Food Hubs for a Regional Food Economy
A South Central Illinois Study

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The goal of this project is to determine how a food hub facility and its associated services could support the work of small and mid-sized farmers and value-added producers in South Central Illinois. A food hub is being considered as a regional economic development strategy that will re-invigorate agriculture and associated industries in the region. The inability of small farmers to access markets is an obstacle that food hubs can address by creating intermediary structures and networks to connect small-scale producers with consistent and dependable markets.

Research for this project was conducted in a two-pronged approach. Spatial data analysis was mapped and used to identify locations of agricultural supply, demand and transportation infrastructure. Interviews and focus groups were conducted to understand barriers faced by farmers and buyers as well as to gauge the interest of potential stakeholders in a food hub. Recommendations that follow from these findings consider both the spatial distribution of farms, markets and transportation infrastructure as well as the feedback and knowledge shared by interviewees.

The report is structured as follows. First, an overview of the industrial nature of the current food system is presented. Efforts by Illinois policy makers and state institutions to locate agricultural economies at regional scales is discussed next. Then a detailed description of some of the major barriers farmers face in keeping their operations economically viable leads an introduction of the food hub concept, presented as a potential solution. Finally, the actual findings of the research – the outcomes of spatial analysis and interviews – are shared, followed by emergent recommendations.
The industrialization of agricultural production and processing, the consolidation of agricultural land, and a decline in the number of workings farmers in the United States are three trends symptomatic of today’s food systems, both nationally and in Illinois.

Since the mid 20th century, new farm technologies and mechanized agricultural practices have reduced dependence on manual labor while making production more efficient. These technologies have allowed food products to be treated as commodities, to be produced on a mass scale via standardized production techniques. The large-scale processing capacities of mechanized machinery have allowed the size of farms, processing and distribution facilities to balloon. Today’s average farm is a far cry from the bucolic image that we may hold in our minds.

Industrialization and its reliance on machinery as a replacement for manual labor has transformed the role of farmers as well as the very nature of their work in American society. Machinery is necessary to process the amount of commodity crops that farmers must grow in order to remain even marginally profitable.

Routinized, standardized jobs do not attract young people who may at one point have considered agriculture a viable career option. The increasing age of farmers also points to the unattractiveness of the industry for young people. Factory farms that routinize farm tasks leave little room for entrepreneurial or creative initiative. In order to fill the void of labor, transnational trade agreements outsource work for those who are willing, at least for some time, to work highly dangerous and challenging jobs for little pay.

The decline of agriculture as a viable industry and vocation goes hand-in-hand with the cheapening of food. Products lining our supermarkets are boxed in an ever-expanding variety of packaging and labels, creating the illusion that consumers have a dearth of variety to choose from in their food purchases. However, upon closer examination, all these differently labeled products are actually made with a handful of nutritionally-deficient commodity crops. Many of the packaged foods we purchase are nothing more than a variation or derivative of corn, soy, and wheat.

The food system, like many other industries, has experienced industry consolidation whereby a handful of corporations control a staggering majority of agricultural operations. Smaller, independent operations cannot compete with large, consolidated industries. Today, the ten largest multinational corporations account for more than 60% of retail purchases of food in the US. Taking a look at changes to Illinois farms over the last several decades, we can see how they are reflective of national trends.

The number of farms in Illinois has rapidly declined over the last sixty years. Meanwhile, the size of farms continues to grow. This industry consolidation has occurred in conjunction with the regionalization of agriculture, whereby multi-state regions in the US specialize in a handful of commodity crops. Land prices, necessary inputs and expensive equipment required of farmers to produce at mass scales to remain economically viable, and meet overhead costs.

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Agricultural Industrial Consolidation in Illinois; 1950 – 2012

Fig. 1 The inverse relationships between average farm size and number of farms is directly symptomatic of the consolidation of agricultural operations into large corporate holdings.
Source: Census of Agriculture, USDA, National Agricultural Statistics Service

More evidence of the consolidation of agriculture exists in counts of the number of small, mid-sized and large farms in the state of Illinois. Since 1950, the number of large farms, those more than 1,000 acres, has grown 77 times. In contrast the number of mid-sized farms has dropped by 200%.

Number of small, medium and large farms in Illinois; 1950 – 2012

Fig. 2 Prior to 1950, agricultural operations more than 1,000 acres in size were exceedingly rare. Today, the typical American farm is more likely to be a corporate agricultural industry producing one or two crops.
Source: Census of Agriculture, USDA, National Agricultural Statistics Service
Distribution and Processing Consolidation
As farms grow and consolidate, food distributors and processors do the same. Industrial farms can make purchases at large quantities with lower costs. These farms create a demand for large distribution operations, and reduce demand for small or mid-sized distributors and processors. The consequence of fewer processing and distribution facilities of small scale is less choice on the part of small farmers for their processing and distribution needs. For example, small meat processors and slaughterhouses go out of business, directly influencing the economic viability of small meat producers. Fewer and fewer nearby slaughterhouses means small farmers have to travel great distances to get their meat processed and ready for market. Ultimately, the distance and cost incurred for processing may overcome profits from sales, resulting in small farms closing.

Therefore, the industrialization of the food system affects every sector and segment of the food industry. The reality of these conditions means that any attempt to support local and regional food economies and small to mid-sized farmers must address not only farms but also processors, distributors and markets.

A Way Forward: Alternatives to the Industrial Model
Why should we consider promoting and working to build a regional food economy for Illinois? The answer to this question lies in the experiences and intuitions of many people who have been a part of the research for this project. There are those who are frustrated with the poor quality of food that is being fed to school children throughout the state. Others are passionate about agriculture, and hope to build a viable livelihood growing food but are disheartened by the cheapening of their labor and the intense competition with global conglomerate corporations. Others still are seeing how the industrial model of agriculture is damaging landscapes and compromising future generations’ capacity to thrive. Others are unhappy with the power relations that structure our choices around what to eat and where to get it, hoping to build more community self-determination in the food economy. Others recognize that cheapening farm labor and outsourcing exports our unjust system across international borders. Given this multi-faceted and complex array of concerns, we approach the South Central Illinois region with the intention of contributing to building a regional food economy. We find that Illinois is ready to start making changes to the food system, as evidenced by the following policy reports.
Momentum around food systems development in Illinois has been growing and expanding in recent years. The Illinois Food, Farms, and Jobs act of 2007 created the Illinois Local and Organic Food and Farm Task Force with the responsibility to make policy and funding recommendations for expanding and supporting statewide local farm and food systems. In 2009, the task force reported its findings to the Illinois General Assembly, noting that Illinois consumers spend $48 million annually on food purchased from outside Illinois, and the majority of these dollars leave the state.

The task force enumerates further challenges with the Illinois food system, namely that institutional buyers, such as schools, universities, corporate kitchens and hospitals are unable to procure adequate supply of Illinois-grown produce. The demand may exist but there is no strategy to supply them with locally grown food. The report set as a prospective goal 20% local food procurement to reach by the year 2020 and urged legislators to assist in eliminating regulators barriers to local food production and marketing, and direct state agencies to align themselves to this strategy.

As an economic development strategy, the task force recommends investing in intermediary supply chains to create jobs grounded in the state of Illinois:

“"The business of creating and maintaining all the links in the local supply chain - aggregating, processing, packaging, storing, and transporting products - translates into jobs that cannot be outsourced. Right now, such a system doesn't exist.""

The report highlights the increasing demand for locally and regionally produced food, especially in the restaurant industry. This demand on the part of Illinois food buyers is increasing quickly but a supply of local and regional food lags behind. To meet the growing demand for local and regional specialty crops, small and mid-sized farmers must scale up their production and the number of growers must be expanded upon. One of the specific recommendations by the report authors is a packing house:

“The number one recommendation… is the development of a system of regional packing houses to aggregate produce and ensure that buyers can get a high quality product in sufficient volumes with proper post harvest handling, food safety, and packaging.”

A packing house is essentially a type of food hub that prioritizes aggregation, packing and distribution services. Policy makers, community leaders, and entrepreneurs in Illinois exhibit a readiness to address the missing links in the state’s food system. Goals for local and regional procurement at state institutions provide the necessary backing to make expanded farm production in Illinois farms profitable and sustainable. Recommendations for packing houses and food hubs in Illinois communities from the Illinois Department of Agriculture lead directly to the research goals of this report.

Small and mid-sized farmers looking to grow specialty


crops face many challenges to make their enterprises economically sustainable and viable. Most directly, farmers usually get into farming not because they are experts in marketing, but because they enjoy or care about the work of farming. Limited ability to find major markets for their products, and little time or interest in doing so, means farmers often can grow and produce a great deal of food for which they cannot find buyers. Lack of access to markets is just one of the many obstacles facing small and mid-sized farmers.

Direct Marketing Channels are Limited
Farmers’ markets, Community Supported Agriculture (CSA’s), and roadside stands are direct-to-consumer channels that small farmers most commonly employ. However, these avenues are only suitable for small-scale hobby farmers. Farmers’ markets are labor and time intensive, seasonal, and do not make products available for sale more than once or twice a week. For farmers who grow anything beyond a small amount of produce, farmers’ markets can result in a great deal of agricultural waste. Furthermore, farmers’ markets can be administratively prohibitive, requiring individuals to purchase their own EBT machines. Larger markets carry more stipulations, paperwork and administrative red tape. Farmers are responsible for taking their produce to the markets on their own, and usually take much less than they grow, to avoid wasting produce, time, and labor. Finally, standing at a farm stand takes valuable time away from work in the fields.

Getting to Larger Markets
While awareness and demand for local and regional food has grown in Illinois, existing infrastructure doesn’t support connections between farmers and buyers. Furthermore, small farmers are at a disadvantage within a food system dominated by large-scale producers, distributors and buyers. It is a challenge for small to mid-sized farmers to get their products to larger markets such as grocery stores, restaurants and institutions. Usually, these buyers require and prefer consistent and bulk quantities of produce. Transparent and accessible avenues rarely exist for farmers to try and sell their produce to large buyers. They may try cold-calling but large buyers have no real incentive to buy from them. It is usually much easier for restaurants, institutions and grocers to purchase from large food retailers whose orders are placed through catalogues, and who can ship directly to them.

Rural Environment
Farmers that live and work in more rural environments face even greater challenges in marketing their products. Lower population density generally means fewer market options. Rural communities that are economically less resourced are not as willing to pay premium prices for naturally grown, small-batch products. Furthermore, rural communities are generally less likely to adopt contemporary technologies, like high-speed internet and credit/debit machines which could expand the markets for their products to diverse locales.

Labor and Competition
Some small farmers are family-owned and are limited by the labor they and their family members have to offer. Many work full-time jobs in addition to farming, which severely limits the amount of time they can work in the fields. Those who look to hire laborers cannot easily find people who are willing to do farm labor in their communities.

Bureaucratic Barriers
New legal standards in food safety and associated requirements have considerable effects on small farmers. Good Agricultural Practices Standards is a voluntary audit program provided by the USDA. The audits provide certification for growers after they go through a training program and develop a farm safety plan. As of January 2016, growers that produce less than $25K in annual sales are exempt. Larger growers are only required to be certified if buyers require it. Larger grocers may require audits as a pre-condition for buying growers’ products. Typically, the larger the grocer, restaurant or food service institution, the higher liabilities the face, and the more likely they will require GAPS audits. Many predict that GAPS audits will soon be required for all growers, no matter
the size, and that the standardization program will only expand. Therefore, even if it doesn't pose an administrative barrier presently, even small farmer can expect to need GAPS certification in the not-too-distant future.

Climate and Crops
To all of these challenges, we can add the reality that weather conditions have become more unstable and unpredictable in the Midwest and beyond. An overly wet or dry season can compromise entire harvests and jeopardize necessary profits. Federal crop insurance does not exist for specialty crops, only for commodity crops.

For all of these reasons, individuals desiring to manage farm enterprises face a great deal of personal financial risk, which can explain the hesitation of many to invest in a new farm venture, or to expand production.

Understanding Food Marketing Channels

Direct-to-consumer channels include farmers’ markets, CSA’s, roadside stands, and U-pick operations. Wholesale or intermediated marketing channels differ and include intermediary buyers, such as distributors, processors, restaurants, food service companies, and schools. Nearly all food purchased and consumed in the United States moves through wholesale channels. While direct-to-consumer channels are growing, helping farmers access intermediary channels is essential for the expansion and economic viability of their enterprises if they are to grow beyond a very small and almost negligible portion of total food sales.
IV. Food Hubs and Regional Food Systems Development

A great deal has recently been written about food hubs, especially in regards to their capacity to revitalize and re-invigorate a food economy below the national and global scales. According to the USDA, a food hub is “…a business or organization that actively manages the aggregation, distribution, and marketing of source-identified food products primarily from local and regional producers to strengthen their ability to satisfy wholesale, retail and institutional demand.” 4

There is great flexibility and variety in the details of food hub structure and the emphasis of the organization. Hubs might focus more on the supply or the demand side of food production. The former would include working directly with producers, offering trainings in a variety of relevant practices including food safety certification. Services on the demand side would include finding and accessing markets, and building the capacity of food hub products to meet market demand.

The primary means by which food hubs support food systems is by assisting to connect agricultural supply with food demand. Food hubs are sometimes referred to as packing houses, when their primary work is to aggregate, pack and sell products to wholesale customers.

“Regional food hubs are increasingly filling a market niche that the current food distribution system is not adequately addressing – the aggregation and distribution of food products from small and mid-sized producers into local and regional wholesale market channels.” 5

Food hubs differ from traditional distributors because they often seek to have wider social, economic or environmental impacts within their given communities. For example, they work directly with farmers to help equip them with the skills and knowledge to succeed in agriculture. Furthermore, they are often involved in larger, community-based educational campaigns to promote healthy and ecologically sustainable food. They may also work to increase food access for those with low-incomes. Given what is perceived as the erosion of civic participation in the food system, food hubs represent one way for individuals and groups to support rebuilding food sheds at local and regional scales. 6

Food hub facilities often include freezers and cool storage but can also include facilities for dehydrating, canning, chopping or packing. If facilities are large enough, they can be shared with workforce development or business incubation programs or become spaces for community kitchens, social service programs and other events. In addition to the basic aggregation, processing and distribution services traditionally offered, food hubs can participate in organizing farm planning, and hub management teams can provide accounting and sales services.

Food hubs can exist and function under a variety of distribution models. For example, they can function as non-profits, farmer cooperatives, specialized local distributors, combined regional distributors or charitable food systems. 7

In short, while the food hub concept is primarily one that connects local and regional producers with consistent markets, there are a limitless number of ways to think about how a food hub can benefit a community, and the structure under which it functions. Ultimately, they can be part of strategies to create significant economic growth in a region, invigorate food-related industries, and increase resilience of small businesses, including farms.

For the purposes of this research project, a food hub

or a network of hubs is proposed as a strategy to alleviate some of the challenges faced by small and mid-sized farmers. Hubs can do this by:

- Providing central and singular drop-off location for farmers so that less time is spent in transit or at farm stands
- Aggregating products from multiple farmers and producers to create volumes and variety that would interest large buyers
- Offering packing and re-packing services so that products are ready for market
- Helping farmers sell their products at a premium by branding, product differentiation based on farm origins and practices
- Providing business management and marketing to reach a variety of buyers
- Allowing farmers the option of expanding their operations, through increased profitability

**Limitations of Food Hubs**

It is important to recognize that food hubs cannot purport to solve all of the challenges that currently exist in the food system. For example, food hubs cannot solve the problem of labor; they do not make labor more available or address its costs. They cannot offer farmers access to funding for capital improvement or equipment. If they are to be independent enterprises, and not farmer-owned, they add another layer of costs to the supply chain, even as they create jobs.

**Locating Optimal Sites for a Food Hub**

Studies that determine the feasibility and site suitability of food hubs use data analysis to determine locations of agricultural supply, sites of high food demand, and available infrastructure for food distribution. The location of a food hub matters because an optimal location will result in the most efficient food hub. As the Ready to Grow report notes, hubs should be located close to the source of food (e.g. farms and production sites), transportation routes and customer bases.

More specifically, precedent site suitability studies seek to determine optimal locations for both first-mile and last-mile hubs. First-mile hubs are those whose primary role is to receive and aggregate products from farms and producers. Last-mile hubs are hubs whose primary role is to re-pack and act as a pick-up point for distribution. Therefore, first-mile hubs are optimally located near farms and producers, while last-mile hubs are optimally located near population centers and major buyers. Major transportation routes should easily connect first-mile and last-mile hub locations.

*Ready to Grow* recommends the creation of three hubs in Illinois to serve the St. Louis area in the south, the Chicago area in the north, and the Springfield / Bloomington / Champaign area in central Illinois. This recommendation makes sense in regards to obtaining adequate demand for food to support large-scale sales, and therefore, these hubs would be best considered as last-mile food hubs.

However, what the report does not address is how to integrate rural, economically depressed regions of the state into a more comprehensive food system. By focusing our research on south Central Illinois, and intentionally leaving out the most prominent population centers, we hope to understand what the specific needs and challenges are for often-neglected areas in their integration into larger, regional food systems.

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9 Two primary examples were used as a model: "The New England Food Hub Site Suitability Analysis" produced by Wholesome Wave Ventures, and "Regional Food Hub Analysis: Southern Illinois"; class project, Professor Bev Wilson, Department of Urban and Regional Planning, UIUC.

V. Study Precedents and Methodology

The methodology for the spatial analysis component of this study loosely follows Hamilton et al.’s New England Food Hub Site Suitability Analysis, as well as Regional Food Hub Analysis: Southern Illinois. While these studies involve a thoroughly technical analysis to determine site suitability for a food hub, our study does not. Similar data factors are mapped to those in the precedent studies, but a final suitability map that would visualize the precise optimal locations for first- and last-mile food hubs is left out. One reason for this is that our study area is decidedly smaller, and much more rural than the precedent studies. Also, this study serves to provide an entryway to consider building a regional food economy in South Central Illinois, with the recognition that a site suitability map will do little to engage policymakers, farmers, food buyers and other stakeholders who could make the food hub a reality. For this reason, the data analyzed in this study are used to complement interviews and conversations with stakeholders.

Finally, due to the rural nature of our study area, and the lack of a vigorous local and regional food economy here, there is much groundwork needed before a traditional site suitability analysis would be useful. That is, before choosing a site for a food hub, we need to thoroughly understand the need for the services a food hub could provide, to ensure that the enterprise could be a success and of practical value to farmers, retailers and distributors.

Interviews

Approximately 20 people were interviewed in this study. The majority of our interviewees are small farmers that specialize either in vegetable and fruit crops, or meat and dairy products. One of our interviewees owns a commercial operation, producing a handful of crops at a more considerable scale relative to the others, as well as running a farm store. We also interviewed two restaurant or café-style food buyers, Firefly Grill and Joe Sippers Café, both located in Effingham. We interviewed one wholesaler and distributor as well as one farmers’ market manager. Most interviews were conducted over the phone. In-person interviews were conducted on two occasions, once in mid January and once in late March. Interviews were open and conversational, however, questions generally took the following format:

1. Current Production:
   - What do you produce, in what quantities? How long have you been in operation?
   - How many people do you employ?
   - If you could have access to larger more consistent markets for your products, would you be willing to expand your enterprise?

2. Marketing:
   - Where do you sell your goods (retail, wholesale, institutions, direct to consumer)?
   - How have you found access to these markets? How much are you selling?
   - What sorts of relationship do you have with buyers or people you source from?
   - What do you do with excess products?

2. Barriers to Expansion
   - What goals do you have for expanding, if any?
   - What obstacles or challenges prohibit your goals for expansion?
   - What limits your profitability?

3. Regional Food System
   - How do you think the regional food system in your area could be improved? What elements need more support or resources?
   - Do you think a food hub is needed in the area and how could it benefit your business?

4. Interest in food hub?
   - Are you interested in participating in a regional food hub that would help get your products to market?
   - If you were to design a regional food hub, what would it look like?

Considering the ten-county South Central Illinois

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VI. Food Hub Feasibility Study for South Central Illinois

region pictured below, the following section summarizes our findings, based on both spatial data analysis of agricultural supply, demand and infrastructure and information obtained through interviews of farmers, buyers, and distributors.

Why the Ten Counties?
The ten-county region has been selected specifically because there is currently a lack in this area of farm production, distribution and marketing infrastructures that can benefit small to mid-sized growers. This lack is evidenced by the absence of any existing food hubs in the region or in the immediate vicinity. The closest facilities akin to food hubs exist immediately west in the St. Louis area. Major regional distributors, such as Central Illinois Produce, do not have service nodes in this area, and while some of their distribution reaches parts of the study area, it does not extend to all ten counties. Searches on FoodMarketMaker.com consistently reveal outdated information for farms, food brokers and distributors who are no longer operating, or simply an absence of businesses in the ten-county area and its vicinity. Furthermore, the ten-county area represents demographics with lower median family incomes than adjacent counties in the north and west. Finally, the Ready to Grow report involves input and participation by a number of Illinois stakeholders. However, almost all of the stakeholders involved are located in the Chicago area, near St. Louis, or in the Central Illinois area. There is nearly no involvement by stakeholders

14 Market Maker is an online platform for linking agricultural markets to producers by allowing individuals to search for services in their region. https://foodmarketmaker.com/

Fig. 3 The ten-county study area in South Central Illinois sits south of Springfield, and east of St. Louis.
from our study area in major policy reports such as *Ready to Grow*. 

**Agricultural Supply and Production**

Where are specialty crops produced in the highest density within our study area? Where are small and mid-sized farmers located? What do small farmers in our study area grow or produce, and in what quantities?

**Specialty Cropland**

Illinois’ major commodity crops are corn and soy. The research for this project is looking at specialty crops and how to support the work of specialty crop farmers, in part because specialty crop farmers do not receive subsidies and guaranteed markets. Major specialty crops grown in Illinois include berries, melons, peaches, plums, rhubarb, apples, pears, grapes, pumpkins, tomatoes, squash, corn, sweet corn, green beans, peppers, asparagus, potatoes and leafy greens. Farmers we interviewed grow many of these crops.

Much of this produce is grown seasonally, with the season extending from late spring, through summer and early fall. Although one or two of our interviewees has been able to expand their production through installing a greenhouse to extend the season, most are producing seasonally. High tunnels, greenhouses and hoop houses are essential to make specialty crop production in Illinois consistently possible throughout the year. However, purchasing and installing these structures is expensive and cost-prohibitive for many small farmers. One of our interviewees has a beehive operation and produces honey. He is expanding to six hives this coming year, from three, and can

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15 The 2014 Farm Bill defines specialty crops as “fruits and vegetables, tree nuts, dried fruits, horticulture, and nursery crops.” For a complete definition: https://www.ams.usda.gov/services/grants/scbgp/specialty-crop


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Fig. 4 Specialty Cropland

Using the National Agricultural Statistical Service’s Cropland Data Layer, we can see that the majority of specialty cropland is concentrated on the eastern edge of the study area. Each dot on this map represents a 30 x 30 m area, which translates to approximately ¼ acre, of some specialty crop production. This data layer is one of the few sources for locating specialty crop production at scales below the county level. It is produced annually and uses satellite-imaging technology to evaluate land use. In this sense, it is more accurate than census-derived, self-reported data.

continue to expand if a market for his honey is found.

Density of Small and Mid-Sized Farmers
Part of the economic development strategy for food hubs is to support smaller growers that are unable to compete with large operations. This is the basic rationale for mapping and identifying small to mid-sized growers. The majority of farmers we interviewed are operating at very small scales, and only farming part-time. However, a couple of our interviewees operate at commercial scales and have been in business for several decades. This means they have established connections with major buyers such as Whole Foods. In order to support the sustainability of their business, these larger farmers have expanded their operation with agri-tourism activities that include U-pick options for customers, as well as farm stores selling a variety of goods.

Most specialty cropland in this region exists along the eastern counties of Effingham, Fayette, Marion, Wayne, and Clay. The highest concentration of specialty cropland is found in Clay County. The density of small farms was also highest in these counties. Fayette County stands out in terms of the number of primary vegetable growing operations, with 24 primary vegetable operations.

Considering Meat and Dairy Production
Given that the Illinois climate only allows outdoor crop production during particular seasons, meat and dairy operations are considerably more sustainable for year-round production and profits. Our interviewees raised chickens for eggs and meat, hogs, and cows for beef and dairy. The demand for locally and humanely

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17 Small to mid-sized farms were defined as those with less than $250K in sales annually or 1,000 acres or smaller in size. The USDA’s definitions for farm size differ slightly from the ones considered here. According to the USDA, a farm is any establishment that produced, sold, or would have sold $1,000 or more of agricultural products in a given year. Those selling less than $250k worth of products are considered small; those selling between $250k and $500k are considered large; those producing more than $500k are considered very large. The delineations used in this study follow the recommendations of the Food Safety Modernization Act, which defines small farms as those with $25k or less in sales, and mid-sized farms as those with between $25k and $250k in sales.

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Fig. 5 Specialty Cropland: Density
Since the individual dots in the previous map are not to scale (do not represent ¼ acre in reference to the map) a density map was produced to give a more generalized visualization of where specialty crop production is focused. The darker areas represent a higher density of specialty cropland. Therefore, Clay county exhibits the highest density of specialty cropland.

Data source: 2014 Cropland Data Layer, National Agricultural Statistical Service
Fig. 6  Number of Farms less than 1,000 acres
While the Cropland Data Layer provides high resolution about where specialty crops can be found in a region, it doesn’t provide any information about the nature of the farms on which those crops are found. Census of Agriculture data provides information about the types of farms that exist in our study area according to acreage and farm income.
The eastern counties of Fayette, Effingham, Marion and Wayne have the highest number of small farms by acreage. Data source: 2012 Census of Agriculture

Fig. 7  Number of Farms with less than $250K Annual Sales
Effingham, Fayette, Marion and Wayne Counties have the highest number of small farms by income. The maps of small farms by size and sales are nearly identical, revealing the correlation between size and farm income.
Data source: 2012 Census of Agriculture
Fig. 8 Primary Vegetable Growers
The data table used to derive information for this map provides a count of the number of farms in each county that use land primarily for vegetable production. This is a good indication that the farmer or grower is primarily growing specialty crops. This dataset exists largely as a supplement to the previous maps, which offer more comprehensive data. Data is only available at the county level and is self-reported. Data source: 2012 Census of Agriculture

Raised meat is growing in the region, according to some of our interviewees, and farmers can get high prices for these products. While the time it takes to raise an animal to maturity for slaughter is considerable and more than in feed lots, interviewees mentioned that the flavor of their products is superior and the process of raising animals in this way is rewarding, not to mention the high market value of the products.

In summary, areas of high agricultural supply within the ten county study area are found primarily in the eastern counties. In particular, Fayette, Clay and Effingham counties provide the richest supply of specialty crops in our study area. This suggests that first-mile food hubs would be most strategically located within the northeastern parts of the study area, minimizing the distance from farm to hub. However, further research on value-added producers, and meat or dairy operations would affect where the highest density of food products can be found.

Ultimately, a first-mile hub would be best located in a site that serves farmers and value-added producers who are committed and interested in participating in the hub. The spatial analysis above only provides some cursory information about current cropland production and density of small farms. It does suggest, however, that a need for more agricultural land access exists in the western counties where there is relatively little agricultural supply.
Marcoot Dairy is a seventh-generation, family-owned dairy farm in Greenville, located in Bond County. The Marcoots family, originally from Switzerland, has been raising and milking Jersey cattle in the United States since the mid 1800’s. In 2001, making a committed choice to keeping the farm open, the Marcoots decided to expand by becoming a value-added producer, rather than a factory dairy operation. They have been growing ever since, now making yogurt, cheese and bottling milk. As one of 26 other dairy producers left in Bond County, the Marcoots express a commitment to supporting other producers, as well as other locally-based food businesses. To do this, they sell local products in their store, such as coffee from Joe Sippers and flour from Hodgson Mill. When the business first opened, around 80% of products were sold to the St. Louis area, where ample markets could be found. Over the years, the Marcoots have fostered beneficial relationships with buyers and restaurants by attending food events, conferences, and making cold calls. In the absence of a systematic distribution system, these informal relationships allow the Marcoots to buy and sell from other regional markets and producers. Often, the company ships their products to consumers directly from location. While the venture continues to be successful for the Marcoots, they hope to continue developing their family business so that it can be profitable enough to sustain them, while allowing future generations to make their own decisions about the future of the farm.
**Demand and Marketing**
Where, within and around the study area, are there regions of high demand for food? Where are there the highest concentrations of institutional food buyers such as schools and hospitals? How do farmers currently market and sell their products?

Many of our farmer interviewees notice and commented on growing consumer attention to the source and production of food. They also note growing consumer demand for what they deem to be healthier and more quality food. Most of our interviewees work primarily part time on their operations, selling largely through local farmers’ markets on a seasonal basis. For some, this level of production and sales is adequate, given the amount of time they have to invest in farming with work and family obligations. Furthermore, they can get a premium price on their products at the market. But it is arguable whether the farmers’ market is ultimately more profitable than wholesale or direct-to-retail sales. A great deal of time and energy goes into preparing for and being present at farmers’ markets, which also function seasonally and only on particular days of the week. In short, they are extremely specialized avenues for selling food. Selling at roadside stands off the highway are purported to be more convenient for some farmers. This is because they can locate themselves in the midst of a great deal of traffic and can also sell there on a daily basis.

Selling to wholesalers may get farmers less profit per food item compared to the farmers’ market, but for several of our interviewees, wholesalers are a sensible way to deal with large amounts of surplus produce which would otherwise be discarded completely while still making some profit. Otherwise, farmers sometimes donate surplus produce to local food pantries.

Some of our interviewees have attempted to sell products at local grocery stores, with very limited success. The process for getting products into stores is neither clear nor standardized. Farmers have simply approached grocery store managers with a request to sell their products. One farmer managed to get her fruit in to Martin's IGA in Effingham because the new manager was sympathetic to and supportive of community-based enterprises.

Even if a buyer is found, however, the absence of strong contracts can jeopardize the farmer’s initial investment. For example, one of our interviewees had made a verbal contract with a restaurateur to sell eggs. After making the necessary investments to produce eggs in the quantity the restaurant needed, the sale was blocked by the restaurant’s existing distributor. Even farmers who gain some profitability through one or two larger buyer accounts are at risk because if one or both of these accounts withdraws, the farmer will have to downsize. In short, the models are not resilient.

None of our interviewees sell to institutional buyers. One farmer started an online ordering business, which has spread through word of mouth and become relatively successful. Several farmers make use of

**The Limits of Farmers’ Markets**
Farmers’ markets usually occur only once or twice a week, and only a few months out of the year. Selling at the market is time and labor intensive, as farmers or hired hands must be present at all times to make sales at farm stand. Larger markets have more traffic but also more stipulations, such as requiring farmers to provide their own EBT machines. Since most produce, when it is in season, needs to be harvested daily, weekly markets mean a great deal of unsold or spoiled produce. Therefore, while selling at farmers’ markets may suffice for hobby farmers, they are inadequate for those who want to expand production.
Fig. 9  Population Density
Population density is used as a proxy for concentration of food retailers because grocers and restaurants are usually sited to take advantage of high population density and the presence of food demand. Population numbers were gathered at the scale of census block groups, the smallest level of analysis available. A 30-mile buffer area was included outside of the 10-county region to consider opportunities for consumer demand within a reasonable distance. This data source is limited in that grocery store locations are not always directly correlated to population density. Furthermore, the presence of grocery stores does not suggest a willingness to sell local or regionally produced products. Data Source: US Census 2014
Deeply passionate about healthy, fresh and quality food, the Campbell’s make every concerted effort to buy from small regional farmers who grow food in sustainable ways. Their flexible menu allows them to change dishes in accordance with what produce is seasonally available and what can be sourced from trusted growers. Their on-site garden allows them to grow a variety of vegetables to have on hand, without the use of any chemicals or extra inputs except their house-made compost, which is produced from restaurant food waste. Firefly Grill has grown to be extremely successful with a committed following. Located on a major interchange in Effingham County, the restaurant conveniently receives business from travellers and tourists. Long-term relationships with regional growers and informal contracts with other producers are what allow the Campbell’s to stay committed to their values. Despite every effort to buy direct from regional or trusted farmers, the Campbell’s attest to the many challenges of this approach. Restaurants, farmers, and other buyers all operate on different timelines, which makes cost-efficiency a different matter for each. Anything that would make it more convenient for restaurateurs to buy from farmers would go a long way to allowing people like the Campbell’s to support small-scale agriculture through purchasing. The Campbell’s are just one example of restaurateurs who go the extra mile to support the kind of food economy they believe in. Time and money are important matters, but quality and health are high priorities.

Courtesy of Kristie Campbell
There are a variety of institutions in our study area that could be approached as buyers. The highest density of institutional buyers is found in Jefferson County, around Mt. Vernon. A second concentration of institutions exists in Centralia, at the nexus of Marion, Jefferson, Clinton and Washington counties. Despite concentrations in these locations, every county offers some opportunity for connecting with potential institutional buyers.

Our interviews revealed that marketing is, by far, one of the most challenging activities for farmers. Connections and cooperation between grocers and small farmers are sorely needed. Farmers want and need to know that they will sell what they grow. Fear and uncertainty about investing in production without guaranteed sales makes it more unlikely that farmers will invest and expand their operations. The unpredictability and volatility of current markets for small farmers contributes to the failure of small farm operations.

Fig. 10 Institutional Buyers
The datasets represented in this map include hospitals, hospices, grade schools, colleges/universities, prisons and correctional facilities that are found in the study area. Duplicate addresses were removed (for example, if a high school and grade school were located in the same building). Each institution is treated equally, although there may be variances in food purchasing power for each. Data sources: IL Dept of Health, IL State Board of Education, IL Board of Higher Education, IL Dept of Corrections / Federal Bureau of Prisons

social media sites such as Facebook to market their identity and products.

As evidenced by the population density map, our region is very rural with more populace centers located at relatively regular intervals within each county. Major grocers and restaurants will be found primarily in the more populated regions within each county. Furthermore, Springfield and the eastern edge of the St. Louis are within a reasonable distance to provide demand for agricultural products produced in our study area.

The study area’s uniformity of population density reveals a need for distribution in all counties. The goal is to cater to existing demand within the region by getting products into area grocery stores and restaurants. However, markets in St. Louis and Springfield exist and can be used to support the production of farmers or producers in our region, if the demand within our study area is unable to meet agricultural supply.
TRANSPORTATION AND DISTRIBUTION

What physical infrastructure aids the distribution of food products from places of production to places of consumption? Who is currently responsible for food distribution in this area?

Distributors and Wholesalers

Marketing and distribution are the two most prominent challenges for small farmers, and the two processes go hand-in-hand. When farmers only sell in direct-to-consumer channels (e.g. farmers’ markets, roadside stands etc.), there is no need for a distribution system. They transport products there and back on their own, and the amount they are able to sell allows for this. Similarly, it is possible for farmers to sell their products in grocery stores and remain responsible for transporting their products to the store.

However, in the case that a farmer hopes to expand their production and sell to more than one major buyer, transportation and distribution services are needed. Wholesalers often exist to provide intermediary services in such a case. Wholesale refers to transactions from growers to a re-seller who purchases bulk amounts of goods from producers or growers, and then sell either to food retailers such as grocery stores, or to food service businesses, which could include restaurants, institutions or other distributors.¹⁸ Wholesalers are helpful to farmers who have a large amount of a product that they are unable to sell any other way. Some are able to pick-up and transport the goods; other require farmers drop off their products. In either case, wholesalers act as middle-men who need to make a profit. Therefore, the price they pay farmers, per item, is typically less than the price farmers can get in direct channels.

Because of the fact that wholesalers offer distribution services and access to wholesale markets, they function in a way similar to a food hub. They are a link in the network between growers, producers and buyers. In our study area there exists one wholesaler with pick-up and distribution capacities. Some produce purchased by this wholesaler is re-sold to the IGA store in Mt. Vernon. The company offers pick-up services to small growers, and stores products temporarily in its warehouse location before selling to institutions, restaurants, grocers and online. However, this wholesaler does not offer packing or re-packing services and will only purchase products that are in their final packaging, ready to be sold at retail. Many small farmers do not package their fruits and vegetables. This becomes a major obstacle for those farmers wanting to take advantage of such wholesale distributions services. As of now, the great majority of the company’s sales are in non-local products, from industrial farms throughout the country. Linking farmers in the South Central Illinois region with this wholesaler would be one way to provide greater access to larger markets.

Another important regional distributor is Central Illinois Produce. This company has hubs in Urbana, Danville, Morton, and St. Louis, and their distribution network reaches parts of our study area. However, Central Illinois Produce does not have any hubs in our ten-county study area, and none of the growers or producers we have interviewed are linked into their distribution network. Central Illinois Produce also deals largely in national food brands.

There are a great deal more wholesalers and distributors in the Springfield and St. Louis areas, but only one exists in our study area. Furthermore, a survey of distributors and wholesalers via Market Maker confirms our observation, that there are very few wholesalers or distributors within the ten-county area.

Distribution within our ten-county area is easily accomplished through the network of state and interstate highways. The county is well-connected internally and with major metropolitan centers via these routes. Two interstates (I-70 and I-64) transect the study area horizontally, and link the eastern counties to the west and eventually to the St. Louis area. The east-west routes link areas of high agricultural production in the east, westward, ending in the populace St. Louis area. State routes make further connections within the study area; route 50 is an alternate east-west route. Route 51 is an alternate north-south route.

While all ten counties are rural, each contains at least one major population center. Transportation infrastructure within our study is well connected to all the most populous areas in each county. Locations found to be centers of institutional buyers (Centralia, Mt. Vernon, Effingham) are also locations of major highway interchanges and road networks.

While suitable transportation infrastructure exists, a need for aggregation, packing and distribution clearly remains for farmers and producers in our study area. Existing wholesalers and distributors are not at all connected to the ten-county area’s small farmers. The need for packing services, furthermore, prohibits wholesalers from purchasing from small farmers. Therefore, transportation infrastructure is not a limiting factor to a cohesive regional food network, but non-existent relationships between small farmers, buyers and distributors are. Additionally, the absence of aggregation and packing facilities further limit the development of those important connections between farmers and buyers.
A basic analysis of existing road systems within the 10-county area helps determine how well connected the area is internally and with adjacent regions. The transportation routes are shown against major population centers (in grey), to give a sense of how these routes are or are not located in strategic locations to connect supply with demand. Source: Illinois Department of Transportation
Summary of Findings
Agricultural supply is concentrated in the eastern counties of the study area. In particular, Effingham, Marion, Wayne and Clay counties offer the highest concentration of specialty cropland, and the largest number of small farms. Fayette County, furthermore, exhibits a very high number of primary vegetable growers. The farmers interviewed generally grow a variety of fruits and vegetables, and some produce meat, dairy and eggs. However, production quantities are limited by the fall and winter seasons. Therefore, increasing agricultural production and requires season extension technologies such as high tunnels, hoop houses and green houses. Additionally, an investment could be made to develop more farmland in the western counties where there are fewer small farms and less specialty cropland acreage. The counties that could especially use an investment in agriculture are Montgomery, Bond, Clinton, and Washington.

Identifying and investing in more land for small-scale farming can be paired with incubator and beginning farmer programs that target young farmers. The cohort of aging farmers nationwide and in Illinois signals a need to invest in farming as a career for young people and to develop initiatives that can help beginning farmers manage entrepreneurial ventures. Furthermore, incubation programs can help increase diversity in the types of specialty crops that are grown in Illinois, which will make these ventures of greater value to regional food markets.

The study area is very rural with at least one population center of relatively higher density in each county. There is an evenly distributed demand across all counties for food based on population density in the study area. St. Louis and Springfield are nearby population centers that could meet necessary demand from supply produced in the study area. Restaurants and grocers exist throughout these ten counties, and will be concentrated in each of the larger towns within each county.

Institutional buyers are more likely to be found in areas of higher population density. Therefore, the larger towns of Mt. Vernon, Centralia and Effingham are important population centers to meet demand, both in terms of population density and institutional buyer density.

There is a need to build relationships with restaurants and grocers in these areas. The regional IGA markets would be a good place to start since some of them are regionally or locally owned and managed. A next step in getting access to these markets would be to begin the slow process of building relationships, and identifying which individuals working in these realms are interested in making a commitment to purchase regionally-grown farm produce.

Building relationships with schools in the ten-county area can also be a first step in advancing a farm-to-school initiative, which would meet Illinois policy recommendations to procure 20% of state institutions’ food from Illinois. Partnerships with schools could go a step further, however. For example, advancing the goal to draw young people into the vocation of farming can begin at the middle school and high school levels. Incubation programs and farms can be sites for internships and hands-on experience. While getting regionally grown food into schools is a worthy and important cause, the potential of educational programs around food and farming can contribute to truly transforming the food economy in Illinois.

Transportation infrastructure within our study is well-connected to all of the major towns in each county. Locations found to be centers of institutional buyers (Centralia, Mt. Vernon, Effingham) are also locations of major highway interchanges and road networks. There is generally one major population center within each county. These towns should be prioritized as the location for hub sites. A need exists for facilities to cool, freeze, store, and pack or re-pack produce. Therefore, a micro-hub facility located in each town within the ten-county area could serve as a drop-off site for farmers The produce from these hubs could be packed or processed before being collected and distributed as needed. One option is to have hubs link into existing wholesaler distribution networks, where
they can be picked up and distributed by existing companies.

An alternative distribution system could eliminate the wholesaler in an attempt to capture more of the sales for farmers themselves. In this case, a central hub facility could receive products from various producers, and the hub itself could be responsible for distribution and marketing. However, this model would require a larger initial investment in building distribution networks, marketing, trucks and transportation equipment. Ultimately, the decision comes down to desired power structure and economic models that participants would like to adhere to. The need for an aggregation and packing facility exists in either case.

It may not be possible to implement hub facilities in all counties at once or at all. In that case, a central hub could be efficiently located either in Mt. Vernon (Jefferson County) or Centralia (at the juncture of Marion, Jefferson, Clinton and Washington counties). Other priority locations for hubs would be Vandalia (Fayette County), Effingham (Effingham County), Greenville (Bond County) or Flora (Clay County).

Summary of Recommendations
- Support greater agricultural production
  > Invest in season-extension technologies
  > Develop farm incubator programs targeting young farmers
  > Prioritize access to farm land for new and existing farmers, especially in western counties
  > Consider cooperatively owned land to be shared by farmers, lowering the costs of equipment
- Build relationships with potential buyers
  > Communicate with regional grocers and restaurateurs to gauge commitment to food hub concept.
  > Develop focus groups between potential buyers and farmers so that the two parties can meet and understand the challenges faced by each
  > Build relationships with school food buyers to meet state procurement goals
  > Develop flexible but dependable contracts that will serve both parties
- Implement network of micro-hubs
  > Prioritize aggregation, packing/repacking and cold storage
  > Begin by considering Mt. Vernon, Centralia, Greenville, Vandalia or Flora as one central hub location
  > Offer hub staff to manage marketing, branding, payment, and promotions between farmers and food buyers.
  > Allow food buyers to streamline purchases through one invoice coming from food hub
  > Offer farm pre-planning opportunities between participating farmers, to maximize output and diversity of product
  > Consider the hub acting as a small store-front

Further Recommendations
The Ready to Grow report makes direct recommendations in alignment with the findings of this report. Most relevant, it recommends the construction of a network of packing houses throughout Illinois that are well-positioned in relation to growers and potential customers. The report further recommends pre-season crop planning, and the development of a wide and cooperative network of growers. Illinois policy-makers and associated task forces have been discussing the importance of an Illinois-based food economy in recent years. A focus on institutions as potential partners on this project can help maintain this momentum as well as expand the reach of a regional food hub project and its potential chain effects.

Much of the success of a food hub project is predicated on building connections and relationships; between growers and buyers, farmers and value-added producers, seasoned and beginning entrepreneurs. Nurturing relationships and continuing to invest in them will be pivotal to a regionally based food system. This is because what Lyson terms “civic agriculture” depends upon the community networks and civic associations of individuals and groups involved in agriculture. Producers, restaurants, farmers, and institutions who are committed to a regional food system will be attracted to this work because of a particular set of values that prioritizes relationships and a community embedded in the processes of food production. By continuing to understand the values that community members and entrepreneurs are

working with, and base development around these values, the food system can be strengthened.

Finally, consistent communication between all stakeholders is of utmost importance. Building forums for regulation communication – whether they are focus groups, monthly meetings, online platforms – to stay in touch about plans, goals and challenges will help contribute to democratic and successful endeavors.

Community and regional involvement is essential for a food hub to succeed. Education and community engagement can bolster and generate the “civic” aspect of civic agriculture. To that end, educational programming, workshops and focus groups should be developed to spark interest, curiosity and awareness of regional food systems, and to generate knowledge of agriculture as a viable career or entrepreneurial opportunity.

Educational programming should be developed for a variety of stakeholders and constituents. Farmers, both beginning and seasoned, can be offered information about scaling up, adopting sustainable practices, agriculture diversification, and marketing. Furthermore, informational sessions will be needed to inform farmers of what food hubs are and what they can and cannot do, so that they can be well equipped to make decisions about involvement. Schools and public institutions that purchase food can understand how their food buying decisions can impact the community in various ways. Restaurateurs can be offered programming similarly, understanding how to develop menus that can be part of a resilient regional food system. Involving community members into their food system is an imperative. And educational programming is an effective and immediate means to gather community involvement.