

Maximizing Freight Movements in Local Food Markets

A study of distribution practices the Upper Midwest food system

Rosa Kozub | Lindsey Day Farnsworth | June 16, 2011

A collaboration between UW-Madison's Center for Freight & Infrastructure Research & Education (CFIRE) and Center for Integrated Agricultural Systems (CIAS)

Setting the Stage

The 2009 UW-CIAS & Extension report “Scaling Up: Meeting the Demand for Local Food” identifies 8 challenges to scaling up local food systems:

- ❑ Controlling for product quality & consistency
- ❑ Seasonality
- ❑ Matching supply & demand
- ❑ Marketing & branding
- ❑ **Supply chain infrastructure**
- ❑ Capital
- ❑ Capacity development
- ❑ Information flow and transparency

Setting the Stage

Supply chain infrastructure challenges:

- ❑ Inaccessibility of healthy foods
- ❑ Lack of temperature-controlled storage
- ❑ Inadequate processing facilities
- ❑ Need for distribution center of appropriate size/locations
- ❑ **Inefficiencies in regional food transport & logistics**

The Maximizing Freight Movements in Local Food Markets Project

- Objective: To understand how the local food supply and distribution system works in the Upper Midwest, and identify means by which local food transportation movements can become more efficient.

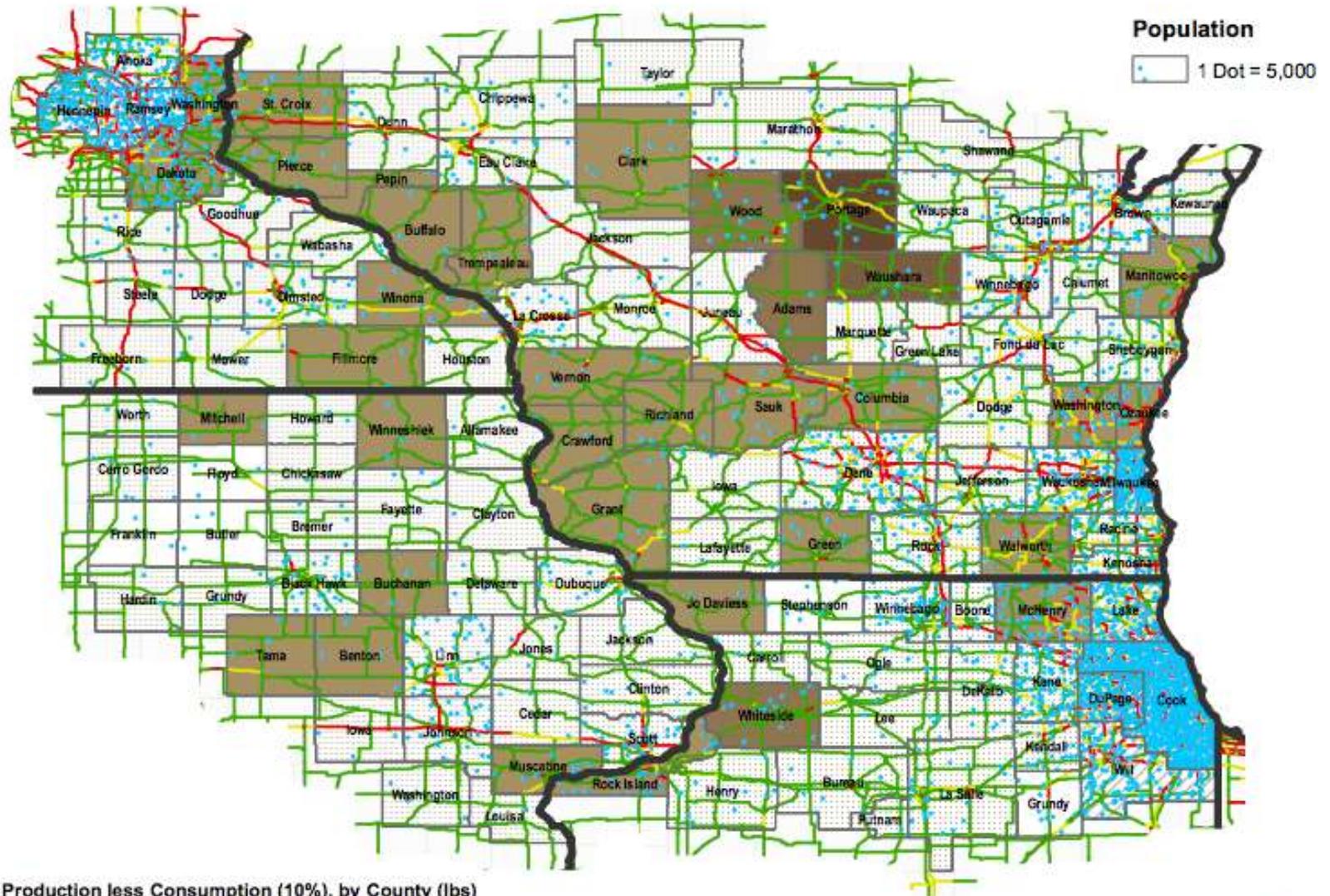
- Tasks:
 - Characterize several specialized supply chains
 - Following needs assessment, devise a tool or suite of tools to foster more efficient local food freight movements

Research Question and Process

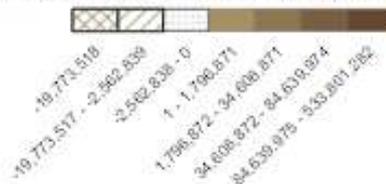
- ❑ What can freight industry tell us about regional food movements?
- ❑ Specific look at distribution component of supply chain at different scales
 - Direct, intermediated and mainstream
- ❑ Macro analysis using mapping
- ❑ Micro analysis using case studies
- ❑ Articulation of potential tools
- ❑ Potential next steps

Macro View: Mapping

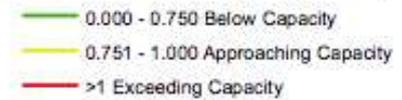
- Spatial relationship between supply (producers), demand (buyers) and transportation networks
- Consider:
 - Road hierarchies
 - Volume to Capacity Ratio (VCR)
 - Alternative modes, such as short-line railroad



Potato Production less Consumption (10%), by County (lbs)



Highway Volume to Capacity Ratio, 2035



Supply Chain Scales

- 2010 USDA study
- Classified supply chain into three types
 - Direct
 - Intermediated
 - Mainstream
- Useful classifications that are also used in this report

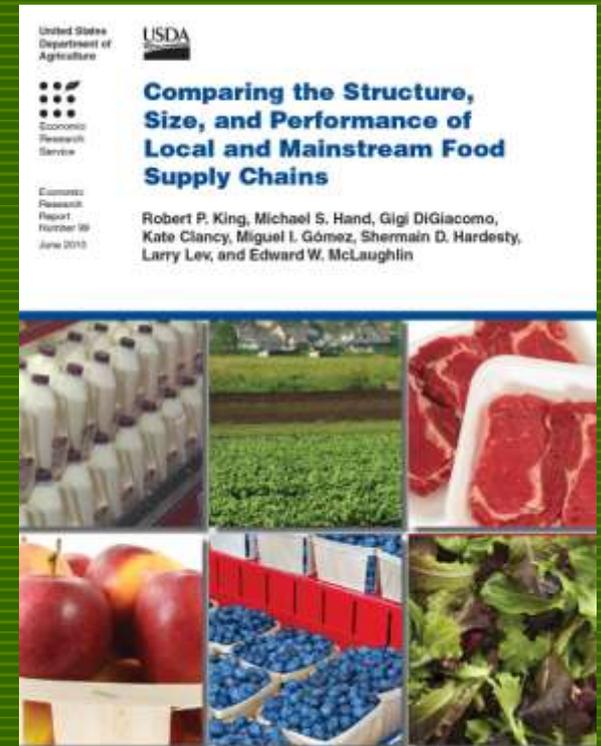


Image courtesy of USDA

Micro View: Case Study Interviews

- ❑ Ecker's Apple Farm (*Trempealeau, WI*)
- ❑ Grass Run Farms (beef, pork) (*Spring Grove, MN; Dorchester, IA*)
- ❑ Driftless Organics (produce) (*Soldiers Grove, WI*)
- ❑ Keewaydin Farms (produce) (*Viola, WI*)
- ❑ Bix Produce (*St. Paul, MN*)
- ❑ Local Harvest Supply (*Coralville, IA*)
- ❑ Edina Couriers (*Eden Prairie, MN*)
- ❑ Sodexo (*Gaithersburg, MD / France*)

Focus: Freight and Logistics Component

□ Freight

- Mode of transport and who owns equipment
- Distribution frequency
- Backhauling
- Collaboration and aggregation

□ Logistics & Operations

- Inventory management systems
- Route planning strategies

Case Study Conclusions: Trends

- ❑ Intermediated supply chains are innovative and dynamic
- ❑ Strategic partnerships are important
- ❑ Product aggregation is beneficial
- ❑ Seasonality and weather events affect supply chain

Case Study Conclusions: Key Findings

- ❑ Product representation in the field vs. efficient distribution
- ❑ Related to scale:
 - Route-planning strategies
 - Inventory management system usage
 - Strategies for retention of product origination information
- ❑ Backhauling: beneficial but challenging
- ❑ Interstate trucking regulations pose challenges for smaller-scale distribution
- ❑ Aggregation through hubbing could improve route-planning & distribution efficiencies for producers and distributors in the Driftless Region

Next Steps and Potential Tools

- Articulation of distribution variables for different supply chain partners
 - Aid LSP with articulation of “cost of distribution” model
- Creation of audience-based fact sheets
 - Identify distribution variables, route planning strategies, etc.
- Food hub siting decision tree
- Exploration of online tools
 - 123LoadBoard.com example
- Pilot these tools with mid-sized producers in Driftless region

Key Themes from the Making Good Food Work Conference

Business models designed to help producers retain a larger percentage of the retail Food dollar typically operate at price points that make their products unaffordable to low-income markets.

- ❑ Interest in financing strategies inclusive of non-traditional investors and business structures conducive to for-profit and for-benefit missions.
- ❑ Desire for resources to increase financial & business literacy of food business start-ups.
- ❑ **Asset-based, collaborative approaches to food-oriented community & economic development are favored in today's economic climate.**
- ❑ **“Food hubs” show promise as a strategy for improving time and cost efficiencies in the aggregation and distribution of local and regional food.**
- ❑ **Strategic network development and information exchange can increase resource efficiency.**
- ❑ Programs designed to increase consumers' healthy food purchasing power can be beneficial to both low-income households and local food producers.

Improvements in local food freight & transportation as solutions to...

- The fair pricing dilemma
- The lack of physical infrastructure
- The lack of communication within local & regional food systems and across supply chains
- The need for low-cost resources
 - Route-planning tools, cost of distribution workshops, decision trees for rural food distribution planning, and more

Collective Next Steps?

- ❑ What are 3 “Next Steps” (planned and funded or unplanned and unfunded) that you would like to take to address distribution challenges in the Driftless Region?
- ❑ What research needs and/or collaborative grant opportunities could help us reach these goals?