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Networking Across the Supply Chain: Transportation Innovations in Local and Regional Food Systems

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Executive Summary

What Is the Issue?

Until recently, local and regional food system development efforts have emphasized small scale direct marketing activities, while food freight transportation policy and planning have primarily focused on distribution infrastructure for large-scale commodity products. As the demand for local food continues to increase, innovative and scale-appropriate infrastructure and expertise are needed to respond to the market pull.

The U.S. Department of Agriculture (USDA) identified a need to direct applied research resources to focus on transportation and distribution issues in order to facilitate effective growth in local and regional food systems. Through collaboration between USDA's Agricultural Marketing Service (AMS) and the University of Wisconsin-Madison Center for Integrated Agricultural Systems (CIAS) a new approach emerged. The USDA and CIAS researchers saw a great need for providing an opportunity for networking and sharing of perspectives among the diverse groups of regional food suppliers and the established freight transportation providers.

The collaboration led to the **Networking Across the Supply Chain (NASC)** conference that served as the venue to accomplish the objectives of fostering information exchange, networking, and collaboration between the participants of the food supply chain. This report presents the conference overview with its key themes and findings as well as emergent strategies and innovative solutions to help bring regional food to regional markets.

What Did the Study Find?

The result of the conference was to bring clarity to several themes identified by the participants as key to developing regional food transportation networks, including defining the meaning of "local" and the resulting market differentiation strategies; fostering relationships to improve logistics; identifying first and last mile issues; and, addressing supply chain scale and infrastructure.

The key findings of the conference centered on:

- Developing values-based supply chains in response to consumer demand
- Identifying measures of sustainable food distribution
- Developing relational infrastructure between national and regional food logistics

Understanding the transportation barriers and complexity of food distribution in the Upper Midwest, with a focus on the four-state Driftless region in Minnesota, Iowa, Wisconsin and Illinois. Emergent strategies and innovative solutions identified by conference participants to bring regional food to regional markets included:

- Strengthening supply chain relationships
- Improving logistics at the regional level to address inefficiencies through multi-farm aggregation and back-hauling opportunities
- Investigating multi-modal and dual purpose opportunities for food freight transportation.

An indication of the interest in the NASC outcomes is the ongoing attention to the subject matter since the event took place. Presentations of the NASC results at multiple other conferences have stimulated discussion in the research community to address the issues raised at the conference.

How Was the Study Conducted?

The first-of-its kind conference brought together supply chain participants that have not had an opportunity in the past to interact and share their perspectives. Presentations by practitioners and researchers combined with guided small group discussions by participants produced an exceptionally clear set of issues, conclusions, and strategies for developing efficient local food distribution.

Introduction

Agriculture is the largest user of freight transportation in the United States, claiming 31 percent of all ton-miles transported in the United States in 2007, according to USDA¹. Trucking alone carries 70 percent of the tonnage of agricultural products. And with over 80 percent of the nation's cities and communities served solely by trucks, highway freight infrastructure plays a critical role in provisioning the U.S. population with a stable food supply.

In recent years, consumer demand for local food has grown in the United States.² Grocery retailers, institutional food service operators, and broadline distributors, who serve high volume product lines, have recognized new market opportunities. This has resulted in increased purchases of local food products. Yet the types of production, marketing and distribution practices appropriate for low-volume, direct sales are often poorly suited for higher volume markets.

The physical infrastructure developed to facilitate high volume transactions through national and global supply chains – washing, cooling, packing and storage facilities, and transportation vehicles – is inefficient and impractical when applied to regional food distribution. While capital and physical infrastructure are important, it is difficult to increase local and regional food supply and distribution by pursuing improvements in these alone. Social relationships, economic risk and opportunity and information flow must also be addressed.

Until recently, local and regional food system development efforts have emphasized small scale direct marketing activities while food freight transportation policy and planning have primarily focused on distribution infrastructure and efficiencies for large-scale commodity products. As the demand for local food continues to increase, scale-appropriate infrastructure and expertise are needed to respond to the market pull, especially from metropolitan regions. Input and collaboration from freight transportation and logistics organizations has been critical to understanding and overcoming barriers associated with moving larger volumes of product through increasingly sophisticated regional food supply chains.

USDA identified a need to direct applied research resources to focus on transportation and distribution issues in order to facilitate effective growth in local and regional food systems. The collaboration between USDA-AMS and the University of Wisconsin-Madison CIAS resulted in the NASC conference.

¹ Casavant, Ken, Marina Denicoff, Eric Jessup, April Taylor, Daniel Nibarger, David Sears, Hayk Khachatryan, Vicki McCracken, Marvin Prater, Jeanne O'Leary, Nick Marathon, Brian McGregor, and Surajudeen Olowolayemo. Study of Rural Transportation Issues, U.S. Department of Agriculture, Agricultural Marketing Service, April 2010. Web.<http://dx.doi.org/10.9752/TS041.04-2010> p. v

² Tropp, Debra "Why Local Food Matters: The rising importance of locally-grown food in the U.S. food system, a national perspective.
<http://www.ams.usda.gov/AMSV1.0/getfile?dDocName=STELPRDC5105706>

The goal of the NASC conference was to foster information exchange, networking, and collaboration between the distinct but converging groups of regional food suppliers and the established freight transportation providers. The conference fulfilled its objectives by providing an environment where business leaders shared perspectives and showcased new approaches to regional food distribution.

Background

Since 1989, faculty, staff and students with the University of Wisconsin-Madison CIAS have been working with private, nonprofit and public sector partners in the Upper Midwest to increase sustainable regional food production. The Center has a central commitment to participatory research, developing research projects based on business observations, needs, and insight. The Center meets formally and informally with small to mid-scale farmers and regional food supply chain participants to build agreement between businesses or identify business uncertainties that could be addressed.

Farmers made it increasingly clear to the Center that moving local food to wholesale markets presented distinct challenges to current transportation systems, many of which were specific to product categories. For example:

- Organic Valley, a certified organic cooperative, (Viroqua, WI) built their business around differentiating regional dairy products by partnering with existing processing and transportation resources and was facing transportation challenges, especially in the Chicago region.
- Regional apple growers need to maintain the cold chain (safe temperatures throughout distribution) so that they may pack their product efficiently for regional markets.
- Emerging local food aggregators were struggling to find transportation opportunities for their products.

As the grocery industry has consolidated, much of the supply chain infrastructure that had served regional markets has withered. In the Upper Midwest, moving local food into wholesale markets is more difficult with some products than others. This is the case when production volume falls below the threshold required to participate in the increasingly consolidated retail and institutional food markets. Farmers resort to filling small trucks to supply restaurants and retailers in distant urban markets, but incur higher unit costs to do so. Farmers supplying school districts are also challenged to do so in a cost-effective way. Similarly, farmers selling into wholesale markets encounter challenges when moving food into Chicago because of congestion, warehousing patterns and historical relationships between markets.

A systemic change is needed to resolve these obstacles. Systems change is difficult to plan, but can emerge when conditions are favorable.³ The private sector voiced the need for a neutral meeting place to deliberate and discuss the contradictory views and opinions regarding regional food distribution, a place where representatives from the full supply chain could share their perspectives. The NASC conference provided such an opportunity to a wide variety of businesses, facilitated networking, and resulted in a clear new goal: to simultaneously support sustainability values and improve regional supply chain efficiencies.

Conference Overview

On February 20-21, 2013, in LaCrosse, WI, more than 105 food supply chain businesses and public sector transportation and local food specialists convened to explore business innovations in supply chains that move food from producer to buyer within regional markets. This conference convened farmers, food distributors, retailers, transportation researchers, urban and regional planners, and public sector officials for two days of panel presentations, roundtable discussions and informal networking opportunities focusing on regional food transportation.

The Upper Midwest—especially the Driftless region in Minnesota, Iowa, Wisconsin and Illinois—has distinct food production regions shaped by landscape and weather. As a result, regional production for wholesale markets includes a diversity of vegetables, fruit, beef, and dairy products reflected in the conference agenda. This production region serves more than 20 million people in the Upper Midwest, which includes two major metropolitan market – the Minneapolis-St. Paul, MN (Twin Cities) and the Chicago, IL-Milwaukee, WI, urban corridor. This creates a set of distinct transportation opportunities and challenges.

The meeting featured leaders in the field of regional transportation and distribution discussing their businesses. The full supply chain was represented – buyers, distributors, carriers, and farmers. Presentations were followed by roundtable discussions on perspectives held by participants. Throughout the meeting, research specialists listened closely for emergent themes and ideas, and subsequently shared them in a final panel discussion for all participants.

³ Parsons, B. A. 2007. “The state of methods and tools for social systems change,” the American Journal of Community Psychology. DOI 10.1007/s10464-007-9118-z

Choi, T., Dooley, K. and Rungtusanatham, M. 2001. “Supply networks and complex adaptive systems: control versus emergence,” Journal of Operations Management 19 (2001) 351-366

Li, G., Yang, H., Sun, L., Ji, P., and Feng, L. 2006. “The evolutionary complexity of complex adaptive supply networks: a simulation and case study,” International Journal of Production Economics 124 (2010) 310-330. Doi: 10.1016/j.ijpe.2009.11.027

Kim, Y., Choi, T., Yan, T., and Dooley, K. 2009. “Structural investigation of supply networks: a social network analysis approach,” Journal of Operations Management 29 (2011) 194-211 doi:10.1016/j.jom.2010.11.001

Maani, K., and Maharaj, V., 2004. “Links between systems thinking and complex decision making,” System Dynamics Review. DOI: 10.1002/sdr.281

A diversity of organizations engaged in regional aggregation, branding and market development were represented at the NASC conference:

- Grass Run Farms (Dorchester, IA) and Wisconsin Meadows (Coon Valley, WI) shared their experiences in developing a food hub for grass fed meat.
- Driftless Organics (Soldiers Grove, WI) and Goodness Greeness (Chicago, IL) shared their experiences in organic vegetables.
- Morningside Farms (Galesville, WI) shared their experience with apples for fresh market.
- A representative from Organic Valley (LaFarge, WI) discussed dairy distribution and logistics.

All six of these food hubs are operated as for-profit businesses, two are cooperatives, and four companies are self-organized and aggregate products from independent farms. Morningside Farms is part of a regional consortium of farmers who work cooperatively to pack and market apples with a regional label through Wescott Agriproducts (Elgin, MN). Goodness Greeness developed to serve a Chicago market, and unlike the other businesses, it did not start from a farmer base. All six sell product that is differentiated from conventional, and three of the businesses focus on organic product. The experiences of these businesses demonstrates that food hubs can add value to regional food systems and economies by:

- Serving specific functions such as coordinating anchor buyers and sellers,
- Overseeing inventory management, logistics, quality control, and customer service, and
- Providing product source identification and otherwise differentiated product.

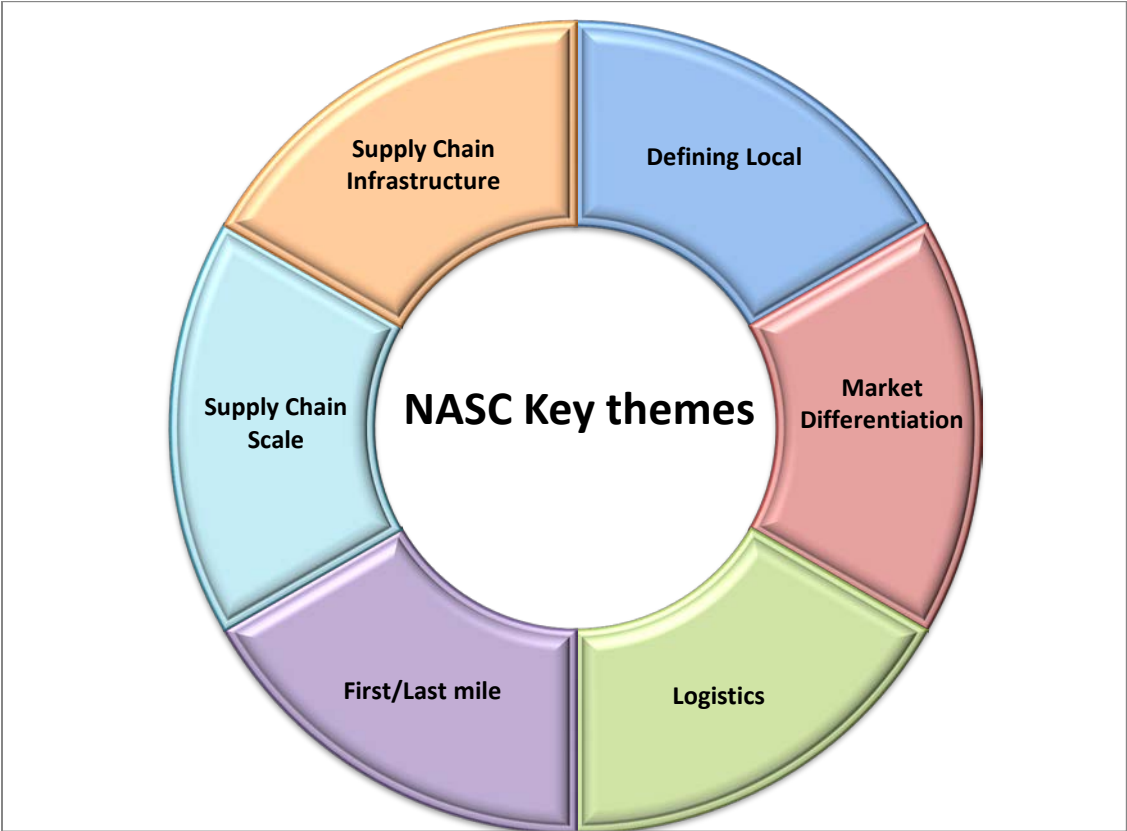
Over 90 percent of the 44 participants who took the post-conference survey indicated that they would like to attend similar events in the future. Many expressed interest in additional opportunities to network with other regional food and freight professionals and collaborate on topics such as regional marketing and branding. In future events, participants would like to learn more about alternative and multi-modal regional freight options, such as short-line rail. Other participant-identified topics for future exploration include:

- Approaches to better leveraging of existing infrastructure and hauling capacity,
- Environmentally sustainable freight transportation options,
- Software suited to regional route planning and mid-volume product tracking, and
- Logistics associated with linking multiple multi-farm food hubs.

Key Themes

Six, equally important, issues were identifiable as dominant in participant conversations during the two-day conference. The issues were grouped into the following themes: defining local, market differentiation, logistics, first/last mile, supply chain scale, and supply chain infrastructure. Figure 1 shows these themes. The conference served as a jumping off point for future conversations and investigations into important supply chain opportunities. Presentations focused on organizational and technical points, and it is from those discussions that the following themes emerged:

Figure 1. Key themes from the Networking Across the Supply Chain conference.



- 1. Defining local.** For consumers and the wholesale buyers who are responding to their preferences, “local” can mean different things. Unlike its implied definition, “local” is not just about distance to market, it is increasingly used as a proxy for a larger set of values and desirable attributes. A growing segment of consumers and wholesale buyers seek authenticity and the story behind the food product, and they are looking for sustainability indicators such as organic and fair trade. Developing appropriate supply chain arrangements for regional food systems is predicated on understanding this consumer-driven market change.

2. **Market differentiation.** The wholesale market for food products is complex. White table cloth restaurants, fast food chains, institutional kitchens, boutique retails and big box supermarkets have distinct supply chain partners. Sales strategy frequently determines supply chain partners and logistics relationships.
3. **Logistics.** Relationships drive logistics and logistical decision-making. Logistics drives transportation infrastructure development. Supply chain relationships foster efficiencies and economic opportunities, yet participants noted that there were few, if any, opportunities for them to find strategic supply chain partners. More opportunities, such as those provided by the NASC conference, are needed to develop the necessary relationships.
4. **First/last mile.** Farmers are making real progress in scaling up production and aggregating product for wholesale markets. Integrating farmers into established trucking routes may pose challenges. Last mile issues, such as inner city congestion from freight deliveries, continue to aggravate haulers and urban populations alike. Last mile challenges also include food access for inner city neighborhoods, where the cost of bringing product into the city is high and the market is uncertain.
5. **Supply chain scale.** Regional food distribution faces the competing goals of reducing costs and improving quality, while balancing market efficiencies with relational values. Vertical integration and large-scale production and marketing represent one way to achieve cost efficiencies. Ratcheting down the scale may result in additional costs, yet it adds product value for consumers.
6. **Supply chain infrastructure.** Regions with less access to the conventional distributional capital may be less vulnerable to supply chain disruptions and be more likely to have robust local and regional food distribution networks. Supply chain transparency and product tracking may be other advantages of local and regional food systems, through information technology improvements and based on new traceability regulations.⁴ Additionally, there is a growing convergence between local food distribution, institutional food provisioning, and food banks where the need is great but the opportunity for business development is scant.

⁴ FDA Food Safety Modernization Act (FSMA),
<http://www.fda.gov/Food/GuidanceRegulation/FSMA/ucm270851.htm>

Key Findings

Conference discussions and presentations led to findings that can be summarized into five general areas of concern:

- Consumer-driven, values-based supply chains
- Measures of sustainable food distribution
- National vs. regional logistics
- Complexity of Upper Midwest supply chains
- Transportation barriers in the Upper Midwest

Consumer-driven, values-based supply chains

Participants agreed that supply chains for regional food in the Upper Midwest are values-based and are developing in response to consumer demand. Sustainability values are at the core of the local food movement. Regional supply chains need a strategy to communicate sustainability values from farm to store. The NASC participants indicated that increasing sustainable business practices across the supply chain strengthens the expectations of consumers in the value of the product they purchase.

Some of the buyers and distributors that participated in the conference define local in terms of food miles, e.g. local food is sourced within a 150-mile radius of a given retailer. This is roughly the driving range that Less-Than-Truckload (LTL) haulers consider their service area in the Upper Midwest. However, many NASC conference participants, ranging from producer cooperatives to organic distributors, emphasized product attributes other than or in addition to geographic proximity. Their marketing approach is oriented toward meeting rising consumer interest in a constellation of attributes with which local is often conflated. Marketing claims highlight social, environmental, and health benefits that consumers associate with particular modes and scales of production. For example:

- Grass Run Farms (Dorchester, IA), a regional grass-fed beef distributor serving a predominantly upper Midwestern market emphasizes grass-fed flavor and high nutritional quality of its beef.
- Goodness Greeness (Chicago, IL), a leading Midwestern distributor of organic produce and the largest privately held organic distributor in the United States, showcases its commitment to local and regional food distribution in terms of its relationships with regional producers and contributions to organizations that support family farms and food security, such as Farm Aid⁵ and regional food banks.

Distributors target local market segments that coincide with values-based markets, but “local” itself is not the sole or primary marketing attribute. Retailers are reporting success in marketing

⁵ Farm Aid is an organization that raises awareness about the loss of family farms and raises money to keep family farmers on the land (www.farmaid.org).

farmers rather than location – people want to support the values they believe in and people and communities they know.⁶

Measures of sustainable food distribution

As part of their emphasis on values-based marketing, the participants were eager to learn about how the transportation sector defines “sustainable” and how it negotiates various logistical and infrastructural challenges: How do alternate freight distribution modes fit together – rail, barge, delivery trucks vs. semis? What are the labor issues? How is risk addressed in distribution, especially foreseeable risks like cold chain disruption, rising fuel costs and increased regulation in response to freeway congestion?

Characteristics of sustainable food distribution are only now being defined. The businesses that are building values-based supply chains are looking for strategic partners who are committed to sustainability in terms of environmental, economic, and social goals. Early work in food systems made an assumption that distance to market meant that less fuel was used to move food to market, but a number of studies have since made it clear that it is more fuel efficient to ship full truckloads a long distance than to move LTL short distances.⁷ Finding regional efficiencies in transportation is more complicated than anticipated.

Distance to market is not necessarily the best measure of sustainable food distribution. In fact, research indicates that the transport of local food is typically highly inefficient, whereas longer food freight movements offer higher profit per mile due to economies of scale. As such, the notion of food miles erroneously equates transportation efficiencies with sustainability, when sustainable food distribution would be better measured by such indicators as increased fuel efficiency, reduced Green House Gases (GHG), sustainable production methods, and fair labor practices. As King et al describe:

“When food miles are small, product aggregation to achieve large load sizes and logistical efficiencies can yield highly fuel-efficient distribution systems.⁸”

In other words, fewer food miles does not necessarily mean greater resource efficiency and food miles tell us nothing about how a given food product was produced or shipped. As a result, other factors such as the perceived social, environmental, and nutritional attributes associated with specific types of production practices (e.g. organic, grass-fed, use of Integrated Pest

⁶ Major, M. 2013. “Setting the table with fresh views”. *Progressive Grocer*.

<http://www.progressivegrocer.com/inprint/article/id5370/setting-the-table-with-fresh-views/>

⁷ Desrochers, P. and Shimizu, H. 2012. *The Locavore’s Dilemma: In Praise of the 10,000-Mile Diet*. Public Affairs: New York

⁸ King, R. P., M. S. Hand, G. DiGiacomo, K. Clancy, M. I. Gomez, S. D. Hardesty, L. Lev, and E. W. McLaughlin. 2010. “Comparing the Structure, Size, and Performance of Local and Mainstream Food Supply Chains.” Economic Research Report - Economic Research Service, USDA (99).

Management, fair trade designations) are in many ways better indicators of values associated with a particular food product's qualities. As noted above, this is reflected in the marketing and merchandising strategies of a number of the producers and distributors that participated in the NASC conference. As part of their emphasis on values-based marketing, the participants were eager to learn about more sustainable distribution practices and the potential for multimodal distribution.

Consumers and wholesale buyers seek authenticity and story behind product, and the story could include how the product travels to market. It is difficult to capture a premium on local and sustainable products if buyers and end consumers cannot easily and credibly identify what differentiates them from products without these characteristics. As one organic produce distributor remarked at the NASC conference, "some local products are hard to sell not because they aren't good but because they are not branded."

As local food supply chains are lengthened, high volume buyers and household consumers rely more heavily on branding, eco-labels, in-store merchandising, and other indicators on product packaging, smart phone apps, and websites to verify product claims. It is not uncommon for companies to employ multiple strategies. For example: Organic Valley, the nation's largest co-op of organic producers, organizes and profiles its growers by region on its website, where consumers can learn about and feel connected to the brand's regional farmer suppliers. While the USDA organic seal⁹ "...indicates the food or other agricultural product has been produced through approved methods. These methods integrate cultural, biological, and mechanical practices that foster cycling of resources, promote ecological balance, and conserve biodiversity," the farmer profiles help household consumers connect to the people and the story behind the product, further validating the perception of authenticity. Distributors and haulers can help ensure that a product's story travels with it from farm to consumer, with the long-term goal of ensuring the entire supply chain can maintain the sustainability brand that they are promoting.

National vs. regional logistics

Logistics support tends to maximize national rather than regional efficiencies. The reemergence of high-volume regional food distribution is relatively recent. Much of the mid-sized food distribution infrastructure that developed over the first half of the twentieth century was lost as farms, food distributors, and retailers became increasingly consolidated over the last three decades of the 20th century. Until very recently, many of the small and mid-scale food hubs that developed over the past couple decades were built on relationships and the remnants of preexisting infrastructure. Take, for example, the following description of an informal multi-farm distribution hub operating in southwestern Wisconsin from a 2011 study by the National Center for Freight and Infrastructure Research and Education and CIAS:

⁹ USDA What is Organic? www.ams.usda.gov/nop

“Harmony Valley has become an informal point of aggregation for its own products as well as those of Driftless Organics, Star Valley Farms, and several other small, local farms. Harmony Valley has taken on an aggregation function primarily because it already had the necessary storage capacity and equipment (e.g., forklifts, two docks, and coolers). It is not in close proximity to primary transportation routes, however, making it a less than optimal hub site.”¹⁰

Driftless Organics farmer and co-owner Josh Engel explained on a NASC panel that building relationships has been critical to the logistics and distribution component of his CSA and wholesale business. Indeed, *relational* infrastructure – the relationships between supply chain participants – is at the core of any supply chain or distribution network. And yet, while cooperation with Harmony Valley and other area farms has increased the distributional capacity of multiple businesses and enabled them to grow, Driftless Organics continues to face logistical and cold storage challenges caused in part by the ad hoc nature of the hub’s development over. This is an example of a successful but suboptimal system that developed over time without planning or strategic consideration of the location of the farms relative to the transportation network and the rest of the existing supply chain. Conversely, the supply chain is no longer well-linked to regional production areas, and instead has developed to serve distant production regions.

Complexity of the Upper Midwest supply chains

Supply chains in the Upper Midwest are complex, and supply chains for regionally-produced food are fragmented. A number of research studies have indicated that the number of farmers who are moving towards sustainable production practices is growing.¹¹ Not only has the number of organic vegetable producers in the Upper Midwest increased, so too, have the number of farmers marketing product at farmers markets, and the number of farmers markets across the region. Local food and direct marketing opportunities, including farmers markets, are one of the fastest-growing segments of agriculture. According to the Census of Agriculture, direct sales of food products from farmers to individual consumers rose by nearly 50 percent between 2002 and 2007.

Worth an estimated \$1 billion in 2005, local food sales grew to \$4.8 billion in 2007 and nearly \$7 billion last year, according to industry estimates. For nearby businesses in major cities across

¹⁰ Bittner, J., L. Day-Farnsworth, M Miller, R Kozub, B Gollnik. September 2011. Maximizing Freight Movements in Local Food Markets. National Center for Freight and Infrastructure Research and Education. University of Wisconsin-Madison. p.12

¹¹ The National Sustainable Soybean Initiative survey data at: http://www.coolbean.info/pdf/soybean_research/national_sustainability_initiative/SoybeanSurveyResults_2013_FINAL.pdf, and USDA ERS data on organic production trends at <http://www.ers.usda.gov/data-products/organic-production.aspx#.U4zjO3ckRyw>

the U.S., having a farmers market nearby means an average increase in sales of anywhere from \$19,000 to \$15 million, according to a Marketumbrella research paper published in 2012.¹²

The 10 top states accounting for more than half – 51.3 percent – of all markets listed in the directory database are: California, 759; New York, 637; Illinois, 336; Michigan, 331; Ohio, 300; Pennsylvania, 290; Massachusetts, 289; Wisconsin, 286; Missouri and Virginia, tied at 246; and Iowa and North Carolina, tied at 229.

Meeting participants discussed the fact that many farmers who start out with a farmers market as their primary outlet need to diversify and scale up their operation to include wholesaling. Some start out delivering direct to restaurants and/or starting subscription services through Community Supported Agriculture (CSA) businesses.

The trend toward sustainable agriculture, although difficult to quantify for fruit and vegetable farms, has increased the need for supply chain partners who share sustainability values and understand the importance of supply chain transparency, shared risk and benefit across the supply chain – from farmers to whole sale markets to retail outlets and consumers.

Wholesale markets are diverse. High-volume buyers seeking local and regional products now include broadline distributors, such as Sysco, large vertically integrated grocery chains, gourmet retail, independent grocers, natural food co-ops, school districts, hospitals, “white table cloth” restaurants, gourmet fast food (Chipotle and Wolfgang Puck Express, for example), and food banks. This wide range of prospective buyers represents numerous opportunities for regional producers, but it also means that the high-volume regional food market now includes a wider range of customers to which many smaller scale local suppliers are unaccustomed. As a result, producers and distributors need to be savvy about which products and price points are appropriate for which markets. Distribution questions raised at the NASC conference centered on: how does a particular product or line of products wind its way through specific supply chains in such a way that helps to support business development along the entire chain?

Regional food supply chains are not appropriate for all businesses. It is important for growers to be able to identify a market niche suited to their cost of production, production capacity, and marketing skills and preferences. Distributors need to consider whether the high transaction costs that come with working with many smaller, regional growers (rather than one or two very large growers), and the more complex logistics that result, are balanced with access to higher-end markets or otherwise give the business a competitive edge. Similarly, it is helpful for the businesses down chain when high volume buyers are clear about their expectations with regard

¹² Market Umbrella. 2012. “Farmers Markets Contribute Millions to Local, Regional Economies.” <http://www.marketumbrella.org/index.php?mact=News,cntnt01,detail,0&cntnt01articleid=163&cntnt01returnid=122/>

to product quality, presentation, price, delivery schedule, and merchandising and are willing to provide firm forward contracts to purchase product in advance of the growing season.¹³

The complexity of the regional supply chain is further exacerbated by challenges such as misperceptions and the difficulty of forming new relationships. Lack of alignment between supply chain partners on issues of product quality, pack size, cold chain integrity, pick-up and drop-off arrangements, and wholesale pricing can be frustrating for everyone and requires time to improve communication systems. Supply chain risk can strain business relationships, especially between many independent companies. As one NASC conference panelist remarked, “[Our natural food co-op] is always fighting growers’ perception that we are depository for product that can’t or didn’t sell at the farmers’ market. We make an effort to source from local growers, but the co-op can’t be a dumping ground; we have to have quality standards to be profitable.” A local food aggregator noted that farmers who are accustomed to direct marketing have been appalled by the low terminal prices they are expected to accept when selling through a nascent local food hub. An independent distributor noted that transportation delays increase the risk of product shrinkage and cold chain mishaps.

Transportation barriers in the Upper Midwest

Transportation barriers are limiting market access in the Upper Midwest. Many of the greatest logistical inefficiencies associated with local and regional food freight occur at the beginning and end of the supply chain. This is where numerous short but indirect hauling routes combine with LTL and can increase the per unit hauling cost. In addition, recent changes to federal hours-of-service regulations have restricted the number of consecutive hours drivers can operate their vehicles.¹⁴ Under current regulations, delays at loading docks count as hours of service. Consequently, delays in the first and last miles reduce actual hauling time and negatively impact profit margins by necessitating that haulers and distributors run more trucks.

Transportation challenges identified at the conference include lack of coordination between the transportation providers and the very small and very large facilities that supply and receive local food. Small-scale suppliers require numerous pick-ups and sometimes have inadequate physical infrastructure, labor flexibility and/or limited knowledge of the time sensitivity associated with hours of service regulations and the cost of delays. As a result, drivers will sometimes arrive for a pick-up at a smaller supplier only to discover that product is not yet packed or palletized or that there is no one there to load the truck. Large-scale suppliers, on the other hand, face delays as a result of traffic congestion caused by numerous distributors arriving at the same time.

¹³ Day-Farnsworth, L. McCown, B., Miller, M., and Pfeiffer, A. December 2009. Scaling Up: Meeting the Demand for Local Food. Retrieved 29 Jul 2013. <http://www.cias.wisc.edu/farm-to-fork/scaling-up-meeting-the-demand-for-local-food/>

¹⁴ US Department of Transportation, Federal Motor Carrier Safety Administration. <https://cms.fmcsa.dot.gov/regulations/hours-service/summary-hours-service-regulations>

While more rigorous research is needed to confirm and elucidate these issues, bottlenecks may be mitigated through education and improved communication systems about pick-up/delivery requirements for small supplier and the development of more mid-size aggregation and distribution centers for LTL as well as regionally-scaled logistics tools. Similar bottlenecks occur at delivery, when small-scale receivers are not prepared to take product and larger customers are contending with multiple deliveries at the same time.

Distance-to-market gives local product an advantage in terms of product quality, as long as the cold chain is protected. As the time en route to market increases, product freshness decreases, and more shrinkage occurs – a concern especially with refrigerated fresh fruits and vegetables. Traffic congestion slows freight delivery and complicates logistics, and at the same time, and societal reliance on trucking contributes to traffic congestion. Hours-of-Service regulation is meant to improve traffic and labor safety, but reliance on truck freight service to bring products to heavily populated regions adds to the traffic congestion.

Metropolitan areas are highly dependent on freight transportation and those that serve as large distributional hubs, such as Chicago, are perhaps the most vulnerable to disruption. In fact, the largest national food distribution hub, measured by warehouse square footage, lies just east of Chicago.¹⁵ By contrast, metro Minneapolis-St. Paul and smaller towns in the Upper Midwest are less reliant on national and international markets; this has resulted in opportunities to cultivate a regional culinary identity and regional markets and has led to the parallel emergence of more flexible, redundant and experimental small and mid-size distribution systems. Other metropolitan regions will face their own types of opportunities and constraints when creating regional food systems, based in part on the population density, the placement of existing distributional hubs, regional proximity to food production regions, and the agricultural ability of a region to produce specific commodities.

Long-haul freight truck traffic is expected to rise dramatically on Interstate highways and other arterials throughout the US¹⁶. The impact of increased truck traffic will be felt most acutely in certain freight corridors, including significant portions of Interstate 94 between Chicago, Milwaukee, and the Twin Cities. According to the Federal Highway Administration, “assuming no change in network capacity, the number of National Highway System miles with recurring congestion and a large number of trucks is forecast to increase nearly four-fold between 2007 and 2040. On highways carrying more than 8,500 trucks per day, recurring congestion will slow traffic on close to 7,200 miles and create stop-and-go conditions on an additional 23,500

¹⁵ MWPVL. 2013. *The Grocery Distribution Center Network in North America*. Retrieved from http://www.mwpvl.com/html/grocery_distribution_network.html

¹⁶ USDOT Federal Highway Administration Office of Freight Management and Operations. 2011. Freight Facts and Figures. US DOT. http://www.ops.fhwa.dot.gov/freight/freight_analysis/nat_freight_stats/docs/11factsfigures/pdfs/fff2011_highres.pdf p. 33

miles.”¹⁷ Ultimately, reliance on freight trucks for food distribution means the region is reliant on fossil fuels which are subject to fluctuating prices. Mid-sized trucking firms that specialize in serving regional markets may need to share increased fuel costs with supply chain partners to stay in business, making these strategic partnerships critical.

Emergent Strategies and Solutions to Deliver Regional Food to Regional Markets

NASC participants shared some key innovations that they think will accelerate business development for regional food supply chains and make it possible to meet the demand for regional food produced with economic, social, and environmental attributes.

Strengthen regional supply chains

Multiple conference participants noted that stronger relationships across the supply chain tend to result in higher-value products. For example, a NASC participant who runs a farm and regional food distribution business explained that his relationships with his buyers are the primary reason he does not contract out his hauling; he simply does not want to jeopardize those relationships by outsourcing deliveries to a third party that cannot represent his product or is less personally invested in timely deliveries. Even in very high volume transactions between regional growers and large school districts, shared expectations and transparency are critical. At NASC, a former school food service director emphasized the importance of communicating with vendors about quality assurance prior to transactions to ensure that product requirements are clear and mutually agreed upon.

Suppliers and buyers have different expectations regarding product price and quality and the extent to which supply chain relationships operate at arms’ length vs. face to face. While improvements to supply chain management and logistics may help increase quality and reduce transaction costs, the reconciliation of these competing goals will also require high levels of communication across the supply chain and opportunities for suppliers and buyers to meet one another and assess their compatibility. Supply chain governance, especially in those without vertical integrated structures, is increasingly important in fostering thriving supply chains and access to regional and local markets for farmers.

Participants engaged in a lively conversation about branding as a core regional marketing strategy. A number of the wholesale producers are developing brands to communicate a suite of quality attributes to consumers. Rather than develop distinct brands and add to the marketplace

¹⁷ USDOT Federal Highway Administration Office of Freight Management and Operations. 2011. Freight Facts and Figures. US DOT. http://www.ops.fhwa.dot.gov/freight/freight_analysis/nat_freight_stats/docs/11factsfigures/pdfs/fff2011_highres.pdf pp. 33-39

“cacophony”, regional efforts to align branding activities will create market synergy and increase consumer recognition of regional products.

A possible follow-up action item from the conference emerged: developing a regional marketing entity that could develop, manage and promote regional brands and host events ranging from networking opportunities to technical assistance trainings on production planning and product development. A regional marketing association akin to the Produce Marketing Association has the potential to catalyze, support, and cement critical business relationships. This is based on the observation that relationships drive logistics and multi-sector gatherings that include growers, distributors, and other allied professionals serve an important role by fostering collaborations while also paving the way for strategic, mid- to long-range planning and infrastructure development.

Good business practices such as clear communication, follow-through and creative problem solving lie at the heart of efficiency. Food distribution networks could be strengthened through more strategic and regular communication between suppliers and buyers and improve the ability of the public sector to support the work of nonprofit and private businesses through targeted research and development services. This has the potential to foster a wider range of stakeholder participation in regional planning processes and help identify partnership opportunities.

The work of conference co-conveners, CIAS and the Mississippi River Regional Planning Commission (MRRPC), and their involvement with the Driftless Region Food and Farm Project and the Food Resources and Agribusiness Network have laid the foundation for a regional marketing and branding entity. However, additional resources are necessary to provide marketing and branding expertise, sponsor content rich programming, and host more regular networking opportunities.

Improve logistics at the regional level

Inefficiencies in regional food supply chains can result in increased costs and compromised product quality. Because the regional food distribution field is still comparatively young, there are relatively simple and low-cost opportunities for improvement. From a food miles and transportation perspective, research suggests that the most fuel and cost efficient hauls occur at a regional scale in fully loaded large-volume trucks.¹⁸ Practices such as multi-farm aggregation and back-hauling can reduce the number of short and less-than-full load hauls, while potentially improving the cold chain, and correspondingly, product quality. It may also be possible to cooperate regionally to identify and develop logistics and the necessary infrastructure strategically, as was done by the dairy industry in the 1960s.

¹⁸ King, R. P., M. S. Hand, G. DiGiacomo, K. Clancy, M. I. Gomez, S. D. Hardesty, L. Lev, and E. W. McLaughlin. 2010. “Comparing the Structure, Size, and Performance of Local and Mainstream Food Supply Chains.” Economic Research Report - Economic Research Service, USDA (99).

Community and regional food system development is increasingly the result of public-private collaborations. This is evidenced in the public health funding and economic development resources allocated to improve access to healthy food in under-served rural and urban communities and spur local economic development through food processing and innovation. Consequently, it is increasingly more important to incorporate evolving food logistics into mid-range transportation, land use, and economic planning. This is a critical time to include discussion about freight impact on metro transportation and provide a vision of a more sustainable approach to distributing food.

In response to these changing conceptions of food security and community and regional food systems, leadership at both regional and national food banks ranging from the Dane County Food Pantry Network in southern Wisconsin to Feeding America are reassessing their approaches to sourcing and are striving to increase their fresh and local produce offerings. One NASC participant made it clear that he or she believes food banks were never meant to be permanent, and figuring out how to “put themselves out of business” is a priority. The development of supply chain infrastructure to again serve inner city and rural communities may be possible by reexamining logistics and public reinvestment in necessary infrastructure. Investing in public terminal markets in urban regions over a particular population threshold may alleviate food access issues.

Investigate multi-modal and dual purpose openings for food freight transportation

In anticipation of increased congestion in all modes of freight transportation, and the highway system in particular, food distribution networks have an opportunity to plan accordingly. One strategy discussed at the NASC conference is to explore the development and expansion of multi-modal regional food freight networks. Current U.S. transportation policy is mode-oriented, meaning that different agencies focus on each mode of transportation, and each mode has its own funding mechanisms¹⁹.

Multi-modal food freight infrastructure planning and development could potentially increase fuel/cost efficiencies and improve the sustainability of regional food distribution by reducing reliance on truck transportation and associated road wear and traffic congestion. For example, Goodness Greenness, a regional produce distributor that served on the NASC market outlook panel, is already using short line rail to ship carrots. A French grocery chain is hauling

¹⁹ Casavant, Ken , Marina Denicoff, Eric Jessup, April Taylor, Daniel Nibarger, David Sears, Hayk Khachatryan, Vicki McCracken, Marvin Prater, Jeanne O’Leary, Nick Marathon, Brian McGregor, and Surajudeen Olowolayemo. Study of Rural Transportation Issues, U.S. Department of Agriculture, Agricultural Marketing Service, April 2010. Web.<http://dx.doi.org/10.9752/TS041.04-2010> p. xiii

wholesale product to market using barges on the Seine.²⁰ A question was raised regarding the use of barges for food distribution for the many cities along the Mississippi River, or along Lake Michigan. Increased communication and feedback between freight planners and commercial users could help identify barriers and opportunities to expanding the use of alternative freight modes to transport food regionally.

In addition to expanding research and investment in regional multi-modal food freight networks, planners and allied professionals could incorporate first and last mile considerations and urban freight movement best practices into metropolitan food distribution and logistics planning. The National Cooperative Freight Research Program's *Guidebook for Understanding Urban Goods Movement* provides information and recommendations for improving public decision-making affecting urban commercial motor vehicle movements for goods delivery. It includes recommendations on design standards, urban infrastructure design, land use and zoning, and urban truck regulations and outlines a process for planners to assess goods movement issues in their metro areas.²¹

The guidebook's attention to first and last-mile issues could inform siting decisions for metropolitan food hubs and may be of particular interest to regional food systems and freight transportation planners. It explains that to accommodate the often tight confines of road geometrics in dense 'last mile' urban areas, trucking companies often transload products at metropolitan warehouses from large 5-axle tractor-semi-trailers (commonly referred to as "18-wheelers") to smaller, more agile delivery vehicles such as, single-unit two or three-axel trucks with relatively short wheelbases.²² Many small- and mid-scale food distributors do not have fleets with both large vehicles that economize high-volume rural food transport and smaller vehicles suited to the challenges of dense, urban deliveries.

Lack of knowledge among small-size producers and distributors of urban freight movements and limited access to capital and transportation infrastructure contribute to distribution inefficiencies. These inefficiencies might be avoided through education on the cost of in-house distribution and

²⁰ Todd, S. (2012, March 19) "Supermarket delivers by river". Lloyd's Loading List. Retrieved from <http://www.lloydsloadinglist.com/freight-directory/searcharticle.htm?articleID=20017946724&highlight=true&keywords=supermarket+delivers+by+river&phrase=#.UcnEj3eB7rc>

²¹ Rhodes, Suzann S., Mark Berndt, Paul Bingham, Joe Bryan, Thomas J. Cherrett, Peter Plumeau, and Roberta Weisbrod. 2012. *Guidebook for Understanding Urban Goods Movement*. National Cooperative Freight Research Program (NCFRP) Report 14. Transportation Research Board. Washington DC. http://onlinepubs.trb.org/onlinepubs/ncfrp/ncfrp_rpt_014.pdf

²² *Ibid.* p. 14

through collaboration with compatible regional hauling companies that have fleets suited to the diverse needs of regional food distribution.²³

Distributors at the NASC meeting pushed back on the idea of an additional warehouse step, because the more product is handled, the higher the risk of cold chain breakage, increased product shrinkage, and reduced freshness. Issues of ownership and risk arise, raising questions such as “Who owns the product at the time of warehousing and who is taking the added financial risk?” Food safety is a serious concern in products reliant on cold chain integrity, and regulations to ensure cold chain compliance require data monitoring and reporting. Independent distributors are at a disadvantage compared with vertically integrated companies that own the product and can absorb risk at different points of the supply chain. Reconciling freight capacity and planning concerns with food safety and business profitability will likely continue to be a challenge as public and private entities negotiate and balance different objectives within regional food and freight distribution networks.

²³ Nelson, David A., Michelle Miller, Alfonso Morales, and Ben Zeitlow. June 2013. Achieving scale strategically: understanding freight flows in regional food supply chains. National Center for Freight & Infrastructure Research & Education Department of Civil and Environmental Engineering College of Engineering University of Wisconsin–Madison.

Post-event Feedback

Based on the post-event feedback survey summarized below, the NASC conference succeeded in achieving many of its goals: the NASC conference fostered numerous new connections between participants. Participants learned useful innovations for transportation logistics, and many indicated that they are interested in attending similar events in the future. Interest in the event exceeded conference capacity. Some have identified the need for more discussions and interactions of farmers with regional hauling and logistics companies to better leverage existing infrastructure and hauling capacity.

Participants Comments

1. The conference fostered new connections:

Over 97% of respondents made three or more new connections with other participants.

- 66% of respondents made more than 5 new connections with other participants.
- 70% made new contacts useful to their businesses.
- 88% made connections useful for local foods development.

2. Participants learned about food freight transportation and logistics from multiple perspectives and would like to see more freight and logistics expertise showcased in future panels:

79% learned useful innovations for transportation and logistics.

Comments:

“The growers/producers did not have a good understanding of what happens when they hold a truck up by not having the shipment ready to go at agreed upon time.”

“Understanding trucker drive time constraints was helpful.”

“I would have liked to hear from more speakers that actually have trucks on the road. We heard from Organic Valley and Goodness Greenness. We need more companies and individuals who have trucks and are moving product share their advice.”

“Really liked having a rep from the DOT there and would like them invited to the next meetings.”

“Have more discussions on how rail shipping works. Discussion on locations of existing food hubs and how to start linking them together to develop food routes.”

3. Participants seek ongoing opportunities to network, build relationships, and advance the ideas discussed at the conference: ***92% were interested in attending similar events in the future.***

Comments:

“Hold follow-up discussions for those that desire to roll up their sleeves and start to execute!”

“Thank you—it was a fabulous conference, I made many key connections. Lots of energy to move forward with the next steps!”

“Good job! Much more discussion is needed.”

“More time for pure networking. That part felt a bit rushed as we moved on to the next scheduled event. Conversations just got started and it was time to move on. Lots of good people to talk to!

4. Participants saw value in the diversity of perspectives and expertise represented at the conference, and they seek opportunities for continued collaboration.

Comments:

“This is more about building connections of trust than about finding new technologies. We need players outside of the system who can creatively connect existing systems in new ways.”

“We don't need to try to create a new transportation system for local and regional foods. [We need to] find a way to integrate existing players into a higher level of involvement.”

“The idea of a regional food marketing association that could increase relationships between businesses and work on a regional branding effort.”

5. Participants provided suggestions for future conferences:

Comments:

Interest in the event exceeded conference capacity; subsequent events would ideally accommodate at least 150 participants.

Allow for more informal networking time.

Provide more structure or facilitation for small group discussions.

Let participants self-organize by topic of interest, theme, or professional background for small group discussions, and create opportunities to change groups for each discussion.

Host pane – or discussion – on ways to leverage existing infrastructure and hauling capacity.

Host a panel on environmentally sustainable hauling strategies and regional food freight alternatives to trucking, e.g. short-line rail.

Feature scale-appropriate software for regional route-planning and product tracking.

Showcase more regional hauling and logistics companies in future panels.

Generate more specific action items at the end of the conference.

Appendix A: Presentations about “Networking Across the Supply Chain” conference

The organizers of the NASC conference and the authors of this report hope that the usefulness of these activities continues to reap the benefits in the future. Since the conference was held, the following activities have used the results:

- American Planning Association, Chicago, IL April 2013
<http://media.planning.org/media/npc13/presentations/S563.pdf>
- Wisconsin Chapter of the American Planning Association, Sheboygan, WI, June 2013
<http://www.scribd.com/doc/227680283/WAPA-Conf-Presentation-6-13-2013>
- USDA-AMS, Washington, D.C., August 2013
<http://www.ams.usda.gov/AMSV1.0/getfile?dDocName=STELPRDC5105410>
- University of Illinois summer institute webinar on food systems, August 2013
<http://www.scribd.com/doc/227681436/UIUC-Teleconference-August-2013>
- UW-Extension Food Systems team meeting, Stevens Point, WI September 2013
<http://www.scribd.com/doc/227679979/UWEX-Food-Systems-M-miller-10-13>
- Wisconsin Green Building Alliance, Milwaukee, WI, October 2013
<http://www.scribd.com/doc/227683218/Designing-the-life-we-envision-sustainable-agriculture-and-food-supply-webs>
- NC1198 Multistate project Renewing an Agriculture of the Middle: Value Chain Design, Policy Approaches, Environmental and Social Impacts annual meeting, Minneapolis, MN, October 2013
http://nimss.umd.edu/lgu_v2/homepages/saes.cfm?trackID=14216
- Northwestern University, Chicago, IL, November 2013
<http://www.scribd.com/doc/228170233/Northwestern-Local-Food-Panel-Nov2013>
- Midwest Value-Added Food conference, Wausau, WI, January 2014
<http://prezi.com/dyytyshkxyzz/wholesaling-local-food/#>
- Wisconsin Local Food Summit, Milwaukee, WI, January 2014
http://prezi.com/vxxyxi8kth5b/growing-the-local-food-economy/?utm_campaign=share&utm_medium=copy
- National Logistics, Trade and Transportation Symposium, Gulfport, MS, February 2014 (refereed paper http://www.scribd.com/doc/226815095/Resilient-Regional-Supply-Chains-for-Sustainably-grown-Food?secret_password=aJ3WZPeTnOx6XR1I3as4)
<http://www.usm.edu/logistics-trade-transportation/conference-presentations> (presentations not yet posted http://prezi.com/m_1jkwakgpt/?utm_campaign=share&utm_medium=copy)
- Madison Regional Economic Partnership, Madison, WI, March 2014
- Climate Quest, Madison, WI June 2014
- Wisconsin Chapter of the American Planning Association, Madison, WI, June 2014
- Paper in process – “Resilient regional supply chains for sustainably-grown food” with Steve Viscelli, Swarthmore College.

Appendix B: Meeting Agenda

Networking Across the Supply Chain Agenda
February 20-21, 2013
La Crosse, WI

Wednesday, Feb. 20

12:30—1:00pm: Welcome

- Bryan Law, Conference Facilitator, Mississippi River Regional Planning Commission
- Marina Denicoff, Transportation Services Division, Transportation and Marketing Programs, USDA-Agricultural Marketing Service
- Michelle Miller, Center for Integrated Agricultural Systems, University of Wisconsin – Madison

1:00—1:45pm: Panel presentations: Market Outlook. Confirmed speakers:

- Kymm Mutch – Project Director, Regional Learning Lab, School Food FOCUS, Milwaukee
- Don Stanwick, Purchasing Manager for Chartwells-Thompson Hospitality, Compass Group, Chicago
- Brad Smith, Peoples Coop, LaCrosse

1:45-3pm: Facilitated small group discussions on wholesale buyer needs and opportunities.

3:00—3:45pm: Panel presentations on Connecting Supply and Demand: Challenges and Opportunities.

- Ben Perkins, Goodness Greeness, Chicago
- Kristine Jepsen, Grass Run Farms, Dorchester, IA
- Nick Lichter, Organic Valley, LaFarge, WI

3:45-5pm: Facilitated small group discussions on distributor/processor needs and opportunities.

5:00—6:00pm: Networking Hour with cocktails and tapas (small bites). Cash bar sponsored by City Brewery, LaCrosse.

6:00—6:30pm: Keynote presentation

- I. Brandon Scholz, Wisconsin Grocers Association

7:00—9:00pm: Theme discussions in downtown La Crosse restaurants. Participants interested in further conversation on specific topics are invited to reconvene at one of four downtown restaurants.

- Transportation Relationships: fuel costs, drivers, equipment availability, and communication
- Keeping the story with the product
- Matching supply and demand: relationships and communication
- Extreme weather and infrastructure resilience: lessons learned

Thursday, Feb. 21

7:00-8:00: Complementary breakfast

8:00—8:45am: Panel presentations on the Supply Perspective: Current Situation and Outlook.

- Rod Ofte, Wisconsin Meadows Grass-fed beef co-op
- Tom Ferguson, Ferguson Morningside Orchards
- Josh Engel, Driftless Organics

8:45-10am: Facilitated small group discussions on farmer needs and opportunities.

10:00am—11:30pm: Synthesis, future R&D, next steps, participant insights and plenary discussion. Confirmed conference respondents:

- Alfonso Morales, UW-Madison Professor of Urban and Regional Planning
- Ernie Perry, University of Wisconsin-Madison, Center for Freight and Infrastructure Research and Education
- Craig Chase, Leopold Center, Iowa State University
- Ken Meter, Crossroads Resource Center

Appendix C: Participants and Affiliation

Networking Across the Supply Chain: Transportation Innovations in Local and Regional Food Systems

LaCrosse, WI • February 20-21, 2013

Farmers

1. **Shannon Adams**, Mystery Bridge Farms
2. **Peter Allen**, New Forest Farm, UW-Madison
3. **Ashleigh Blasey**
4. **Irv Cernauskas**, Irv & Shelly's Fresh Picks
5. **Valerie Dantoin Adamski**, Northeast WI Tech College, Full Circle Farm
6. **Jess Ecker**, Ecker's Apple Farm
7. **Mary Ecker**, Ecker's Apple Farm
8. **Josh Engel**, Driftless Organics, LLC
9. **Teresa Engel**, WI DATCP-Marketing, Driftless Organics, LLC
10. **Andy Ferguson**, Ferguson's Orchards
11. **Tom Ferguson**, Ferguson's Orchards
12. **Rufus Haucke**, Just Local Foods
13. **Kristine Jepsen**, Grass Run Farms
14. **Ryan Jepsen**, Grass Run Farms
15. **Mark Moesch**, Bluff Country Cider Works
16. **Dale Nelson**, Bellbrook Berry Farm LLC
17. **William O'Brien**, Bellbrook Berry Farm LLC
18. **Rod Ofte**, WI Grass-Fed Beef Cooperative
19. **Mark Olson**, Renaissance Farm, Wisconsin Food Hub Cooperative
20. **David Parr**, Parrfection Produce, LLC
21. **Andy Ross**, Skagit Flats Farm LLC
22. **Ethan Seaver**
23. **Andrew Sell**, Wisconsin Farmers Union
24. **Lisa Shirek**, Painted Rock Farm, Sustainable Community Initiative
25. **Christine Welcher**, Sugar River Farm
26. **Pat Wilborn**, PortFish, Ltd.
27. **Sarah Lloyd**, Neldells Farm, Wisconsin Farmers Union, Wisconsin Food Hub Cooperative

Transportation

1. **Tom Bartsh**, Edina Couriers
2. **Rick Christianson**, Co-op Partners Warehouse
3. **Lynn Foster**, Food Network Software
4. **Rufus Haucke**, Just Local Foods
5. **Bob Haugen**, Food Network Software
6. **Keith Herlitzke**, Potato King, Inc
7. **Kristine Jepsen**, Grass Run Farms

Transportation, continued

8. **Ryan Jepsen**, Grass Run Farms
9. **Nick Lichter**, Organic Logistics
10. **Andrew Lutsey**, Chicago Local Foods
11. **Rod Ofte**, WI Grass-Fed Beef Cooperative
12. **David Olson**, Reinhart Foodservice
13. **David Parr**, Parrfection Produce, LLC
14. **John Pavelski**, Sondag Produce LLC
15. **Ben Perkins**, Goodness Greeness
16. **Ernie Perry**, CFIRE
17. **Felix Ramirez**, North Wind Distribution
18. **David Rand**, Chicago Local Foods
19. **Don Roper**, Wescott Agri Products
20. **Andy Ross**, Skagit Flats Farms LLC
21. **Donald Stanwick**, Chartwells- Thompson Hospitality
22. **Joe Tegtmeier**, Buy Right Purchasing Group
23. **Brian Wickert**, 5th Season Coop
24. **Richard Klossner**, Horizon Organic

Buyers

1. **Rod Ofte**, WI Grass-Fed Beef Cooperative
2. **Shawna Bohan**, Vernon County Farm to School
3. **Ryan Boughton**, One Eleven Main
4. **Richard Klossner**, Horizon Organic
5. **Andrew Lutsey**, Chicago Local Foods
6. **Tracey Mofle**, West Wind Community Coop
7. **Kymm Mutch**, School Food FOCUS
8. **John Pavelski**, Sondag Produce LLC
9. **Ben Perkins**, Goodness Greeness
10. **Felix Ramirez**, North Wind Distribution
11. **David Rand**, Chicago Local Foods
12. **Don Roper**, Wescott Agri Products
13. **Brandon Scholz**, WI Grocers Association
14. **Brad Smith**, People's Food Co-op
15. **Donald Stanwick**, Chartwells- Thompson Hospitality
16. **Joe Tegtmeier**, Buy Right Purchasing Group
17. **Brian Wickert**, 5th Season Coop
18. **Laura Witzling**, Institutional Food Market Coalition, UW Extension-Dane County
19. **Colleen Johnson**, Vandewalle & Associates
20. **Mark Olson**, Renaissance Farm, Wisconsin Food Hub Cooperative
21. **Sarah Lloyd**, Neldells Farm, Wisconsin Farmers Union, Wisconsin Food Hub Cooperative

NGO

1. **Rachel Armstrong**, Farm Commons
2. **Jessica Bauer**, La Crescent Area Healthy Community
3. **Juli Brussell**, Ceres Trust
4. **Brian Burson**, Illiana Ag Alliance
5. **Elena Byrne**, Organic Processing Institute
6. **Layne Cozzolino**, Central Rivers Farmshed
7. **Molly Donaldson**, Feeding America
8. **Steve Elliott**, Health First Wisconsin
9. **Karunakar Ghimire**, Green & Rural Development Nepal
10. **Jan Joannides**, Renewing the Countryside
11. **Karen Lehman**, Fresh Taste
12. **Vicki Markussen**, 7 Rivers Alliance
13. **Vince McCoy**, Channel One, Inc
14. **Ken Meter**, Crossroads Resource Center
15. **Penny Molina**, Profitable Growth Network
16. **Susan Oddsen**, La Crescent Area Healthy Comm.
17. **Kassia Perpich**, Fresh Taste
18. **Lisa Shirek**, Painted Rock Farm, Sustainable Community Initiative
19. **Joan Stockinger**, Cooperative Development Services
20. **Caroline van Schaik**, Land Stewardship Project
21. **Carla Wright**, Organic Processing Institute
22. **Andrew Bernhardt**, UW-Extension, Wisconsin Local Food Network
23. **Sarah Lloyd**, Neldells Farm, Wisconsin Farmers Union, Wisconsin Food Hub Cooperative
24. **Andrew Sell**, Wisconsin Farmers Union

Government

1. **Joanie Buckley**, Oneida Nation of Wisconsin
2. **Dan Cornelius**, Intertribal Agriculture Council
3. **Marina Denicoff**, USDA-AMS
4. **Teresa Engel**, WI DATCAP-Marketing
5. **Lois Federman**, WI DATCAP-Marketing
6. **Jason Grimm**, Iowa Valley RC&D
7. **Bryan Law**, Mississippi River Regional Planning
8. **Laura Paine**, WI DATCAP-Marketing
9. **Jen Pino-Gallagher**, WI DATCAP-Marketing
10. **Mary Robb**, WI DOT-Planning
11. **Kathleen Spencer**, WI DOT-Planning
12. **Carolyn Wetuski**, USDA Rural Development

University

1. **Valerie Dantoin Adamski**, Northeast WI Tech College, Full Circle Farm
2. **Kelly Cain**, St. Croix Institute for Sustainable Agriculture, UW-River Falls
3. **Craig Chase**, Leopold Center for Sustainable Agriculture, Iowa State University
4. **Sandra Streed**, Northern Illinois University
5. **Catherine Dunlap**, Heartland Community College
6. **Jerry Waller**, UW-River Falls
7. **Richard Warner**, Green Lands Blue Waters, University of Minnesota
8. **Teresa Wiemerslage**, ISU Extension
9. **Greg Schweser**, University of Minnesota
10. **Alfonso Morales**, UW-Madison, URPL
11. **Ernie Perry**, UW-Madison, CFIRE
12. **Janice Soriano**, UW-Madison, URPL
13. **Vanessa Herald**, UW-Madison, CIAS
14. **Regina Hirsch**, UW-Madison, CIAS
15. **Sara Janes Ugoretz**, UW-Madison
16. **Greg Lawless**, Community and Regional Food System UWEX
17. **Michelle Miller**, UW-Madison, CIAS
18. **Rachel Murray**, UW-Madison, CIAS
19. **Sara Tedeschi**, UW-Madison, CIAS
20. **Lindsey Day Farnsworth**, UW-Madison, CIAS
21. **Laura Witzling**, Institutional Food Market Coalition, UW Extension-Dane County
22. **Peter Allen**, UW-Madison, New Forest Farm
23. **Andrew Bernhardt**, UW-Extension, Wisconsin Local Food Network

Appendix D: Sponsors

United States Department of Agriculture Agricultural Marketing Service

Transportation Services Division

The Transportation Services Division (TSD) serves as the expert source for economic analysis on agricultural transportation from farm to markets. As part of USDA, TSD informs, represents, and assists agricultural shippers and government policymakers through: market reports, regulatory representation, economic analysis, transportation disruption reports, technical assistance, outreach to stakeholders, responding to inquiries. For more information, visit: www.ams.usda.gov/AgTransportation

University of Wisconsin Center for Integrated Agricultural Systems

The Center for Integrated Agricultural Systems (CIAS) is a research center for sustainable agriculture in the College of Agricultural and Life Sciences, University of Wisconsin-Madison. CIAS brings together university faculty, producers, policy makers, and others to conduct research, curriculum and program development projects at the intersection of farming practices, farm profitability, the environment and rural vitality. For more information, visit: www.cias.wisc.edu

Mississippi River Regional Planning Commission

The Mississippi River Regional Planning Commission (MRRPC) is comprised of nine counties located along the Mississippi River in Western Wisconsin. Organized in 1964 to plan for the physical, social and economic development of the Region, the Commission provides advisory services on regional issues to local governments and other public and private agencies. It also serves as a coordinating agency for programs and activities and contracting with local units of government to make studies and offer advice on land use, thoroughfares, community facilities, public improvements, and encouragement of economic and other developments. For more information, visit: <http://mrrpc.com/> or contact Bryan Law, Economic Development Planner at 608-785-9396 or bryan@mrrpc.com

Food Resource and Agribusiness Network

Food Resource and Agribusiness Network (FRAN) is a geographic concentration of similar companies that share common technology, markets, suppliers or workforce skills in Western Wisconsin, Eastern Minnesota and Northeast Iowa. It works to improve the competitive advantage of regional businesses by providing a platform to address common opportunities and synergies that exist among regional food processing and agribusiness companies. For more information, visit: www.frannetwork.org/, or contact Bryan Law, Economic Development Planner at 608-785-9396 or bryan@mrrpc.com.

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