

Knoxville Regional Food Hub Feasibility Study

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Executive Summary

Market Findings

Demand

Market findings are based on (a) a survey of 20 restaurant chefs; (b) personal interviews of four food purchasers for institutions and two purchasers for specialty groceries; and (c) phone interviews of 12 distributors and in-depth interviews of three distributors. We found that:

- About 90% of all surveyed chefs are currently purchasing food from local farmers and are interested in expanding their purchases of foods from local farmers.
 - Challenges that surveyed chefs face when using local foods in their menus include:
 - 1) finding adequate quantity and variety;
 - 2) cost associated with transportation and logistics;
 - 3) high prices;
 - 4) time to shop for ingredients, and
 - 5) ability to express the value of local foods to customers to transfer higher food cost to consumers.
 - About 75% of surveyed chefs are interested in buying foods from a food hub, and they consider online ordering and delivery services as the most valuable offered by a food hub.
 - If delivery is a service offered by a food hub, then more than half of the surveyed chefs expect to receive orders at least twice a week and as much as seven times a week, and all respondents expect to be able to source local foods year-round.
 - A private college and two specialty groceries interviewed are seeking local and healthy foods and are willing to pay a premium to purchase this type of food.
 - Three of the interviewed distributors have been receiving more calls to supply local foods and are interested in expanding their ability to supply local foods.
- Both the university and hospital food purchaser stated that buying local foods is not a priority for the institutions at this time.
 - The university, hospitals, and national distributor stated that they require insurance and certification standards that many local farmers may not currently have, such as Good Agricultural Practice Certification (GAP).

Supply

Producer findings are based on (a) a focus group discussion with five fruit and vegetable farmers; (b) a focus group discussion with three livestock farmers; and (c) personal interviews of three additional farmers. We found that:

- Fruit and vegetable farmers are, in general, satisfied with prices they receive but some producers are not satisfied with volumes sold;
- Nonetheless, they perceive several barriers to scaling-up including access to land, labor, and processing facilities;
- Producers see various benefits from accessing a food hub to sell their products including connecting with buyers and solving logistical problems (e.g., managing inventory, transportation, refrigeration);
- Nonetheless, focus group participants perceive a food hub business model aggregating and distributing local products will face several problems including 1) lack of supply; 2) liability associated with aggregating perishable products; 3) cost of complying with rules to reduce product liability risk; 4) the ability for a food hub to differentiate produce; 5) getting buyers motivated to buy through a food hub; and 6) lack of processing facilities nearby for livestock producers to have enough supply to meet food hub needs.

Recommendations

We recommend that a dedicated full-service food hub not be initiated at this time and that smaller incremental steps could be taken to increase the connections between existing local foods producers and unmet demand for local foods. Direct connectivity between growing demand and local farmers can be increased through the work of a *local food system coordinator*. The position should focus on increasing coordination and collaboration between local food supply and demand and facilitating these relationships through:

- (a) building relationships and partnerships related to local food in the region, such as connecting institutions, retailers, and restaurants to local food sources (either farmers, cooperatives, or distributors);
- (b) assisting with business development and best practice certification for farmers, such as working with emerging small farmer groups to help them coordinate market access; and
- (c) educating the community on the importance of local foods for economic development, health, equity, and sustainability.

Study Introduction

Study Background

Plan East Tennessee (PlanET)¹ funded in 2011 by the Federal Partnership for Sustainable Communities administered by the Department of Housing and Urban Development, identified local food production as a goal for the region that can boost the local economy, preserve farms, provide healthy food, and enhance the food security of the region. In light of this goal, a Knoxville Regional Foodshed Assessment (KRFA) was completed that provided a series of recommendations to help the region achieve a goal of 20 percent local food consumption (Hellwinckel et al. 2014). A food hub was identified as a top recommendation to help the region achieve this goal.

During the PlanET process community conversations with local farmers revealed that most sell directly to consumers through farmers markets, consumer supported agriculture (CSA) agreements, or from their farm. While some farmers sell to restaurants, very few sell to grocery stores and institutions. In Tennessee, there are currently three self-identified food hubs servicing primarily the Nashville and the South Cumberland areas of the state. However, the rapidly growing Knoxville region does not have an entity managing the aggregation, distribution, and marketing of locally produced foods for small and mid-sized producers.

Knoxville-Knox County Metropolitan Planning Commission and the University of Tennessee received a grant through the USDA's Local Food Promotion Program to study the feasibility of a food hub for the Knoxville region. This study evaluates the needs for a food hub to support demand (i.e., consumers) and supply (i.e., producers) of local foods as well as the services it should provide to increase the success of the local food system in the East Tennessee region.

Overview

Food Hubs

The market for local foods is constrained by lack of infrastructure and the difficulties faced by local food producers in penetrating conventional markets (Barham et al. 2012; Matson, Sullins, and Cook 2013). Efforts to address these constraints recently focus on the development of food hubs. The U.S. Department of Agriculture (USDA) defines a food hub as “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” (Barham et al. 2012, p. 4). Food hubs address many of the difficulties confronting local food producers by; 1) facilitating producer access to retail or wholesale local food markets that would otherwise be difficult to enter because of their inability to meet requirements of consistent volume and quality, as well as product liability coverage and food safety standards; 2) resolving transport and distribution problems; 3) providing brokering services between farmers and market; 4) increasing market share by bundling products or extending product life; 5) providing technical assistance to build production and/or marketing capacity among producers; and (6) ensuring fair prices to producers by using product differentiation strategies (Barham et al. 2012). In addition, small and mid-sized producers using food hubs can benefit from the economies of scale these entities provide (Barham et al. 2012). As food channels become more exposed to food-borne risk and liability, the more difficult it will be for small-scale producers to access mainstream marketing channels. Food hubs can

Food hubs are usually distinguished from other local food distributors in that they are business models that usually are value-based and attempt to attain economic, social and environmental impacts within a community through providing services to producers, buyers, and the broader community.

¹ Plan East Tennessee <http://www.planeasttn.org/>

provide an alternative for small-scale producers by reducing the costs associated with liability insurance through collective policies.²

Food hubs are usually distinguished from other local food distributors in that they are business models that usually are value-based and attempt to attain economic, social and environmental impacts within a community through providing services to producers, buyers, and the broader community (Barham et al. 2012). Most food hubs have a commitment to support the economic viability of small and mid-sized local growers through; 1) a commitment to buy from these types of producers whenever possible; 2) working with growers to build their capacity and ability to meet wholesale buyers requirements; 3) ensuring good prices for growers; and 4) perceiving them as business partners as opposed to suppliers (Barham et al. 2012).

Food hubs can be classified on the basis of the markets they serve – retail and wholesale, direct to consumers, and combination of both – and their legal structure – 1) privately held; 2) nonprofit; 3) cooperative; 4) publicly held; and 5) informal (Barham et al. 2012). They can also be classified based on function and focus: 1) producer oriented; 2) people oriented; and 3) community oriented (Horst et al. 2011). The USDA working definition of food hubs is producer oriented because it centers on aggregation and wholesale distribution as a mechanism to generate marketing opportunities for small and mid-sized farmers. People-oriented food hubs are those focusing on helping small producers achieve economic viability and increasing access to healthier foods to low-income consumers. Community-oriented food hubs focus on creating sustainable urban and regional food systems (Horst et al. 2011).

About half of the 20 food hubs interviewed by phone in 2011 perceived themselves as financially viable. Most of these food hubs' financial viability relied on free warehouse space and volunteer labor. Another key factor determining financial viability was the length of time a food hub had been in business. Of less importance was the impact of legal structure and location on financial viability. The most common challenges faced by these food hubs were similar to the challenges faced by local food producers including: difficulties satisfying demand; supply fluctuations due to produce seasonality; the ability to generate price premiums for producers when wholesalers may not be willing to pay premiums for locally grown foods; access to capital to expand operations; maintaining a steady cash flow; difficulties associated with relying on volunteer labor; meeting buyer specifications for quality, volume and consistency; and, finally, trying to maintain farm identity through the supply chain (Barham et al. 2012).

Only about half of these interviewed food hubs perceive themselves as financially viable.

Is a Food Hub a Feasible Business Model for The Knoxville Region?

Knoxville does not currently have a food hub aggregating local food. We collected information on potential supply and demand and potential barriers and opportunities for the development of a food hub in the region through interviews; focus groups; and surveys of (a) food hubs in other cities, (b) local producers, (c) local restaurants, (d) local chefs, institutions, and groceries, and (e) local organizations.

The purpose of the interviews was to evaluate the needs, opportunities, and barriers faced by producers and purchasers of local foods in order to evaluate the potential for a food hub to fill the gaps between small and mid-sized producers and retail purchasers, such as restaurants, grocery stores, and institutions.

² For example, Red Tomato (<http://www.redtomato.org>), a food hub in Massachusetts, has a liability policy covering growers selling through the hub (Matson, Sullins, and Cook 2013).

Given that many farmers producing for local market are very small and that many of the producers are new to the farming, data on their supply is not usually available through the agricultural census. We used interviews to uncover as much of the existing economic relationships as well as the opinions and perceptions of both growers and purchasers. Some market segments, such as large traditional growers, were not responsive to interview inquiries. For these reasons, this report tells much of the story but perhaps not *the whole* story.

The Knoxville Regional Foodshed

An earlier study, the Knoxville Regional Foodshed Assessment, provides a review of the current state of agriculture around Knoxville. This report geographically focuses on the Knoxville Foodshed as defined by this prior report. The Foodshed is defined as the geographic area where the majority of Knoxville’s local foods are produced, which encompasses approximately a 50 mile road-distance radius from the central city (Figure 1). The 11 county area (Anderson, Blount, Campbell, Grainger, Jefferson, Knox, Loudon, Morgan, Roane, Sevier and Union County) is home to nearly 953,000 people with a total annual estimated food demand of \$3.5 billion (IMPLAN Group LLC, 2012).

Table 1. Population and Area of Knoxville Regional Foodshed

Population ^{ab}	952,695
Total Land Area ^c (square miles)	4,365
Total Agricultural Land Area (acres)	2,793,412

^aThe Knoxville Region Foodshed includes: Anderson, Blount, Campbell, Grainger, Jefferson, Knox, Loudon, Morgan, Roane, Sevier, and Union.

^b Source: 2014 U.S. Census Bureau.

^c Source: USDA – NASS/ 2012 Census of Agriculture

The region has a very small agricultural economy, with only \$240 million dollars in annual agricultural output or only 0.34% of the region’s total economic output (IMPLAN Group LLC, 2012). The map in Figure 1 indicates that the vast majority of land is forested, and the majority of agricultural land is dedicated for livestock pasture and hay production. According to the 2007 Census of Agriculture (USDA-NASS, 2007), only 2,081 acres or 0.4% of cropland in the region was used for fruit and vegetable production. According to the 2012 Census of Agriculture (USDA-NASS, 2012), fruit and vegetable acreage dropped to 1,793 acres. About 32% of those acres are located in Grainger County, a county traditionally known for tomato production, where most of the produce is sold through intermediate outlets (e.g., brokers).

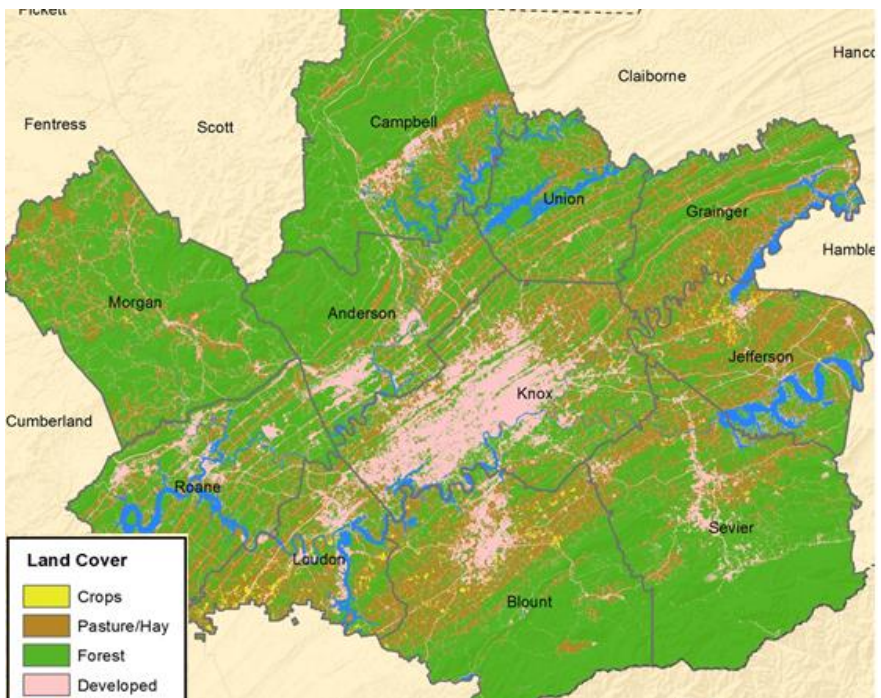


Figure 1. Map of land use in the Knoxville Regional Foodshed. Forest is the dominant land cover followed by developed land, pasture & hay, and then cropland (derived from USDA Cropland Data Layer (U.S. Department of Agriculture, 2013).

Regional Agricultural History and Context

Since 1910, the Knoxville Foodshed has lost 65% of its farmland. Median farm size is only 49 acres, and primary and secondary agriculture only contribute to 4.4% of the total regional economic output. Conventional agriculture opportunities are lacking given farm size and geography. Yet currently 26% of the total landmass is still in agricultural use within the Knoxville Foodshed, and the majority of farmland is still occupied and farmed by owners (and not leased). The vast majority of the remaining agricultural land is in pasture and used for livestock grazing – 92% of our non-forested agricultural land is dedicated to animal agriculture, with only 5% of land in row crops (U.S. Department of Agriculture NASS Census of Agriculture 2012).

Study Methodology

The majority of the research conducted in this study is qualitative, consisting of interviews and focus groups of key stakeholders of a potential foodhub. We conducted a survey of chefs in the study area, which resulted in a 32% response rate from 62 invited chefs.

Steering Committee

We met four times over the course of this study with a group of stakeholders representing a wide spectrum of participants in the foodshed including farmers, distributors, land-use planners, farmers market managers, chefs, and county extension agents. They provided guidance and feedback to the study, and helped us identify groups, businesses, and individuals that we should interview.

Existing Food Hub Interviews

We identified other existing food hubs that are within the southeastern region facing similar environmental and demographic factors. We also chose food hubs that gave a wide range of possible “models”. We interviewed (a) two nearby urban hubs that sell only to restaurants/institutions, (b) a nearby rural hub that sells to groceries, (c) a hub that sells to consumers at drop-off locations, and (d) a hub that aggregates and sells strictly organic to grocery stores in the larger region. The questions asked are in Appendix A.

Producer Focus Groups

We held two separate local producer focus group meetings – one for fruit and vegetable producers and one for livestock producers. Based on steering committee recommendations, we invited farmers of different scales to gain a wider perspective. We invited producers from the foodshed selling at local farmers markets. In this manner we hoped to reach producers that are already in the local foods business. We also asked county extension agents within the foodshed to invite two fruit and vegetable producers and two livestock producers from each county. Producer questions are listed in Appendix B.

Chef Interviews/Survey

We used an online survey to gather information from chefs in the study area. We personally interviewed two chefs to test the survey questions before sending out to other chefs. We reached the chefs by using the Knoxville Foodshed Assessment list of restaurants serving local foods. We called restaurants and asked for an appropriate e-mail address to direct the survey. We sent the survey to 62 chefs located in the foodshed. The survey is listed in Appendix C.

Distributor Interviews

Local distributors were found via an online search, and twelve distributors were initially called for a preliminary interview to ask if they sourced any foods locally and if they had interest in participating in a more in-depth interview. Five of the 12 distributors said they source some foods locally. Only three of these five distributors expressed interest in participating in a more in-depth interview. We interviewed one national distributor, one regional distributor (with tri-state service area), and one local distributor (within the Knoxville metropolitan area). Distributor questions are listed in Appendix D.

Institution Interviews

We interviewed education institutions of varying scales: a small, private grade school; a small private college; and a large university. We chose to interview these institutions as they hold some promise of buying local foods. We also interviewed a major food vendor servicing three hospitals in the region and a chain specialty grocery. Interviews were done either by phone or in-person. Questions posed to institutions and groceries are listed in Appendix E.

Local Capacity Interviews

We interviewed businesses and nonprofits that could possibly play a role in the formation of a food hub due to their existing local foods capacity. We interviewed a local food cooperative; a food-oriented nonprofit organization; and a local developer with warehouse space.

Study Findings

Existing Hub Interviews

Based on interviews of existing food hubs, we found that smaller hubs serving a few restaurants typically rely on grants. Profitable hubs are typically larger, buy from larger growers, and have sufficient volume to sell to institutions and groceries. Hubs selling to restaurants typically have 15 to 30 restaurants and purchase local food from 25 to 30 farmers. Few large-volume institutional customers bought from local food hubs. The interviewed hub that sells directly to consumers is facing increased competition in urban areas from new retail stores selling local and organic products. Some of the interviewed food hubs (two) indicated partnering with other like-missioned businesses. These partnership arrangements provide warehouse space, transportation, or other overhead costs for one of the interviewed food hubs.

Nonprofit Hub Serving Restaurants

This food hub became a nonprofit in 2012 and currently aggregates food from 12-20 producers per week and delivers to 8-12 restaurants per week. Gross sales were \$60,000 last year, and they maintain one full-time employee. It currently has a small amount of warehouse space, but the business, to date, mostly consists of picking up fresh produce from farmers and delivering to restaurants for a 10% markup fee. The food hub plans to scale up by purchasing a truck and freezers. Once freezers are bought, they will be able to handle dairy and meat items. This hub is part of a larger nonprofit that subsists on grant funding, although the cost of the food hub component is mostly covered by markup fees.

This food hub is filling demand from restaurants that cannot be met by single producers. The food hub works to match restaurant demand with multiple farmers through being an intermediary between chefs and farmers. It also arranges to deliver produce from farmers and to restaurants.

(+) The hub operates on a low budget and is paying its way.

Consumer-Producer Cooperative Hub

The Consumer-producer cooperative hub was formed in 2003. It aggregates from 70-80 producers per week and delivers to 300 consumers at 52 drop-off locations throughout the state. It operates solely on its 22.5% markup fees, it has two fulltime employees, and had gross sales of \$190,000 in 2014.

Every week, consumers choose items from individual farmers via an online website. Producers deliver individual consumer orders to a central warehouse where volunteers sort and deliver to the drop-off locations in coolers. Items sold by this hub include meats, cheeses, eggs, produce, and crafts. Although the hub has been solely farmer-to-consumer, they are considering expanding to restaurant orders and delivery.

(+) Economically sustainable for over a decade.

(-) The entry of specialty organic and local grocery stores has cut their total annual sales since peak year of 2011.

Nonprofit Hub Subsidiary of Local Food Bank

This food hub was formed in 2013. It has two full-time employees and is housed within an existing regional food bank. The food hub uses the food bank's warehouse, cold storage, and administrative systems. The food hub has its own delivery truck. They currently work with small to mid-sized growers. Their strategy is to expand and work with larger farms to meet existing demand and perhaps expand in the future to reach larger businesses. They are targeting restaurants and also institutions as potential buyers of their products. They currently aggregate produce, herbs, eggs, meat, poultry, grains, and flours from 22 growers. About 75% of their total gross sales comes from restaurant sales, 15% comes from hospital sales, and 10% from small independent grocery stores. They have hired a manager with many years of experience in the food distribution industry and have received several grants.

(+) Partnering with existing nonprofit to access infrastructure and management personnel to cut costs.

(+) Considering working with larger farms to find consistent supply, one of the main barriers faced by this food hub.

(-) Currently dependent upon grants.

Rural Food Hub

This rural food hub was formed in 2000 as a way to transition struggling tobacco farmers to a viable income earning option. They are structured as a nonprofit that has many other activities besides the food hub such as education, networking, food pantry development, and value-added product development. This food hub aggregates, packages in a warehouse, and distributes to large regional grocery store chains. They own two tractor trailer trucks that sometimes haul their member farmers' produce as far as 500 miles to market. The hub takes a 20% cut of gross sales to cover expenses. There are about 50 farmers participating. This food hub helps farmers obtain Good Agricultural Practices (GAP) certification and organic certification. Grant-based funds have allowed the food hub to scale up. The food hub generates about \$1.5 million in gross sales per year.

(+) Enduring model that has continued to grow in services to farmers.

(+) Ability to meet larger market demands.

Farmer-Owned Hub

This food hub was funded in 2004 and is currently a grower-owned LLC. They specialize in organic food products (i.e., organic certified or grown organically) and use producers from North Carolina, South Carolina and Virginia. They directly deliver products to customers in North Carolina and the east coast covering a radius of about 180 miles from their location. They also hire trucks that deliver to Florida, Montreal, and other parts of Canada. They started with about 13 to 15 suppliers and currently have about 50 producers year-round: some are as small as 5 acres while some are as large as 300 acres. The main function of this food hub is aggregation and distribution. They also help producers find new markets but do not directly match producers with buyers. They also do some production and post-harvest training to help producers meet demand needs. It is important to emphasize that this food hub's function is defined as aggregator and distributor and they do not necessarily invest in other functions.

At the beginning of their operation, this food hub secured funds through business loans and foundation grants, but in the second year, the business was already funded through business revenue and business loans. They currently do not depend on any grant funding from public or private sources. They went from being a business

with close to \$200,000 per year in revenue to almost \$4 million per year in revenue. About 99% of their sales are in the fresh produce and herbs categories. About 45% of their sales go to large supermarkets and supercenters while the rest goes to small independent grocery stores, buying clubs, and restaurants in about equal proportions. When asked about their largest operation expenses they mentioned purchases from suppliers. They currently have nine full time employees and four part-time employees, with no volunteer labor. They have large investment in infrastructure, with a warehouse, office space, and coolers. They also have two trucks.

Challenges faced by this food hub at the beginning of their operation included balancing demand and supply, meeting buyer specifications, and issues associated with lack of infrastructure ownership. These challenges were solved by training producers to grow products satisfying buyer specifications and using business loans to access infrastructure. Currently, this food hub is facing some challenges associated with maintaining inventory and having appropriate technology to manage operations.

- (+) Economically sustainable for over a decade.
- (+) Not dependent on grants.
- (-) Facing challenges associated with inventory management and access to technology to manage operations.

Producer Interviews

We conducted two focus groups: one for livestock producers and one for fruits and vegetable producers in Knoxville in March of 2015. Five producers participated in the fruit and vegetable focus group, and three producers participated in the livestock focus group. Given the limited participation in our livestock focus groups, we conducted three additional interviews, via phone or email to complement the information obtained from the livestock focus group.

Fruit and Vegetable Producers

Average age of participants in the fruit and vegetable focus group was 46 years, averaging 14 years of farming experience (with as little as four years of farming experience and as much as 40 [Table 2]). We had representation from both small and medium-size farms, with individuals farming from two to 300 acres. Most of the participants in this focus group were selling their produce through direct-to-consumer outlets such as farmers markets and Community Supported Agriculture (CSAs) but also through specialized grocery stores and restaurants.

*Most of the participants were interested in expanding their direct-to-consumer sales while **none of them were interested in accessing wholesale markets** because of low prices offered by outlets.*

Table 2. Fruit and Vegetable Producers’ Characteristics (n=5).

	Average	Minimum	Maximum
Age	46	31	56
Years of experience	14	4	40
Acres	74	2	300
% income from farming	64	0	100
Miles to deliver	39	25	60
Market outlets	Farmers markets, Three Rivers Market, restaurants, CSA		

When the fruit and vegetable producers were asked about challenges, they mentioned competition with other farmers as they all tend to grow the same products, low prices, and limited farm labor. Most of the participants were interested in expanding their direct-to-consumer sales while none of them were interested in accessing wholesale markets because of low prices offered by outlets. Although participants were interested in expanding direct-to-consumer sales, scaling up was not in their future plans given challenges faced when trying to access additional labor and land, as well as capital to purchase equipment.

Although participants were interested in expanding direct-to-consumer sales, scaling up was not in their future plans given challenges faced when trying to access additional labor and land, as well as capital to purchase equipment.

We asked participants to indicate their level of satisfaction with various components of their business including prices received and volume sold. Four out of the five participants were satisfied with the prices they currently receive (Figure 2).

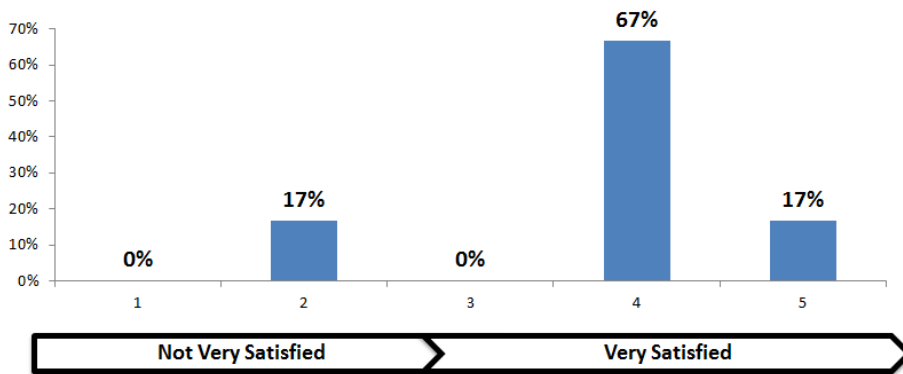


Figure 2. How satisfied are you with your received prices? (1 = Not Very Satisfied , 5 = Very Satisfied)

In contrast, when asked about satisfaction with volumes sold, participants could not agree on a level of satisfaction, with some producers not very satisfied and some very satisfied with the volume they currently sell (Figure 3).

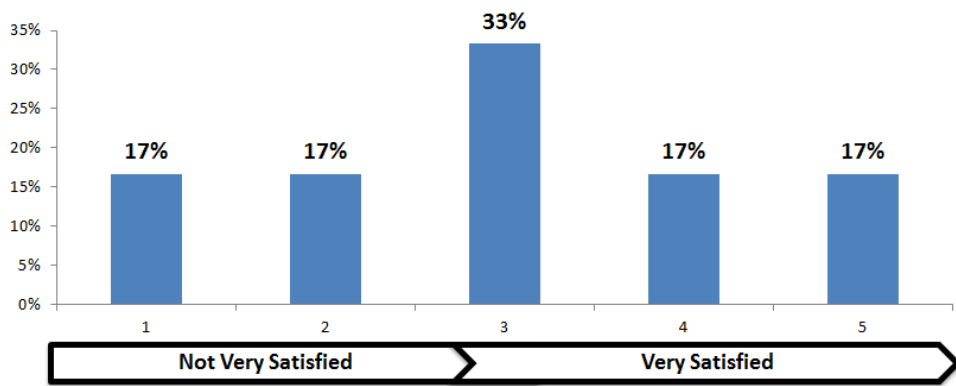


Figure 3. How satisfied are you with the volume you are selling? (1 = Not Very Satisfied, 5 = Very Satisfied)

After participants were provided with the USDA definition of a food hub, producers were asked if they will be willing to sell produce through a food hub under various price scenarios. Depending on farm size, some producers were willing to accept up to 30% less of what they currently receive for their produce at direct-to-consumer outlets if the food hub could guarantee the purchase of larger volumes, while very small producer could not afford to go below the 10% mark of current prices received (Figure 4).

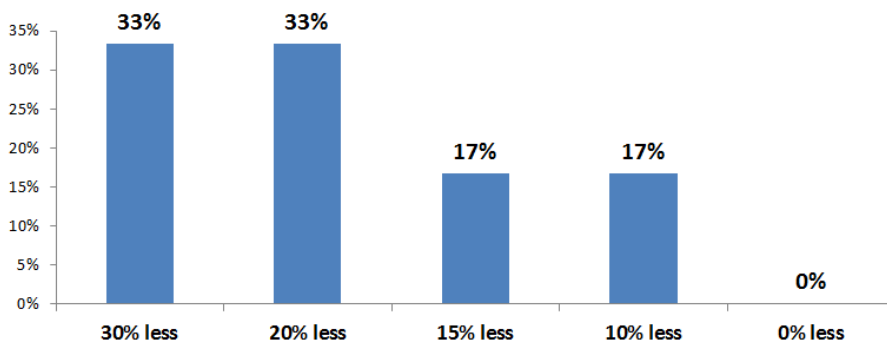


Figure 4. Would you be willing to sell to a food hub if prices offered were X% lower than direct-to-consumer prices (like a farmers market)?

We also asked participants about the services they believed had the most value for them if offered by a food hub in their area. They mentioned two services as the most valuable to them: 1) finding customers to sell directly to; and 2) a drop-off warehouse that aggregates and markets.

Producers perceived that although there may be enough demand interest in buying local foods from a food hub there is *not enough supply* to satisfy a food hub’s needs. Other barriers producers believe a food hub will face are prices paid to farmers (e.g., low prices to satisfy business needs), the liability associated with aggregating perishable products and the cost of complying with rules to reduce product liability risk; the ability for a food hub to differentiate produce; and getting buyers to buy through a food hub.

*Producers perceived that although there may be enough demand interest in buying local foods from a food hub there is **not enough supply** to satisfy a food hub’s needs.*

Finally, when asked about alternative business models that could benefit them, they mentioned a farmer based business model that allows farmers to get organized and support each other with marketing, labor, and

production issues. They mentioned producers within the foodshed, in Roane County, that are already collaborating regarding these issues.

Livestock Producers

Average age of participants in livestock focus group was 51 years old, they had on average 23 years of farming experience, with as little as two years of farming experience and as much as 50 years (Table 3). We had representation from both mid-sized and large farms, with individuals farming from 37 to 350 acres. Participants market their products through various outlets including sale barns, stockyards, farmers markets, and websites (e.g., Craigslist).

One of the biggest challenges livestock producers face when marketing their products is processing, specifically not having a processing facility nearby and having to travel long distances to access this type of facility. Additionally, focus group participants indicated consumers are not educated about local beef. For example, some consumers are hesitant to buy beef at farmers markets because they worry about freshness of the product (e.g., some consumers believe if beef is frozen it is not fresh). Participants perceive processing and cost (e.g., fencing, cash flow to feed animals) as major barriers to scaling up.

Table 3. Livestock Producers’ Characteristics (n=6).

	Average	Minimum	Maximum
Age	51	34	60
Years of experience	23	2	50
Acres	133	37	350
% income from farming	27	1	60
Miles to deliver	114	25	350
Market outlets	Craigslist, Facebook, online, local sale barns, farmers markets, stockyard		

Five of the six livestock producers participating in this study indicated being at least fairly satisfied with prices they currently receive (Figure 5). In contrast, three of the participants indicated not being very satisfied or fairly satisfied with the volume they currently sell (Figure 6).

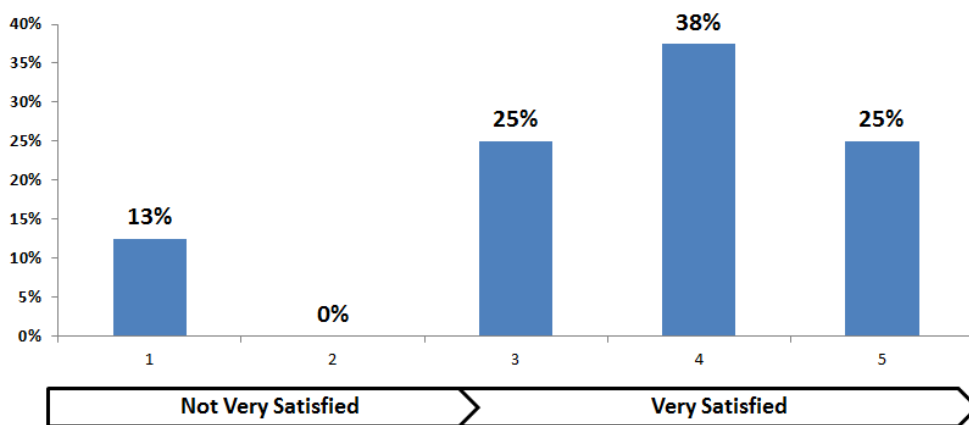


Figure 5. How satisfied are you with your received prices? (1 = Not Very, 5 = Very) (Multiple Choice)

More than half of the livestock producers (i.e., four) would be willing to sell their products through a food hub for the same price or no less than 10% of the prices they currently receive at direct-to-consumer outlets (Figure 7).

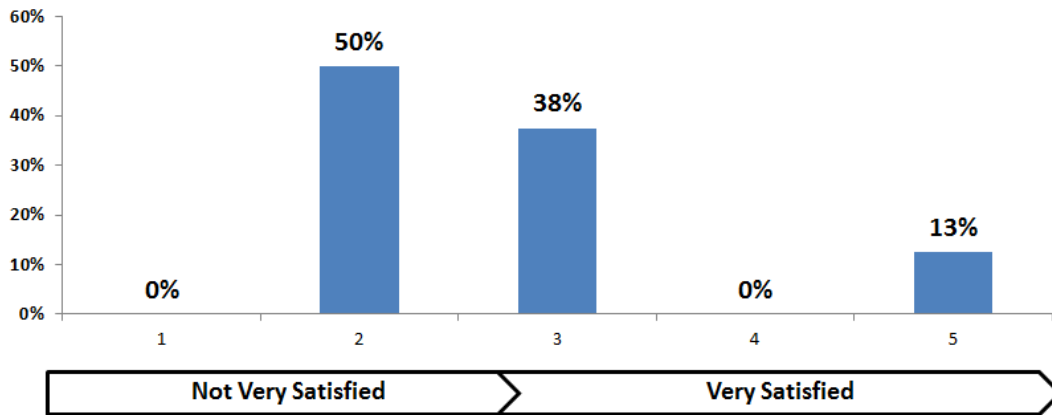


Figure 6. How satisfied are you with the volume you are selling? (1 = Not Very Satisfied, 5 = Very Satisfied)

Livestock producers suggested that the services they value the most from a food hub are a drop-off warehouse, a processing facility, and access to food safety certification.

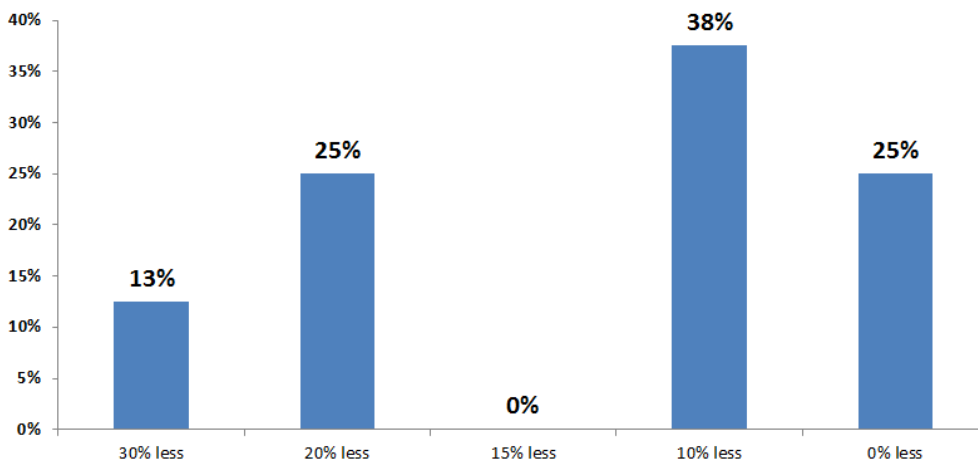


Figure 7. Would you be willing to sell to a food hub if prices offered were X% lower than direct-to-consumer prices (like a farmers market)?

Farmers believe that a food hub would help them to solve logistics problems associated with inventory control (i.e., knowing in advance the volume to be sold), refrigeration, transportation, and processing. In contrast, focus group participants believe that a food hub in the area of study will face several barriers including insufficient supply and lack of nearby processing facilities.

...Focus group participants believe that a food hub in the area of study will face several barriers including insufficient supply and lack of processing facilities nearby.

Chef Survey/ Interviews

In this survey, small restaurants are better represented than large ones with 17 of all 20 respondents having less than 50 employees. Most chefs currently serving local food buy directly from farmers. About 90% of chefs surveyed are currently purchasing food from local farmers and about the same percentage is interested in expanding their purchases of local foods.

Challenges chefs face when using local foods in their menus include:

- 1) finding adequate quantity and variety,
- 2) cost associated with transportation and logistics,
- 3) high prices,
- 4) time to shop for ingredients, and
- 5) ability to express the value of local foods to customers to transfer higher food cost to consumers.

Although approximately 75% of chefs surveyed are interested in buying foods from a food hub, the services they value most are online ordering and delivery services.

Sixty two restaurants were contacted via email, inviting them to complete an online survey. This list was gathered from the Nourish Knoxville local food guide and the Knoxville Regional Foodshed Assessment. We received 37 surveys but only 20 are usable responses, for a 32% response rate. The non usable responses were associated with surveys that were not completed because respondents to the survey were not the primary decision maker, or they were primary decision makers but only answered two of the total 27 questions.

About 72% of the restaurants represented in the survey have been in business between zero (i.e., opening soon) and five years, 73% have less than 30 employees, and almost half of the restaurants in the survey made less than half a million dollars in 2015. Therefore, we have a larger representation of small businesses than large ones in our sample.

Results do not support any trends regarding the relationship between business size, measured by the number of employees, and the percentage of weekly food dollars spent on local foods at peak season (i.e., when they buy the most local foods) (Figure 8). Businesses with less than 50 employees can have as little as no expenses associated with local foods and as much as 85% of their weekly food dollars spent in local foods. The results hold when measuring business size by gross revenue. We found restaurants with less than half a million dollars in gross revenue with percentages of weekly food dollars spent on local foods as little as 10% and some as much as 80%. Restaurants with more than 50 employees and/or \$3 million in gross revenue are only represented by three respondents, so we are unable to draw any conclusions concerning these larger businesses.

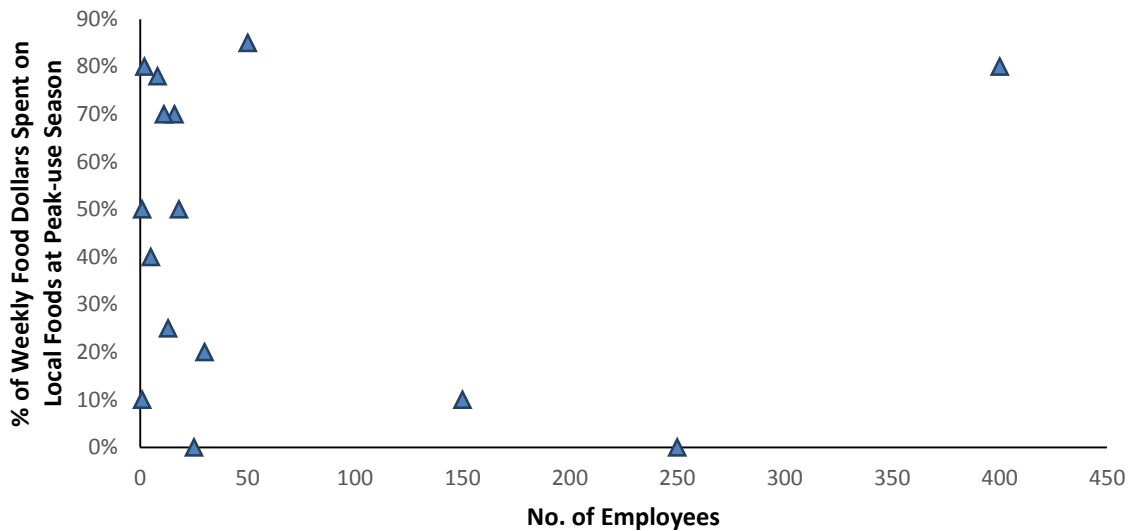


Figure 8. Restaurant Size Measured by Number of Employees vs. Percentage of Total Purchases Spent on Local Foods at Peak Season

About 90% of respondents indicated purchasing food from local farmers. About 83% of respondents indicated their local food purchases are delivered directly by the farmer and 61% indicated using farmers markets to purchase their local foods (Figure 9).

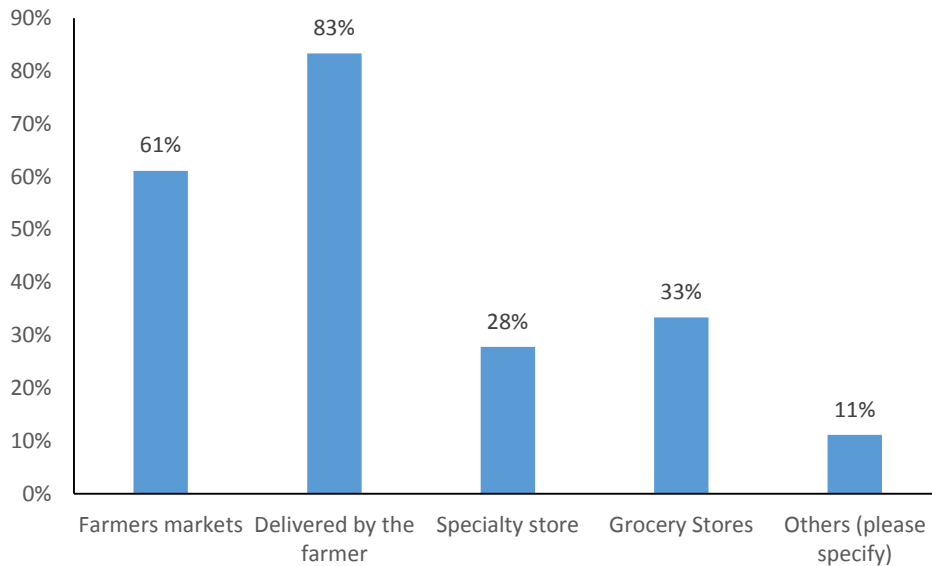


Figure 9. Where Do Restaurants Buy Local Foods From?

We asked chefs to list the foods they source locally. Tomatoes, greens, squash, eggs, cheese, and dairy are the products that are most commonly sourced locally (Figure 10).

Tomatoes, greens, squash, eggs, cheese, and dairy are the products that are most commonly sourced locally...

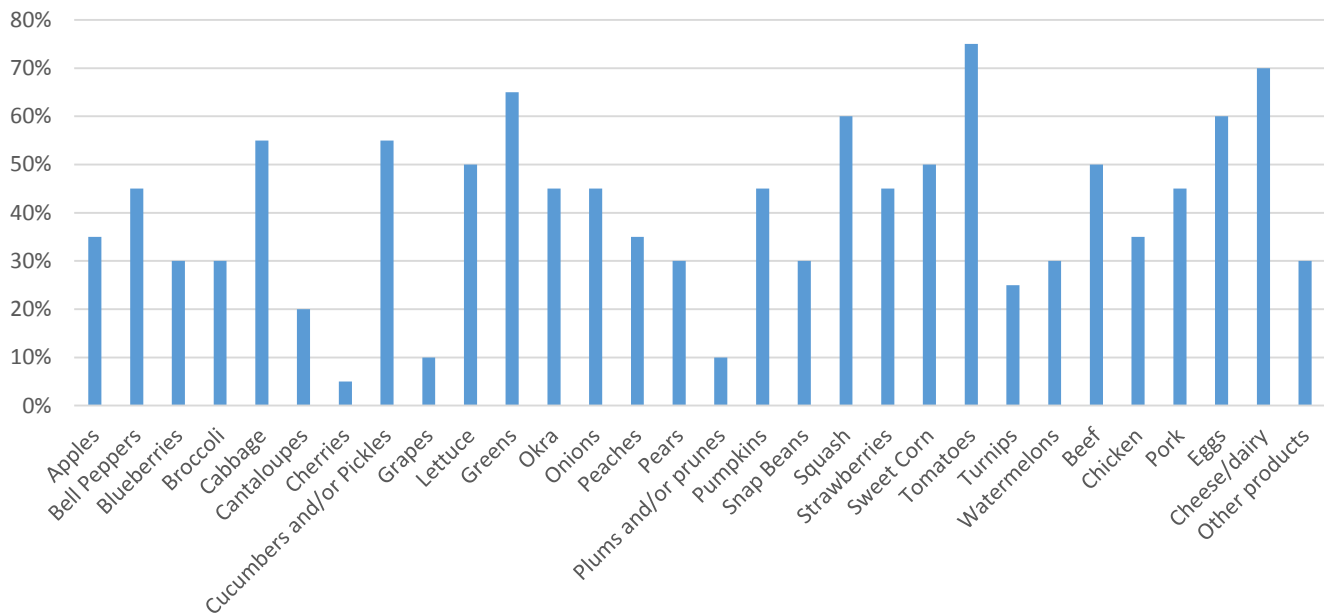


Figure 10. Products Restaurants Sourced Locally

Regarding weekly food dollars spend on local foods at peak season, more than half of the respondents indicated that more than 25% of their weekly food dollars are spent on local foods at peak season. In contrast, only about 38% of respondents indicated spending more than 25% of weekly food dollars on local foods at least-use season (i.e., when they use the least of local foods in their business).

Seventeen out of the total 20 respondents indicated that buying local foods is beneficial for their businesses, as they believe local foods are of better quality, better taste, fresher, and healthier. They also believe buying local produce allows them to support farmers and local economies. Additionally, they believe local producers use more environmentally friendly production practices; therefore, by supporting local farmers they are also somehow protecting the environment.

...some respondents indicated that buying local foods is beneficial for their businesses, as they believe local foods are of better quality, better taste, fresher, and healthier. They also believe buying local produce allows them to support farmers and local economies.

Food Hub Questions for Chefs

The U.S. Department of Agriculture food hub definition was provided at the beginning of the survey: “a business or organization that actively manages the aggregation, distribution, and/or marketing of source-identified food products primarily from local and regional producers to strengthen their ability to satisfy wholesale, retail, and institutional demand.” We asked chefs to indicate the services they would expect to receive from a food hub. About 75% of respondents expect a food hub to provide an online ordering service and 65% expect a delivery service to their business from a farm of their choice (**Figure 11**).

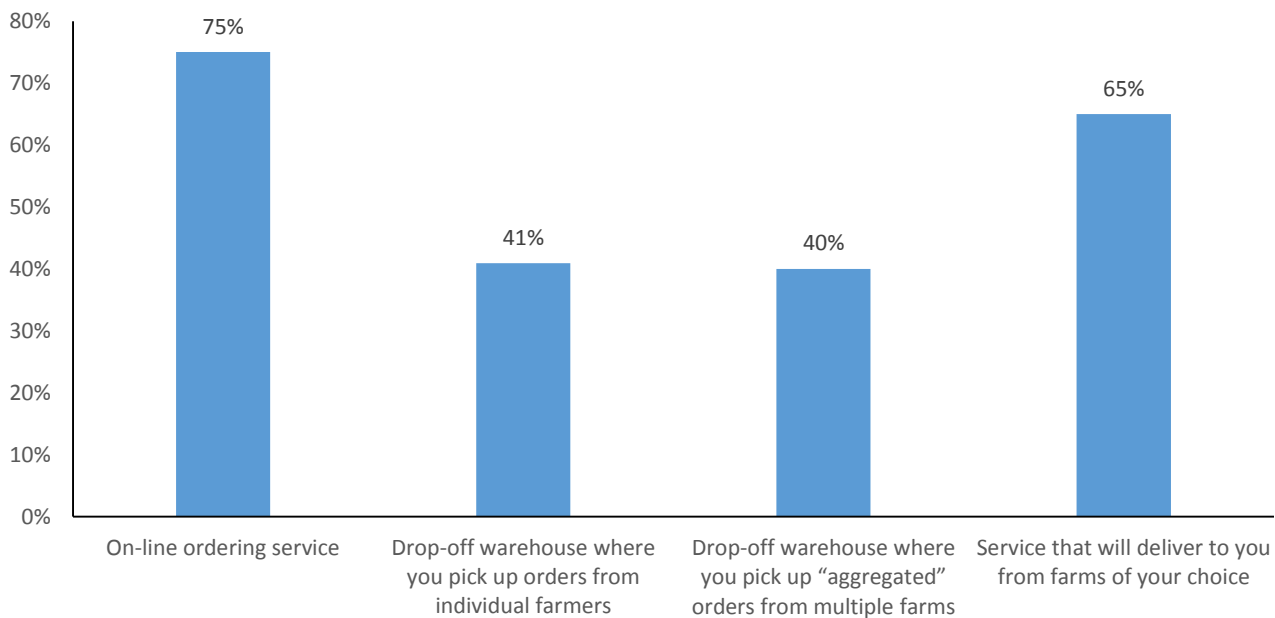


Figure 11. What services should a food hub provide?

Around 90% of respondents are interested in expanding their purchases of local foods, and about 75% of respondents are very to extremely interested in buying from a food hub. Some would like to pay wholesale prices for food hub products, while others would like to pay the same prices they currently pay to farmers and possibly an additional percentage over this price to cover the cost of the services offered by the food hub. If a food hub offers the prices these businesses are willing to pay for local foods, about 72% of respondents are willing to travel up to 20 miles to access foods from a food hub. On the other hand, if delivery was a service offered by a food hub, about 60% of respondents expect to receive orders at least twice a week and as much as seven times a week, and all respondents expect to be able to source local foods year-round. Among various sourcing requirements presented to respondents, the most relevant seems to be Good Agricultural Practices (GAP) certification. Other sourcing requirements that seem relevant to respondents include delivery of orders from multiple farms and traceability.

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Institutions and Grocery Stores

Among our interviews of institutions and grocery stores, the private school expressed the greatest desire to increase its purchases of local foods in the near future. Institutions motivated by health issues that have the flexibility to deal with the logistical details of buying from local farms and altering menus to serve in-season foods may be more likely to buy foods from local farmers. Other institutions stated that barriers such as certification and insurance requirements of food suppliers, rigid menus, and large volume requirements would make it difficult to purchase from small local farmers in the near term. The one specialty grocery interviewed stated that there is unmet demand expressed a willingness to purchase directly from local farmers.

Small Private College

A private college with 1,200 students indicated strong interest in ramping up local food purchases to 20% or more of all food purchases. The college serves approximately 17,000 meals per week. They are primarily motivated by health reasons. Serving local food may also help rank the college on two prestigious lists: “most

green” and “most fit” colleges in the nation. Their initial food service vendor was uncooperative in finding local foods, and after forming an agreement with a new vendor, they are beginning to serve these type of foods. Currently, the vendor purchases vegetables, milk, and bread through local distributors, while purchasing regional meats through a national distributor. The vendor is willing to purchase directly from farmers, under the condition that the farmers carry \$1 million in liability insurance. The vendor does not require any agricultural practice certification and is willing to pay more for higher quality local foods.

Large University

A large university in the region is currently buying milk and bread from what they consider local sources, but these products are not source-identified foods from local farmers in the foodshed. The food service vendor for the university contracts with a large national distributor to supply the food to campus. The large national distributor has a branch distribution company that does single-point identification and tracking. The food service vendor is

Farms supplying the university will need to meet ...food safety certification and liability coverage. ...the vendor reiterated that they deal with very large volumes, so they would prefer to deal with distributors, and not farmers, directly.

currently putting in place an accounting system to record purchases of local foods when they occur, although their definition of local is wider than the regionally defined foodshed. Farms supplying the university will need to meet company protocols for food safety certification and liability coverage. When asked about the possibility of buying more local foods in the near future, the vendor reiterated that they deal with very large volumes, so they would prefer to deal with distributors, and not farmers, directly. The vendor is not currently pursuing more local foods purchases. The food service vendor, however, would take action if the university administration identified increasing the consumption of local foods as a priority.

Hospitals

Two hospitals in the region have set aside a space like a farmers market for farmers to sell fresh vegetables one day per week during the season. Hospital workers and patrons can buy directly from farmers at these markets. A food purchaser for four hospitals stated that getting local food into hospital cafeterias requires a long protocol to assure food safety, and that little or no local foods are currently being used in cafeterias. The purchaser said that local food is not a current priority for the vendor company, but if it was requested by a hospital governing boards, then they would pursue it further. If this were to happen, the food service vendor would prefer to work through distribution companies rather than with farmers individually.

...Local food is not a current priority for the vendor company, but if it was requested by a hospital governing board, then they would pursue it further.

Specialty Grocery

The interviewed store is currently buying local and regional vegetables and meat. They deal directly with farmers. Some are from as far away as northern Georgia and North Carolina, but they also buy from a few farms within 50 miles of the store. They are willing to expand purchasing of local foods, and they are willing to deal with very small farms individually. They do require farmers to carry \$1 million in liability insurance and have their own corporate management practice guidelines, for which they will inspect the farm. They consider local products as ‘lost leaders’ (i.e., products sold at a price below its market cost to stimulate other sales or more profitable goods or services) so the markup is very low. They have asked local farmers if they are willing to sell to the grocery store but have found that most are satisfied with the higher prices they receive through direct-to-consumer sales at farmers markets and through CSAs. This statement is consistent with producers’ opinions at focus groups.

Distributors

The local and regional distributors interviewed are already buying and offering a few local foods. Two of the three distributors interviewed are already distributing to many restaurants serving local foods. These distributors have the flexibility to handle the logistics of buying from multiple small producers. One of the distributors we interviewed lacks some marketing knowledge about how to communicate the “single-source identification” that is valued by local foods buyers. Two of the three distributors interviewed have certification, insurance, and volume requirements. One of the distributors stated that their distribution system is suited for fruit and vegetable varieties that are transportation hardy, while ill-suited for ripe, picked-fresh varieties that most local food farmers prefer.

We interviewed 12 distributors, and five of them were buying some local foods. Most of them were willing to expand if there was market demand. Three distributors participated in in-depth personal interviews.

National Distributor

A national distributor stated that they buy regional vegetables and meat from within a tri-state area. They buy from large farms that carry at least \$3 million in liability and also are Good Agricultural Practice (GAP) certified. They market some items, such as specialty meats, as locally sourced to area restaurants. They stated that most farms in the Knoxville area that are growing for local markets are too small and do not have the required insurance and food safety certification for the company to do business with them. The company would rather purchase from a local aggregator that could help the smaller farmers receive GAP certification and insurance coverage.

...most farms in the Knoxville area that are growing for local market are too small and do not have the required insurance and GAP certification for the company to do business with them.

Regional Distributor

A regional distributor stated that they buy in-season vegetables from larger farms within 100 miles of Knoxville such as tomatoes, peppers, beans, and squash. The motivation is mostly financial, as these larger local farms sell at a lower price at certain times of the year. The distributors do not advertise these foods as local. They currently buy from about six farmers, but the number has been declining as farmers retire. All of their local farmers are remaining contacts from when the Forest Avenue farmers market was a thriving wholesale market. They are not actively looking for new farmers. The distributor is unwilling to handle most local fruits and vegetables because they would not hold up well during transportation, due to variety and time of harvest. The interviewee stated that they prefer varieties that are selected to not bruise or crush during transportation, and also prefer varieties that can be harvested before ripening and then ripen slowly en route. This distributor is unwilling to purchase from local farmers unless they begin growing their preferred transportation-hardy varieties and pick before ripe. In addition to sales to restaurants and institutions, this interviewed distributor also sells to smaller distributors. The regional distributor has recently received more inquiries from smaller distributors regarding local foods.

Local Distributor Specialized in Gourmet and Rare Foods

The local distributor specializes in gourmet and hard to find foods for sale to restaurants. They currently purchase and distribute some local meats, cheeses, and milk. They have been receiving more calls from chefs for local foods, so they are interested in expanding such purchases. The distributor has not handled perishable fruits and vegetables to date, but it has extra warehouse and cold storage space that could be utilized for both. In their experience, most local farmers are unwilling to mark down their products to sell at wholesale prices to distributors. If enough supply could be assembled, the distributor would like to expand locally sourced fruit and vegetable offerings.

Local Capacity Organizations

Local interviewed organizations are hesitant to take on the responsibility of building and managing a food hub, yet both organizations expressed a need for, and a willingness to, take on some part of the work of increasing local foods sales. Roles they could help with include facilitating the movement of foods from small farms among different regions of Tennessee to fill market demands, helping facilitate farmers and chefs meeting, educating farmers on how to reach larger wholesale markets, and pre-season planning and coordination among farmers.

Food Cooperative

A local food cooperative with a retail store is currently selling local fruits and vegetables, meats, cheeses, breads, and milk. The cooperative holds yearly planning meetings with local farmers to communicate what the cooperative will be purchasing and the quantity that is needed. This information allows some farmers to coordinate in advance of planting decisions for the next year. The cooperative stated that demand far outweighs supply, but local farmers are unable to supply more on a consistent basis, due to farmers' ability to receive a slightly higher price by selling directly to consumers. The cooperative does have a small markup on local foods but significantly less than on other conventionally sourced foods.

The cooperative stated that demand far outweighs supply, but local farmers are unable to supply more on a consistent basis, due to farmers' ability to receive a slightly higher price selling directly to consumers.

In the near term, the cooperative is unlikely to organize and run a wholesale local food hub due to several challenges including lack of space at their current location, local farmer supply limitations, and time constraints on current employees. In the longer term, if the cooperative expanded to another location and had extra warehouse space, it would consider taking wholesale orders from restaurants and institutions if demand was significant and local farmers expanded production abilities.

Food Oriented NonProfit

A local food-oriented nonprofit is currently facilitating farmer markets but noted constraints on the willingness and ability of local farmers to supply wholesale markets. In their view, most local farmers are unwilling to sell at lower wholesale prices. Although the nonprofit does not plan to organize a wholesale local food hub, they do believe they can help facilitate the expansion of direct-to-retail markets for local farmers through, for example, the organization of chef and farmer meet-ups and events. Based on their experience in facilitating farmers markets, they see a need for a "next step" to meet growing local food demand, though they are unsure of what that step may be. Discussion

Things to Consider When Starting a Food Hub

One of the elements for identifying various food hub models and their financial scenarios is evaluating those elements that have influenced other food hubs success or failure. In order to identify those elements, it is important to review appropriate prior studies addressing these issues.

Brislen, Woods, Meyer, and Routt (2015) evaluated the case of Grasshoppers Distribution. Grasshoppers Distribution LLC was a food hub that started in 2006 in Louisville, Kentucky from four farmers' initiative to connect regional products with local markets. This food hub was in business for about seven years and grew to be a million dollar in sales before closing its doors. Challenges faced by this business included: 1) continuous changes in business model to address challenges as they came about (e.g., capital shortfalls); 2) inappropriate management and quality control issues that hurt relationships with customers and the overall performance of the business; 3) lack of a full understanding of available supply and demand needs, and infrastructure and logistics required to connect the two; 4) being unable to find a balance between the goal of helping small farmers and the needs of the business (e.g., high prices paid to farmers while very tight margins for the business);, 5) lack of

expertise in assisting farmers in growing for wholesale, post-harvest handling, and food safety, despite private and public funds available to pay for infrastructure and business operations. When looking specifically at the financial challenges Grasshoppers Distribution faced, it is important to notice that net ordinary income (i.e., sales revenue minus cash expenses) was always negative, despite the outstanding growth of sales over time. Although this business attempted to inject money through outside grant funding and alternative ways of obtaining equity, these funds were never enough to cover operating losses. Additionally, the business solvency position (i.e., debt to asset ratio) also reflected the inability of Grasshoppers Distribution in adjusting to changing market conditions and an inability to pursue unanticipated opportunities.

From this case study there are a few questions we will need to ask ourselves before pursuing the development of a food hub whose primary goal is the aggregation of products from multiple small farms. *Do we have enough supply, infrastructure, technical knowledge for wholesale production, and systems that can support the efficient and safe aggregation of food from local producers?*

... we do not have the supply to satisfy the expected demand from restaurants.

Although our study is mainly qualitative, both Agricultural Census data as well as information from farmer focus groups suggest we do not have the supply to satisfy the expected demand from restaurants. Nonetheless, we currently have no hard data that can confirm this assumption as even census data may not capture very small farms in the area of study. ***Gauging actual supply information may be a key component for future efforts to develop a regional food value chain in the area of study.***

One of the findings from our study suggests a smaller effort focused on delivering from farms to chefs may be what is needed for this area. Farmers would appreciate a service that would save them time of having to deliver to multiple restaurants, and chefs appear to be interested in a service that delivers food from a farm of their choice. Time is a valuable input for both chefs and farmers; therefore, the ability to reduce the time spent delivering or picking up products from farmers is appreciated by both parties. ***Still, is aggregation a desirable service given existent supply, infrastructure, and demand needs?***

One of the findings from our study suggests a smaller focused effort could be made to support delivery logistics from farms to chefs.

During the National Good Food Network (NGFN) Food Hub Collaboration conference in March of 2014 (NGFN, 2015), a group of panelists participated in a session entitled “STOP! Don’t Build that Hub.” Some of the questions addressed by the panelists were: Why do food hubs fail? How do we determine if a food hub is really needed in an area? If a food hub is not needed, how can a group of concerned citizens still make a positive impact on the local food system?

Karen Simons, consultant for the Local Economies Project, talked about her experience as part of the team who conducted a feasibility study for a food hub in the Hudson Valley area, in New York State. One of the most important points she made was that in many feasibility studies, there is sometimes a lack of clarity about the goal of the study – either from the research team or from funders. She emphasized that the goal of a feasibility study is not to ***justify*** the development of a food hub but rather to identify the resources, environment, and political/social conditions that will either support or not support the development of a food hub in an area. Karen raised awareness regarding the complexity of a food hub business model that aggregates and distributes foods that are usually perishable. She mentions initial high capital investment needed to turn perishable products around in less than 24 or 48 hours as one of the challenges faced by a food hub type of business. She talked about the importance of anchor sellers and buyers that can guarantee a solid cash flow. More than simply investing in infrastructure, what the Hudson Valley area really needed was investments in value chain food development, such as technical assistance to develop other business models or multiple hubs supporting this area.

For our current study, the biggest returns may come from facilitating current efforts by farmers and other businesses that are already moving towards providing the needs of our area. Continuous research identifying critical components such as actual supply, farm capacity, actual demand, and identification of current efforts driven by public and private organizations supporting local food systems may be the starting point of a value chain development.

Ann Karlen, executive director of *Fair Food*, made a strong statement regarding the fact that ***food hubs are not a single-handed solution to strengthen food systems and for some groups may not be the right answer.*** As an executive director of *Fair Food*, she believes facilitating relationships in the food systems may be a key component to strengthening local food systems, and this facilitation role entails more than match-making between supply and demand by developing transactional relationships and educating both supply and demand players.

...facilitating relationships in the food systems may be a key component to strengthening local food systems, and this facilitation role entails more than match-making between supply and demand by developing transactional relationships and educating both supply and demand players.

A Food Hub Scenario

To give a perspective on the costs and necessary scale of building and running a food hub, we present a hypothetical example of a food hub that has the ability to aggregate and deliver a moderate amount food to Knoxville businesses. Our hypothetical food hub has a warehouse with cold storage, three employees, and a delivery truck. Estimated annual operating costs for this hub are listed in Table 4. Start-up infrastructure costs (i.e., truck, freezer, bins, warehouse rehab, and two computers) are included but amortized annually at a 5% interest over the lifetime of the items. The hypothetical hub outlined has an annual operating cost of about \$195,000.

Table 4. Estimated Annual Operating Costs (AOC) for a food hub with a warehouse, three employees, and one truck.

Food Hub Costs				
Item	Item Total Cost	Item Lifetime	Costs	
			per month	per year
Truck	\$50,000	10		\$6,475
Freezer/Cold Storage	\$25,000	10		\$3,238
Warehouse Rehab	\$40,000	15		\$3,854
Computer (2)	\$3,800	3		\$1,395
Warehouse Lease			\$2,000	\$24,000
Gas/Repair			\$1,000	\$12,000
Office Supplies			\$100	\$1,200
Utilities			\$800	\$9,600
Internet/Phone			\$110	\$1,320
Labor				
Manager(1)				\$50,000
Assistant labor(2)				\$60,000
FICA, Medicare, Unemployment Insurance, & Workers Compensation				\$16,500
Insurance				\$5,000
Total Annual Costs				\$194,582

In Table 5 we have a hypothetical number of purchasers and volume of purchases from the food hub to sufficiently cover annual operational costs presented in Table 4. For a food hub to cover annual operation costs of \$195,000 per year, the hub would need to sell to about 39 buyers, approximately 260,000 lbs of fruits and vegetables (assuming the hub only specializes in local produce and fruit and vegetable prices can be normalized to \$3 per lb), at a gross value of about \$780,000 per year.

Table 5. Volume of Purchases Needed to Cover Hypothetical Hub's AOC.

Volume of sales	Number of restaurants	Avg Weekly purchase (lbs)	# of Weeks	Total (lbs)	Avg Price (per lb)	Annual Purchases
Top bracket	5	1000	20	100,000	\$ 3.00	\$ 300,000
Top Mid bracket	9	500	20	90,000	\$ 3.00	\$ 270,000
Lower Mid bracket	10	200	20	40,000	\$ 3.00	\$ 120,000
Lower bracket	15	100	20	30,000	\$ 3.00	\$ 90,000
Total Annual Demand				260,000		\$ 780,000
Food Hub Margin (25% of gross sales) =						\$ 195,000.0

Grigsby and Hellwinckel (2016) estimated that the downtown Market Square farmers market in Knoxville sells approximately 560,000 lbs of fruits and vegetables per year. We will take this as a volume “point of reference” to indicate the additional volume of local food needed to support the operation of a food hub of the scale estimated above. The hypothetical food hub would have to sell approximately 45% of the produce volume that is sold at the Market Square farmers market annually.

... the food hub would have to sell approximately 45% of the produce volume that is sold at the Market Square farmers market annually.

A recent benchmarking study surveying existing food hubs estimated that the average food hub in the U.S. becomes “breakeven” upon reaching \$1.5 million per year in gross sales (Farm Credit East, Wallace Center, Morse Marketing Connections, and Farm Credit Council, 2015). This is almost twice the scale presented in Table 5. At this larger scale, a food hub would have to sell about 90% the total volume of the Market Square farmers market to cover annual costs.

What We Learned

- When contrasting chef survey results with those obtained from farmer focus groups, it is important to notice that while some producers are willing to accept prices that are less than 30% of the prices they obtained through direct-to-consumer outlets, other cannot afford to be paid less than 10% of what they currently receive at direct-to-consumer outlets. Chefs, on the other hand, are willing to pay wholesale prices or prices they currently pay with a small additional percentage for services provided by the food hub (e.g., online ordering, delivery). **The ability to satisfy both farmer and restaurateur expectations in terms of price, while maintaining a profitable business, may be one of the biggest challenges faced by a food hub.**
- Restaurant expectations regarding supply of local foods may not be consistent with what farmers from the study area are able to offer currently. Farmer focus group participants expressed barriers faced when trying to scale-up including labor, equipment, and land availability. Some of them are not willing to scale-up because of these barriers. In contrast, restaurants expect to have a consistent supply year-round, at a convenient distance or delivery option.
- During the farmer focus group meetings **several producers expressed their concerns about having enough local-regional producers to satisfy the needs of a food hub model as a wholesaler.**
- Based on interviews with distributors, we learned that they operate at different scales and have different requirements for farmers. Some distributors require liability insurance of more than \$2 million and Good Agricultural Practices (GAP) certification. Other local distributors have less liability requirements and do not require certification.
- A private school was enthusiastic about buying local food and has the capability of either buying directly from farmers or through small distributors. A state university's food vendor and a hospital food vendor expressed facing more barriers such as high liability and certification requirements, volume requirements, and distributor contract requirements; however, both would pursue buying local foods if the administrations of these larger institutions requested this as a purchasing policy.
- Both specialty grocery stores interviewed expressed enthusiasm over buying more local foods directly from farmers. They have low liability requirements and do not require food safety certifications. Nonetheless, one of them has an internal verification process to guarantee specific store requirements.

Is there enough supply in the study area to satisfy restaurant needs?

Recommendations

We recommend that a dedicated full-service food hub not be initiated at this time and that smaller incremental steps could be taken to increase the connections between existing supply and demand. A large capital investment in food hub infrastructure is not recommended for the following reasons:

1. The majority of farmers in our focus groups perceive there is currently **not enough supply** to justify the investment on a full-service food hub.
2. They also stated that supplying more food is **constrained by land, labor, and machinery limitations**.
3. The majority of farmers in our focus groups prefer to spend the time on direct-to-consumer outlets to gain the extra profit margin. The larger institutions interviewed (university and hospital food vendor) stated they do not have enough demand to justify expanding the purchases of local foods.
4. The university, hospital vendor, and the national distributor interviewed require insurance and certification standards that many local farmers may not currently have or be willing to obtain.

Yet there may be a need to better coordinate current demand and supply of locally grown foods. We found encouraging movement that needs to be harnessed including:

- All interviewed farmers (11) want to increase the volume and consistency of direct-to-consumer sales.
- Small regional groups of farmers are organizing to cooperatively access markets.
- The private school and specialty groceries interviewed are actively seeking local foods.
- The specialty distributor interviewed has been receiving calls to supply local foods and is interested in expanding its ability to supply these type of foods.
- About 90% of all surveyed chefs (i.e., 18) are currently purchasing foods from local farmers and are interested in expanding their purchases of foods from these farmers.

Efforts can be made to develop transactional relationships between supply and demand that go beyond “match-making” such as:

- ***The establishment of a local food system coordinator***

We interviewed eight individuals working on local food coordination around the country. Generally these individuals are employed by nonprofits, local government and/or university agricultural extension, or some combination thereof.

Their responsibilities range from working directly with farmers on marketing assistance and business development to collaborating statewide, locally and regionally on the development of food systems planning and policy. A summary of commonly noted responsibilities for local food coordinators are listed below:

- Building relationships and partnerships related to local and regional food, in many cases this includes facilitating local food policy councils, to working directly with farmers to access markets.
- Community education on the importance of local food to economic development, health, equity and sustainability.
- Research and coordination for leveraging resources for business development around local food and food entrepreneurship.
- Assistance with business development and best practices for farmers, such as Good Agricultural Practice (GAP) and organic certification.
- Policy advising and strategic planning for local decision makers related to food and food systems.

Local Food Coordination positions are relatively new across the country – with some started within last year, while others have been around almost ten years.

Funding for these positions is varied depending on the type of work the coordinator is most actively engaged in and what type of entity is considered their primary employer. Some positions are employed by nonprofits, which have received restricted funding sources for work specifically related to local food coordination. Others, particularly those that work for local government, receive funding from a local government general fund, private foundations and state level funds created by tobacco settlement money, and their positions are more broadly engaged in food systems planning. University agricultural extension based positions are funded by a variety of dollars from state, federal and university sources. However, some of these positions are required to also serve in an advisory capacity for students within the university and create curriculum on local food systems.

A partnership between local governments, university extension and nonprofits within the Knoxville Regional Foodshed could be sought to create a position that would work solely on local food coordination for this region to address the barriers and challenges local food producers and consumers have expressed through this study.

- ***The use of technology to connect supply and demand***

Finding customers to sell directly to was one of the most valued services by farmers participating in this study, while chefs participating in the study considered an online ordering service as the most beneficial service that a food hub in the area could offer to them. An online platform could probably serve these two purposes: 1) helping farmers find buyers and 2) help chefs to order online. Online platforms such as the Marker Maker³ aim to connect farmers with retailers, processors, caterers, chefs, consumers, and others. Unfortunately, Tennessee does not currently have access to this national network. In the Knoxville area there is currently a project called “Farm Spotter⁴” aiming to develop an online connection program helping to connect local producers with restaurants in the area. These are a few examples of the use of technology to better connect local supply and demand.

³ <https://foodmarketmaker.com/>

⁴ <http://insideofknoxville.com/2016/02/jason-hanna-and-doug-mcdaniel-win-big-idea-competition-with-farm-spotter/>

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Appendix A: Questions Posed to Existing Food Hubs

2014 Food Hub Semistructured Interviews

INTRODUCTION: We are researchers at the University of Tennessee investigating the feasibility of a food hub in the Knoxville region. We are interviewing established food hubs to understand what might be a successful model to be established in the Knoxville Foodshed. The interview will take about 30 minutes of your time.

CONFIDENTIALITY: Data will be stored securely and will be made available only to persons conducting the study unless participants specifically give permission to do otherwise. No reference will be made in oral or written reports which could link participants to the study.

PARTICIPATION: Your participation in this study is voluntary; you may decline to participate without penalty. If you decide to participate, you may withdraw from the study at anytime without penalty and without loss of benefits to which you are otherwise entitled. If you withdraw from the study before data collection is completed your data will be returned to you or destroyed.

Do you agree to be interviewed now?

Background information

Food Hub Name:

Name of respondent:

Position of respondent:

What year was your food hub established?

What is the legal status of your organization?

- Nonprofit
- Producer Cooperative
- Consumer Cooperative
- Producer-Consumer Cooperative
- LLC
- Publicly Owned
- No Formal Legal Structure
- Other (please specify) _____

What is the target area of your food hub?

- What city/region?
- What radius is covered by the food hub (suppliers/farmers come from which counties)?
- In what radius (miles) are your purchasers of food located?

How many producers/suppliers did your food hub purchase or procure products from when you started?

How many producers/suppliers does your food hub purchase or procure products from currently?

How many consumers/demanders did you sell to last year?

What functions does your hub cover?

- Aggregation?
- Packaging/Repacking?
- Distribution?
- Canning?
- Freezing?
- Cutting?
- Value-added services?
- Community kitchen?
- Processing?
- Labeling?
- Pick up from farm?
- Delivery/Shipping? Storage?
- Education?
- Certification?
- Other?

How did your food hub get started?

Producers & Suppliers

What services do you provide to producers?

- Actively help producers find new markets _____
- Marketing and promotional services for producers _____
- Branding or labeling products to indicate origin of product or other attributes _____
- Demonstration/Incubator farm _____
- Production and post-harvest handling training _____
- Business management services or guidance _____
- Food safety and/or GAP training _____
- Liability insurance that you offer producers _____
- Transportation services for producers such as picking up product from the farm for distribution _____
- Others _____

What services do you provide to the community?

Who are your producers?

How big are they?

Does your food hub require or prefer that producer/suppliers utilize any particular practices?

- _____ USDA Certified organic
- _____ Certified Naturally Grown
- _____ Integrated pest management
- _____ Non-certified but practicing organic
- _____ Free range/pasture raised
- _____ Grass fed

- _____ Antibiotic free
- _____ Chemical free
- _____ Good Agricultural Practices certified (GAP)
- _____ Good Handling Practices certified
- _____ Other (specify) _____

Please explain the chain of activities; from how a purchaser places an order, through how it is delivered to the purchaser.

Financial information

How were funds secured to begin the operation of your food hub?

- Income from other programs of the organization
- Business loans
- Federal government funding
- State government funding
- Local government funding
- Foundation grants
- In-kind support
- Donations from organizations
- Donations from individuals
- Infrastructure provided by a government entity
- Membership fees
- Bank loans
- Private investors
- Organization's and/or founder's own capital
- Others (please specify below) _____

How were your food hub operations funded during the last year (what % of total each)?

- _____ Income from services and/or operations provided by the food hub
- _____ Renting space to other businesses
- _____ Membership fees
- _____ Income from other programs of the organization
- _____ Federal government funding
- _____ State government funding
- _____ Local government funding
- _____ Foundation grants
- _____ In-kind support
- _____ Donations from businesses/organizations
- _____ Donations from individuals
- _____ Infrastructure provided by a government entity
- _____ Bank loans
- _____ Private investors
- _____ Others (please specify) _____

How dependent is your food hub on grant funding from public and/or private sources to carry out core food hub functions (aggregation, distribution, marketing of local food products)?

What was your hub's total revenue last year?

What was the food hub total revenue the first year of operation?

How much of your hub's total, gross dollar sales fall into *food categories*? (\$ or %).

- _____ Fresh produce and herbs
- _____ Processed produce (e.g., canned, frozen, dried)
- _____ Meat and poultry
- _____ Fish
- _____ Milk and other dairy products
- _____ Eggs
- _____ Grains, beans and/or flours
- _____ Baked goods/bread
- _____ Coffee/tea
- _____ Alcoholic beverages
- _____ Other processed or value-added food products (e.g., tomato sauces, honey, jams, etc.)
- _____ Non-food items (e.g., pet food, cleaning supplies, flowers, etc.)
- _____ Others (please specify)

How much of your hub's total, gross dollar sales came from sales to particular *categories of customers*?, such as... (\$ or %)

- _____ Large supermarkets or supercenters
- _____ Corner stores, bodegas or small independent grocery stores
- _____ Food cooperatives
- _____ Buying clubs
- _____ Online store
- _____ Your own storefront retail
- _____ CSA
- _____ Farmers markets
- _____ Mobile retail units
- _____ Restaurants, caterers or bakeries
- _____ Distributors
- _____ Food processors
- _____ Pre-K food service
- _____ K – 12 school food service
- _____ Colleges/Universities
- _____ Hospitals
- _____ Others _____

What are your largest operating expenses?

- _____ Food and/or product purchases from producers/suppliers
- _____ Packaging equipment and supplies
- _____ Payments towards warehouse, processing, office and/or other facility space
- _____ Payments toward trucks or other automotive equipment
- _____ Gasoline and tolls
- _____ Repair/maintenance
- _____ Utilities
- _____ Advertising and promotional materials
- _____ Credit card and bank service charges
- _____ Employee salary and benefits
- _____ Other Administrative expenses (e.g., office supplies)
- _____ Data and computer services
- _____ All types of insurance including trucks, facilities, liability and workers compensation
- _____ Consulting services (e.g., legal, business, marketing, accounting)
- _____ Telecommunications
- _____ Other (Please specify)

Employees & Volunteers

How many full time employees?

How many part time employees?

How many volunteers? On average how many hours do volunteers work per week?

Infrastructure

What types of physical assets does your food hub utilize?

- Warehouse__
- Office space for the hub__
- Processing facilities__
- Trucks_____
- Online ordering system__
- Rental space for other businesses_____
- Retail space for the hub_____
- Other (specify)_____

Liability

Do you have any type of product liability coverage for suppliers?

Do the purchasers require any type of liability insurance coverage to supply products from the food hubs?

Challenges and opportunities

What are the some of the challenges facing your food hub?

- Balancing supply and demand
- Negotiating prices with producers and/or customers
- Managing growth
- Access to capital
- Availability of processing services
- Meeting GAP and/or food safety requirements
- Meeting other buyer specifications
- Dependence on volunteer labor
- Finding reliable seasonal and/or part time staff
- Inventory management
- Maintaining product source identification
- Meeting regulatory requirements
- Issues resulting from the lack of ownership of infrastructure
- Finding appropriate technology to manage operations
- Other (specify) _____

How were they overcome?

What challenges do you still have?

What barriers do you face?

What are the main barriers for growth?

- Increasing warehouse/storage space
- Securing more product supply
- Increasing truck/delivery capacity
- Increase availability of processing infrastructure
- Securing capital
- Business development assistance
- Increasing staff
- Consumer education
- Other (please explain)
- No barriers

How do you plan to reduce them?

What is the future of your food hub?

Please indicate if you perceive opportunities for expansion of your food hub's business

If you have online ordering, how was your software developed?

Appendix B: Questions Posed to Producers

Introduction: This project is funded by the Local Food Promotion Program managed by the Agricultural Marketing Service, U.S. Department of Agriculture, in addition to matching funds from the Knoxville-Knox County Metropolitan Planning Commission and the University of Tennessee. The main objective of this project is to evaluate the feasibility of food hub to support demand (i.e., consumers) and supply (i.e., producers) of local foods as well as evaluate the services it should provide to increase the success of the local food system in the East Tennessee region. A food hub is defined by the U.S. department of agriculture as “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”. Food hubs specializing in ‘local food’ have been created in other cities in recent years. We are trying to evaluate whether a food hub structure is necessary for the Eastern region.

The objective of this questionnaire is to evaluate your perceptions of barriers face when marketing your products locally, marketing needs you have to make farming economically sustainable, evaluate perceptions you have on a food hub as a potential alternative to address your marketing needs, if you perceive a food hub as an entity that could address your marketing needs and could have a positive impact on the economic viability of your farm, services you expect from this entity, what legal structure may fit your needs, and expectations you have about the economic benefits you will receive from a food hub (prices, training, etc).

Answering this questionnaire may take you between 30 to 40 minutes depending on the length of your answers in the open-ended questions. Feel free to add other pages if you feel the space given to discuss your answers is not enough.

We want to assure you that the statements you make and the opinions you express in this questionnaire will not be published or communicated in any way that could possibly identify you with them.

General Knowledge/satisfaction questions and discussion

1. How satisfied are you with your current farming business in general? **Circle only one number** (1= not at all 5=very)
Not satisfy at all: ___1___:___2___:___3___x:___4___:___5: very satisfied
2. How satisfied are you with your available education resources (e.g., Extension, online resources, other farmers) to improve your farming practices (including production and marketing practices)? **Circle only one number** (1= not at all 5=very)
Not satisfy at all: ___1___:___2___:___3___:___4x___:___5: very satisfied
3. How satisfied are you with your received prices? **Circle only one number** (1= not at all 5=very)
Not satisfy at all: ___1___:___2___:___3___:___4_x___:___5: very satisfied
4. How satisfied are you with the volume you are selling? **Circle only one number** (1= not at all 5=very)
Not satisfy at all: ___1___:___2___:___3___x___:___4___:___5: very satisfied
5. How satisfied are you with the time involved in marketing your products? **Circle only one number** (1= at all 5=very)
Not satisfy at all: ___1___:___2___:___3___x___:___4___:___5: very satisfied

Have you heard about the concept of food hub? If you have, what is your idea of a food hub? What services it provides? _____ Yes _____

6. What services would you find most valuable in a food hub? (check as many as apply)

- Finding customers to sell to directly on your own
- Drop-off warehouse that will aggregate and market
- Warehouse that will prep, wash, package, and market
- Pick-up service that will buy from your farm
- Food safety certification help
- Farming practice help
- Others _____ (open discussion)

7. Do you think a food hub is a business model that is necessary for this area? Yes or No, and Why? _____

What is your perception of consumer interest in 'local' produce, meats, and other food items? _____

What challenges do you think a food hub in this area would face? (sufficient supply, sufficient demand, etc.) _____

Are there drawbacks you see to selling via a food hub? What specifically? _____

Price Questions and Discussion

8. Would you be willing to sell to a food hub if prices offered were **X%** lower than direct-to-consumer prices (like a farmers market)? For example, if you are selling tomatoes, tomatoes are sold at Knoxville farmers markets between \$2 and \$3 per lb. Ground beef is sold at the farmers market for around \$5.50/lb. (Check only one letter).

- a. 30% less
- b. 20% less
- c. 15% less
- d. 10% less
- e. 0% less

Please discuss why you selected the price above:

9. Would you be willing to sell to a food hub if prices offered were **X%** higher than your **LOWEST** price outlet? (Check only one letter).

- a. 0% higher
- b. 10% higher
- c. 15% more
- d. 20% more
- e. 30% more

Please discuss why you selected the price above:

We have not talked to ‘buyers’ yet, so we don’t know what they are willing to buy your products for!

Please discuss below any other issues related to prices received that you think a food hub will help with or maybe make more difficult

10. Scaling Up Discussion

Volume is an issue when food hubs sell to larger buyers like hospitals or school districts. Please discuss your capabilities and willingness to scale up. What challenges would you face in scaling up?

- Is this a concern? Lack of land? Lack of equipment? Labor?
- How can a food hub help?

11. Food Safety Certification Discussion

Coming food safety regulations may make it more cumbersome for farmers to sell to larger buyers. Aggregators (like food hubs) may need to have their participating farmers certified. Please discuss your views on the role of a food hub could play in helping you comply with food safety regulations or help farmers deal with food safety in general. Would you expect a food hub to help? In what way?

12. Other things to bring up Discussion

So far we have talked about a food hub as a unique form of business model that can address some needs and challenges you currently face. Now, there are other business models such as multi-farm CSAs, that consist of multiple farms getting together to satisfy demand and needs of a CSA. One of the advantages of this business model is up-front interest-free money, and the ability to specialize on the products you know how to grow or produce the best. There are also some challenges associated with this business model such as coordination/collaboration between producers/farmers participating in a CSA. Do you think this business model would better fit the needs of producers in this area? What other business models will benefit the producers in this area? For livestock producers, would slaughterhouses better serve this area rather than a food hub?

Appendix C: Chef/Restaurant Questionnaire

Introduction: This project is funded by the Local Food Promotion Program managed by the Agricultural Marketing Service, U.S. Department of Agriculture, in addition to matching funds from the Knoxville-Knox County Metropolitan Planning Commission and the University of Tennessee. The main objective of this project is to evaluate the feasibility of food hub to support demand (i.e., consumers) and supply (i.e., producers) of local foods as well as evaluate the services it should provide to increase the success of the local food system in the East Tennessee region. A food hub is defined by the U.S. department of agriculture as “a business or organization that actively manages the aggregation, distribution, and/or marketing of source-identified food products primarily from local and regional producers to strengthen their ability to satisfy wholesale, retail, and institutional demand”. Food hubs specializing in ‘local food’ have been created in other cities in recent years. We are trying to evaluate whether a food hub structure is necessary for the region consisting of the following counties: Anderson, Blount, Campbell, Grainger, Jefferson, Knox, Loudon, Morgan, Roane, Sevier, and/or Union.

The objective of this questionnaire is to evaluate; 1) your perceptions of barriers you face when buying local products; 2) marketing needs you have to make serving local food economically sustainable; 3) perceptions you have on a food hub as a potential alternative to address your marketing needs; 4) if you perceive a food hub as an entity that could address your marketing needs; 5) expectations you have about the economic benefits you will receive from a food hub (prices, volume, quality, etc).

Answering this questionnaire may take you between 30 to 40 minutes depending on the length of your answers in the open-ended questions.

We want to assure you that the statements you make and the opinions you express in this questionnaire will not be published or communicated in any way that could possibly identify you with them.

1. In what zip code(s) is your business located: _____
2. Do you currently buy produce or meat from local producers (producers located in Anderson, Blount, Campbell, Grainger, Jefferson, Knox, Loudon, Morgan, Roane, Sevier, and/or Union Counties).

Yes _____

No _____ → In the space below, please indicate the main reasons why you don't buy produce or meat from local producers and then **SKIP TO QUESTION 11:**

LOCAL FOOD PURCHASER QUESTIONS

3. Where do you buy the local produce and/or meats for your restaurant?
 - Farmers markets
 - Delivered by the farmer
 - Specialty store
 - Grocery stores
 - Others _____

4. Please check all products that you source locally, and if known, estimate a quantity (per week? per month?, Etc)

<input type="checkbox"/> Apples _____lbs () week	<input type="checkbox"/> Grapes	<input type="checkbox"/> Snap Beans
<input type="checkbox"/> Bell peppers	<input type="checkbox"/> Lettuce	<input type="checkbox"/> Squash
<input type="checkbox"/> Blueberries	<input type="checkbox"/> Greens	<input type="checkbox"/> Strawberries
<input type="checkbox"/> Blackberries	<input type="checkbox"/> Okra	<input type="checkbox"/> Sweet Corn
<input type="checkbox"/> Broccoli	<input type="checkbox"/> Onions	<input type="checkbox"/> Tomatoes
<input type="checkbox"/> Cabbage	<input type="checkbox"/> Peaches	<input type="checkbox"/> Turnips
<input type="checkbox"/> Cantaloupes	<input type="checkbox"/> Pears	<input type="checkbox"/> Watermelons
<input type="checkbox"/> Cherries	<input type="checkbox"/> Plums and prunes	<input type="checkbox"/> Other fruits _____
<input type="checkbox"/> Cucumbers and/or Pickles	<input type="checkbox"/> Pumpkins	<input type="checkbox"/> Other vegetables _____
<input type="checkbox"/> Beef	<input type="checkbox"/> Chicken	<input type="checkbox"/> Pork
<input type="checkbox"/> Eggs	<input type="checkbox"/> Cheese/dairy	<input type="checkbox"/> Other meats (specify) _____

5. What % of your weekly food dollars are spent on local foods at peak-use season (when you buy the most local goods)?

6. What % of your weekly food dollars are spent on local foods at least-use season (when you buy the least local goods)?

7. What produce or meats would you source locally if they were available off season? Check all that apply and, if known, estimate the average QUANTITY (example: pounds, boxes; per week? Per month?)

<input type="checkbox"/> Apples _____lbs () week	<input type="checkbox"/> Grapes	<input type="checkbox"/> Snap Beans
<input type="checkbox"/> Bell peppers	<input type="checkbox"/> Lettuce	<input type="checkbox"/> Squash
<input type="checkbox"/> Blueberries	<input type="checkbox"/> Greens	<input type="checkbox"/> Strawberries
<input type="checkbox"/> Blackberries	<input type="checkbox"/> Okra	<input type="checkbox"/> Sweet Corn
<input type="checkbox"/> Broccoli	<input type="checkbox"/> Onions	<input type="checkbox"/> Tomatoes
<input type="checkbox"/> Cabbage	<input type="checkbox"/> Peaches	<input type="checkbox"/> Turnips
<input type="checkbox"/> Cantaloupes	<input type="checkbox"/> Pears	<input type="checkbox"/> Watermelons
<input type="checkbox"/> Cherries	<input type="checkbox"/> Plums and prunes	<input type="checkbox"/> Other fruits _____
<input type="checkbox"/> Cucumbers and/or Pickles	<input type="checkbox"/> Pumpkins	<input type="checkbox"/> Other vegetables _____
<input type="checkbox"/> Beef	<input type="checkbox"/> Chicken	<input type="checkbox"/> Pork
<input type="checkbox"/> Eggs	<input type="checkbox"/> Cheese/dairy	<input type="checkbox"/> Other meats (specify) _____

Explain your answer further if needed:

8. Discuss your biggest challenges in using local produce and meats/eggs in your restaurant:

9. Discuss the benefits you see in sourcing produce and meats/eggs locally:

10. Would you be interested on expanding your purchases of local produce and meats/eggs?

Yes _____ No ____ If not, why? _____

EVERYONE ANSWER

11. How interested would you be in buying from a food hub? (Check only one option)

- Extremely interested
- Very interested
- Moderately interested
- Slightly interested
- Not interested
- I have not thought about it

Please explain your choice above;

If 'not interested,' please **SKIP TO QUESTION 20**:

FOOD HUB QUESTIONS

12. What services you would expect the food hub to provide to you? (Check all that apply)

- Online ordering service

- Drop-off warehouse where you pick up orders from individual farmers
- Drop-off warehouse where you pick up “aggregated” orders from multiple farms
- Service that will deliver to you from farms of your choice
- Other _____

13. A food hub has to balance fair prices to both the farmers and purchasers and also take a cut for their services (usually 10-22%). Please discuss what you perceive to be “fair” pricing for both farmers and purchasers.

14. Assuming a fair market price, what is the longest distance you would be willing to travel to access a food hub? _____.

15. If food hub delivery to your restaurant was an option, how often would you like delivery of orders?

16. In which months are you interested in sourcing local produce? (Check all that apply)

<input type="checkbox"/> January	<input type="checkbox"/> July
<input type="checkbox"/> February	<input type="checkbox"/> August
<input type="checkbox"/> March	<input type="checkbox"/> September
<input type="checkbox"/> April	<input type="checkbox"/> October
<input type="checkbox"/> May	<input type="checkbox"/> November
<input type="checkbox"/> June	<input type="checkbox"/> December

17. In which month(s) are you interested in sourcing local meat/eggs? (Check all that apply)

<input type="checkbox"/> January	<input type="checkbox"/> July
<input type="checkbox"/> February	<input type="checkbox"/> August
<input type="checkbox"/> March	<input type="checkbox"/> September
<input type="checkbox"/> April	<input type="checkbox"/> October
<input type="checkbox"/> May	<input type="checkbox"/> November
<input type="checkbox"/> June	<input type="checkbox"/> December

18. Which of the following sourcing requirements are relevant to you? (Please check all that apply)

- Traceability
- Liability Insurance
- Good Agricultural Practices (GAP) certification

- Compliance with farm labor requirements
- Delivery of orders from multiple farms
- None are relevant
- Other _____
- I have not thought about it

19. As a means of securing local supply, how interested are you in participating in pre-season crop planning to formally arrange products, quantities, packing, and timing of deliveries? (Check only one option)

- Extremely interested
- Very interested
- Moderately interested
- Slightly interested
- Not interested
- I have not thought about it

Please explain your choice above;

RESTAURANT PROFILE QUESTIONS FOR ALL

20. What type of cuisine does your restaurant serve?

21. Who makes food purchase decisions at your restaurant (for example, chef, owner, franchise) _____.

22. How many years has your restaurant been in business? _____.

23. Please estimate your total ANNUAL produce purchases by checking a range below (Check only one option):

- Under \$1,000
- \$1,000 - \$4,999
- \$5,000 - \$9,999
- \$10,000 - \$19,999
- \$20,000 – \$29,999
- \$30,000 – up

24. Please estimate your total ANNUAL meat/egg purchases by checking a range below (Check only one option):

- Under \$1,000

- \$1,000 - \$4,999
- \$5,000 - \$9,999
- \$10,000 - \$19,999
- \$20,000 – \$29,999
- \$30,000 – up

25. How many employees worked at your restaurant last year? _____.

26. What is the average gross revenue of your restaurant last year? Check only one option.

- Under \$500,000
- \$500,000 - \$999,999
- \$1,000,000 - \$2,999,999
- \$3,000,000 - \$5,999,999
- \$6,000,000 – \$9,999,999
- \$10,000,000 – up

27. Anything else you would like to say or suggest to us? _____

Appendix D: Questions Posed to Distributors

1. What types of businesses to you distribute to?
2. Do you distribute any local foods right now?
 - a. What?
 - b. Where from?
 - c. Where to?
3. Are you familiar with the term “food hub?” If so, how would you define a food hub? Have you seen any food hubs in East Tennessee or elsewhere?If they are not familiar with term give the USDA definition - **A food hub is defined by the U.S. Department of Agriculture as “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. What is your perception of consumer interest in access to Tennessee-grown produce, meats, and other food items?
5. How would you like to buy from local producers? What is the best way for you to buy food products from local farmers? (Forward contract. They deliver to you? You pick up? Website wholesale ordering?)
6. Under what conditions would you distribute local foods?
 - a. Profit?
 - b. Price?
 - c. Quality?
7. What barriers do you see in distributing local food or buying from local producers?
8. What opportunities/benefits do you see in offering local food?
9. At what rate would you generally mark up the price above what you buy from farmer?
10. Which of the following sourcing requirements are relevant to you? (Please check all that apply)
 - Traceability
 - Liability Insurance
 - Good Agricultural Practices (GAP) certification
 - Compliance with farm labor requirements
 - Delivery of orders from multiple farms
 - None are relevant
 - Other _____
 - I have not thought about it
11. Please estimate your total ANNUAL produce purchases by checking a range below (Check only one option):

- Under \$1,000
- \$1,000 - \$4,999
- \$5,000 - \$9,999
- \$10,000 - \$19,999
- \$20,000 – \$29,999
- \$30,000 – up

12. Please estimate your total ANNUAL meat/egg purchases by checking a range below (Check only one option):

- Under \$1,000
- \$1,000 - \$4,999
- \$5,000 - \$9,999
- \$10,000 - \$19,999
- \$20,000 – \$29,999
- \$30,000 – up

Appendix E: Questions Posed to Institutions and Grocery Stores

1. Do you buy local food?
 - a. What do you buy local?
 - b. Who supplies it?
 - c. How did you make contact with suppliers?
 - d. Why did you decide to buy local?
 - e. Do you have to pay more? How much more?

2. Many farmers are selling local food direct now. What criteria would allow you to buy from them?
 - a. Volume?
 - b. Price?
 - c. GAP certification?
 - d. Liability insurance?
 - e. Other criteria?

3. What if there was a regional distributor that had local food that met your criteria. Would you buy from them? Why or why not?
 - a. Would you prefer to buy from a local distributor/food hub or directly from farmers? Please explain your answer.

4. Do you use a "food vendor" (Aramark, Metz)?
 - a. Are they willing to buy local?

5. What are the biggest CHALLENGES you see in buying local?