



Building Successful Food Hubs

A Business Planning Guide for Aggregating and Processing Local Food in Illinois

Illinois Department of Commerce and Economic Opportunity
University of Illinois Business Innovation Services
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This planning guide is the collaboration of the Illinois Department of Commerce and Economic Opportunity (DCEO), University of Illinois Business Innovation Services (BIS), Illinois Department of Agriculture (IDOA) and FamilyFarmed.org. Funding for this report was provided through grants from the Illinois Department of Agriculture and Illinois Department of Commerce and Economic Opportunity.

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About DCEO

The Illinois Department of Commerce and Economic Opportunity raises Illinois' profile as a global business destination and nexus of innovation. It provides a foundation for the economic prosperity of all Illinoisans, through the coordination of business recruitment and retention, infrastructure building and job training efforts, and administration of state and federal grant programs. To accelerate job creation and worker readiness moving out of the Great Recession, DCEO has targeted investments to high-growth sectors such as agriculture, healthcare, high-tech, manufacturing, advanced materials, and life sciences. Entrepreneurs in any sector can find assistance at their nearest Illinois Small Business Development Center.

About BIS

For the past 28 years, University of Illinois - BIS has established a powerful track record of success helping to build hundreds of high-performing organizations in manufacturing, agriculture, healthcare, municipalities, and financial services. Our goal is to promote a robust U.S. economy helping organizations compete globally, profitably, and sustainably. Organizations are rapidly discovering that environmental and business performances are intricately linked. Wasteful practices are not sustainable and are not only bad for the environment, they are bad for the bottom line as well. BIS works with organizations to improve both their environmental performance and overall competitiveness by reducing wastefulness associated with energy, food, materials, and water utilization.

About IDOA

The Illinois Department of Agriculture works to regulate various aspects of the agriculture industry in an effort to protect consumers, assist farmers, and foster new agribusinesses throughout the state. Ensuring sound environmental practices are followed, promoting the production and consumption of local foods and food products, and providing up-to-the-minute market reports are also key elements of the Department's mission. The Department promotes and regulates agriculture in a manner that encourages farming and agribusiness while protecting Illinois' consumers and natural resources.

About FamilyFarmed.org

Since 1999, FamilyFarmed.org has been committed to developing markets for local food through trade shows and farmer development and training, as well as political advocacy. FamilyFarmed.org assists the largest regional wholesale buyers in securing local produce—Whole Foods Market, Chipotle Mexican Grill, Sysco, Compass Group, Goodness Greeness, and other large-scale buyers. In collaboration with New Venture Advisors, a business development consultancy, FamilyFarmed.org has expanded into the planning and development of food hubs, produce aggregation businesses that develop new markets for farmers selling into local food wholesale markets. In 2011 FamilyFarmed.org helped to launch three operating food hubs, one in Virginia and two in Illinois.

FamilyFarmed.org also provides technical assistance and training for farmers and published *Wholesale Success: A Farmer's Guide to Selling, Postharvest Handling and Packing Produce*. The 255-page manual includes comprehensive sections on issues such as Building Relationships with Buyers, On-Farm Food Safety and Calculating Return On Investment. It also includes over 100 crop profiles that give specific harvesting, cooling, storage, and packing information on most of the fruits and vegetables grown in the United States. It is the basis for our Wholesale Success farmer workshops that have trained more than 2,000 farmers. In 2011, FamilyFarmed.org partnered with USDA Risk Management Agency to train over 600 farmers in California, Florida, Virginia, Indiana, and New York. FamilyFarmed.org also facilitates "Meet the Buyer" events to link local producers face-to-face with wholesale buyers.

To further support family farmers, FamilyFarmed.org has created the On-Farm Food Safety Project. This pioneering work helps farmers create free on-farm food safety plans. Accessing it at www.onfarmfoodsafety.org, farmers can also learn about best practices in produce food safety.

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WELCOME

Greetings,

Today, a new agricultural movement is sweeping across Illinois. This renewed desire to know where our food comes from is one of the best opportunities for economic development currently available to us, living as we do in one of the most prolific growing regions in the world. Indeed, Illinois' agriculture sector will continue to be a source of new sustainable jobs in and around local foods, if we can help local farmers and food entrepreneurs ramp up to meet this growing demand.

By working together to expand the production, diversity and utilization of local foods, we can simultaneously create jobs, improve the health of our citizens, eliminate food deserts, reduce energy consumption, and decrease environmental impacts. DCEO has initiated projects to address some of the obstacles that prevent a more rapid expansion of the local foods system, applying expertise and funding in workforce training, entrepreneurship, infrastructure and energy. Yet none of our progress would be possible without the ingenuity and drive of many partners, both individual and organizational, in this effort.

Building Successful Food Hubs is one such collaboration; a new resource for communities, businesses, not-for-profits, and others interested in establishing food hubs. There is a real need and opportunity, as many Illinois farmers do not have options available to them when it comes to aggregating, processing, storing, marketing, and distributing their products. This guide includes descriptions of key functions, best practices, and "how-to" strategies for food hub establishment and operation that are based on successful models operating in other regions that have been specifically adapted for application in Illinois.

I sincerely hope that you find this guide to be useful, and wish you the best of luck in your own efforts to bring more local foods to market.

Best Regards,

Warren Ribley
Director Illinois Department of Commerce
and Economic Opportunity



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GLOSSARY

Aggregation – The collection of agricultural products from a number of area farms at a central hub. Delivery to customers from an aggregation hub can be more efficient than point-to-point distribution from farms to customers.

Business Model – The manner in which a company or organization conducts economic activity. This encompasses many aspects of the business: products and services (offering), how they are delivered (operations), the means through which they are sold (revenue model), and how the company is structured (business entity). The Business Model sections in this guide discuss offerings and operations, and additional detail is provided in separate sections titled Business Services, Revenue Models, and Business Entities.

Commercial Kitchen – A kitchen outfitted, certified, and inspected by a health authority for the production or preparation of food for sale to the public.

Community Kitchen – A commercial kitchen made available to local users on a contract or time-share basis.

Contract Processing – Outsourced production by an external party that provides the labor, materials, and sometimes the raw ingredients for a food product. It may be further defined as contract packaging that is the assembly of food products, or contract packing and manufacturing (co-pack, co-man) that is the processing of food products.

Food Hub – USDA defines a food hub as “a business or organization that is actively coordinating the aggregation, distribution, and marketing of source-identified locally or regionally grown food products from primarily small to mid-sized producers.”¹ A food hub may provide the core services of a packing house (see below) and/or aggregate and distribute farm-packed product.

Packing House – A facility that handles raw produce immediately after harvest and prepares it for delivery to customers. The core services of a packing house include cooling, washing, grading, packing, and storage. Additional services may include harvesting, farm pickup, customer delivery, sales, and marketing.

Processing – Altering fresh produce from its raw state by changing its form (e.g. chopping, pureeing), through cooking or baking, or through preservation techniques such as canning, freezing, pickling, and curing.

Wholesale – A distribution channel between producers and consumers comprised of intermediaries, which purchase goods to be sold to other wholesalers or at retail outlets. These intermediaries include distributors, processors, institutions, supermarkets, restaurants, and food service companies. Wholesale is differentiated from direct-to-consumer distribution channels such as farmers markets, community-supported agriculture (CSA) programs, and farmstands where the customer pays the farmer directly.

INTRODUCTION

U.S. FOOD SYSTEMS BACKGROUND

After World War II, fruit and vegetable production changed dramatically in the U.S. Mirroring an overall agricultural trend towards larger-scale and crop specialization, farmers in many parts of the country shifted toward commodity production and away from smaller-scale specialty crop production. In Illinois and many other states, this shift resulted in scaled-back fruit and vegetable production. Part of this was due to stiff competition from large-scale growers in warm weather states that had a competitive advantage. In addition, federal agricultural policies and subsidies also encouraged farmers in Illinois and other Midwestern states to move towards grain production.

This shift in scale dramatically changed the agriculture and food supply chain. Many of the packinghouses that served produce growers went out of business

and severely curtailed the markets for smaller-scale vegetable and fruit producers. Without access to appropriately-scaled post-harvest handling, processing, and distribution, growers slowly moved away from diversified fresh market crops, resulting in a diminished supply of local and regional produce for large markets like Chicago.

CURRENT INDUSTRY STRUCTURE

These trends transformed the United States' agriculture and food industry. Now almost every step in the current value chain is driven by national, large-scale businesses. Value chains are systems through which products flow from producers to consumers, with each link adding value along the way. They include upstream players, which are closer to the production end, and downstream players that are closer to the consumer end.

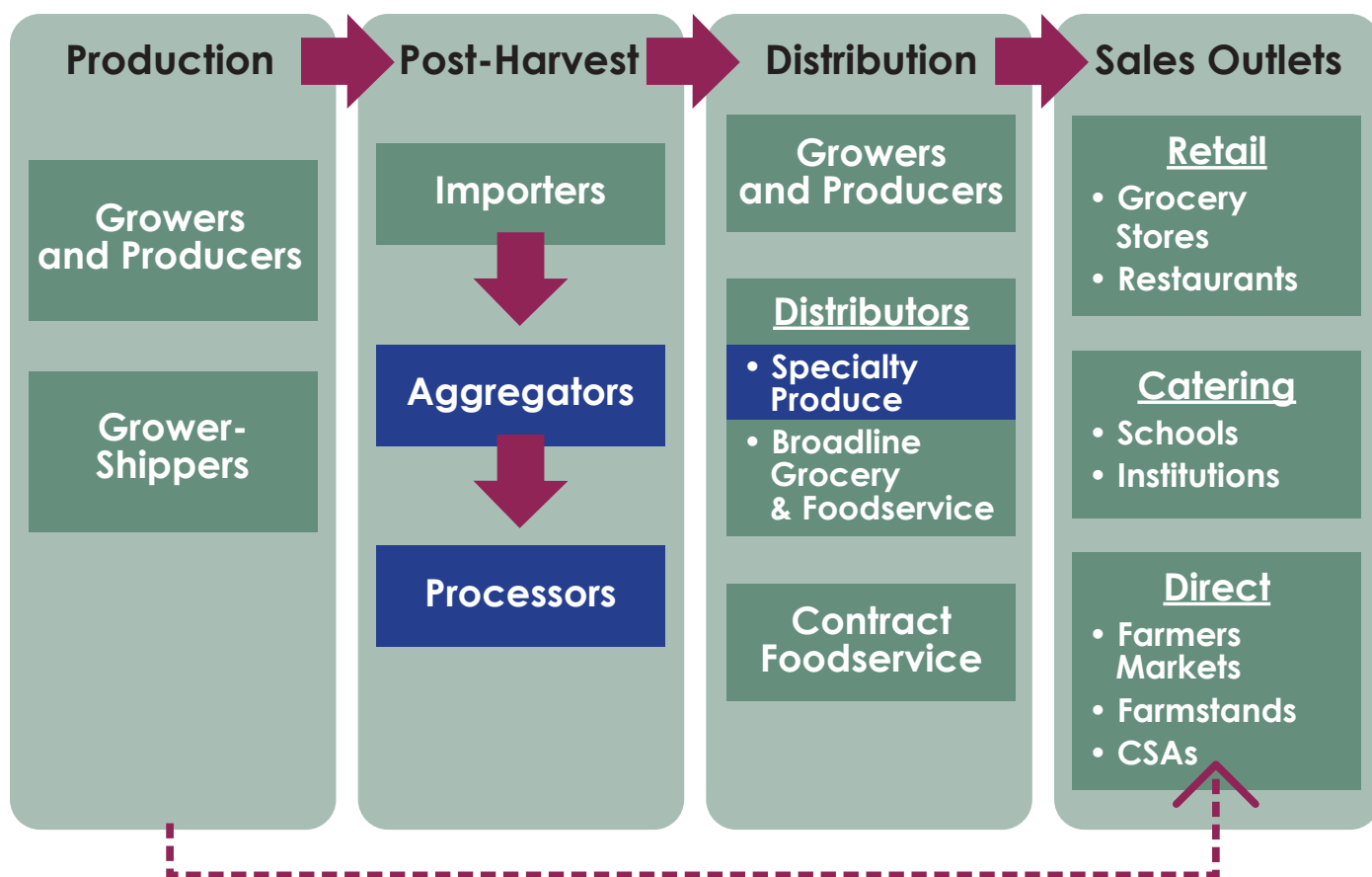


Figure 1: U.S. Food System Value Chain

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Production: Just 3% of the country’s farmland is used to harvest fruit and vegetable crops, also called specialty crops. The remaining 97% is in commodity crops such as corn (29%), soybeans (29%) and wheat (22%).² These crops require large land areas and investments in capital equipment to grow profitably. As of the most recent agricultural census, just 1% of farms represent 35% of all land on farms.³

Post-Harvest: After fresh produce is harvested, it is either sold fresh or processed. Fresh produce is cooled, packed, shipped, and sold to distributors, to wholesalers, or to end consumers through direct channels such as farmers markets. If grown for processing, produce is delivered to a processing facility where it is either preserved or transformed to be used as an ingredient for a food product. Currently, there are very few post-harvest aggregators and processing facilities in Illinois whose size and location can successfully support small- to medium-sized growers.

Distribution: The vast majority, 80%, of wholesale distribution is channeled through self-distributing retailers (e.g., Kroger), distributors (e.g., Sysco and US Foods), and contract foodservice suppliers (e.g.,

Compass Group, Aramark, and Sodexo). Due to consolidation in the grocery and foodservice industries, these are very large players with significant buying power. The remaining 20% of wholesale distribution is run by food brokers, grower agents, and auctions—entities that facilitate sales and marketing without ever taking direct ownership of produce.⁴

Sales Outlets: Wholesale channels, or traditional grocery, and foodservice outlets, constitute 99% of food sales, and the food-at-home sector (grocery stores and home delivery) and food-away-from-home sector (restaurants, schools, and institutions) are roughly equivalent.⁵ Direct-to-consumer channels, which include farm stands, farmers markets and community supported agriculture (CSA) ventures, account for less than 1% of produce purchases in the United States, but are growing rapidly.⁶

EMERGING ROLE OF FOOD HUBS

Food hubs have emerged as critical players in establishing and building strong local and regional food systems. Food hubs can provide efficient local and regional value chain linkages at a vastly reduced scale compared to leading industry players. They also create



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opportunities for small to mid-sized producers to reach wholesale markets (that critical 99% of all food sales).

Food hubs can serve as aggregator, processor, and distributor, as highlighted in Figure 1 (page 7), but not all food hubs play every role. Establishing the value chain through aggregation is often the first step in food hub development, and distribution and processing services may be added depending on local needs.

As depicted in Figure 2 below, food hubs will offer products and services to customers positioned both upstream and downstream in the value chain. Aggregators will sell services to growers and producers as well as products to processors, buyers, and consumers. Processors will sell services to growers, producers, aggregators, and small food businesses, who in turn will sell products to buyers and consumers. The processor may also sell products directly to customers.

ECONOMIC AND SOCIAL OPPORTUNITY

Demand for local food is strong and increasing—among end consumers as well as wholesale buyers. According to Mintel, a market research firm that studies consumer trends, “Local procurement is a fast-growing category with tremendous promise, and marketers that are aware of the many dynamics at play can generate significant revenues.”⁷ Mintel found that one out of six Americans will go out of their way to buy local products. Locally sourced fruits and vegetables was the product category with greatest consumer interest, with 31% purchasing this product category from local sources at least once per week.⁸

These trends are mirrored in the foodservice industry. Chefs surveyed by the National Restaurant Association ranked locally grown produce as the #1 menu trend of 2010.⁹ According to National Restaurant Association research, “89 percent of fine-dining operators serve locally sourced items, and nine in 10 believe demand for locally sourced items will grow in their segment in the future. Close to three in 10 quick-service operators serve locally sourced items now and nearly half believe these items will grow more popular in their segment in the future. Seventy percent of adults say they are more likely to visit a restaurant that offers locally produced food items.”¹⁰

Without access to appropriately-scaled post-harvest handling, processing, and distribution, growers slowly moved away from diversified fresh market crops resulting in a diminished supply of local and regional produce for large markets like Chicago

Wholesale buyers and distributors have a similarly growing interest in local produce to satisfy the needs of their customers. Further, the high cost of shipping produce from California and beyond has made local and

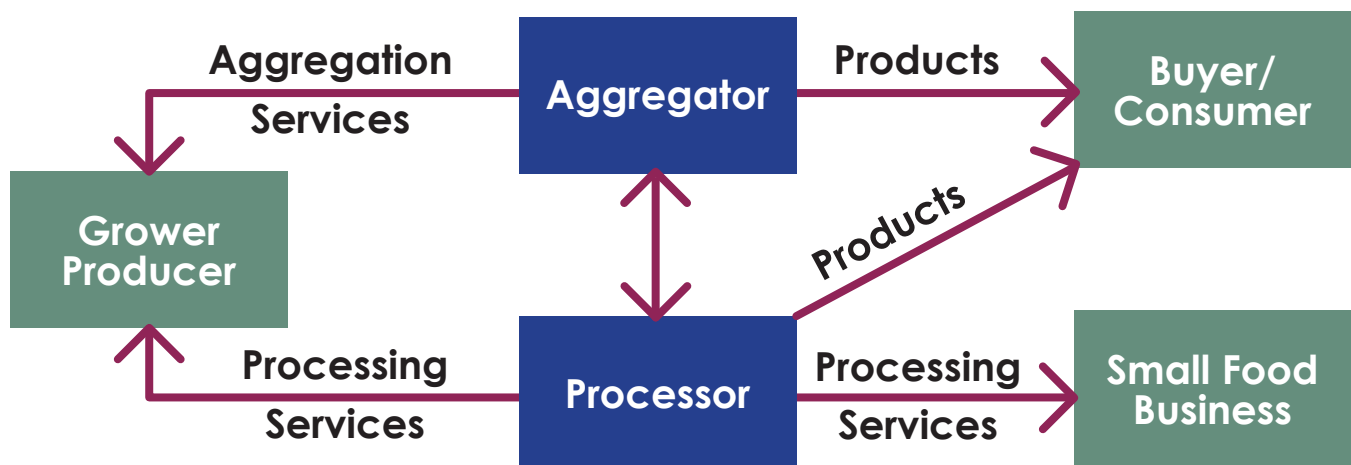


Figure 2: Food Hub Customers

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regional procurement a cost-efficient option. A survey of just 14 potential buyers in Illinois—including a mixture of institutional buyers, grocery stores, and wholesale sellers—revealed that they would be interested in spending more than \$23 million on locally grown food if the supply were available.¹¹ A recent buyer survey in southern Wisconsin identified \$22 million in demand for local produce if it were available.¹²

Demand for local food is strong and increasing—among end consumers as well as wholesale buyers

These figures are a small representation of the potential demand. Illinois consumers spend approximately \$14 billion annually on fruits and vegetables.¹³ Adjusting for tropical varieties, the region is capable of producing 85% of this volume,¹⁴ yet approximately 6% of that expenditure is currently produced in the region.¹⁵ Using Mintel market segmentation as a rough guide, 90% of consumers would buy local produce if it were conveniently available,¹⁶ so the potential unmet need is approximately \$10 billion (\$7 billion in wholesale terms). Currently, the majority of the fruits and vegetables consumed are grown in California, Florida, Mexico, and beyond. This means that billions of dollars are leaving the state as they go to powerful players across the supply chain.

Building the infrastructure needed to support a regional food system would not only help successfully meet this rapidly growing demand for local food, but would also bring about many economic, health, and environmental benefits to the state and its communities. Specifically:

- **Economic Stimulus:** Studies indicate that money spent on locally-grown food creates a multiplier effect, internally circulating the same dollars up to 1.4-2.6 times within the local economy.¹⁷ With \$10 billion in unmet local demand, this could accrue to \$14-29 billion in increased economic activity within the state.
- **Job Creation:** Food hubs create jobs from seasonal production to management. Additionally, as food hubs encourage growers to convert acres from commodity to specialty crops, additional farm labor will be needed for manual harvesting. According to a recent University of WI-Madison study, 2.2 jobs are created for every \$100,000 in local food sales.¹⁸
- **Increased Farmer Income:** Growers could benefit from the significantly higher market value of fresh market crops by converting acreage from commodity crops.¹⁹ Sales per acre for fresh market vegetables range from \$5,000–10,000 vs. \$200–1,100 for commodity crops. Additionally, by participating in value-added production, growers and producers can add a high-margin revenue stream to their farm businesses.
- **Environmental Impact:** On average, each fruit or vegetable purchased in the Midwest travels 1,500 miles from farm to plate.²⁰ Illinois has the farmland

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capacity to replace a large percentage of out-of-state produce with locally grown fruits and vegetables, particularly in peak months. If done efficiently, this could eliminate thousands of tractor-trailer miles from the distribution chain, resulting in reduced carbon monoxide emissions.

- **Improved Health and Food Access:** Fresh produce can help address the pervasive and growing concerns of obesity, hypertension and many other diet-related health issues and diseases that are diminishing personal health and increasing health care costs.

FOOD HUB PLANNING GUIDE OVERVIEW

Content and Organization: This guide was informed by a number of food hub development projects led by FamilyFarmed.org from 2009-2011. In guiding these businesses through their development and launch, FamilyFarmed.org identified consistent, overarching best practices that can assist development efforts across the state. *Building Successful Food Hubs, A Business Planning Guide for Aggregating and Processing Local Food in Illinois* contains these experience-based insights as well as information collected through secondary research.

The content is presented in three parts covering 1) aggregation centers, 2) processing centers, and 3) the business development process. Aggregation and processing are two of the three primary functions of food hubs. Distribution is the third function, and is discussed as an additional service offering for aggregation and processing centers. The first two parts include the range of business models, services, regulations, revenue models and business entities that entrepreneurs can consider when starting an aggregation or processing business. The last part offers guidance on how to develop a food hub business from concept through launch.

Intended Audience: A reader with some business experience and familiarity with the food and agriculture industries will find this guide most useful. It is also geared to businesses that serve wholesale customers due to their importance in maximizing the reach of local food systems. The University of Illinois has published a guide for businesses selling directly to consumers entitled *Illinois Direct Farm Business: A guide to laws affecting direct farm business in Illinois*. The guide can be downloaded free of charge at www.directfarmbusiness.org.

Scope: This guide is most comprehensive in its discussion of food hubs that handle fresh fruit and vegetables. Due to the complex regulatory environment surrounding handling and processing of proteins (eggs, dairy, meat), the guide provides general guidelines and points to other resources for further detail. Some are mentioned below, and others are cited throughout the guide.

- For more information about meat and poultry processing, please visit the Illinois Department of Agriculture Division of Food Safety and Animal Protection, Bureau of Meat & Poultry website at www.agr.state.il.us/AnimalHW/MP/index.html. The Bureau can also be reached by telephone at (217) 782-6684 or (217) 524-6858.
- Dairy processing is regulated by the Illinois Department of Public Health, Office of Health Protection/Division of Food, Drugs and Dairies. An outline of their requirements can be found at <http://tinyurl.com/3pf5n9j> and the office can be reached by telephone at (217) 782-7532.
- University of Illinois Business Innovation Services will soon launch a very useful tool called iSupply. It is designed to connect producers with general conditions for entering various market channels, including retail, restaurants, wholesale, processors, institutions, and direct sales. In addition, iSupply provides producers with resources that provide specific requirements such as compliance, quality, transportation, storage, quantity, supply, timing, invoicing, safety, pricing, insurance, supply, and packaging. Visit www.isupply.illinois.edu.
- MarketMaker was originally developed as an online marketing resource to give Illinois farmers greater access to regional markets by linking them with processors, retailers, consumers, and other food supply chain participants. Since its inception, it has expanded tremendously and is currently one of the most extensive collections of searchable food industry related data in the country, containing nearly 500,000 profiles of farmers and other food-related enterprises in Arkansas, Colorado, District of Columbia, Florida, Georgia, Illinois, Indiana, Iowa, Kentucky, Louisiana, Michigan, Mississippi, Nebraska, New York, Ohio, Pennsylvania, and South Carolina. Visit www.marketmaker.uiuc.edu

Part One: Aggregation Centers

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PART ONE: AGGREGATION CENTERS

The aggregation services that food hubs can provide is a focus for agricultural development because local demand at the wholesale level cannot be met without the engagement of small to mid-sized growers. These growers face a number of challenges:

- Quantity, consistency, and variety of produce grown are often insufficient to motivate a buyer to purchase from a single farm;
- Investments in the certifications, cooling, and storage infrastructure, liability insurance, and safety protocols needed for selling wholesale are extensive; and
- Many growers do not have the time, interest, or skill set to successfully manage a wholesale sales and marketing strategy.

These requirements are difficult for small to mid-sized farmers to meet. However, multiple farms can come together in a number of different produce aggregation business models and more easily address these challenges.

1.0 BUSINESS MODELS

The following sections describe three distinct business models from which a food hub can offer aggregation services and outline their differences, strengths, and challenges.

AGGREGATION FACILITY

Aggregation centers are facilities that bring together products from any number of local growers, usually within a radius of 100 miles, but sometimes within a few hundred miles. By aggregating and storing produce across multiple farms, the aggregation center becomes an attractive supplier for wholesalers who purchase in large quantities. These centers may offer a variety of different services including cooling, cold storage, marketing, and distribution. However, they do not offer the services traditionally associated with packing houses such as washing, grading, sorting, packing, or re-packing. Produce delivered to the aggregation facility is already packed with farm-specific branding and labeling.

Part One: Aggregation Centers

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PACKING HOUSE

Packing houses are facilities that receive unpacked fruits and vegetables from local growers to be packed and sold to wholesale customers. Packing house business models vary based on the needs of the grower community, wholesale buyers, and goals of the packing house owner. Potential services include cooling, washing, sorting, grading, packaging, labeling, cooled storage, processing, sales, and distribution. Packing houses and aggregation centers can vary greatly in size, from a facility serving hundreds of farmers with tens of thousands of square feet of packing and cooling space, to a single farmer serving fewer than ten local farmers from a converted farm shed. Both play important roles in a vibrant local food system.

WEB-BASED AGGREGATOR

Aggregation can also be accomplished without a central facility. A number of ventures have created virtual aggregation centers that connect growers and customers through an online marketplace. These serve smaller-scale customers, such as individual restaurants or households. Some of these technology solutions are producer-driven, where a single grower or a group of growers post their available products in a given week and buyers can place direct orders, while others are run by entrepreneurs outside the grower community. These sites either regularly drop off a delivery to a remote collection point or manage direct delivery services. Creating an online marketplace could be a viable first step toward creating a brick-and-mortar aggregation center. An example of one such web-based aggregator is Local Dirt, highlighted under Profiles in section 1.5.

1.1 BUSINESS SERVICES

The following section outlines the core and ancillary services of food hubs, describes the importance of these functions in helping producers be successful, and details some of the requirements with specific guidance for startups and established companies.

CORE SERVICES

The core services offered by a food hub differ by business model. A packing house typically will provide a complete range of services that cause a product to move from the field to the customer. Some packing houses may even offer harvesting services. Aggregation facilities and web-based aggregators do not handle the product to the same degree, but common to all models is aggregation, sales and marketing, and distribution (although this

may be outsourced). The following table indicates which aggregation business models are likely to engage in these services and functions.

Service/Function	Aggregation Facility	Packing House	Web-Based Aggregator
Aggregation	✓	✓	✓
Washing		✓	
Cooling	✓	✓	
Grading, Sorting & Packing		✓	
Re-packing		✓	
Sales and marketing	✓	✓	✓
Distribution	✓	✓	✓

Familyfarmed.org's manual **Wholesale Success: A Farmer's Guide to Selling, Postharvest Handling, and Packing Produce** is a good resource for understanding the best methods for cooling, grading, and packing each crop to the specifications of the wholesale produce industry. For more information visit www.familyfarmed.org/wholesale-success.



AGGREGATION

As noted in 1.0 above, aggregation is bringing together products from multiple producers in a given area to generate the volume required to cost-effectively sell to wholesalers and/or end consumers. Aggregation is core to all models, whether done at a central facility or at a remote collection point.

By aggregating and storing produce across multiple farms, the aggregation center becomes an attractive supplier for wholesalers who purchase in large quantities

WASHING

Many large-scale customers require additional washing of products after on-farm washing and prior to product packaging. The first step to ensuring product will be properly cleaned is to inspect the produce and remove any contaminants, such as decomposing product or any unwanted debris. Washing requirements vary by product and by wholesaler.

Requirements:

- Wash water quality must comply with federal, state, and local requirements, and testing must be completed accordingly depending on the water source used.
- When used in a food hub, water quality changes as the water is used. Maintaining the quality of water should be considered and frequently monitored to ensure that the water and any safe disinfectants remain in a condition suitable for minimizing microbial contamination.²¹



- Washing requirements are dictated by specific buyer needs, the crop type, and growing method.
 - Given the higher risk of contamination, leafy greens have very specific requirements. In some instances, buyers may require the use of chlorine baths or ozone treatments to disinfect wash water.
 - Wash water temperature should also be monitored. For example, some commodities such as tomatoes, celery, and apples must be washed in water that is warmer than that of other produce.

COOLING

Immediately removing field heat and maintaining a cold temperature through storage and distribution are the most important steps to extend produce shelf life and maintain quality. Cooling processes that quickly bring internal temperatures down to ideal levels and multi-zone cooler facilities are critical to the success of food hubs. When properly cooled after harvesting, the chances of product softening, wilting, or becoming too ripe are significantly decreased. Cooling can also inhibit the growth of molds and bacteria, making the product safer for consumption.

There are different processes of cooling a food hub can employ. North Carolina State University has an excellent resource tool that explains in great detail the benefits of cooling, as well as several different methods for doing so. This is available at: www.ces.ncsu.edu/depts/hort/hil/hil-804.html. Below are some common produce-cooling methods:

- **Room Cooling:** Room cooling is a slow method of cooling where product is placed in an insulated refrigerated room. This method works with almost any type of produce.
- **Forced-Air Cooling:** Forced-air cooling is extremely effective for packaged produce. In this method, product is placed in a refrigerated room equipped with large fans, enabling the product to be cooled 75% to 90% faster than room cooling. Fans can be built into refrigerated systems, or there are portable forced-air pallet systems, which is a cost-effective solution if food hub is cooling and storing small quantities. Air should not be blown directly at storage containers, but instead pointed so that the air is pulled over and through the boxes of produce.
- **Hydrocooling:** Using water's ability to rapidly transport heat away from the produce, hydrocooling is five times faster than cooling with air-based systems

(like room and forced-air cooling). It is, however, not as energy efficient and should only be used on products that are not damaged if submerged in water. Systems use water cooled by either refrigeration or ice that is dispersed on the product as it moves along a conveyor belt. If this cool water is re-circulated in the system, chlorine is an effective product to use to prevent disease problems. It is best suited for leafy greens, cold crops, and stone fruit.

- **Top or Liquid Icing:** Packing produce cases with ice is a preferred option for some packages and products that are not easily cooled using forced-air. Most commonly used on broccoli and sweet corn, a pound of ice can decrease three pounds of product from 85° to 40°F.

Cooling requirements are dictated by the produce mix, size of operation, existing infrastructure of growers supplying the center, and the average time between harvest and customer pick-up/delivery. Because cooling equipment can be quite costly, this guide has distinguished the requirements for beginning or mid-scale aggregation ventures from those that are established or large-scale ventures. Dispersing equipment investments over time, based on scale, is a sound business strategy for food hubs.

Immediately removing field heat and maintaining a cold temperature through storage and distribution are the most important steps to extend produce shelf life and maintain quality

Requirements:

- Early stage/mid-scale ventures: To avoid the high investment costs of cooling equipment, food hubs might only work with growers who can cool their produce before delivery. If on-site cooling is deemed necessary for a food hub, then cost-effective methods can be used, such as room cooling, affordable portable forced-air systems or potentially smaller scale hydrocooling systems.
- Established/large-scale ventures: As volume and crop diversity increases, or as more discerning customers

are brought on, a food hub may want to invest in a more sophisticated hydro-cooler, built in forced-air system, or ice packing equipment.

GRADING, SORTING, & PACKING

USDA's Agricultural Marketing Service maintains a complete list of grading standards for fruits and vegetables, which categorize produce based on color, weight, size, damage, quality and general appearance. Most produce has a Number 1/Fancy grade to be sold whole and a Number 2/Commercial grade to be processed. Facilities must ensure their produce meets the grading standards required by their buyers. Similar to grading, there are industry specifications regarding the packing of produce such as amount per case, size of case, and sometimes the type of packing material. Regardless of the size of operation, effective packing is critical. Consistent quality packing is of utmost importance to buyers, and most will send back product if any pallets are poorly packed.

Requirements:

- Food hubs may elect to not grade, sort, or pack produce in-house, yet their success still depends on the quality of produce sold through their facility. These hubs should work with supplying growers to ensure packed produce meets all buyer standards.
- Select appropriate containers that do not break down when exposed to water, allow for ventilation, and can be accommodated in customer storage facilities and displays.
- Ensure produce is not packed too tightly or loosely.

Similar to cooling, food hubs may want to choose a grading, sorting, and packing strategy that is appropriate to the scale of their operation.

- Early stage/mid-scale ventures: Early on, food hubs may only seek out producers who can field grade and pack while they are harvesting. This is often the most cost-efficient approach for all players. Alternatively, produce can be hand-sorted at the facility by a team of graders on sanitary (preferably stainless steel) tables placed close to the receiving and washing area.
- Established/large-scale ventures: At appropriate volumes, mechanical grading and packing equipment may be worth the investment. These vary in size, price, level of produce specificity, and the amount of manpower required to operate.

RE-PACKING

If buyers have specific packing requirements, facilities may have to re-pack received product to meet these needs. For example, customers may request a case of mixed vegetables, orders smaller or larger than industry standard, or shrink-wrapped tray packs with their company name. A food hub may also need to re-pack if it is working with smaller producers and requires commingling of product to reach desired order size. In addition to meeting the size or quantity needs of the buyer, re-packing of product may be necessary due to produce degradation during transportation or storage in order to meet buyer standards.

STORAGE

Storage can be a successful strategy for seasonal extension and off-season revenue. Processing methods such as canning, dehydration and chopping/freezing are the most enduring means of preserving perishable goods, but under the right conditions, produce can be stored for many months for fresh consumption. Controlled-temperature storage, dependent on the temperature needs of the product, can be offered as a rental service to producers who wish to sell certain crops and products throughout the winter but lack temperature-controlled facilities on their farm.

Common storage crops include root vegetables such as onions, garlic, beets, carrots, and potatoes, and hard fruit such as apples and pears. Under the right conditions, these crops can remain saleable for six months or more. The proper storage temperature and humidity varies by crop, and FamilyFarmed.org's Wholesale Success guide contains storage specifications for each type of produce. Most crops are stored at approximately 32°F, just above the freezing point. It is critical to keep the temperature constant, as a change in temperature could cause chilling injury to the product. The ideal relative

humidity is generally above 90%, but some crops prefer drier conditions. Storage below the ideal range can result in extra moisture loss and above range can accelerate the growth of unwanted bacteria and/or mold.²²

Storing proteins such as dairy, eggs, and meat is another method of diversifying income and using cooler capacity off-season. See guidelines for storing proteins under Regulatory Environment in section 1.2.

SALES AND MARKETING

Sales and marketing is one of the most important functions of a facility, as it addresses the core challenge of a local food system—creating market access for growers while meeting market demand for buyers. Successful strategies attract a diverse set of growers and buyers, negotiate appropriate price structures, and coordinate the type, quantity, and timing of deliveries through pre-season crop planning.

Requirements:

- Early stage/mid-scale ventures: One dedicated marketing person will manage grower relationships and customer sales in a combined buyer/sales role.
- Established/large-scale ventures: One person or team in charge of managing producer relationships and another person or team in charge of sales.

DISTRIBUTION

Once aggregated, produce needs to be delivered in a manner that maintains the cold chain- the control of temperature that protects product quality. The food hub may offer distribution service to a customer location, or the customer may send a truck to the food hub for pick up. In either case, the product will be temperature-checked at the time goods are turned over to customers. Some customers require the use of temperature indicators to monitor temperature exposure throughout



the supply chain. These strips permanently change color if the desired temperature has not been maintained. The customer may reject the shipment if there is a disruption in the cold chain.

Requirements:

- For most produce, deliveries must be made with refrigerated trucks that can maintain produce temperature.
- If the facility owns refrigerated trucks, a food hub can run its own distribution operation as a separate profit center.
- If not, the food hub should work with customers who can pick up orders themselves or partner with food distribution companies who could potentially share or sell freight space.

ANCILLARY SERVICES

Beyond the basic aggregation services that can be offered by a food hub, there are other ancillary functions that hubs can provide.

Grower Technical Assistance: A food hub can also act as a central facility providing knowledge and technical support to its grower community. Ongoing producer education can help ensure quality products, successful crop planning and proper packing and grading. The more producers are educated about growing methods, food safety, and product demand, the better the quality of product a food hub can offer buyers. Food hubs are also well positioned to help growers adapt to upcoming food safety changes, such as adjustments in Good Agricultural Practices (GAPs) certifications. For more on GAPs, see section 1.2

Harvesting: Food hubs can provide dedicated harvesting teams to growers who do not have the necessary labor. This is particularly helpful for growers just moving into produce production, given the increased labor demands of harvesting produce versus commodity crops. Producers pay the food hub directly for these services.

Private Labeling: Some food hubs develop a brand for products packed and sold through their facility. If it can cultivate a strong brand with high buyer and consumer recognition, the food hub may be better able to maintain high demand and ultimately charge a price premium. Likewise, some buyers will request packed product with their own company label on it. Many farmers brand their products with their specific farm

name, which is highly valued by consumers, so any private labeling strategy should endeavor to keep farm identification on the label as well.

A food hub can also act as a central facility providing knowledge and technical support to its grower community. Ongoing producer education can help ensure quality products, successful crop planning, and proper packing and grading

Merchandising: Many food hubs have a merchandising strategy to set them apart from the rest of the produce industry. This can range from creative packaging and colorful cartons, prominent signage in retail shops, to informational or promotional stands next to their produce displays. Additionally, facilities can make site visits to customers' locations to monitor the quality of their produce being sold, ensuring it is moved from the cooler to the floor in a timely manner, and therefore evaluate how effectively the customer is handling their product. These visits also enable facilities to assess the effectiveness of their signage and branding strategies.

Financing: A food hub's success relies on the producers they are working with, as they cannot scale up sales without reliable and diverse supply. By providing financing options, facilities can encourage existing producers to scale up and help aspiring produce growers to convert commodity acreage to fresh produce. Financing support may include providing short-term market-based loans or helping producers access government grants or donations. Additionally, facilities themselves may invest in a network of satellite cooling, packing, and storing centers that are located close to clusters of growers, enabling their products to be more successfully handled after harvest.

Processing: A food hub can offer processing to satisfy the needs of customers who wish to purchase fresh cut and/or frozen produce. This is common among institutional buyers. See Part Two of this guide for more information.

1.2 REGULATORY ENVIRONMENT

The regulatory environment surrounding food involves many players; each assigned to work with a specific process or product. Currently, the FDA regulates most food handling, using a uniform food code enforced by local or county health departments. The USDA also oversees most of the meat and poultry slaughter and processing in the U.S. The recent 2011 Food Safety Modernization Act (FSMA) expanded the FDA's power to regulate farm and local food production and handling. Operations that have less than \$500,000 in annual sales are generally exempt from this legislation, unless there is a specific food safety incident or recall whereby the operation is subject to FDA and local or county health department inspections.

In 2002, the Bioterrorism Act mandated all food facilities—not including restaurants, retail stores, farmers markets and farms—register with the FDA. Farms that are conducting their own post-harvest handling are exempt from registering with the FDA, but if they are providing these services for products from other farms, they must register. Because food hubs aggregate product from multiple farms and most do not operate as a retail store, it is suggested that food hubs register themselves with the FDA. This process can be done by fax, mail, or online: www.fda.gov/Food/GuidanceComplianceRegulatoryInformation/RegistrationofFoodFacilities/OnlineRegistration/default.htm

Much of the regulatory environment surrounding aggregation is focused on supplying farms

Besides registering a facility with the FDA, food hubs are not currently government-mandated to have certain food safety certifications, although this is now changing. Many customers, however, have specific requirements for the food they purchase, making it in the food hub's best interest to comply with the needs of their customers. This practice will also keep the food hub current with food safety regulations should they later be mandated, and transfer knowledge to growers. Planning and building the facility to meet these regulations will reduce the likelihood of needing structural retrofitting later.

Much of the regulatory environment surrounding aggregation is focused on supplying farms. A best practice for farms is to write an on-farm food safety plan that documents procedures to minimize food-borne illness and contamination risks. Each plan is unique to the specific farm and is one of the first steps in a farm acquiring GAP/GHP certification, which is described in the next section. The food hub may be cited in a farm's plan if their products are being cooled, packed, washed and stored by the food hub's packing facility.

The following sections provide an overview of common certifications and describe the proper procedures for segregating organic and conventionally grown produce as well as storing proteins.

FOOD SAFETY CERTIFICATION

The level of certification a producer or food hub chooses is largely voluntary, however buyer requirements will often dictate a specific level. A farm or food hub may realize a competitive advantage in the wholesale market when opting for food safety certifications, as this is becoming more of a standard for wholesale-level sales. The USDA offers the Good Agricultural Practices and Good Handling Practices (GAPs & GHP) audit verification program, which focuses on the practices used to produce, handle, and store fresh fruits and vegetables with the utmost safety precautions to help minimize microbial food safety hazards. Certification options vary by audit frequency, Global Food Safety Initiative (GFSI) recognition, and other stipulations. Additionally, a food hub may also elect to participate in a HACCP (Hazard Analysis and Critical Control Points) program, to certify best practices for processed foods, meat, and dairy.

Good Agricultural Practices (GAPs)

GAPs are any agricultural management practice or operational procedure that aims to minimize contamination of fruits and vegetables on the farm or in the packing house. GAP recommendations were issued as a set of guidelines from the FDA in the 1998 document "Guidance for Industry: Guide to Minimize Microbial Food Safety Hazards for Fresh Fruits and Vegetables" (www.fda.gov/Food/GuidanceComplianceRegulatoryInformation/GuidanceDocuments/ProduceandPlanProducts/ucm064574.htm).

Adopting and implementing GAPs is not only a wise business practice that may increase a producer or food hub's entry into wholesale markets, but it also assures consumers they are purchasing a product from a clean,

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well-managed environment. In addition to adopting and implementing GAPs as a wise business practice, operations can become GAP food safety certified.

First, producers should become familiar with the procedural recommendations as outlined in the critical risk areas of General Requirements, Worker Health and Hygiene, Previous Land Use and Site Selection, Agricultural Water, Agricultural Chemical, Animals and Pest Control, Soil Amendments and Manure, Field Harvesting, Transportation from the Field to the Packing House, Packing House Activities, and Final Product Transport. For each risk area, an operation will need to ensure their internal records are updated and that all employees are trained on relevant topics.

Next, producers must write an on-farm food safety plan documenting the specific processes and safety procedures taken for each activity on their farm. Producers then need to put in place a system for accurately documenting the date and field where each container of produce was harvested. This is done with a number code containing the date, farm number, field, and sometimes row number. Complying with this procedure leads to greater traceability within the production and distribution chain because the food can then be traced back to the precise farm origin in the event of a food safety incident. After this system is established, it should be tested by a series of “mock audits” in which the producer recalls its product from a customer to test the accuracy of its records. In addition to traceability, GAPs also recommend cleanliness and hygiene guidelines—critical preventative steps to minimize microbial hazards at their source. These guidelines include adequate provision of toilets for workers with clearly marked hand-washing stations and covered paper towels.

After a food safety plan is written and implemented, and all employees are trained on the plan, the producer schedules a USDA or third-party auditor to perform an on-farm verification. The auditor will observe that the written plan is or is not being followed. The farm can pass or fail the food safety audit and will usually be certified for a one-year period, with annual re-certifications thereafter.

Again, developing and implementing a food safety plan is the first step toward minimizing the risk of produce contamination during pre-harvest and post-harvest activities, and it will prepare a farmer for a food safety audit. FamilyFarmed.org has developed the On-Farm

Food Safety Project, a free, easy-to-use online tool that helps produce farmers develop a customized food safety plan based on user input. The tool is designed for use by small and mid-scale fruit and vegetable growers and provides a full-set of record keeping tools to document their food safety program and to provide training to employees. For more information, visit www.onfarmfoodsafety.org.



Good Handling Practices (GHPs)

GHPs examine the post-harvest handling of produce and, like GAPs, apply food safety oversight to each process at a farm and its packing facility. The following items are basic steps to implementing GHPs:

- A food safety plan must be written to document the safety procedures the producer and packer will apply for all handling of farm products.
- Products that are transported off-site for packing must be completely protected from contamination during transport and stored properly upon arrival at the packing facility.
- Any washing and packing lines must use water that has been tested to meet EPA microbial requirements.
- Worker health and hygiene are extremely important in the packing house and employees must understand the policies regarding hair and/or beard nets, as well as the wearing of jewelry. Employees must take breaks and eat only in designated areas.

- Packing facilities must be enclosed to exclude rodents and pests, and proper housekeeping should be maintained to ensure that the facility is up to cleanliness standards.
- Each product that comes into the facility must be labeled and documented appropriately to allow for traceability.²³

Hazard Analysis Critical Control Point (HACCP)

HACCP plans are the benchmark for food safety programs throughout supply chains and they certify that a particular food manufacturing or packing site is safe to handle products for human consumption. These plans are very common throughout the food industry, primarily within food processing, and wholesale buyers are increasingly requiring food hubs to have HACCP plans. HACCP plans identify the potential risks and explain the prevention measures a facility will take to ensure those hazards do not damage the and safety of its products.²⁴

Food hubs will need to understand the food safety plans of their producers and know that a HACCP plan can only be put into effect once the food hub has implemented Good Agricultural Practices, Good Manufacturing Practices, Standard Operating Procedures, and Standard Sanitary Operating Procedures (visit www.fda.gov/Food/ for more information). Once the HACCP plan is written, the plan must be implemented, meaning that all control points must be monitored, all corrective actions must be made when a deviation occurs, and records kept on file. HACCP plans can be intimidating to write and it may be beneficial for managers to take an introductory HACCP plan training course offered through an agricultural extension office. The HACCP coordinator for Illinois is Dr. Floyd McKeith, who be contacted at mcketh@uiuc.edu or (217) 333-1684. Food hubs may also want to hire a HACCP specialist who has the appropriate education, training, and experience in writing plans.

The FDA's HACCP manual is available online at www.cfsan.fda.gov/~dms/hret2toc.html.

CERTIFIED ORGANIC

Food that is grown under the USDA organic certification label must be kept physically separate from conventionally grown food within the Food Hub. Packing houses must have their handling practices examined by a certifier and be able to demonstrate that the facility has a formal process for not commingling organic and conventional product.²⁵

PROTEIN HANDLING AND STORAGE

It is important to know where protein products such as eggs, dairy, and meat will be distributed, as the final origin can affect whether the state or federal government will provide oversight. The FDA and USDA regulate products that are transported across state lines. The state provides regulatory oversight of products that remain within its borders. In Illinois, the guidelines of state agencies are similar to those set forth by the federal government. In addition to monitoring distribution locations, county health inspectors will also check whether or not meat is properly stored and kept separate from other food products due to the possibility of cross contamination.

Dairy: Dairy in the State of Illinois is under the oversight of the Illinois Department of Public Health (IDPH). All milk products must comply with the FDA's Grade A Pasteurized Milk Ordinance (PMO), which is a lengthy guide available on its website (a useful reference for anyone interested in starting a dairy operation). Food hubs, like other distribution companies, are exempt from much of this document, but must ensure that the facilities from which they purchase dairy are compliant with this ordinance.

Facilities that store dairy products such as butter and natural cheeses must submit monthly quantity reports to IDPH indicating the name and address of the facility, as well as the amount of stock on hand at the end of every month; there are no exceptions for facilities only storing small quantities. The area in which the products



are stored must be kept at 50°F or lower. Raw milk cannot be stored or sold by a food hub in Illinois as the law states that raw milk can only be purchased on the farm where it was produced and farms are prohibited from advertising this product. A facility should contact the IDPH when they are planning their cooler space to ensure proper inspection and permitting is completed.

Eggs: In Illinois, eggs are regulated through the Illinois Egg and Egg Product Act and each producer/distributor of eggs must acquire a license. A food hub can easily sell eggs if they buy directly from a producer with less than 3,000 hens, and each sale is less than 30 dozen delivered personally by the producer. Producers that have larger operations must comply with additional regulations and are subject to grading and Salmonella testing. Depending on quantities, food hubs may be required to pay an inspection fee and file a report for every 30 dozen eggs (a “master container”) sold every three months on an Illinois Department of Agriculture form. Eggs must be stored at 60°F or below and each container must have a safe handling label which details how the consumer can prevent illness from bacteria.

Livestock and Poultry: The Illinois Department of Agriculture oversees livestock and poultry; however, the meat and poultry offered for sale or distribution from a food hub must be compliant with both state and federal regulations. Food hubs that will be storing meat and poultry need to have excellent communication with their producers to ensure that the product and farm have achieved the desired food safety regulations. For instance, producers should make sure that their animals have been found acceptable under the Animals Intended for Food Act, which is monitored by the IDOA. The slaughtering house (or butchering facilities, if separate) must have the proper licenses, comply with the federal and state Humane Slaughter Act, and be approved by the USDA or appropriate state inspection in order to be allowed to legally sell meat and livestock for human consumption. In addition to ensuring safety throughout the value chain, food hub operators should make sure that any meat they may be storing within their facility has the proper labeling, and the facility must have a license from the IDOA to store meat for more than 30 days.

The Illinois Direct Farm Business guide was used as a reference for this section. The complete guide is available at www.directfarmbusiness.org.

1.3 REVENUE MODELS

The revenue model is the manner in which the company generates sales. One company may have a number of different profit centers, or separate business units that generate sales using different revenue models.

Aggregation Facility or Packing House:

These brick-and-mortar facilities will have a number of profit centers depending on the business model. Generally, these include three core functions: packing, marketing, and distribution. Each may have a different revenue model, whether commission, margin, markup or fee-for-service.

Revenue Model	Packing	Marketing & Sales	Distribution
Commission		✓	
Margin		✓	
Fee for Service	✓		✓

- The packing operation earns revenue by charging a flat fee for cooling and packing. The fee schedule covers direct costs, which vary based on packaging and cooling required for each crop, indirect costs, and a profit margin.
- The marketing operation will handle two types of sales: consignment and direct purchase. In a consignment sale, the food hub facilitates the sale to a buyer on a commission basis but does not purchase the product from the grower. Commission ranges widely from less than 5% to as much as 20%. In a direct purchase the food hub buys the product from the grower at a set price and strives to sell it to a customer at a profit, generating a gross margin that ranges from 18 to 25% or more.
- The distribution operation handles logistics of farm and customer pickups and deliveries. Delivery fees are added to the invoice if handled by the packing house. The fee generally covers the labor and transportation cost for the delivery plus a profit margin. This function is often outsourced and may not be included as a profit center in the business model.

In a for-profit business entity, these revenue models incent the food hub to maximize price and volume, and to boost profit margin by minimizing direct and indirect overhead costs. Growers are incented to improve quality to attract a higher price and increase percent pack-out for product graded and packed at the food hub.

Web-based Aggregator: There are a variety of revenue models for these online marketplaces. Some are based on membership or subscriptions, in which sellers are charged a recurring fee to be featured on the site, and less frequently, buyers are charged a recurring fee to access the site. More commonly buyers are charged a transaction fee per order plus a delivery or drop-off fee. Others may even have a yearly membership fee that enables unlimited use of website for both growers and buyers.

1.4 BUSINESS ENTITIES

Food hubs can operate under a number of different business entities—the legal structure under which a business operates. There is no one model that would work best for food hubs in Illinois. The decision about what type of business entity to establish should be driven by input from Illinois-based legal counsel, grower needs, community culture, existing leadership, and financing options. The pricing structures outlined in 1.3 are relevant for all of the business models described. However, a food hub will establish fees and markups that generate an appropriate profit margin given its business entity.

COOPERATIVE

An agricultural cooperative (co-op) is owned and operated by a group of producers. Profits are distributed to members based on amount of usage. Co-ops elect a board of directors and make major decisions through democratic voting. There are different methods of financing the cooperative:

- Direct contribution through membership fees or stock purchases
- Agreement to withhold a portion of net earnings
- Assessments based on units of product sold or purchased.

Advantages: Many experts believe that the single biggest driver of food hub success is the level of investment and support of its growers. Cooperative models inherently lead to stronger grower support, given that growers are investors and profit sharers in the business, and have equal voice in decision making.

Considerations: In Illinois, agricultural co-ops are required to be an association of eleven or more individuals, a majority of whom must live in Illinois and be engaged in agricultural production. Producer groups may not be able to generate funding to invest in the



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necessary infrastructure. The collaborative nature of cooperatives can slow down and even hinder effective decision-making processes; key marketing, operations, or financial decisions are made by the group rather than by specialized experts.

Example: Organic Valley Produce Program, WI (see profiles in section 1.5)

FOR-PROFIT

A for-profit venture's primary function is to generate profit for stakeholders. There are several business entity choices for for-profit:

- **Sole Proprietorship:** Business owned and operated by one individual.
- **Corporations:** Consists of shareholders who finance and own the business, and who elect a board of directors to govern the business. S-Corporations and C-Corporations are two common examples.
- **Partnerships:** An association of two or more people who co-own and are personally liable for the company obligations. Limited Liability Companies (LLC) and Limited Liability Partnerships (LLP) are partnerships in which partners are personally shielded from company obligations.

Advantages: For-profits can more easily attract interested investors to fund the high start-up infrastructure costs. Additionally, with a for-profit structure, owners and board of directors may pursue business strategies that generate more profits for all stakeholders—owners, staff, and producers.

Considerations: For-profits are ineligible for most grants, which can help fund necessary start-up costs. Additionally, for-profits are subject to a high corporate tax rate. It is important to consult a lawyer to determine which business entity a for-profit should adopt.

Example: Blue Ridge Produce Company, VA (see profiles in section 1.5)

NONPROFIT

Though a nonprofit food hub will generate income, its function is to advance a social or environmental mission. Therefore, all profits are invested in advancing the organization's mission. Many nonprofit food hubs invest profits in farmer technical support, beginning farmer training, marketing support, consumer education, and many other initiatives. Nonprofits must have a board of directors, file articles of incorporation, and apply for both nonprofit status with the IRS and liability insurance.



Advantages: Nonprofits can apply for a myriad of government grants and individual foundation funding. Nonprofits are not subject to corporate tax. Additional tax benefits include sales tax exemption and postal rate discounts. Because the profits cannot be distributed to the organization's members, reinvested profits can help educate and strengthen the local agricultural community, ultimately resulting in high revenues for individual growers.

Considerations: Setting up a nonprofit takes more time than setting up a for-profit. Producers and partners may not feel that a mission-based nonprofit has the business acumen and produce industry knowledge needed to successfully run their business. If organizational leaders are not financially rewarded by the success of their food hub, they may not be incentivized to maximize its profitability, resulting in lower sales and revenues for member growers.

Example: Red Tomato, MA (see profiles in section 1.5)

PUBLIC/PRIVATE PARTNERSHIP

Because agriculture forms the basis of many rural economies, there is often public interest in investing in the facilities and infrastructure that will increase rural farmer access to markets. Public / private partnerships can take many different forms. For instance, a municipality can provide needed infrastructure (land, packing house, packing equipment, etc.) and a private company might own and operate the facility as a tenant without seeking full ownership of the property.

Advantages: Public funding can be used to purchase the equipment and the building. Additionally, by garnering support from both public and private entities, this business form may be likely to more easily withstand difficult, less profitable seasons.

Considerations: A public municipality needs to be invested in local food systems and the positive impact of a food hub. Feasibility studies are often required to accurately assess need and measure the impact of this initiative on a public need. Any venture that has some stream of public funding will be subject to shifts in government budgets and fiscal policies.

Example: Northern Neck of Virginia Farmer's Market, VA (see profiles in section 1.5).

1.5 FOOD HUB PROFILES

Many food hubs are being established across the country, taking on many of the forms and features previously discussed. A few are described below. Each example has evolved and adopted a unique set of services based on grower resources, buyer demand, and public support in their region.

Local Dirt, WI – *For-profit Web-based aggregator*

Local Dirt, headquartered in Madison, WI, is a national web-based aggregator, where anyone can buy or sell local food. The site allows online ordering, calculates inventory, and works for both direct or wholesale, although wholesales buyers and sellers must log in to access wholesale products. Local Dirt is funded by the National Science Foundation. They have proposed a \$360 subscription fee for wholesalers (selling direct is always free) if their funding stops, but have not charged for their service in the 5 years they have operated.

Local Dirt works for anyone within the United States, including Alaska and Hawaii.

www.localdirt.com/

Red Tomato, MA – *Nonprofit aggregator*

Red Tomato represents a network of 40 midsized fruit and vegetable farms in the Northeast. They market produce from these farms to supermarkets throughout the Northeast and mid-Atlantic. They have a "virtual aggregation center" business model. They first work with a network of growers to develop supply, then with retail customers to develop packaging, sales, and marketing support. They coordinate distribution and logistics using existing infrastructure including growers' own storage and trucking. Rather than taking possession of product, orders are filled by aggregating the right products across growers after the order is received. Red Tomato's services also include research and development of ecological production protocols, eco certification, new product lines and packaging designs for their customers, branding support, financing, logistics, product liability insurance, and assistance with food safety certifications for growers. They provide coaching services for organizations and producers entering the fruit and vegetable wholesaling business. In 2010, they reported revenues of about \$2.7 million. A third of this was generated from produce sales and the remainder, to support market development, research, and education, was from outside funding and a small portion from coaching services.

www.redtomato.org

Northern Neck of Virginia Farmers Market, VA – Public/private packing house

The Virginia Department of Agriculture and Consumer Services secured land and built four packing houses across the state. The locations were determined based on the needs of different groups of citizens and growers. These four facilities, called Farmers Markets, are owned by the state and operated by private companies. The most successful of these state-owned packing houses is in Oak Grove, VA, an area known as the Northern Neck of Virginia. Several years ago, area growers grouped together to cooperatively increase their farming operations and business and determined that an aggregation facility would greatly improve their profitability potential. They formed the Northern Neck Vegetable Growers Association (NNVGA) and lobbied delegates to invest in a facility in their area. The state conducted a feasibility study and then invested in the facility, with the NNVGA donating the land, around 14 acres. The packing house is operated by Parker Farms, who pays rent to NNVGA to use the facility. Approximately 35 growers utilize the facility. Most drop off packed produce for cooling and distribution although some use harvesting and packing services as well. Growers pay per container fees to cover overhead and utilities, and a 9% commission for Parker Farms to handle marketing and logistics. Parker Farms sells to most large distributors in the area as well as Wal-Mart. Their facility is GAP certified, although the supplying farms are not.

www.vdacs.virginia.gov/frmmkt/index.shtml

Blue Ridge Produce Company, Elkwood, VA – For-profit packing house

Blue Ridge Produce Company is a new for-profit startup located an hour south of Washington, D.C., which serves as a packing house and aggregator for local produce in region. This food hub sprung out of a year of research involving two national sustainable food nonprofits, a foundation, and numerous interested parties within Virginia. The research report summarized that the high level of demand for local food within the Washington, D.C. metropolitan area was going unmet due to lack of regional food supply. After a grower outreach effort and

feasibility study deemed this venture viable, fundraising efforts were put in place to secure a centrally-located facility. The spring of 2011 was the first season of operation and the business is already working with about 15 Whole Foods grocery stores, four large hospitals, two conference centers and several other small to midsized food service accounts. Blue Ridge Produce Company is currently working with over 40 growers offering an array of packing services and conducting business on a fee, commission, and margin basis.

www.blueridgeproduce.net

Organic Valley Produce Program, La Farge, WI – For-profit cooperative

Mostly known for their dairy products, Organic Valley has been aggregating produce from over 150 growers and small-scale grower cooperatives in the upper Midwest for over 21 years. To ensure democracy throughout the cooperative, growers are placed in “pools” that have monthly meetings based on their product; there is an egg pool, beef pool, produce pool, dairy pool, etc. The growers are asked to make an equity investment in the cooperative of 5.5% total annual sales or a \$250 minimum. The Organic Valley board of directors and each pool’s Executive Committee is comprised of farmer-members elected by the entire membership or pool membership, respectively. In addition, monthly all-farmer pool meetings ensure all decisions have a grass roots farmer voice. Growers receive a bi-weekly base price payment for the product and volume that they deliver to a central warehouse, and receive a “pooling bonus” at the end of the growing season, which is the difference between the revenues and base price, factoring out transportation and commission. The cooperative takes 20% of sales for their general operations. Each grower is responsible for washing, grading, and packing produce on their farms and they have the option to deliver it or pay a fee for pick up. Produce is sold under the Organic Valley label to around 40 buyers nationally, with farmers having the option to identify their farm name on each case, or be displayed only by their grower number.

www.organicvalley.coop

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PART TWO: PROCESSING CENTERS

Up to 40% of all grown produce is either sold at or below cost or wasted altogether, yet there are many buyers looking for processed, preserved produce they can use throughout the year. Additionally, there is a growing market for artisan, locally made food products such as jams and salsas. Unfortunately, the high startup cost of equipment and facilities and daunting certification and licensing requirements prevent many growers and food entrepreneurs from producing and selling processed food items.

For example, a farmer may have 20,000 pounds of tomatoes that can't be sold at retail because they are bruised and therefore rated as Number 2 / commercial. With the proper equipment and certifications, the farmer could process the tomatoes into a basic tomato paste, to be sold at a profit to foodservice departments of local universities. However, due to the cost of equipment, building and ventilation renovations, and the time required, this is a challenging path.

Food hubs that offer processing can play an important role in addressing these issues. Because infrastructure needs among small growers and entrepreneurs are relatively consistent, a single shared-use commercial kitchen or contract processor can meet the needs of many local businesses and growers. The facilities have the necessary equipment, infrastructure (including ventilation, drainage and cooling), and food safety qualifications necessary for users to create and market value-added products.

The same processing operation can serve the needs of a number of different types of users – growers with excess produce, food artisans, caterers, and buyers looking for preserved produce. Throughout this section, the term “food entrepreneurs” will be used to describe all of these potential users.

The regulatory environment surrounding processing is difficult to navigate. It is imperative for any new

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processing venture to contact the Illinois Department of Public Health to discuss the necessary permits and licenses at the start of this process. Section 2.2 Regulatory Environment provides a framework for taking these necessary steps.

Because infrastructure needs among small growers and entrepreneurs are relatively consistent, a single shared-use commercial kitchen or contract processor can meet the needs of many local businesses and growers

2.0 BUSINESS MODELS

As compared to the business models surrounding aggregation services of food hubs, there are a greater variety of models that processing services can adopt, and many will offer a combination of services to best meet the needs of their clientele and ensure the diversity of revenue streams necessary to become profitable. The following section outlines these service models, their advantages and considerations.

CONTRACT PROCESSING

In this model, the kitchen maintains professional staff to produce food products for clients, either as a contract packager or manufacturer (also known as co-packing and co-manufacturing). Co-packing generally involves assembly and packaging, whereas co-manufacturing includes food processing as well. The specifics vary greatly based on customer needs. For example:

- Growers may have excess or Number 2 / Commercial grade produce to be processed and sold to wholesalers or foodservice companies. Growers may have their own certified recipe or may rely on the kitchen for this.
- Food entrepreneurs may want to outsource their product production. They would provide the kitchen with their certified recipe to be produced at requested quantities.

- Restaurants and other foodservice companies may request a specific product (i.e. chopped, frozen carrots). They may have produce suppliers lined up already, or may need the kitchen to find a produce source.

Advantages:

- This model is generally more lucrative than shared use kitchens
- By creating its own library of basic certified recipes (i.e. tomato paste, pureed squash), the facility can become tremendously valuable for growers that have excess produce

Considerations:

- Identify fee structure to align costs with product revenue
- Complex business to manage
- Requires the hiring and training of staff in addition to fully equipping a kitchen
- Requires tight food and worker safety management
- May require recipe development

Examples:

- Clinch Powell Community Kitchen – East TN (see profiles in section 2.5)
- Wisconsin Innovation Kitchen – Mineral Point, WI (see profiles in section 2.5)
- Bushel & Peck's – Beloit, WI (see profiles in section 2.5)
- Sharing Spaces Kitchen – Prairie du Chien, WI
- Glen Industries – Watkins Glen, NY

PRIVATE LABELING

This type of business is most likely a contract processor that also produces a line of products under its own label. The kitchen purchases ingredients directly from farms and other suppliers and manufactures / processes private label products, or branded products based on their own recipes. Products can vary greatly. Some examples include canned produce or salsa, pasta sauces, dry soup mixes, dry spice and rub mixes, roasted nuts, pickles, and jams. Some facilities strategically focus on developing a branded dry line of products that can stay in production during winter months, when local produce is unavailable.

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Advantages:

- Model can be even more lucrative than providing contract processing services for other companies. Potential prices for specialty products allow for margins of up to 75%.
- Allows the development of house-branded products to generate awareness of the kitchen.
- Producing a house-branded set of products allows the kitchen to stay utilized even when there is less demand for contract processing services.

Considerations:

- Requires sales force and/ or marketing team to brand and sell products.
- Requires tight food and worker safety management.
- Requires development and recipe testing.
- Complex business to manage.

Examples:

- Farmhouse Recipes from Wisconsin Innovation Kitchen – Mineral Point, WI (see profiles in section 2.5)
- LocalFolks Food – Indianapolis, IN

SHARED-USE KITCHEN FOR FARMERS

This is a rent-by-the-hour or membership-based commercial kitchen serving primarily local farmers to conduct value-added processing of excess produce and/ or seconds. These kitchens are used by farmers primarily for production of packaged products as opposed to catering. This model is often combined with contract processing and private labeling. It offers an additional revenue stream for farmers, not core.

Advantages:

- Can create supplemental revenue stream for farmers with excess crop or capacity.
- Opportunity to connect shared-use growers with shared-use small businesses for local hub development.
- Does not require hiring and training large staff.

Considerations:

- Farmers often lack the time to do their own processing during busy harvest season leading some to prefer co-pack/co-man approach.
- Market research identifying grower needs and buyer needs is critical to identifying the right services and equipment.
- Customers maintaining, cleaning, and respecting space and equipment.

Examples:

- Mazomanie Heritage Kitchen & Market – Mazomanie, WI (see profiles in section 2.5)
- Algoma Farm Market Kitchen – Algoma, WI
- Rockingham Community Kitchen – Madison, NC

SHARED-USE KITCHEN FOR OTHERS

This is a Rent-by-the-hour or membership-based commercial kitchen fully equipped for catering, pastries, and storage. The location typically will also have event space for rent and may offer supplementary services. In contrast to kitchens serving primarily farmers, this model is more often used for catering and combined with an incubation center, as food entrepreneurs are more often interested in “graduating” and launching food businesses. Some examples provide varying degrees of technical support (such as ingredient sourcing), but the primary focus is on giving entrepreneurs rent-by-the-hour fully certified kitchens in which to launch their business.

Advantages:

- Diverse customer base, i.e. different revenue streams all year round.
- Potential full utilization of location and assets, open 24/7.
- Does not require hiring and training large staff.

Considerations:

- Reliant on the number of food entrepreneurs in community and their success.
- Customers maintaining, cleaning, and respecting space and equipment.

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Examples:

- Kitchen Chicago – Chicago, IL
- Logan Square Kitchen – Chicago, IL (see profiles in section 2.5)
- Splice Kitchen – Chicago, IL
- East Side Community Kitchen – Lancaster, PA
- Can-Do Kitchen – Kalamazoo, MI
- Chelsea Community Kitchen – Chelsea, MI
- The Starting Block – Hart, MI

FOOD BUSINESS INCUBATOR

A food business incubator supports and fosters entrepreneurs in the food processing industry. In addition to providing certified kitchen space, incubators have a strong commitment to providing technical and business support to entrepreneurs whose businesses are being incubated at their facilities. Technical support includes recipe development, label development, taste testing, and ingredient sourcing. Business support may include input on marketing and sales and financing.

Advantages:

- Potential to yield a higher business success rate than those being served by a basic shared-use kitchen
- Potential for the incubator to earn a percentage of revenues / profits from incubated companies

Considerations:

- Requires organization to build strong business and technical support capabilities
- Could be difficult to manage two missions (success of kitchen facility and success of client businesses)

Examples:

- FoodWorks Incubator Kitchen – Bad Axe, MI
- ACENet – Athens, OH (see profiles in section 2.5)
- The Opportunity Center – Prairie du Chien, WI

WORKFORCE DEVELOPMENT

A critical mission of workforce development models is to provide training and professional development for targeted groups such as adults with disabilities, adults transitioning after prison, or at risk youth. These kitchens offer a range of different services outlined

above, but with the focus on helping participants gain life skills, employment and professional development.

Advantages:

- Clients gain confidence, food knowledge and viable professional skills
- Lower labor costs enable these facilities to provide smaller scale co-packing services at competitive prices

Considerations:

- Important to identify how critical this aspect of the mission is to an organization up front

Examples:

- Orchard Village – Skokie, IL
- Glen Industries – Watkins Glen, NY
- CW Resources – New Britain, CT
- Wisconsin Innovation Kitchen – Mineral Point, WI (see profiles in section 2.5)
- Mid-Hudson Workshop – Poughkeepsie, NY
- Inspiration Café/Kitchen – Chicago, IL
- North Side Planning Council – Madison, WI

OTHER

In other models, the kitchen is not the only line of business, and other priorities may include sustainability, research and development, or waste reduction. Two examples are Rutgers Food Innovation Center in New Jersey, a university extension incubator for business and product development, and The Plant in Chicago, IL, a sustainable urban farm focused on aquaponic production.

Advantages:

- Diversification benefits from managing different business lines - ability to share revenues and costs across business for financing needs, co-branding benefits, vertical integration benefits.

Considerations:

- Important to identify role of this line of business in achieving higher-level mission of organization to ensure clarity and alignment across lines of business.



2.1 BUSINESS SERVICES

CORE SERVICES

Regardless of the business model adopted, there are a number of different processing services that can be offered. The following section describes a variety of different processing functions and the equipment requirements and risks associated with each.

CANNING

A typical commercial canning operation may employ the following general processes: washing, sorting/grading, preparation (including chopping), container filling, exhausting, container sealing, heat sterilization, cooling, labeling/casing, and storage for shipment.²⁶

Potential products:

- Basic canning for preservation
- Pickled fruits and vegetables
- Salsa
- Dips and spreads
- Pasta and pizza sauces
- Chocolate sauces

Considerations:

- Small-Mid Scale Production: Food is canned in batches, using more traditional means of preservation such as water baths
- Large Scale Production: Continuous units are mainly used at this scale, where cans or jars continue to move through pressure cooker-like machine (pressure processing vessels or retorts), and are then quickly cooled

For more information regarding canning, see pages 122-123 of the Illinois Direct Farm Business guide at www.directfarmbusiness.org.

ASSEMBLY

Measuring and packing dry goods using assembly tables

Potential products:

- Prepared mixes (i.e. cake mixes)
- Packaging of baked or cooked products (i.e. tortilla chips, cupcakes, etc)

Considerations:

- Requires basic quality assurance tracking, such as data / batch coding for every product and ingredient record keeping

BAKING AND CONFECTION

Baking utilizes dry heat to change the character of ingredients into products like breads and baked goods. Typical process includes: measuring, mixing, preparing pans, baking for a set period of time, cooling, packaging, labeling/casing, and storage for shipment.²⁷

Potential products:

- Cupcakes
- Brownies
- Cakes
- Bread
- Cookies
- Chocolates / truffles

General baking equipment:

- Ovens: Convection Oven, Rotating Rack Oven, Revolving Tray Oven, Deck Oven
- Proof Boxes (place to rise)
- Mixers
- Work tables
- Drying racks
- Exhaust Hoods: Required - High Cost

Considerations:

- Fewer food safety concerns than with all other services (canning, freezing, and drying); however, food has shorter shelf life
- With such hot ovens, there is risk of burns and/or fires

For more information regarding baking, see page 130 of the Illinois Direct Farm Business guide at www.directfarmbusiness.org.

Regardless of the business model adopted, there are a number of different processing services that can be offered

DEHYDRATION

Dehydrating foods reduces the moisture in them to levels that inhibit the microbial growth that causes them to rot. Pre-treating some foods before drying preserves their flavor, color, and nutrients; prevents microbial contamination; and prolongs their shelf life. Dehydration reduces weight—an important consideration when shipping—and eliminates the need for refrigeration, making it easier to pre-mix retail products.²⁸ Dehydrated foods can be consumed as is, or reconstituted with water.

Potential products:

- Dried fruits (basic, fruit leather)
- Dried vegetables
- Dried herbs
- Dried meat (i.e. jerky)
- Dehydrated dairy (i.e. powdered milk)

Considerations:

- Batch dryers are mostly used in small production runs. These are covered “boxes” with fans, ventilation and tray racks
- More costly methods are 1) Spray drying – a technique that uses a flat-bottomed spray dryer with a tempered “air broom”, and 2) Freeze drying – drying material in the frozen state. It is usually carried out under vacuum, at absolute pressures that readily permit ice to change directly from solid to vapor.
- Depending on the amount of product dehydrating, the process may have to be organically certified in order for the product to be sold under the Organic Label

For more information regarding dehydration, see page 122 of the Illinois Direct Farm Business guide at www.directfarmbusiness.org.

FREEZING

Freezing is a food preservation method in which food is brought to sub-zero temperatures in order to slow natural food breakdown.

Potential products:

- Basic frozen fruits and vegetables (i.e. green beans, corn, broccoli chopped and frozen with no preparation)

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- Prepared frozen (i.e. frozen pizza, dinners, cooked vegetables, etc)

Considerations:

- In small operations, one can blanch food, shock food in freezer and then package and freeze
- Large scale production uses flash freezing (or blast freezing)—the process where food is quickly frozen by subjecting it to cryogenic temperatures
- If not sealed and stored correctly, product could become ruined through freezer burn
- Each product should be tracked with the date it was frozen to ensure that products do not exceed their desired frozen shelf life

CHOPPING

Chopping is transforming the product into sizes, forms and quantities that are most frequently used in the food service industry. Methods include slicing, peeling, coring, pulping, etc.

Potential products:

- Basic chopping for food service (i.e. shucking and cutting ends of corn; slicing tomatoes for deli)
- Pre-processing chopping (i.e. stripping corn kernels for freezing, chopping tomatoes and onions for salsa, etc)

Considerations:

- In smaller operations, the product can be chopped and cut manually
- If the facility and market allow, there are fresh-cut machines & machines that are mechanized to chop, dice, slice and package products. There are several employment opportunities along this machine
- Depending on the product, both processes will sometimes need preservatives added to the food to ensure quality and freshness; i.e. citric acid on apples
- Fresh cut machines warrant their own cutting room in some aspects, which need to be inspected and monitored
- With employees using large knives, there is an added risk of workplace injury

BUSINESS AND TECHNICAL SERVICES

Technical support can help clients work through the multi-faceted parts of the food industry. These services are important, as many food entrepreneurs may be well versed in one aspect, but not all.

Potential Services:

- Full business incubation (i.e. kitchen takes ownership stake and supports all aspects of business)
- Technical support (i.e. recipe development)
- Financial support (i.e. funding, etc)
- Marketing and sales support
- Legal support (i.e. incorporation, etc)
- Mentorship
- Retail brokerage support

Considerations:

- **Business Planning:** This service supports writing of business plans as well as evaluating their feasibility.
- **Marketing Strategy:** Good marketing can make a good product great, so it is important to walk clients through their marketing plan; from name creation to distribution plan.
- **Product Development:** Many food entrepreneurs will have tried their recipe in a home kitchen, on a small scale. When creating a commercial product, assistance is needed in expanding the scale of the recipe, while retaining the taste.
- **Time Investment:** Not all proposals and plans will be successful projects, but they will need the same if not more time than successful projects and may not have the same pay-off.

ANCILLARY SERVICES

In addition to the core processing functions provided, there are other services they can be offered to benefit food entrepreneurs, growers and local communities, and provide the facility with additional revenue streams.

Events: Kitchen and facilities often have event space, which serve as a meeting room for entrepreneurs and

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their potential investors or customers. Additionally, these spaces can be used to host various community, business, or personal events—such as local food systems seminars, weddings or corporate dinners.

Culinary Education: Because these facilities have commercial equipment, they can serve as a classroom to train community members in the culinary arts, providing job training for members in the community, and/or fun cooking classes for customers interested in local food.

Recipe Development/Scaling: The recipe that inspires a food entrepreneur to take their cooking or processing skills to a professional level are sometimes on a scale that is too small for commercial processing. Translating recipes into larger quantities more appropriate for resale is a specialized skill set that the kitchen can provide entrepreneurs—either with on site food scientists or by partnering with experts.

Packaging/Labeling: Determining optimal product packaging is complex. Various factors must be considered, including the product's weight, shelf life and exposure requirements, and the weight, durability/sturdiness, and insulation of packaging. Additionally, food artisans must design appealing packaging for end consumers, and more recently, issues of packaging sustainability are becoming more important. Finally, the label must contain a unique set of information beyond branding, such as an ingredient

list (listed in order of amounts used), the common name of the product, an address of the business and/or place processed, and nutritional analysis if volumes dictate this is necessary. A processing center can offer invaluable support helping early stage food entrepreneurs navigate packaging decisions.

Storage: The kitchen must have ample storage space for ingredients and prepared products, including substantial refrigerator and freezer space. Many kitchens charge customers monthly storage rental fees to hold their ingredients, supplies, and final products.

Distribution: Most kitchens simply ensure that their facility has ample receiving and loading space to allow for a semi-load of product to be dropped off or picked up. However, some kitchens invest in trucking capabilities in order to offer distribution services to their growers and entrepreneurs.

Marketing and Business Development: Finally, more kitchens are beginning to offer business development services to growers and entrepreneurs to help them craft a business plan, develop a marketing plan, establish pricing, identify a growth strategy, secure financing, tackle legal questions, and much more. If they are looking to generate a revenue stream from this service, kitchens can offer these services for a fee or may take an equity stake in these businesses.

2.2 REGULATORY ENVIRONMENT

Kitchens and food processing require several regulatory licenses, inspections, and certifications to be able to process food in a safe manner. These regulatory requirements vary at the federal, state, and local level. Food processing is regulated by the FDA (regardless of geography), as well as state and local health departments and state departments of agriculture that have adopted the FDA's Food Code, which is true for Illinois. The Bioterrorism Act mandates that all facilities that process food, even animal feed, must register with the FDA. It is important to note that this report serves only as a guide and that it is advantageous to meet with a health inspector or a food safety agent in the beginning of the project's planning phases, by reaching out to the appropriate agency depending upon the product, such as the USDA, FDA or state, local, and/or county health departments. This collaborative approach can help guide the design process and decrease the chances of having to modify construction or equipment. Because regulatory requirements are so specific to both geography and function, this section is a preliminary guide and should not be used as a checklist for certification.

The first step in achieving the appropriate regulatory requirements is to decide the goals and functions of the kitchen operation. This includes how many employees or food entrepreneurs, type of products produced, and area where the kitchen will be located. With these goals and scope clearly defined, it will be easier to identify what health and food agencies need to be involved in what aspects of certification. For instance, local or county health inspectors will be crucial for the actual facility design and layout. Some processes will require sample batches sent to the USDA and FDA kitchens to be tested periodically.

Requirements for Facility Users: Food entrepreneurs and/or processing staff will most likely need to get a food handling certificate, such as a ServSafe certificate. Most foodservice facilities in Illinois fall under the jurisdiction of local/county governments, but state law mandates that each facility have at least one certified foodservice sanitation manager, a certificate that is good for up to 5 years, as well as having a certified food handler on premises at all times. If canning is being done on site, a certified graduate of the Better Process Control Schools must be present, so it is suggested that more than one person in a facility take this course. This course teaches the regulations for thermally processed low acid and acidified foods and is designed to prevent

public health problems from commercially canned foods (<http://www.foodprocessing.wsu.edu/bpcs/>). Many state extension offices or university food science departments offer this course. Wisconsin Extension, Michigan State University, and Penn State University offer a program and University of California-Davis has an online course available.

(www.fruitandvegetable.ucdavis.edu/Cooperative_Extension_Short_Courses/Better_Process_Control_School_Online).

In a shared use kitchen, it is important for each food entrepreneur to have appropriate liability insurance, as a precaution to the facility and/or user being held responsible, as well as a food handling certificate. Signed agreements between entrepreneurs can help eliminate any confusion regarding the terms of use.

Requirements for Facility: The facility itself will have to be inspected. In Illinois, all wholesale processors of food items, except meat and poultry items, are inspected and regulated by the Department of Public Health, Division of Food Drugs and Dairies, and Office of Health Protection. No permit or registration is required to operate a food processing facility, but facilities need to be inspected annually. Food processing establishments must request a Department inspection prior to beginning production and if the facility fails, the Department will provide a list of all problems and the applicant can correct them. A facility must have an annual health inspection ensuring it is a hygienic place in which to process food, similar to a restaurant. The facility could also carry an umbrella liability insurance policy that can cover many miscellaneous business risks.

It is important for any food processing facility to have an adequate source of safe potable water, supplied by a municipality or from a tested onsite source. Likewise, wastewater should be appropriately diverted from the facility through a municipal or onsite waste water system. Facilities should be constructed with floor drains and impervious surfaces that can be readily cleaned. There should be restrooms, hand washing facilities and sinks—equipped with hot water—located and maintained throughout the facility. All equipment, counters and shelves should be of commercial quality, well maintained, and easily cleaned.

Requirements for Recipes Processed in the Facility: It is important to know where the food will be distributed after it is processed, as the product will need to satisfy all the certifications for the jurisdictions where

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it is processed and where it will be sold. If the product is intended for a wholesale market, going through a distributor for further sale, it is usually governed by the FDA; whereas products intended for retail are governed by locally enforced codes inspected by local, county or state agencies. Any processed foods with meat should have labels approved by the USDA. Basic labeling is required for all products, which should include:

- 1) the address of the facility where processed,
- 2) first five (5) ingredients in order of quantity in recipe, and
- 3) the common name for the product.

If the product reaches higher volumes of sales (more than 10,000 products/SKU sold or \$500,000 of revenue generated per year) a nutritional label is also required in addition to the requirements listed above. These nutrition labels require software investments or contracting agreements with a university or commercial food laboratories that has the appropriate equipment. When working with GAP certified growers to supply the raw ingredients, there is greater transparency and traceability for each product.²⁹

Requirements for Processes in the Facility:

Each process (baking, drying, canning, and or thermal processing) must be certified, and depending on the product, might require a HACCP plan for each of these processes. These plans will document the steps for each process and identify all the food safety precautions taken to prevent food borne illnesses from being transmitted through the process. Canned recipes must go through a very detailed set of approval steps and facilities must complete the FDA Food Canning Establishment Registration (Form 2541), which allows the FDA to know each food product name, form of processing, and packing medium being canned at the facility. Some of the other processes are far easier to certify and may be used more often.

Organic Certification Requirements: All staff handling products that will be labeled USDA Organic must be trained and certified by the USDA National Organic Program (NOP) and all product inputs and cleaning suppliers must meet organic standards. Additionally, a portion of the facility must be entirely dedicated to organic processing, ensuring that no commingling occurs between conventional and organic products.



2.3 REVENUE MODELS

The pricing models for each of the services provided can vary. This section describes typical pricing schemes, the strengths and concerns associated with each and how they each best align with different business models.

MEMBERSHIP FEES

Food entrepreneurs pay a membership fee, either annually, monthly or quarterly, to use the kitchen facility as often as needed. The fee may or may not include services such as storage (cold or dry) and clean up. Membership fees are best for shared-use kitchen services and are generally used by food artisans and caterers.

Considerations:

- Rental rate is predictable and can easily be factored into a business plan
- Membership fee structure may incent food entrepreneurs to use the facility for extensive hours
- If membership fees are a significant portion of a facility's revenues, the kitchen should institute a sophisticated system for members to schedule their timeslots

HOURLY RENTAL

Food entrepreneurs pay an hourly rate to use the facility. Payments are made upon scheduling the timeslot. Rates may or may not differ by facility type or equipment used (canning, pastry, catering area, etc). Hourly rental is best for shared-use kitchen services representing a smaller portion of the facility revenues.

Considerations:

- Facility receives payment for exact hours used
- Facility can more easily accept rental slots only during time the kitchen is otherwise unutilized (i.e. nights, weekends)
- Entrepreneurs may not schedule enough time for the processes that they need to complete, which could result in a back up of the kitchen
- This model alone is unlikely to generate profits

STORAGE RENTAL FEES

Food entrepreneurs pay monthly rates for cold/dry storage of both inputs and finished product.

Storage rental fees are best for shared-use kitchen services, especially for entrepreneurs with perishable inputs and products.

Considerations:

- Storage, especially cold storage, is expensive and charging for the service ensures a good balance of additional revenues
- The facility will need storage for its own inputs and finished product. It is critical to charge enough to discourage entrepreneurs from filling storage space needed by the kitchen

SERVICES FEES

Food entrepreneurs pay fees for services such as shipping, ingredient sourcing, supply management and consulting. Service fees are best for shared-use kitchen and contract processing services.

Considerations:

- These services are of high value to entrepreneurs and can be a strong source of additional revenue
- A facility may not be well equipped to provide these services early on and should focus only on the most critical functions and services required for a successful launch

PROJECT QUOTE

A quote is given to entrepreneurs based on their required products. The fee is based on the labor time and costs of any ingredients / packaging required, and has a profit margin added in to cover utilities and equipment usage. Project quotes are best for contract processing.

Considerations:

- Facilities generally make a healthy profit margin on each order
- Facilities can fill small orders that large co-packing plants often cannot serve
- Time studies can be run to assess the labor time required. This should include all steps of the process – washing, chopping, cooking, packaging, labeling, loading, etc. Assessing labor time requires a test batch for new products – facilities can charge a set hourly rate for test batches. Over time, the facility will develop an in-depth database of time required for different services.

PAYMENT IN KIND

Producers or food entrepreneurs can negotiate a payment exchange with the contract processing facility to process the food in exchange for some of the raw material or finished goods that the facility can then process and/

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or pack under their own private label. Payment-in-kind is best for contract processing services, particularly for facilities that serve entrepreneurs with little cash. This could be particularly relevant for nonprofit models.

Considerations:

- Creative way for entrepreneurs to start a business, especially for producers looking to create a value-added product from their own harvest
- Entrepreneurs do not have to pay the processing cost upfront
- The entrepreneur loses some originality, which could otherwise differentiate them from other competitors in the marketplace

INCUBATOR MODEL

Facilities can invest in emerging food entrepreneurs – providing business services such as marketing, business

development, recipe creation, buyer relationships – and take a portion of their profit or revenues, or an equity stake in their long-term value. The incubator model is best for facilities that want to launch successful food businesses (with regional or even national presence) as a strategy to attract new startups. This model is less relevant for growers.

Considerations:

- Incentivizes facilities to provide end-to-end services that some food entrepreneurs may need to successfully launch and grow
- High risk for facilities, given the highly competitive market of artisan food markets
- Facilities that adopt this model should also adopt a pricing scheme for another set of services to bring in a steady revenue stream



2.4 ADDITIONAL BUSINESS ENTITIES

The business entities outlined in section 1.5 can all be adopted by processing ventures as well. Regardless of its specific business entity, processing centers can also take on one of the two following forms, depending on the particular context and driving force behind the kitchen's development.

GOVERNMENTAL

Municipalities can set up processing ventures to meet the needs of their specific community. With governmental support, a kitchen can become a part of a community's economic development strategy. This processing venture can be set up as an independent operation, or an opportunity for municipalities to collaborate with existing food hubs to expand their services to include processing.

EDUCATIONAL / INSTITUTIONAL

Higher education institutions can establish innovation centers that offer support for food entrepreneurs. Because these are often linked to a university, the facilities can take advantage of other institutional resources, such as the Schools of Agriculture, Business, Nutrition, and Small Business Development. The priorities of a processing center need to be linked first to the priorities of the educational facility before the needs of local communities and growers.

2.5 PROFILES OF PROCESSING VENTURES

Logan Square Kitchen, IL – For-profit shared use kitchen

This for-profit facility located within Chicago gives food entrepreneurs access to a commercial kitchen on an hourly basis. This shared-use commercial kitchen also serves as a community event space charging \$25-35/hr. Users must go through an application process, purchase necessary insurance and participate in online scheduling. The facility provides a place for culinary talent to develop, as well as hosting public events that celebrate the local food community, showcasing chefs and food artisans, a vessel for education about sustainability.

www.logansquarekitchen.com

Bushel & Peck's, WI – For-profit contract manufacturer

Bushel & Peck's is a grocery store, kitchen and restaurant all wrapped into one local food place. The market is a retail market for Grass is Greener Gardens, the proprietor's organic farm in Monroe, Wisconsin, as well as about 30 other farms through their own purchasing. Their inspected kitchen allows them to make value-added products on site that can be incorporated into the meals served at the restaurant, sold in the store, or through wholesale outlets. The proprietors ensure that the market is space that fosters food, community, and culture, where people share meals, ideas, and artistic expression.

www.bushelandpecks.com

Clinch Powell Community Kitchen, TN – Nonprofit contract processor (is now assembly facility for Meals on Wheels)

Clinch Powell Community Kitchen is a nonprofit co-manufacturing/co-packing facility in East Tennessee specializing in food processing and packaging. This processing and packaging facility is located in a rural community and assists local farmers and producers package their food and food products for purchase. The facility is a community development project of the Clinch-Powell Resource Conservation and Development council and is currently assembling Meals on Wheels meals for the community.

www.clinchkitchens.org

Rutgers Food Innovation Center, NJ – Governmental/Education

The Rutgers Food Innovation Center is a food processing center housed within the state university whose goal is to provide technical assistance, business planning, and food processing services to the regional growers. This project was formed out of a need for processing and given NJ's strategic position to many viable farms, as well as distribution centers, it was deemed necessary and later associated with the University. The center offers several different types of processing, which entrepreneurs can rent by the hour, with a permanent staff operating the facility.

www.foodinnovation.rutgers.edu

There are several other features that processing facilities can offer for the community in which they are located. There are several national examples of facilities that can serve as examples for Illinois.

Mazomanie Community Kitchen, WI –Tourism

The Mazomanie Heritage Kitchen is the newest addition to owner Dan Viste's movement to celebrate the food and history of the region. The Heritage Kitchen was developed in conjunction with the non-profit Mazomanie Regional Heritage Center in 2010 and joined a family of local food establishments including the Whistle Stop Café and the Old Feed Mill restaurant. The Heritage Kitchen is a shared-use food processing kitchen that has been home to over 13 new food-based businesses. Local food entrepreneurs can choose to rent space and equipment to do their own processing for an hourly fee or contract the Heritage Kitchen to do processing on their behalf. The café and restaurant serve as a retail outlet for products developed in the kitchen, and a 10 acre farm currently in development will soon serve as a source of local ingredients for kitchen users to include in their products. Products made in the kitchen to date include maple syrup, fudge, and Heritage and Old Mill branded pickles and jams.

<http://fyi.uwex.edu/foodbin/the-food-bin-network/mazomanie-heritage-kitchen>

The Plant, IL – Energy and waste

The Plant is a Chicago-based vertical farm, which is housed in a re-purposed industrial building, demonstrating creative adaptive reuse. "Plant Chicago is a nonprofit dedicated to promote sustainable food production, entrepreneurship and building reuse through education, research, and development." Housed in a

Part Two: Processing Centers

Building Successful Food Hubs

93,500 sq. ft. former meatpacking facility, The Plant will now be home to about 30,000 sq. ft. of aquaponic farms and burgeoning entrepreneurs looking for low rent, low energy costs, and licensed kitchens. Over a hundred and twenty-five jobs are expected to be created through this project, which is located in a historically low-income neighborhood in Chicago. By anaerobically digesting over 10,000 tons of diverted food waste, the facility should not have to purchase any heat or power, allowing them to repurpose this money into job and food creation.

www.plantchicago.com

Wisconsin Innovation Kitchen, WI – Nonprofit workforce development center

The Wisconsin Innovation Kitchen (WiNK) in Mineral Point, WI was launched in July of 2010 as an initiative of the Hodan Center, a workforce development facility for adults with disabilities. At the state certified 10,000 sq. ft. facility, Hodan Center clients produce their own product line (including over 20 products such as soup mixes and pickles) and fill orders for growers, food artisans, caterers, schools, and restaurants. Co-man/co-pack orders vary and include everything from chopping and freezing produce for farmers, to baking vegan cheesecakes for a food artisan, to providing frozen squash puree to a local restaurant. Additionally, WiNK is a shared-use kitchen that caterers and food entrepreneurs can rent out for about \$15/hour during evening and weekend hours. Though the facility was not originally intended to provide co-packing/co-man services to growers and entrepreneurs, this has become a core part of their business, and has enabled them to help buyers support local growers rather than purchasing out-of-state products.

www.wi.innovationkitchen.org

ACENet Kitchen, OH – Entrepreneurial and business support

Entrepreneurial and business support Since 1985, the Appalachian Center for Economic Networks (ACENet) has been offering business incubation services to the entrepreneurs in the 32 county region of Appalachian Ohio. It was started by a small group of community members who wanted to help build and support a healthy regional economy. Their mission is “to build the capacity of Appalachian communities to network, work together, and innovate to create a dynamic, sustainable

regional economy with opportunities for all.” They offer many business incubation services, including their Food Ventures Center in Athens, OH which is a shared use kitchen with over 100 tenants. Food and farm tenants rent space by the hour within the facility for their specific processes; such as bottling, flash freezing, food preparation, baking, and dry packaging.

The center offers various services other than just the space and equipment, from business planning, lending, regional branding initiatives and marketing assistance. Many of the foods produced within the center are marketed under two ACENet brand programs, “Food We Love,” and the 30 Mile Meal. Local Food We Love sections can be found in the Athens Kroger and over 20 other area grocery stores. www.acenetworks.org

Appalachian Sustainable Development, VA – Grower assistance and support

Appalachian Sustainable Development is a nonprofit working in Appalachian Virginia and Tennessee who works with area farmers to be successful in growing and selling specialty crops. The organization has built a packing house, where growers can drop off product to be graded, washed, cooled, packed, and sold to buyers, under the Appalachian Harvest label. This much needed infrastructure has created greater market entry for the growers. There is crop planning each season to ensure that the area growers can meet the demands of the regional buyers, as well as on-farm training and technical assistance.

www.asdevelop.org

Rutgers University, NJ – Research and development

The Innovation Center also offers several different research and development tools for food entrepreneurs, such as recipe conversion and business development. Entrepreneurs can go through a business planning process to best understand if this venture is feasible, and determine what changes or modifications can be applied to achieve a desired price point. The center also has an R&D team that make recipes work within taste and price qualifications dictated by the market and the entrepreneurs.

www.foodinnovation.rutgers.edu



PART THREE: BUSINESS DEVELOPMENT PROCESS

3.0 OVERVIEW

Following a stage-gate business development process can reduce startup risk. The five stages include Opportunity Identification, Feasibility Assessment, Business Planning, Fundraising, and Launch. The time, resources and capital required increase with each stage, so the process is designed to identify potential weaknesses in the business and resolve issues before proceeding.

This method helps entrepreneurs form, test, and defend the case for their business. Similar to the way evidence

is gathered to prepare a legal case for trial, research and due diligence are conducted in the early stages to provide the evidence that the business case is viable. The rigor of this process gives entrepreneurs and potential funders more confidence that the business can be successful.

If a significant investment will be made from professional lenders and equity investors, and the team lacks previous startup experience or familiarity with entrepreneurial finance, it may be worthwhile to hire a consultant to assist with the feasibility assessment, business plan, and investor presentation materials.



3.1 OPPORTUNITY IDENTIFICATION

The Opportunity Identification stage includes developing the business idea and surveying the environment in which it will operate for signals that the idea has merit. Those considering a food hub project will have an existing idea—the aggregation or processing project itself—so this stage will center on locating signals that the business could be successful. These signals may include:

Evidence in the trading area of strong demand for locally-produced goods. A food hub is by definition a local enterprise which will conduct almost the entirety of its business within a defined trading radius. Since the opportunity for expansion is relatively limited, evidence that there is strong demand for local products in the local market is important to establish and grow the business. Signs of existing demand might include:

- A thriving and growing base of farmer markets and CSAs
- A core group of chefs who promote locally-sourced items on the menu
- Grocery stores which offer local products
- Presence of potential customers which may be subject to legislation supporting local procurement (such as the Illinois Local Food, Farms & Jobs Act of 2009)
- Recurring, positive media coverage of local food activity in the region

Presence of large groups of suppliers and buyers.

The best location for an aggregation facility or packing house is near a large group of growers and on a major transportation route leading to a large group of buyers. Processing ventures may either be rurally located or in a more populous area depending on whether it serves primarily growers or more urban food businesses. In either case, close proximity to a large installed base of suppliers and customers is ideal when handling local perishable goods.

Active entrepreneurial investigation. Entrepreneurs will be the first to respond to local market needs, so evidence of seed- or early-stage business activity in aggregation and small-batch processing may indicate the market is ripe for development. It also suggests that players in the food system are actively seeking solutions and are aware of the benefits of a local business model.

Absence of or underdeveloped infrastructure. An incisive scan of businesses in the area should reveal that any existing operations will not saturate the market. There may be large specialty produce or broad line distributors building a local program, but they are not necessarily a competitive threat. An aggregator focused on farm procurement can be a beneficial partner and key supplier to these larger players. Neither does the existence of other processors signal saturation. There are a variety of models that serve specific types of customers, so there may be a profitable niche to fill.

Sufficient pool of qualified management candidates. Managers need a combination of skills including production know-how (agricultural or processing), business acumen, marketing savvy and the ability to communicate with the diverse populations of producers and buyers. They also must meet high demands during the harvest season, requiring long hours, hard work, and adaptability to the unpredictable nature of agriculture. A local owner/operator will often have an advantage in communities where familiarity and trust propel business relationships. A substantial pool of candidates from the local community with this mix of skill and work ethic may bring early success to the business.

Strong stakeholder network from public sector, academic, business and agricultural communities.

A hallmark of successful food hub ventures is stakeholder engagement and collaboration that begins at inception and continues through the development, launch and ongoing operation of the business. Stakeholders may be engaged as project advisors, affording insight and avenues for reaching a larger network. This inclusive approach will greatly benefit the business development process. These stakeholders will become important business partners and enablers to a commercial enterprise, so building affinity at the outset through appropriate engagement and transparency can pay dividends once the business is established.

Public or private funding availability. To take these food projects from concept to reality, sources of private and/or public funds will be necessary. Financial literacy is an important competence of the startup team: the ability to effectively approach investors and access local, state, and federal funds. Having good relationships with investors who will back the project personally or within the investment community is a plus.

3.2 FEASIBILITY ASSESSMENT

Once an opportunity has been identified and an initial environmental assessment appears positive, a feasibility study is conducted to shape the business concept and test its viability. In a for-profit context, the crux of the feasibility study is a financial model that analyzes the potential for the business to earn a satisfactory profit for owners and investors based on a set of reasonable assumptions. These assumptions are derived from primary and secondary research conducted in the study, often borrowing available data from analogous operations.

The study can be as short as a few pages. The findings do not necessarily need to be written into a report so long as the entrepreneurial team is clear about the implications for the business; however, writing the narrative is useful because it clarifies the business case, risks and issues, and if the team moves forward, it will become the foundation of the business plan.

ELEMENTS OF A FEASIBILITY STUDY

The study will address the entire business enterprise and its external environment. A good way to begin is to create a list of questions that will prompt critical thinking and investigation into each aspect of the business. These questions may include the following:

Company/Organization Mission or Objective: What is the problem you are trying to solve? How big is the problem? What are you selling? What is unique or special that would make an investor curious?

Technology Needed: Is technology a key element/differentiator of the plan? Is it proprietary or patented? Are there risks in your technology?

Market Information: What is the definition and potential size of your market? Who are your customers? How many customers do/could you have and how much do they buy?

Competitive Landscape: Who are the current and future competitors in the market? What are your competitive advantages/disadvantages? What barriers to entry will protect you? How are you positioned with respect to the competition?

Revenue Model: How will you make money? Why will customers buy your product? How much will they pay? Why? How will customers get your product (go-to-market strategy)? How many customers will you have?

Operation Issues: How will you deliver this product or service (through internal or external resources)? Will the cost of providing product or service provide a sufficient profit? Are there execution risks?

Management Team: Who are they, and why are they relevant for this business? Do you have any holes in the management team, and if so, how do you plan on filling these positions?

Financial Information: What are your economics (a high-level profit and loss statement)? What are your key assumptions? When will you have a positive cash flow? How much working capital do you think you will need? What is the projected size of the company?

Business Risks: What are you worried about or unsure of? What do you plan to do about it?

Comparables: What are the analogous models and why are they successful? How have similar businesses failed and why won't you?

The Illinois Department of Commerce & Economic Opportunity offers a feasibility checklist on page 27 of its "Starting Your Business in Illinois Handbook" found online at <http://tinyurl.com/3kknxqy>.

THE DUE DILIGENCE PROCESS

Due diligence is the process of finding answers to these questions with sufficient rigor to avoid fatal surprises later. A number of methods can be used:

- 1) Primary Research – conducted exclusively for the project
- 2) Secondary Research – available through public or syndicated channels
- 3) Analog studies – gathering operating information from companies in a similar industry
- 4) Analysis – identifying the relevance in the information
- 5) Synthesis – using the information collected to answer questions, refine the business case and determine assumptions for the financial model
- 6) Modeling – developing rough financials including a profit and loss statement (P&L)

Primary research methods include interviews, surveys, focus groups, or public meetings with the key audiences, with which the company will conduct business. A good rule of thumb is to speak with at least 25 potential customers. Customers comprise the most important

Part Three: Business Development Process

Building Successful Food Hubs

audience but there may be others. Agriculturally-centric projects should also research the interests, opinions, and concerns among growers who are essential in building supply. Surveys are most effective at reaching large numbers of respondents and may provide quantitative evidence for the study. Other qualitative methods can be important in understanding attitudes and behaviors among these audiences. Stakeholders can help determine what form of data collection and communication will work best for the community. For example, surveys can be implemented through the mail, over the phone, through the internet or in person at a meeting depending on the preferences of the audience.

Secondary research is accessing relevant information from other credible sources. This information may be available on a fee basis, such as market research reports from Mintel, Business Monitor, or Forrester, but there are many free sources:

- U.S. Small Business Administration <http://tinyurl.com/3frkzqc>
- USDA Agricultural Marketing Service www.ams.usda.gov/AMSv1.0, particularly the Food Hub portal www.ams.usda.gov/AMSv1.0/foodhubs
- USDA National Agricultural Statistics Service www.nass.usda.gov
- SEC EDGAR online database of corporate financial information www.sec.gov/edgar.shtml
- Articles from The New York Times local food portal <http://tinyurl.com/3eckmly>

These are just a few of the vast resources available through online search. More well-regarded and reliable sources will be the most convincing.

Analog studies are tremendously helpful in developing assumptions for the company's operations and financial model. Studies or case histories are published by universities, business schools, nonprofits, government agencies, and NGOs. A few are listed below:

- FamilyFarmed.org www.familyfarmed.org/our-reports-2
- National Good Food Network www.ngfn.org/resources/food-hubs

- Wallace Center Community Food Enterprise www.communityfoodenterprise.org
- UW-Madison Center for Integrated Agricultural Systems <http://tinyurl.com/3thraof>
- University of Minnesota Food Industry Center <http://tinyurl.com/3drj8sr>

Analysis is conducted through the information gathering process to determine the information's relevance to the business. One important example is determining if public company financial information is relevant given the maturity, size, and scale differences between the businesses.

Synthesis is the process of piecing together all of the source material to answer the questions posed at the outset of the study, and derive the assumptions for the financial model. It is not uncommon to use multiple sources to form assumptions for one aspect of the business, such as using one source for staffing assumptions and another for salary assumptions.

The business model should be investigated in the due diligence process by asking key audiences how they would prefer to transact business, examining the relative profitability, and considering which model will allow the business to scale

Modeling is a financial exercise to study the economics of the business. It can be rough at this stage, and limited to a P&L or income statement, but will eventually become very detailed when writing the business plan. It should include sensitivity analysis that shows the effect of the largest risks in the business, such as supply or pricing variances. It should demonstrate that the business can generate enough cash flow to sustain operations at a steady state (past the point of breakeven), service its debt, repay investors, and weather a few storms.

CHOOSING THE RIGHT BUSINESS MODEL

The business model should be investigated in the due diligence process by asking key audiences how they would prefer to transact business, examining the relative profitability, and considering which model will allow the business to scale. While choosing the right model can impact the business's early success, it is very common for startups to change their business model once they begin operating and get market feedback.

MAKING THE CALL

A positive feasibility assessment is one which presents reliable evidence that the business will become financially sustainable, soon enough, and at a level acceptable to funders and investors. These factors may signal that the business could scale quickly, get to break-even before running out of cash, and provide investors a satisfactory return on their investment:

- Large existing, unmet demand, well in excess of the projected sales of the business
- A core group of committed producers and other nearby farms with the capacity to scale up production to meet the projected volume of the business
- Positive feedback from the large majority of potential customers contacted about the product and service offering, how it is delivered (go-to-market strategy), and the price they will pay
- Strong gross margins that can weather pricing and cost fluctuations in steady state
- Availability of startup capital

Risks should not be ignored, and strategies should be devised to address them, if they arise. Every business has risks, but if the team cannot conceive of ways to mitigate them, they may be too powerful to wisely proceed. This recognition may not always result in abandoning the business altogether. There may be a way to retool the idea to avert the risk, or it may be a matter of timing. If a significant market shift would reduce the risk it may be wise to watch for those factors to change before moving forward.

3.3 BUSINESS PLANNING

If the study reveals sufficient evidence that the business can be successful, a business plan is developed that adds further rigor to the assumptions and business model, including complete operations, marketing, and financial plans. The business plan will identify the funding needed from investors and lenders and project the level and timing of investor returns.

The key audiences for the business plan are the management team and potential investors. The process of writing a business plan ensures the management team is in agreement about how the business will be established, operated, and overseen. The business plan should signal to investors and lenders that the management team understands the business can manage and grow it successfully. Financial projections are a starting place for discussions between founders and funders on the valuation of the business, the capital required, the duration of investment, and potential rate of return.

RESOURCES FOR ENTREPRENEURS

Business plan templates and guides are available from many good sources:

- The Illinois Department of Commerce & Economic Opportunity offers a business plan outline on page 31 of its "Starting Your Business in Illinois Handbook" <http://tinyurl.com/3kknxqy>
- U.S. Small Business Administration "Writing a Business Plan" site <http://tinyurl.com/6h64ugy>
- SCORE, a startup business mentoring program, offers a variety of templates including financial statements <http://tinyurl.com/3qjwhza>

ELEMENTS OF A BUSINESS PLAN

The following outline is consistent with these templates and suggests topics to cover for food hub business plans. From a funder's perspective, the most important sections are the same as for any business sector: Market Analysis, Management Team and Financial Projections (specifically, Sources and Uses of Funds Statement and Assumptions Sheet). These are the sections that give an outsider the best sense of the opportunity and the capability of the team. For the food hub management team, the most important sections are the Marketing Plan, Operations Plan, and the Pro Forma Cash Flow Statement in the Financial Projections. These sections require the team to think through most thoroughly how they will operate, sustain, and grow the business.

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1. Executive Summary	One-page summary of the business (see section 3.4 for examples)
2. Company Description	Concise overview of the business
Introduction	Synopsis of the business model, location, founders
History	Relevant details about how the idea emerged, personal history of founders, etc.
Mission	The value the company seeks to create, including social mission (applicable for most food hub ventures)
Products and Services	Description of services offered to growers and/or small businesses and products offered to buyers
Current Status	Stage of development— e.g. concept, startup, pre-revenue—and major milestones achieved
Funding Sought	The amount of capital needed for startup
Corporate Structure and Ownership	Business entity, where registered, names and relationship of owners, any parent or subsidiary relationships
3. Industry Analysis	Macro industry statistics (heavily cited from secondary sources)
Industry Size, Growth Rate, Sales Projections	National industry statistics for products offered
Industry Structure	Description of national value chain, e.g. players, functions, relationships— see chart and description on page 8
Nature of Participants	Top players in value chain, concentration/fragmentation, buying power, annual sales
Key Success Factors	Basis of competition, e.g. price, service, supply, quality, location
Industry Trends	Five-year historical growth rate and projections, excerpts from articles and market research reports
Long-Term Prospects	Likely time horizon for trends, opportunity for enduring success
4. Market Analysis	Local environment in which the food hub will compete
Market Segmentation and Target Market Selection	Types of customers in the local market and the 1-2 segments on which the business will focus— can segment by channel, size/volume, product preferences, etc.
Buyer Behavior	How the selected customer segment makes purchase decisions and conducts transactions
Competitor Analysis	Other local players who offer similar products and services, serve similar customers or could enter the market
Estimate of Annual Sales and Market Share	Total \$ demand for products and services in the local trading area and the % share expected to be captured
5. Marketing Plan	Sales and marketing strategy
Overall Marketing Strategy	How the company will generate awareness and build sales and distribution to achieve projections
Revenue Model and Pricing Strategy	How the company will make money (e.g. markup, commission, fee) and establish prices (e.g. based on terminal market, cost-plus)

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Sales Process	How the company will conduct sales (e.g. direct, brokered) and the cycle time from initial contact to first order
6. Management Team and Company Structure	Key personnel and why they are relevant to the business
Management Team	Day-to-day leadership, functional role and past experience/record of success
Board of Directors	Those with fiduciary oversight—not required for all business entities
Board of Advisors	Functional or technical experts committed to helping the company succeed
Other Professionals	Joint venture partners, attorneys, accountants, and consultants who are key to the success of the company
7. Operations Plan	How products and services will be delivered
Operations Model and Procedures	How orders are fulfilled or services are provided including food safety and sanitation procedures
Business Location	Site description and advantages
Facilities and Equipment	Floor plan, workflow diagram, key pieces of equipment
Operations Strategy and Plans	How operations may change as the company grows
8. Product/Service Design and Development Plan	Plans for finalizing product and service offering
Development Status and Tasks	Description of steps completed and remaining, including inspections and certifications
Challenges and Risks	Any factors that could change development plans and schedule, and strategies to mitigate risky outcomes
Costs	Any significant pre-opening expenses to develop the product or service (e.g. R&D, worker training, certifications)
Intellectual Property	If applicable, any proprietary technology or know-how that offers competitive advantage
9. Financial Projections	5-10 year forecast of sales and cash flow that shows how much capital is needed through breakeven and when breakeven occurs
Sources and Uses of Funds Statement	Amount and sources of funding needed through breakeven (e.g. founder capital, grants, loans, equity, revenue) and categories of how it will be spent (e.g. PP&E, working capital, overhead, R&D)
Assumptions Sheet	Key inputs to financial model, their sources, and the basis for their relevance
Pro Forma Income Statements	Profit and loss statement from pre-opening through the later of steady state or 5-10 years
Pro Forma Balance Sheets	Not always necessary; should mirror income statement if included
Pro Forma Cash Flows	Mirrors income statement and includes cash from operations, investing and financing; include minimum 24 months monthly cash flows to facilitate cash management at startup
Ratio Analysis	Key ratios mirroring income statement and cash flows, as applicable: sales % increase vs. prior year, occupancy/ utilization rate, gross margin, operating margin, debt ratio, current ratio

3.4 FUNDRAISING

Fundraising activities should be underway throughout the business planning process focusing on investors, lenders and granting bodies. Engaging potential funders as advisors can be beneficial in establishing rapport, giving them an opportunity to shape the plan and widening the base of support through their networks.

FUNDING SOURCES

The following pages highlight several grant and loan opportunities that are well aligned with food hub businesses. FamilyFarmed.org has developed a guide focused on Illinois centric funding sources, found here: <http://tinyurl.com/4x3ngdw>. Additional USDA funding programs can be found on the USDA Food Hub portal www.ams.usda.gov/AMSv1.0/foodhubs.

GRANTS

Sustainable Agriculture Research & Education Sustainable Community Innovation Grants

- SARE is a competitive grants program providing grants to researchers, agricultural educators, farmers, ranchers, and students in the US.
- Sustainable Community Innovation Grants award up to \$15,000 for activities that connect or make links between the farm and non-farm parts of a community, for the purpose of economic development.
- Contact: www.sare.org

Sustainable Agriculture Research & Education Professional Development Grant

- Training grants to educate and inspire agricultural professionals such as Cooperative Extension and NRCS so they can better inform their producer clients about sustainable agriculture's benefits and practices.
- Training activities such as seminars, workshops, farm tours, demonstrations, videos, manuals or other materials usually range between \$20,000 and \$120,000.
- Contact: www.sare.org

Value-Added Producer Grants USDA Rural Development

- Competitive matching grant funds to help independent agricultural producers enter into value-added activities; set aside for beginning and socially disadvantaged farmers;
- Maximum Grants: \$100,000 Planning and \$300,000 Working Capital
- Contact: Matt Harris 800-835-5159, 217-403-6211
matthew.harris@il.usda.gov

Community Food Projects Competitive Grant Program (CFP), USDA CSREES

- These grants are intended to help eligible private nonprofit entities that need a one-time infusion of federal assistance to establish and carry out multipurpose community food projects.
- Projects are funded from \$10,000-\$300,000 and from 1 to 3 years.
- One-time grants that require a dollar-for-dollar match in resources.
- Contact:
www.nifa.usda.gov/fo/communityfoodprojects.cfm

USDA Specialty Crop Grant Program, Illinois Department of Agriculture

- Proposals will be accepted from non-profit organizations, producer organizations, government agencies and other organizations related to Illinois specialty crops industry.
- The project proposed must be focused on research, education, demonstration, or in some way benefit the specialty crop industry.
- Contact: www.agr.state.il.us (on left side of site click on grants, then click on Specialty Crops)
- Delayne Reeves: 217-524-9129
delayne.reeves@illinois.gov

LOAN PROGRAMS

Business & Industry Guaranteed Loan Program (B&I), USDA Rural Development

- Program guarantees loans by commercial lenders to rural businesses.
- Maximum \$10 million aggregate loan amount to any one borrower.
- Must be located in an eligible rural area which is defined as being outside of cities with a population of 50,000 or more and the surrounding built-up areas.
- Requires equity investment on the part of owners. 20% tangible balance sheet equity for new businesses and 10% for existing businesses.
- Contact: www.rurdev.usda.gov/il
- Kevin Vetos, Ottawa office 815-433-0551
kevin.vetos@il.usda.gov
- Tony Humble, Bourbonnais Office, 815-937-894
tony.humble@il.usda.gov

Farm Storage Facility Loan Program, USDA, FSA

- Loans to producers to build or upgrade farm storage and handling facilities for soybeans, peanuts, hay, renewable biomass, pulses, and oilseeds. Corn, grain sorghum, oats, wheat, barley, fruits and vegetables are also eligible, subject to program requirement
- Contact: www.fsa.usda.gov

Microloan 7(m) Loan Program, SBA

- Short-term loans to small businesses for working capital or the purchase of inventory, supplies, furniture, fixtures, machinery and/or equipment.
- Proceeds cannot be used to pay existing debts or to purchase real estate.
- Maximum loan is \$35,000
- Contact: www.sba.gov/financing

7(a) Loan Program, SBA

- Provides new and growing businesses with loans of up to \$2 million with an SBA guaranty of 75% to 85%.
- Loans may be used to purchase equipment, inventory, fixtures, leasehold improvements, working capital, debt refinancing for compelling reasons, change of ownership
- Contact: www.sba.gov/financing

IFF, Affordable Facility and Equipment Loans for Nonprofits

- IFF is a nonprofit community development financial institution that provides affordable, flexible loans to nonprofits involved in the healthy food movement across Illinois, Indiana, Iowa, Missouri, and Wisconsin.
- IFF lends across the healthy food access spectrum—from nutrition and wellness educators, to community-based growers and distributors, and healthy food retailers.
- Loan up to \$1.5 million are available for facility acquisition rehabilitation and new construction. Loans starting at \$10,000 for facility repairs, equipment, and vehicles.
- IFF loans feature fixed, below market rates for 5 to 15 years. Financing is available for up to 95% of project costs, with no required appraisals, points, added fees, or prepayment penalties.
- Contact: www.iff.org/lending 866-629-0060

Illinois Finance Authority provides Bonds and Loan Guarantees

- Programs provide lenders with tax free bonds or guarantees for a portion of a loan or line of credit, extended by a commercial bank or a qualified lender.
- Offers a variety of programs including:
 - Beginning Farmer
 - Working Capital
 - Farm Purchase
 - Young Farmer
- Details and contact information for these programs is available at www.il-fa.com
- Contact: www.il-fa.com/products/agriculture/programs.html#BF

INVESTOR GROUPS

SLoFIG, Sustainable Local Food Investment Group

- Network of Angel Investors providing equity and/or debt support to early stage and startup businesses within 200 mile radius of Chicago.
- Businesses must enhance the sustainable local food system by (1) increasing the health of the people who consume their products, (2) enhancing the economic



viability of their community (3) improving the fertility of the land and (4) ensuring the humane treatment of livestock

- Contact: <http://angelsoft.net/venture-fund/sustainably-local-food-investment-group>
- Terri Lowinger: tlowinger@ameritech.net

RSF Social Finance

- Serves both nonprofit and profit enterprises that meet a combination of financial, operational, and impact criteria.
- Enterprises need to meet one of three focus areas – Food & Agriculture, Education & the Arts, Ecological Stewardship, or furthers field of social finance.
- RSF core lending program offers mortgage loans, construction loans and working capital lines of credit]
- Contact: <http://rsfsocialfinance.org>

INVESTOR PRESENTATIONS

While banks and many grant programs generally only require a business plan to apply for funding, there are several additional items that entrepreneurs may need to prepare for equity investors, particularly professional investor groups and funds. In addition to a complete business plan as discussed in section 3.3 of this guide, these items include an elevator pitch, an executive summary of the business, a slide presentation, a complete financial model and a private placement

memorandum. Depending on the amount to be raised, the nature of investors sought and the experience of the entrepreneurial team, professional consultants may be helpful in developing these documents.

Elevator Pitch: This is a 30-second description of the business which derives its name from the interval between floors should a funder and an entrepreneur share an elevator. It is by definition succinct, and should be easy for an uninitiated person to quickly understand. For this reason jargon should be avoided, and analogies to common business models are helpful. The pitch contains two key elements: 1) the pain statement—the customer problem the venture solves and 2) the value proposition—how the venture solves that problem. Additionally, the pitch should convey the opportunity for investors, whether financial or social returns, or both.

Executive Summary: Few investors will read an entire business plan, but most will read a one-page summary of its key elements. If intrigued by the quick glimpse into the business, they will read more. The executive summary is used as the introduction to the business plan and as a separate marketing piece. It can accompany an email to introduce an investor to the business and request a meeting, and be left behind or sent in follow up communication as a reminder. A very good template was created by Angelsoft.net and is available with instructions on the website of 2x Consumer Products Growth Partners, a Chicago-based private investment firm: <http://tinyurl.com/427a58p>.

Part Three: Business Development Process

Building Successful Food Hubs

Slide Presentation: If a meeting is granted, investors will generally allow 30-45 minutes for a presentation. Guy Kawasaki, a venture capitalist and author on investing and entrepreneurship, recommends The 10/20/30 Rule of PowerPoint: 10 slides, 20 minutes, 30 point font. No more than 10 slides that take no more than 20 minutes to present and contain nothing smaller than 30 point font. These limitations ensure entrepreneurs present the most important information, have committed the content to memory, and allow time for Q&A. The slides should cover these ten areas, based closely on the structure of the business plan. Visit <http://tinyurl.com/3eqqnggh> or read Kawasaki's book "The Art of the Start" for more information.

1. **The Problem** – what pain is the venture trying to solve
2. **Your Solution** – how does it solve it
3. **Business model** – how does the company make money
4. **Underlying magic** – what makes it unique
5. **Marketing and sales** – how will it reach customers
6. **Competition** – a tabular comparison of features and benefits
7. **Team** – who are they, why are they relevant and what is their record of success
8. **Projections and milestones** – financials with breakeven and payback
9. **Status and timeline** – key accomplishments and next steps
10. **Summary and call to action** – remind them of opportunity and ask for their investment

Financial Model: This is the set of spreadsheets used to derive the financial statements in the business plan. It will include detailed assumptions, income statement, balance sheet, statement of cash flows, sources and uses, key ratios, and investor returns. More interested investors will request this level of detail, and may use the spreadsheets as the basis for their own due diligence. Accuracy and consistency between statements is important to show competence to investors.

Private Placement Memorandum: A legal document that details the terms of the investment opportunity and the securities offered such as private stock, debt, or convertible notes. Entrepreneurs are strongly advised to hire an attorney familiar with securities law to prepare the private placement memorandum.



3.5 LAUNCH

Once funds are secured, the business can implement its launch plan and begin operating. Each business launch is unique, yet there are a few common practices that can build goodwill and help maintain financial control during the unpredictable early stages of the company.

- Host a launch event. Invite stakeholders to the facility for a pre-opening or grand opening event. Suppliers may be more confident if they can meet the whole team and see the facility that will be handling its goods. Customers may want to see the facility to get a sense of the safety and sanitation procedures. Inviting local politicians not only engenders goodwill, but may attract the media to generate press coverage and raise awareness.
- Create a dashboard. This includes key performance indicators (KPIs) that managers can use to track progress against plan. KPIs may differ across business models. Some of the most important include actual vs. projected sales, gross margin on sales, occupancy/utilization rate, customers or orders in the pipeline, inventory aging, and accounts receivable aging. The dashboard gives managers the information they need to steer the company effectively and make decisions regarding cash flow, sales and operations.
- Engage advisors and investors. The team that helped launch the business may also be invaluable in helping guide it. Frequent meetings or conference calls with a limited agenda may be well worth the time to access outside perspectives on both day-to-day operations and key decisions. Likewise, investors may have experience or networks that can help the company navigate through complex and unexpected situations. Keeping investors informed can also minimize surprises should the company miss projections and need to raise additional capital.

ENERGY EFFICIENCY

Next to labor, energy costs tend to be one of the highest expenses associated with food hub operation. If the food hub is retrofitting an existing structure,

replacing outdated equipment that is not efficient with respect to energy utilization is a key to food hub success and sustainability. Both Ameren and ComEd, as well as various independent energy suppliers, offer financial incentives to upgrade the efficiency of energy using devices in businesses. These programs offer a combination of both guidance and assistance that are relevant to food hub operation, including:

- Free energy-use assessments including recommendations for changes and upgrades that may qualify for rebates of up to 50 percent.
- Free installation of energy saving products such as compact fluorescent lamps and natural gas saving devices.
- Assistance with completing a Smart Ideas application for incentives and help with the scheduling and installation of energy savings recommendations.

Ameren, through their “Act on Energy” program, has specifically focused their incentives on customers using equipment found in agriculture, grocery, and commercial kitchen and manufacturing operations. Visit Ameren Act of Energy Program for general program information and the types of equipment upgrades are included in the Ameren incentive program: www.actonenergy.com/for-my-business/business-incentive-programs

Likewise, ComEd’s “Smart Ideas” program, offers incentives in conjunction with Nicor Gas, North Shore Gas, or Peoples Gas in areas where customers are jointly served. For a more thorough discussion regarding their specific programs and equipment incentives, visit: <https://www.comed.com/sites/businesssavings/Pages/smallbus.aspx>

For projects outside the Ameren and ComEd service territories, the Association of Illinois Electric Cooperatives offers similar incentives. A summary of these incentives can be found at www.aiec.coop/#. Additionally, members of the Illinois Municipal Electric Agency (IMEA) are eligible for the IMEA Electric Efficiency Program.

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- Barham, James et. al. Regional Food Hub Resource Guide. Resource Guide, Washington D.C.: USDA Agricultural Marketing Service, 2011 (Forthcoming).
- Dane County Department of Planning and Development. Southern Wisconsin Food Hub Feasibility Study. Feasibility Study, Madison: Dane County, 2011.
- Endres, A. Bryan, Michaela Tarr, Jody M. Endres, and Nicholas R. Johnson. "Illinois Direct Farm Business: A guide to laws affecting direct farm business in Illinois." Illinois Direct Farm Business. 2011. <http://www.directfarmbusiness.org/> (accessed August 24, 2011).
- FamilyFarmed.org. Ready to Grow: A Plan for Increasing Illinois Specialty Crop Production. Feasibility Study, Oak Park: FamilyFarmed.org, 2010, 30.
- . Wholesale Success: A Farmer's Guide to Selling, Postharvest Handling and Packing Produce. Oak Park, IL: FamilyFarmed.org, 2010.
- Huang, Sophia Huang and Kuo. "Increased U.S. Imports of Fresh Fruit and Vegetables FTS-328-0." USDA Economic Research Service Publications. September 2007. <http://www.ers.usda.gov/Publications/fts/2007/08Aug/fts32801/fts32801.pdf> (accessed February 12, 2011).
- Institutional Food Market Coalition. 2010 Program Report. Annual Report, Madison: Dane County Department of Planning and Development, 2010.
- Iowa State University. What is Organic Agriculture? 2009. <http://extension.agron.iastate.edu/organicag/history.html> (accessed August 15, 2011).
- Kawasaki, Guy. The Art of the Start: The Time-Tested, Battle-Hardened Guide for Anyone Starting Anything. London: Penguin Group, 2004.
- Kime, Lynn F., Sarah A. Roth and Jayson K. Harper. "Starting or Diversifying an Agricultural Business." Pennsylvania State University. 2004. <http://agalternatives.aers.psu.edu/publications/StartingAgBusiness%20PM7.pdf> (accessed August 25, 2011).
- Martinez, Stephen. "Food Marketing System in the U.S.: Food Wholesaling." USDA ERS. August 22, 2007. <http://www.ers.usda.gov/Briefing/FoodMarketingSystem/wholesaling.htm> (accessed February 16, 2011).
- Martinez, Steve, et al. Local Food Systems: Concepts, Impacts, and Issues. Economic Research Report Number 97, Washington DC: USDA Economic Research Service, May 2010, 87.
- Meter, Ken. "Local Food as Economic Development." Crossroads Resource Center. October 2008. <http://www.crcworks.org/lfced.pdf> (accessed June 30, 2010).
- Mintel Group. Local Procurement - US - February 2009. February 2009. http://oxygen.mintel.com/sinatra/oxygen/search_results/show&&set_access_filter=all-ZUS/display/id=393577 (accessed June 30, 2010).
- National Center for Appropriate Technology. Food Dehydration Options. August 2004. <https://attra.ncat.org/attra-pub/summaries/summary.php?pub=272> (accessed March 5, 2011).
- National Restaurant Association. "Chef Survey: What's Hot in 2010." National Restaurant Association. October 2009. http://www.restaurant.org/pdfs/research/whats_hot_2010.pdf (accessed June 30, 2010).
- . "Industry Forecast Predicts Trends in Healthier Options and "Greener" Restaurants in 2009." National Restaurant Association Press Release. December 18, 2008. <http://restaurant.org/pressroom/pressrelease/?ID=1726> (accessed June 30, 2010).
- Pirog, Rich. "Checking the food odometer: Comparing food miles for local versus conventional produce sales to Iowa institutions." Leopold Center for Sustainable Agriculture. July 2003. http://www.leopold.iastate.edu/pubs/staff/files/food_travel072103.pdf (accessed August 24, 2011).
- Riddle, Jim and Miles McEvoy. USDA National Organic Program Rule Summary. December 20, 2006. <http://agr.wa.gov/foodanimal/organic/Certificate/2006/NOPSummary2006.pdf> (accessed August 15, 2011).
- Sonntag, Viki. Why Local Linkages Matter: Findings from the Local Food Economy Study. Local Food Multiplier Study, Seattle: Sustainable Seattle, 2008.
- Swenson, David. Selected Measures of the Economic Values of Increased Fruit and Vegetable Production and Consumption in the Upper Midwest. Research, Department of Economics, Iowa State University, Ames: Leopold Center for Sustainable Agriculture, March 2010.

Building Successful Food Hubs

A Business Planning Guide for Aggregating and Processing Local Food in Illinois

U.S. Environmental Protection Agency. "Emission Factor Documentation for AP-42: Canned Fruits and Vegetables." EPA.gov. August 2005. <http://www.epa.gov/ttnchie1/ap42/ch09/bgdocs/b9s08-1.pdf> (accessed March 3, 2011).

U.S. Food and Drug Administration. Food Labeling Guide. July 26, 2011. <http://www.fda.gov/Food/GuidanceComplianceRegulatoryInformation/GuidanceDocuments/FoodLabelingNutrition/FoodLabelingGuide/default.htm> (accessed August 1, 2011).

UC Davis. "US Fruits and Vegetables." Rural Migration News. July 2007. http://migration.ucdavis.edu/rmn/more.php?id=1231_0_5_0 (accessed February 12, 2011).

USDA Agricultural Marketing Service. Grading, Certification and Verification: Fresh Produce Audit Verification Program. August 4, 2011. <http://www.ams.usda.gov/AMSV1.0/ams.fetchTemplateData.do?template=TemplateN&page=GAPGHPAuditVerificationProgram> (accessed August 25, 2011).

USDA Economic Research Service. "Food Marketing System in the U.S.: Food Wholesaling." USDA Economic Research Service Briefing Rooms. August 22, 2007. <http://www.ers.usda.gov/Briefing/FoodMarketingSystem/wholesaling.htm> (accessed February 12, 2011).

USDA National Agricultural Statistics Service. Agricultural Census. Census, Washington D.C.: USDA, 2007.

USDA National Agricultural Statistics Service. Illinois Farm Report, IFR-1111. Agricultural Statistics, Springfield: Illinois Field Office, August 12, 2011.

Wilson, L.G. M.D., and E.A. Estes Boyette. Postharvest Handling and Cooling of Fresh Fruits, Vegetables and Flowers for Small Farms. Part II: Cooling. Horticultural

ENDNOTES

1. (Barham 2011 (Forthcoming))
2. (UC Davis 2007)
3. (USDA National Agricultural Statistics Service 2007)
4. (S. Martinez 2007)
5. (USDA Economic Research Service 2007)
6. (Martinez, et al. May 2010)
7. (Mintel Group 2009) (Mintel Group 2009)
8. (Mintel Group 2009)
9. (National Restaurant Association 2009)
10. (National Restaurant Association 2008)
11. (FamilyFarmed.org 2010)
12. (Dane County Department of Planning and Development 2011)
13. (FamilyFarmed.org 2010)
14. (Huang 2007)
15. (FamilyFarmed.org 2010)
16. (Mintel Group 2009)
17. (Meter 2008), (Swenson March 2010), (Sonntag 2008)
18. (Institutional Food Market Coalition 2010)
19. (USDA National Agricultural Statistics Service August 12, 2011)
20. (Pirog 2003)
21. (Wilson and Boyette 1999)
22. (FamilyFarmed.org 2010)
23. (USDA Agricultural Marketing Service 2011)
24. (FamilyFarmed.org 2010)
25. (Riddle 2006)
26. (U.S. Environmental Protection Agency 2005)
27. (U.S. Environmental Protection Agency 2005)
28. (National Center for Appropriate Technology 2004)
29. (U.S. Food and Drug Administration 2011)

