

University of Kansas
School of Business
Kansas Impact Project

Creation of a North East Kansas Food Hub
Final Report

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Problem Statement

Douglas County has around 1040 farms and several agricultural producers that participate in farmers markets and sell their produce to area restaurants and grocery stores. However, these small and mid-sized farmers lack access to the warehousing and distribution infrastructure they need to better access the wholesale market. Given the problem, the group is required to answer the question: Is the creation of a local Food Hub a viable option for getting more local food to the residents of Douglas County?

INTERVIEW REPORT

People from different segments related to this commercial activity in Douglas County were interviewed in order to obtain information regarding the state-of-the-art in Northeast Kansas. The information is presented as follows.

Suppliers

For most of the farmers interviewed farming was a part-time endeavor that was complicated by the large number of transactions and marketing tasks that were required to sell their products. Each was also interested in selling his or her products at prices that would ensure the recovery of the costs incurred to produce them as well as the future costs of doing so. Certain food product markets demanded Good Agricultural Practices (GAP) certification or Certified Organic certification, which required a great deal of time and energy that distracted from many of the more essential parts of farming. Some of the farmers expressed concerns about too much crop specialization when it came to altering their growing practices to meet market specifications.

The current markets for the farmers' products included friends and neighbors, Community Supported Agriculture programs, the Lawrence Farmer's Market, and sales directly to Restaurants such as 715 or Zen Zero in Lawrence. Some farmers expressed frustration with having to market their products to so many different buyers such as restaurants who typically did not buy very much at a time. While some farmers enjoyed some of the interactions with direct-to-restaurant sales, none had experienced a great deal of success selling their products to larger institutions. This was mainly because most individual farmers were unable to meet the needs of larger institutions on a regular basis because of a lack of volume and or variety of products.

Distributors

The regional and national distributors were very aware of the demand for local food. All of them said that they distributed the products of local farmers although they were hesitant to say exactly how much. Some supported the concept of local food and its benefit to local farmers and the community, but said that the low product volumes, unpredictable supplies, seasonal demand, and high prices made it difficult to be able to afford to work with local farmers. These transactions, they said, often required more manpower and offered a less efficient way to do business since many of their larger suppliers were able to give regular and accurate data

regarding their product availabilities. The buying decisions they made were mainly driven by price and location. One distributor reported that the buying of the distributed food products was very much like *“playing the stock market every day”* and that this meant that their primary concern was consumer demand.

Several distributors also mentioned food safety certification as a barrier to working with some local farmers since many of them were unable to officially participate in the **Good Agricultural Practices** (GAP) certification process. Some reported that recent food recalls (during the last 10 years or so) made this risk even more expensive to distributors. SQF (Safe Quality Foods) certification was important to some and direct traceability was very important.

Personal opinions about the inherent value of local food were varied. Some said that they thought that a local food distribution facility would fly in the face of market competition and would not work. Some said that they believed that there were definite advantages to local food, including taste and freshness, and some said that there was no real advantage. Almost every distributor interviewed, however, mentioned that the demand of local food was increasing and that this was already affecting their future business decisions.

Buyers

Good Natured Family Farms is an existing business that has been very successful in recent years both in helping many local farmers reach larger markets, and in attracting national attention. They are an alliance of 150 farms that uses Ball Foods’ central warehouses for some of their light processing and short-term storage. They pick up and deliver products that are offered under the central brand name, which makes it easier to offer higher volumes of similar products. As a result, GNFF is able to sell their many of their products to grocery stores, churches, and corporations in the Kansas City metro area.

Ball Foods owns and operates several grocery stores in the Kansas City metro area, including 13 Hen House Market stores and 16 Price Chopper stores. The owner, David Ball, said that the message about the benefits of local food is currently resonating with consumers more than it ever has. He mentioned campaigns such as foodroutes.org’s Buy Fresh Buy Local campaign and the Kellogg Foundation’s investments in Good Natured Family Farms as evidence of a growing awareness of the increase in demand for local food. With support from the Kellogg Foundation they also allocate part of their food distribution specifically for at-risk populations.

The Institutional Market

The biggest opportunity for local farmers in Douglas County is in the institutional market for local fruits and vegetables. The creation of a central processing facility that would offer cleaning, storage, and light processing activities such as chopping and packaging for local produce would solve some of the problems that farmers face in selling their products. Such a facility would allow for farmers to aggregate their products to achieve sufficient volume for regular sales to institutions.

To start, focusing only on the market for fruits and vegetables makes sense because of the relatively high costs of infrastructure required for the processing and storage of meat and dairy products. According to the most recent statistics available, Douglas county had 200 acres of farmland dedicated to fruits and vegetables while the Tri-County area (Jefferson, Leavenworth, Douglas) had 386¹. A survey of only 4 institutions in Lawrence reveals food purchases of almost \$4 million each year, half of which, based on purchases of certain institutions, are likely to be exclusively for fruits and vegetables.

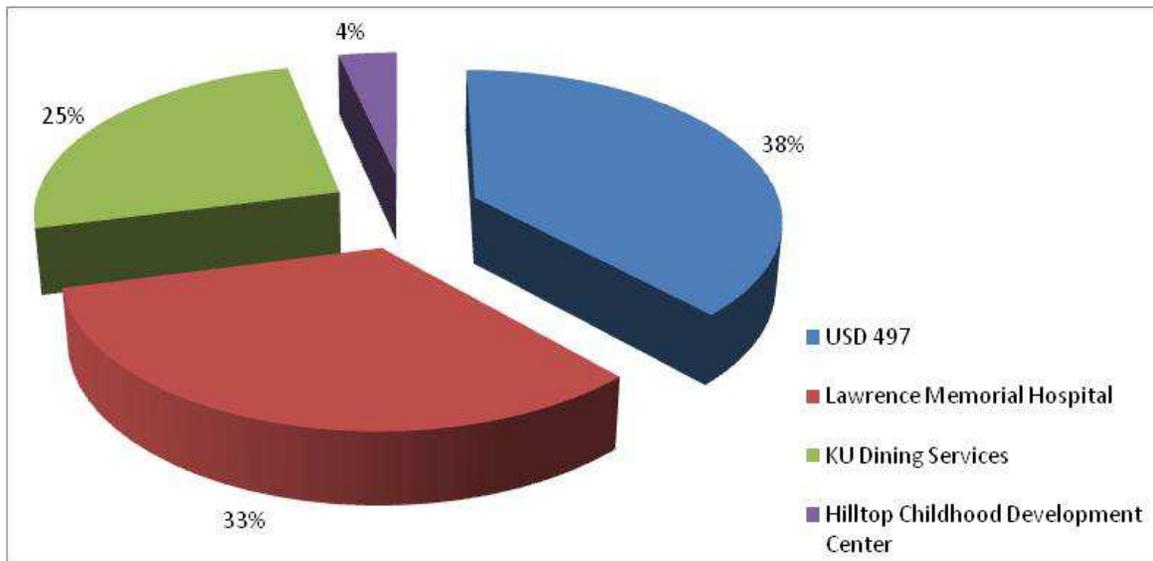


Picture 1. Institutions like KU dining purchase large amounts of local food per year

According to farmer interviews there is also a potential to quickly grow the number of local farmers if a more reliable market for local products exists. There are reportedly many skilled farmers who are unable to afford the starting costs associated with farming because of the uncertain return on their investments. A food hub for institutional purchases of local products in Douglas County could offer a relatively consistent and reliable market that might convince many of these potential farmers to begin farming. This could, in effect, actually increase the number of producers which would allow even more deliveries to more institutions in Douglas County.

To illustrate the potential market for a food hub in Douglas County, four institutions were considered in our analysis. The yearly spending of these institutions equals \$ 3.94 million, a significant amount that might increase in a short time.

¹ (U.S. Department of Agriculture, 2007)



Graph 1. Institutions like KU dining and Lawrence Memorial Hospital represent a market that needs to be reached²

The Co-op model

Finding the right model for establishing a local food hub is one of the most important aspects of our research. Its' legal structure is critical and it will determinate how the organization will eventually operate. It is also important to know how much taxes the business will pay and what the responsibilities and liabilities are for such business entity.

During our research among many food hub models across the United States, we came to the conclusion that the best model for local food hub in Douglas County would be the cooperative model. Although majority of regional food hubs are privately held (40%), cooperative models are very well represented among regional food hubs (21%). This leads us to the think that cooperative models are perfectly suitable for establishing the legal structure of a food hub in the area of Douglas County. It is also relevant to say that these types of businesses are owned and controlled by the people who use their services.

The most important purpose for getting a local food hub in our case is to bring as much as possible locally grown food to local people. The best way to achieve this goal is to tighten connections between local producers and local buyers and that is possible through a producer and consumer owned cooperative. In that model of ownership of prospective food hub, people will be motivated to participate by having ownership, right to vote and receive member discounts. In that way, initial capital will come from members and surplus of revenues will be returned to the members.

² Source: Public institutions

A good example of such a food hub is The Oklahoma Food Cooperative (OFC) from Oklahoma City. OFC started operations in November 2003, with just 60 members and 20 producers. Since then, the number of members ascended to 125. Another good example is The High Plains Food Cooperative (HPFC), which started with only 30 members. Currently, the HPFC counts on 194 members.

These two Food Hub cases are examples of significant growth in short periods of time. The big mistake which can be done in establishing a food hub is to wait to have a critical mass of people involved in it either on a side of producers (farmers) or buyers. Examples across the states also show that it is crucial to start an activity by establishing food hub and during the time people will get involved attracted by all benefits that such a food hub can offer. The critical stage of establishing a food hub is certainly taking the first steps, which includes marketing activities.

Once when food hub will be established, members will elect a board of directors to represent their interests and the board will then hire a manager who will run the cooperative's day to day business.

One of our recommendations regarding Co-op models is hiring a manager that runs the food hub appropriately (effective resource allocation and good control on inventories). Horizontal leadership structure characteristic for co-op model often runs into disorganization. It is more effective to rely on professional than on volunteer members and inexperienced staff.

As mentioned before, we strongly believe that prospective local food hub should concentrate on local institutions. This means that we are recommending farm to business (institution model) or F2B. That model is represented by 42% among all of regional food hubs across United States.

Staffing the facility and storage

There are 60,000 farms in Kansas³ (source of income for 101,000 people in the State). Of 1040 farms in Douglas County, around 30 farms cooperate actively with the Merc in Lawrence, Kansas. This makes us think that many of these suppliers would be willing to be part of this new business model. At the same time, the farmers will be owners of the project and will be part of the board of members.

Human resources capacity

According to our research, several food hubs across the country face similar problems regarding Human Resources. Some of their problems are hiring and retaining individuals skilled in areas such as record-keeping, accounting, and financial management.⁴ This is especially true in producer-based organizations, where the key managers may have extensive knowledge of production agriculture, but less knowledge of business management. A report from the University of Wisconsin shows one of their conclusions about staffing in Food Hubs:

³ (Wikipedia, 2013)

⁴ (U.S. Department of Agriculture, 2013)

“The co-op model offers a horizontal leadership structure. Without clear responsibilities and delegation, however, this model can result in disorganization, leadership imbalance, and fatigue.”⁵

One of the priorities is defining the job descriptions for our Co-op model and defining a structure that allows a functional structure, in which roles and responsibilities are defined clearly. Existing cooperatives have proven to work efficiently by hiring professional managers to handle administrative tasks.

“For example, GROWN Locally in northeastern Iowa determined it was more cost-effective to hire a professional manager than to rely on volunteer members, interns, or inexperienced staff to oversee its administrative tasks. In 2008, the cooperative hired a full-time coordinator with a background in business management and marketing to coordinate pre-season planning and pricing and distribution, which allows the growers to focus on production.”⁶

Defining organizational structure is important to assign roles and responsibilities. Based on recent research, a model that would help solving hierarchy problems is implementing a more vertical structure.

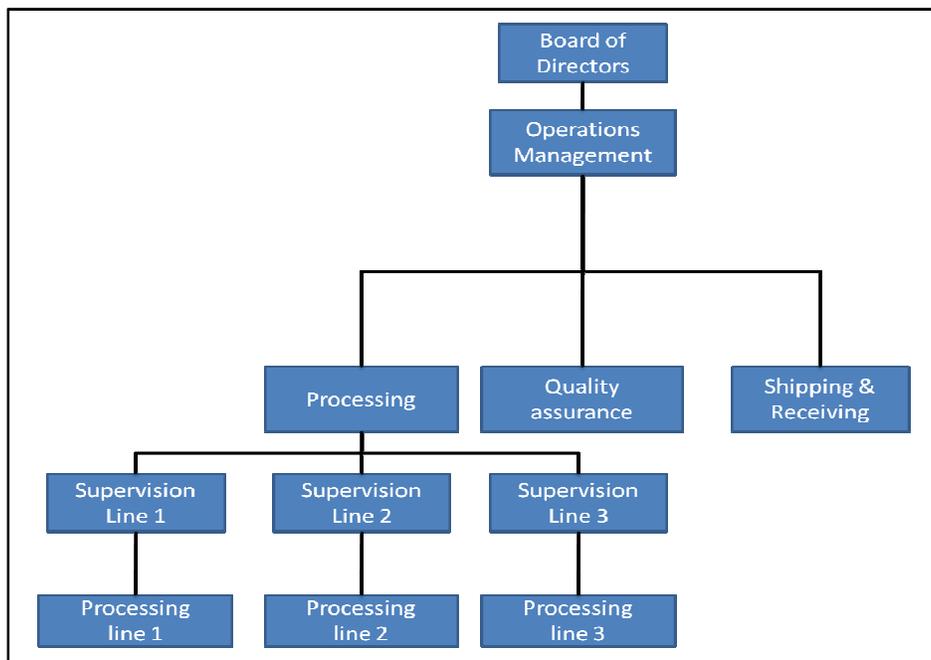


Figure 1. Vertical structure proposed

The model proposed establishes that there are 3 different processing lines (initially) working on different products, so the model can offer a wider variety of products to eventual customers. The model also allows adjusting the production to customers' demand of fresh products.

⁵ (Day-Farnsworth, 2009)

⁶ (Day-Farnsworth, 2009)

Storage

Certainly storage necessities vary from one product to the other. For example, tomato storage is much more delicate than potatoes storage. Vertical arranging is not allowed for tomatoes since they bruise easily. Therefore, the facility must allow having room different types of fruits and vegetables.

Storage process also involves the design and selection of refrigeration equipment, something that exceeds the objectives of this project. The criteria for designing of such facilities are mostly based on size, weight, respiration rates and storage temperatures. This is why we recommend designing or purchasing semi modular cold rooms for different fruits and vegetables. Equipments like these are widely used in restaurants, hotels, and industrial kitchens. Other criterion that is crucial for design is the size of inventories to be held in here. Therefore, it seems logical to select cold storage chambers that are large enough to allow keeping different types of inventories, but at the same time, small enough to avoid high electricity consumptions and under-utilization of the space.

Products

Local products may comprise a wide list of vegetables, fruits, dairy products, honey, eggs and meat. Considering that the list is so extensive, we decided to reduce it to fruits and vegetables. Fruits and vegetables were selected because processing these products is cheaper and simpler than processing meat or dairy products. Another reason is that these fresh products have a high demand among institutions like KU Dining, Lawrence Memorial Hospital and Lawrence Public Schools. The selection was based on availability of the products during the year and demand. Among the products selected we have:

- Potatoes and sweet potatoes
- Tomatoes
- Squash
- Spinach
- Apples

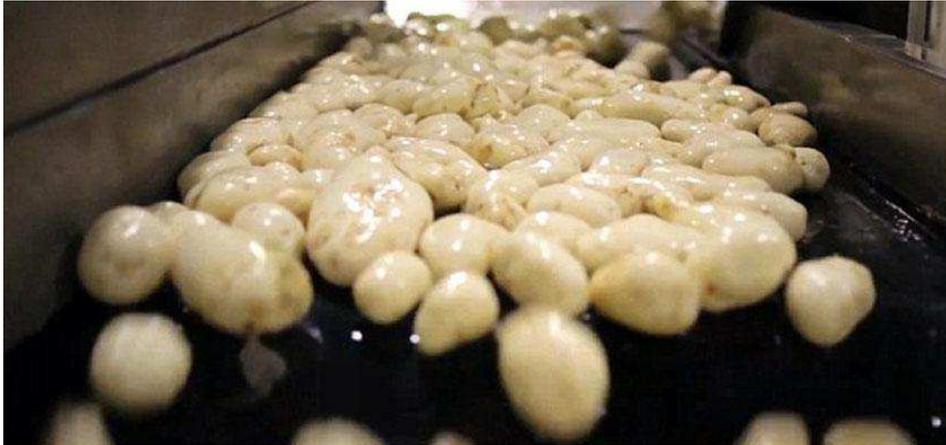
Although these are different types of products, the way they are processed is basically the same (washing, peeling, cutting and vacuum packaging). So, even when the demand may vary from one season to another, the structure of our Food Hub would allow adaption of the processing lines for different types of fruits and vegetables.

Potatoes and Sweet potatoes

United States is the 5th largest producer of potatoes in the world (2,225 lb/sq. mile). Although temperature is the main limiting factor on production (temperatures below 50°F and above 86°F), the range of temperatures for harvesting these products is wide enough to consider the production of potatoes in Douglas County during most part of the year (optimal temperature varies from 64°F to 68°F). For purposes of processing potatoes and sweet potatoes, the months

when these products can be processed go from May through mid July and from September through December.

Its storage is delicate and must be designed in order to slow the decomposition process. For short storage periods (our goal), it is recommended that potatoes be kept at 50°F and piled in a way they don't accumulate humidity. Although it is important to control the temperature, potatoes can be stored for several days without losing properties or nutritional values.



Picture 2. One of the main issues with potatoes is the humidity accumulation during its storage

Squash

Squash and pumpkin are products that are widely consumed in the United States. Their storage requirements are similar to potatoes' requirements. Recommended conditions for storage of pumpkins and Winter squashes are 50 to 55 °F.⁷ The Relative Humidity should be 50 to 70%. The limitations on storage are not very restrictive for this type of product, but controlling temperatures is crucial for manipulating pumpkins.



Picture 3. Controlling temperatures is a critical parameter in vegetables like pumpkins

⁷ (Kohli)

Tomatoes

United States is the second largest producer of tomatoes in the World just after China. Tomato's degree of maturity is important for deciding whether selling it for direct consumption or for further processing. According to our research, there is a high demand of Tomatoes in institutions

One of the limitations for harvesting tomatoes in this region is the Temperature. Most references for harvesting tomatoes indicate that the temperatures for tomatoes are 77°F during the day and 50°F during the night. This makes tomatoes a suitable product to be harvested from June through the end of November. This is why, like many other products, tomatoes have to be seasonal products.

Tomatoes are difficult product to manage, since they are fragile and get bruised easily. As we recommended previously the space of the cold storage facilities cannot be very high because of vertical arrangement issues and heat transfer problems. This leads us to think that is preferable to count on horizontal spaces for storing fresh tomatoes.



Picture 4. Tomatoes are delicate and it is not recommended that they be stored vertically

Spinach

It is available during the winter and its nutritional value makes it a good source of vitamins and iron. Packaging fresh spinach is important because they lose nutritional value in less than eight days. This is why cold storage for short periods of time is preferred for processing this type of food. Optimal temperatures for storing spinach vary from 41 to 50°F. It is a delicate product as well, and it is required to process it carefully to avoid putrefaction.



Picture 5. One of the advantages of the spinach is its availability during winter

Internet Platform and Digital Network

In addition to the physical food hub in Douglas County, we recommend that an online “virtual” food hub be utilized as well. Kansas currently has a relatively small virtual food hub. “Ourlocalfoodks.org” acts as an online directory where members can list their agriculture-based businesses and farms. Anyone can view this database, member or not. The directory currently functions as a way for farmers to connect with other farmers, and for businesses, institutions and even individuals to seek out certain products that might be available locally for them to source and use. The online directory of OurLocalFoodKS is currently called “Food Finder,” and functions by letting users conduct a search by zip code, distance, type of business, or specific food product. If a restaurant in downtown Lawrence wanted to find a local farmer to provide squash for his business, he could easily use this search and be able to network with a farmer that grows squash, and ultimately strike a business deal. OurLocalFoodKS and its “food finder” feature were originally created by the Kansas Rural Center through the use of a USDA Specialty Crop Block Grant. It has since been handed over to the Kansas Department of Agriculture for further development (as mentioned below).

OurLocalFoodKS has a lot of potential, but currently lacks an active marketing front, a dedicated updater or team to run it, and some of the more standard features seen on some of the bigger, more nationally-based virtual food hubs. “Food-hub.org” is a great example of large-scale online food hub. It is funded and run by the nonprofit Ecotrust and currently covers California, Oregon, Washington, Idaho, Montana, and Alaska. It has plans to expand east and could eventually reach the Midwest. It has several tiers of membership and extensive resources (including articles and videos) available to its members.

Even though food-hub.org is not a viable option for Douglas County at this time, there is a silver lining. Through a phone interview with Annarose Hart of the Kansas Department of Agriculture, we have learned that OurLocalFoodKS will be transitioned and absorbed in to a larger web platform called “From the Land of Kansas” by 2014. Managed by the Kansas Department of Agriculture, the new site will have a dedicated management team and feature an enhanced and regularly updated new version of the “Food Finder.” The focus will be as much on

the local farms as it is on Kansas food agriculture businesses in general. There will be five levels of membership, with one level being free of cost. Farmers previously apart of OurLocalFoodKS's food finder membership will be invited to sign up for membership on "From the Land of Kansas's" website. Much like before, the new food finder will act as a sort of "Craig'sList", connecting producers with buyers and vice versa. Several target members include: farms, caterers, farmers markets, grocers, institutions, CSAs, nonprofits, processors, and restaurants. Of course, a future Douglas County food hub could benefit immensely from this. In addition to establishing a physical food hub, we recommend that this future "food finder" and subsequent membership to "From the Land of Kansas" be utilized as well. While the Douglas County food hub could create its own online network, we believe that it makes more sense to tap in to this already-existing, established directory. There are currently 1400 people signed up to "From the Land of Kansas's" existing platform. When the new finder is updated and running in 2014, membership and awareness will undoubtedly increase. We recommend that the physical food hub establish a profile and work with the Department of Agriculture of Kansas to best utilize this service.

Supply Chain Optimization Software

In the area of supply chain optimization software, we prefer to use the following IT technology to support local food hub supply chain management, tribridge IT technology.

It's known that most food hubs are decidedly behind the curve technologically. Transactions are usually coordinated through a combination of phone, email, and fax. Everything from scheduling pickups and drop-offs to planning routes is handled in this manner. Managing transactions like this may be feasible for the moment, but it won't work as food hubs expand. Seasonality can have a huge impact on this market, both in terms of predicting demand and production planning. Food production is often impacted by changeovers from fresh-pack and frozen items. Capacity constraints and quality requirements also affect manufacturing. Some companies are consolidating plants and increasingly relying on co-packers. Others are expanding into global markets in search of new sales and local supplies. Many companies are increasing their product portfolios to meet shifting consumer tastes. To effectively manage relationships with more customers and farmers, they'll need more advanced technology. This will range from Internet databases for managing customers' relationships to distribution software to manage logistics.

Efficient ordering processes and systems are fundamental when it comes to ensuring that customer needs are quickly addressed. Competing effectively requires a great deal of flexibility to adapt systems and respond to changing consumer demands and market trends.

Tribridge is an IT services and business that offers experience with a wide range of food industries. From process and planning to cost-effective integrated solutions, its best-of-breed solutions can help succeed by speeding products from suppliers to store shelves, removing waste from operations and meeting the demands of your customers.

Tribridge technology has several benefits:

Monitor Food safety

- Automate product tracking and tracing from the supplier to the retailer
- Implement metrics and tracking for individual warehouses and departments
- Reduce food spoilage and lower inventory costs by delivering demand signals directly from sales and retailers to purchasing

Streamline business processes

- Automate critical business processes, from order capture to inventory replenishment, and reduce wasteful activities
- Deliver real-time business intelligence and alerts on the status of the business to management and customers
- Speed order picking by 2X to 6X with powerful, integrated Automatic Data Collection (ADC) solutions

Enhance responsiveness

- Generate real-time reports and alerts for management and retailers
- Track and easily adapt to changing customer demands
- Coordinate communications when several employees are interacting with a customer across multiple channels
- Enable customer self-service through Web portals

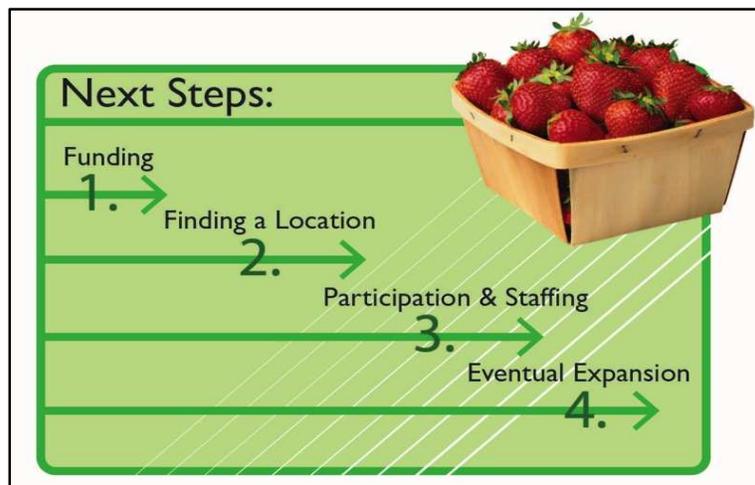
Next Steps

The steps to follow consist of four simple tasks that need to be undertaken in order to be successful. These are:

1. **Funding:** It is necessary to get funding for the start-up. According to our research, USDA provides different types of grants for rural development. Some these grants cover planning, construction, land equipment and marketing. Examples of these grants are listed below:
 - Community Facilities Grants and Loans
 - Business & Industry Guaranteed Loan Programs
 - Rural Business Enterprise Grant
 - Rural Business Opportunity grant
 - Rural Microentrepreneur Assistance Program
2. **Location:** Even when we know that the location for our Food Hub has to be in Douglas County, we need to decide a strategic location in order to benefit as many farmers and

institutions as possible. A strategic location for our Food Hub is essential for succeeding. Some criteria to consider where the location should be are

- Land price
 - Distance to farms
 - Distance to institutions
 - Ease of access to utilities like water, electricity and telecommunications
3. Participation & Staffing: As we suggested previously, staffing and hiring appropriate personnel will allow improving the operations of the Food Hub. Although the organizational structure we suggested is important, it has to be optimized when expansion occurs.
4. Eventual expansion: It is desired to expand just like any other business. This will depend directly on how many investors and owner are willing to participate. It will also depend on how many new owners want to be part of the expansion project.



Picture 6. Following these steps is necessary for accomplishing an eventual expansion

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Appendix

SUPPLIER questions

1. To whom do you currently sell your products?
2. Which products do you produce and why?
3. What are the biggest challenges in selling your products?
4. How much time do you spend on transactions with buyers?
5. Which of your products are easiest to sell in large quantities?
6. What are your transportation needs?
7. Would a central aggregation facility help your business?
8. What aspects of such a facility would be important from your point of view?

DISTRIBUTOR questions

1. How much local food do you buy from producers (if any)?
2. Do you think it is important to buy local food?
3. What are the problems associated with buying food from local farmers?
4. What are your criteria for finding buyers and sellers to work with?
5. Is the method of transactions with buyers and sellers a factor in deciding whether or not you work with them?
6. What methods do you use to find out how to meet customer demand?
7. How do growing seasons affect your business?
8. What do you think the market potential would be for a local food hub?
9. Do you see the demand for local food increasing?

BUYERS Questions

1. Are you interested in buying local food? If yes why? In not why?
2. What kind of food do you need?
3. In what quantities?
4. How often?
5. Do you have special seasonal needs? What? Quantities?
6. Do you buy food at all from local farmers?
7. If not, what prevents you from buying local food?
8. What problem do you have? (prices, transport, quantity)
9. How do you find information about local food production? Any suggestion?