivity estimates
7. Regional self-reliance estimates
8. Whole system models and scenarios
Survey/Modeling Strategy

One of 9 locations (e.g., Baltimore)

One neighborhood or community per (underserved) location; focus groups

Two stores on average per neighborhood; consumers patronizing the stores

Supply chains, business owners

Location

Local, Regional, National, International
Results: Consumption

1. Market baskets consisting of eight products have been defined
2. Intercept surveys and store inventories designed and administered
3. Preliminary results from the focus groups conducted with local community residents: *Challenges to buying more healthy and regional food...*

Affordability, availability, and quality are all inter-related challenges in target neighborhoods, but varies by site
Market Baskets

Conventional/Basic
• Whole milk
• Full fat ground beef
• White bread
• Fresh cabbage
• Fresh potatoes
• Frozen green beans in sauce
• Fresh apples
• Canned peaches in syrup

Healthy alternative
• 1% milk
• Low fat ground beef
• Whole grain bread
• Fresh cabbage
• Fresh potatoes
• Frozen green beans
• Fresh apples
• Canned peaches in juice
1. Opportunities to increase self reliance without increased cost to consumers may exist
2. The current regional milk distribution system is “efficient”
Results: Production

1. Regional self-reliance estimates for different foods vary widely (e.g., fluid milk)
2. Agricultural land use is dominated by crops associated with livestock production.
3. Baseline capacity for urban ag production potential of New York City published by UDL at Columbia*; urban and peri-urban land availability also assessed for the 6 urban centers.
4. Using geospatial crop modeling, the team discovered that annual potato yield in Maine could potentially be increased 4-fold if constraints related to suitable cropland and water availability were removed.

URL: http://www.urbandesignlab.columbia.edu/sitefiles/file/urban_agriculture_nyc.pdf
Geospatial Crop Modeling

- Current production
- Production Scenarios
  - Water use
  - Land use change
  - Climate change
- Questions:
  - How much land?
  - Highest potential yield?
  - Production constraints?
  - Resource needs?

Fleisher and Resop, USDA-ARS, CSGCL, Beltsville, MD
Scenarios and Models

1. Define scenarios and models for the project
2. Identify areas for trans-disciplinary work
3. Work at multiple scales with production, distribution, and consumption variables
Results: Outreach

1. CLRFS eXtension Community of Practice
   Formed ($50K) → Includes other grant recipients; 100+ members and growing
2. Private foundations have expressed interest in working with us
3. Community strategy is being developed by the Consumption and Outreach teams for the next years of the project
1. Food systems concepts introduced into existing courses at Tufts, DSU, JHU and PSU
2. Directed study opportunity provided at Tufts
3. Targeted review of community based experiential learning internship practices completed
4. Students attended EFNSE project meeting to observe and experience how large, interdisciplinary teams work together on complex problems
5. Cross institution collabs of grad students
Conclusions

1. Student interest and engagement greater than anticipated
2. Work at community level requires substantial effort-uneven results
3. Technical work such as data-sharing is challenging
4. Adaptive management is key to daily problem solving
5. Ability to meet face-to-face is essential
Impacts/Lessons, etc.

1. Full integration of students into all parts of project
2. Teams learning to utilize new methods from unrelated disciplines
3. Project members learning to think conceptually and working at multiple scales in their teams
4. Project functioning as an emergent learning community
Evolution of the AFRI GFS Network: 2006

Average density
2006: 1.75

Legend
1: if knew of this individual in 2006
2: if ever cited this person's published work
3: if had worked relationship with (in local or regional foods)

Colors represent $k$-cores
Evolution of the AFRI GFS Network: 2012

Average density
2006: 1.75
2012: 18.29
t-stat: (9.92)

Legend
Line colors show intensity of interaction
Colors represent k-cores
Pictured from left to right: Linda Berlin, David Marvel, Carol Giesecke, Alessandro Bonanno, Jonathan Resop, Mia Cellucci, Dave Fleisher, Clare Hinrichs, Tim Griffin, Deno De Ciantes, Joyce Smith, Christian Peters, Kate Clancy, Michael Conard, Juli Obudzinski, Kate Alie, Pat Canning, Kathy Ruhf, Miguel Gomez, Stephan Goetz; Kneeling: Anne Palmer and Toni Liquori
Not pictured: Kubi Ackerman, Amanda Behrens, Oliver Gao, Robert Larkin, Sherri DeFauw, Richard Plunz, Angel Park, Ben Walsh, Pam Hearn, Pam Hileman