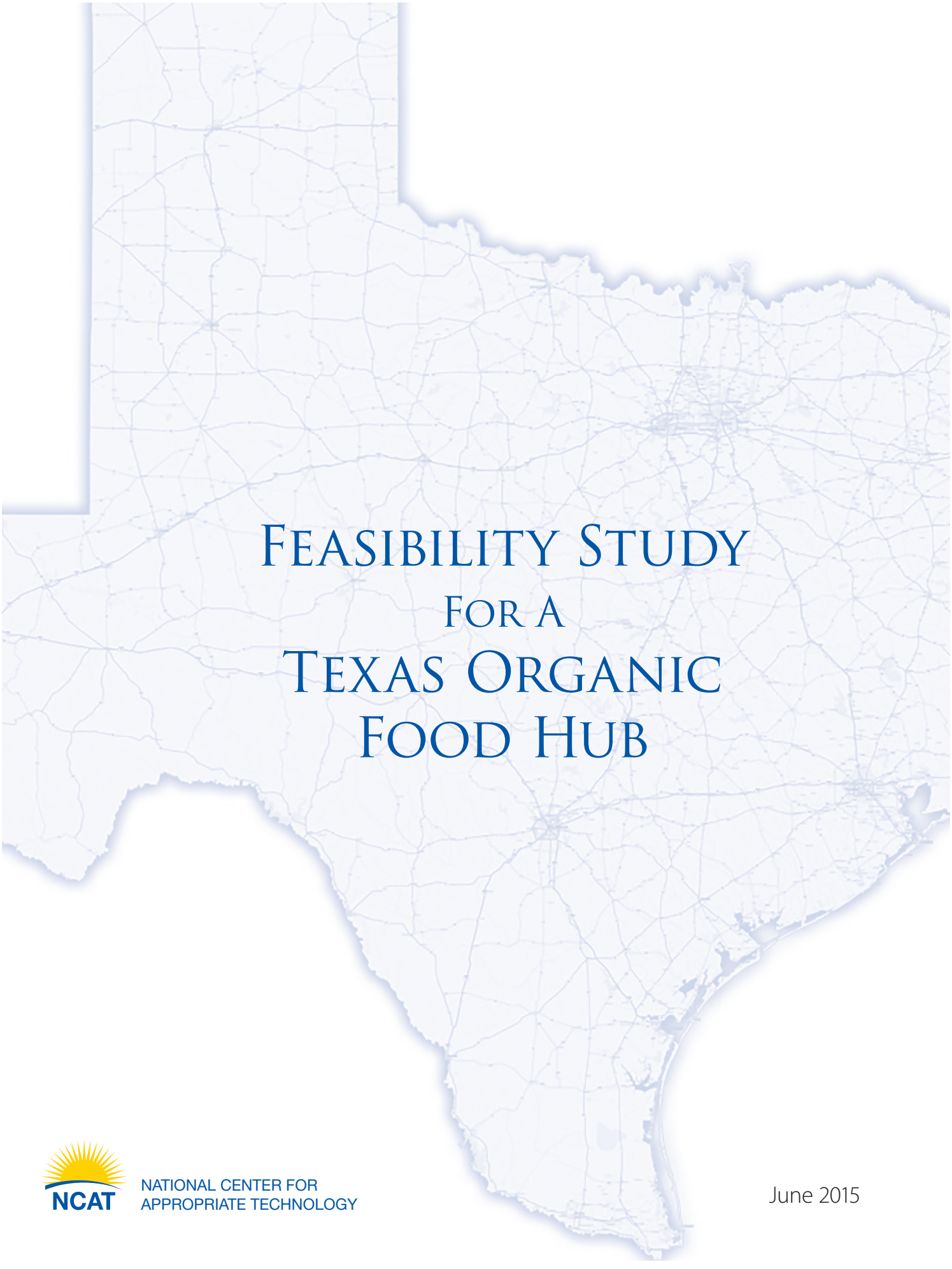

Feasibility Study For A Texas Organic Food Hub

NCAT
NATIONAL CENTER FOR APPROPRIATE TECHNOLOGY

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Table of Contents

Executive Summary

Background

Responding to a request from farmers in central Texas, the National Center for Appropriate Technology (NCAT) studied the feasibility of a food hub in or near Guadalupe County, Texas. This enterprise would aggregate fresh certified organic produce from small- to mid-sized farms, making it conveniently available from a single source and at volumes large enough to be attractive to retailers.

The main purpose of this food hub would be to increase the net incomes of small farms and improve their resilience and long-term profitability by creating access to the growing market for certified organic food. The larger vision is to promote rural development by addressing the underdeveloped state of organic farming in Texas: a missed economic opportunity that causes retailers to purchase the vast majority of organic produce from outside the state.

From April 2014 until June 2015 NCAT led a project team that surveyed all organic produce farms in Texas; interviewed growers, buyers, and other industry experts; offered trainings on organic certification and food safety; met with food hub managers and organizers from around the country; and investigated market conditions, business structure options, infrastructure needs, crop availability, transportation, insurance, food safety, and other topics.

A feasibility study is only one step in the planning process and due diligence that should precede the creation of a business. Following completion of a feasibility study, several additional steps ordinarily take place before decisions are made about proceeding with incorporation and fundraising.

This report shows how a Texas organic food hub would perform under realistic assumptions, but it is by no means a complete business plan. Potential investors and participants should proceed cautiously and gather more information than is provided in this report.

Technical terms and abbreviations used in citations are italicized the first time they appear in the text, and are defined in a Glossary at the end of the report.

Sales focus and operations

NCAT recommends that the food hub specialize in selling primarily to retail grocery outlets. Hub operations should be designed to maintain superior quality and freshness, and products should be *co-branded*, featuring both the hub name and the farm name.

We also recommend the following:

- For maximum flexibility in adjusting to changing market conditions, the hub should keep startup costs low: renting most of its equipment initially and starting with just four employees and capacity for 700 cases of cold storage. By the third year the business would grow to eight employees.
- In order to source *produce* from all parts of the state and take advantage of year-round growing season in Texas, the hub should begin with two *sub-hubs:* eventually deploying a network of four sub-hubs in the northern, southern, eastern, and western parts of the state.
- In its mission and activities, the enterprise should strongly focus on delivering benefits to its grower members, who would receive 70 percent of gross sales and have opportunities for revenue sharing. Depending on the wishes of the grower members, the hub could be organized as a cooperative, non-profit, or limited liability corporation.

Hub employees would plan and coordinate crop production by participating farms, create availability sheets, negotiate purchases with retail customers, place orders with farms, and receive produce at the central storage and shipping facility. Farms would be responsible for washing, packing, and cooling produce, as well as delivering it to the nearest hub or sub-hub. Once received at the main hub, produce would be inspected, sorted, placed into temporary cold storage, loaded onto refrigerated delivery vehicles, and shipped to customers.

During the hub's first three years, we estimate that it would create four to eight jobs in the community where it was located. Statewide impacts would be far greater. By the hub's third year of operation, about 60 full-time equivalent jobs would be created throughout rural Texas. The hub would create opportunities for farms throughout Texas—even small ones—to access professional business management services and lucrative organic markets offering premium prices.

The main purpose of this food hub would be to increase the net incomes of small farms while improving their resilience and long-term profitability.

Financial/Economic feasibility

A pro forma profit and loss statement shows net revenue of $480,042 in the hub's first year, based on product sales of $1,777,933. By the third year, net revenue would grow to $1,075,976 based on product sales of $3,985,095. Total funds needed to begin operations are $277,920. This includes $77,920 for asset purchases, deposits, and other startup expenses, and $200,000 for cash expenses during the hub's first three months of operation. The gross profit margin would be 2.1 percent in year one, 4.1 percent in year two, and 6.2 percent in year three. A sensitivity analysis shows that net profits for year one would drop to zero if sales fell eight percent below the target level of $1.7 million.

Market Feasibility

NCAT recommends that the hub should focus on the untapped retail market for Texas-grown organic produce, thus largely avoiding direct competition with existing economic interests. Consumer purchases of organic food have grown consistently for over two decades. The two largest retailers of organic food in Texas (Whole Foods and H-E-B) have both expressed interest in buying from the food hub.

Keeping in mind the seasonal limitations on production of certain crops, we estimate that Texas organic producers could grow (conservatively) half of the organic produce currently being sold in Texas grocery stores, worth about $100 million per year at *farm gate* prices. In theory, the hub could eventually capture a significant percentage of this $100 million market. There are also significant markets for Texas-grown organic produce in other states, especially during the winter months.

Other food hubs already operate in Texas, but none like the one envisioned here. Competing food hubs may come into existence, but they would need to win the trust and participation of the state's limited pool of organic farmers. Low profit margins will also likely discourage entrepreneurs who are exclusively profit-driven.

Technical Feasibility

The equipment and processes needed to run a food hub are well-known and available. Suitable sites are readily available throughout central Texas, and qualified workers are abundantly available from the surrounding area, which includes the cities of Seguin, Austin, San Marcos, New Braunfels, and San Antonio.

The produce needed to meet the hub's first year sales target could be grown on 60-80 acres of certified organic farmland. This appears feasible, as nine specialty crop growers with 560 acres of certified organic land have already expressed strong interest in participating. The availability of organic produce could eventually limit growth of the hub, as there are currently only 75 certified organic specialty crop farms in Texas. However, a significant percentage of the state's *conventional* growers are believed to be open to the idea of organic certification. Many of these are already using organic farming methods and could become certified within a matter of months.

To reduce transportation costs, NCAT recommends that the hub take advantage of all opportunities for *backhauling* on the part of retail customers. The hub will need to be flexible, reducing its geographical scope if low-cost transportation options are not available.

There are no known adverse environmental impacts and many well-known environmental benefits from organic farming. The new Food Safety Modernization Act will create new regulations, but these appear to be manageable. NCAT recommends that all grower members be organically certified, ensuring that they undergo a third-party inspection at least annually and follow stringent food safety protocols and environmentally beneficial practices.

Management Feasibility

As with the workforce generally, qualified consultants and service providers are abundantly available from Austin, San Antonio, and other cities nearby. A bigger challenge would be finding dynamic managers who have the right balance of professionalism and optimism to win and maintain the trust and loyalty of the grower members.

Major risks

The three major risks are that growers may not participate in sufficient numbers, high transportation costs could make sub-hub operations prohibitively expensive, or the enterprise could fail if sales fall short of expected levels.

To address the first risk (attracting a sufficient number of growers as participants), NCAT recommends:

- operating with a high degree of transparency and a strong commitment to the ideals of organic farming, which include environmental improvement along with human safety and health;
- not requiring an exclusive commitment from participants, leaving them free to sell through other channels;

- limiting competition with established organic growers who are already selling to retail groceries;
- spending at least several months informing Texas growers about the food hub's purpose and engaging as many of them as possible in the planning process, before final decisions are made about the hub's business structure and operations;
- informing and involving existing Texas organizations that represent organic farmers and have won their trust; and
- providing education, support, and encouragement to the large pool of conventional growers who are interested in transitioning to organic production.

To address the second risk (high transportation costs), the hub should aggressively pursue all possible opportunities for backhauling by its customers. To address the third risk (business failure due to inaccurate forecasting and low sales), the hub should start small and minimize its startup costs: renting equipment and being prepared to shrink operations if necessary.

Recommendations for implementation

This study concludes that a Texas organic food hub could be implemented profitably. NCAT recommends that food hub organizers continue outreach and grower recruitment efforts and develop a fundraising plan and timeline, towards the goal of a pilot effort such as the one described in this report.

Some funders and lenders will require a much more complete and specific business plan than what is provided in this report. Before actual fundraising can begin there will also need to be a legal entity to apply for and administer funds. The organizers can either choose an existing organization to play the role of fiscal agent temporarily or else proceed directly to the incorporation of the food hub as a legal entity in Texas. In either case, before deciding on a business structure there should be a deliberate process to disseminate information about the food hub's purpose and educate and involve many stakeholders. This process should not be rushed and will take several months at a minimum. If the organizers wish to start operations quickly, we recommend the first path: finding an appropriate organization to serve as a temporary fiscal agent.

Introduction

Purpose

The U.S. Department of Agriculture (USDA) defines a food hub as "a business or organization that actively manages the aggregation, distribution, and marketing of source-identified food products primarily from local and regional producers to strengthen their ability to satisfy wholesale, retail, and institutional demand" (Barham et al., 2012).

In the fall of 2013 a group of small-scale vegetable producers from Guadalupe County, Texas asked NCAT to investigate the feasibility of a food hub that would aggregate organic produce from Texas farms, making it available from a single source and at volumes large enough to be attractive to retailers. Responding to this request, NCAT submitted a proposal to USDA Rural Development and was awarded a Rural Business Enterprise Grant in the spring of 2014 to carry out four main activities:

1. Determine baseline information, such as what crops can be grown organically in Texas, who would be the hub's likely customers, how much produce these customers would likely buy, how much acreage would be needed to meet this demand, how many farms would be interested in participating, and what cities might want to house such a food hub.
2. Determine the operational requirements for an appropriately-scaled food hub, including financial requirements, building and equipment needs, job descriptions, possible organizational structures, and marketing strategies.
3. Create and disseminate a feasibility study including discussion of the market, competition, sales projections, and brand development, as well as financial pro formas and an analysis of the strengths, weaknesses, opportunities, and threats for such an enterprise.
4. Begin training growers on essential topics such as the organic certification process, food safety, packing standards and cooling requirements for retail and wholesale customers, transportation issues, insurance requirements, USDA lending and conservation programs, labor and tax issues, and related topics.

A feasibility study is an assessment of whether an enterprise is technically and economically feasible, showing how the enterprise would perform under a set of realistic assumptions.

Project team

The Project Team consisted of a Lead Team that participated in all aspects of the study, Technical Advisors who provided expert input on technical topics, and a Production Team that created this report. The Lead Team and Technical Advisors are listed below. A Qualifications section at the end discusses NCAT's qualifications, and those of the Co-Directors, to conduct this study.

Methodology

As the term is used here, a feasibility study is an assessment of whether an enterprise is technically and economically feasible, showing how the enterprise would perform under a set of realistic assumptions. These include assumptions about likely market conditions as well as recommendations for how the enterprise should be organized and run. Feasibility studies often include a sensitivity analysis showing how the business would perform if some of these major assumptions (and especially market conditions) are changed (Brockhouse and Wadsworth, 2010).

Stakeholder input

During a feasibility study, it is recommended that potential members of the enterprise "participate in the development of the feasibility study and thus are educated about various aspects of the project, which will help them decide whether to move to the implementation stage" (Brockhouse and Wadsworth, 2010). With this goal in mind, NCAT engaged a wide range of stakeholders and asked for their input.

To gather input from *certified organic growers*, NCAT worked closely with the Texas Organic Farmers and Gardeners Association (TOFGA), the state's largest organic farming membership organization. In January 2015, NCAT staff gave a presentation about the idea of a statewide organic food hub at the annual TOFGA conference in San Antonio. We also sent a letter or e-mail to all 294 certified organic producers in Texas (USDA-AMS, 2014), along with about 30 other interested persons, inviting them to complete a Grower Survey indicating their level of interest in a potential food hub. Fifty-two people

Table 1: Project team

Lead Team	Title/organization	Role/expertise
Robert Maggiani	Sustainable Agriculture Specialist, NCAT	Lead researcher, economic modeling, market analysis, stakeholder input
Mike Morris	Southwest Regional Office Director, NCAT	Project Director, study design, report writing
Susie Marshall	President, Texas Organic Farmers & Gardeners Association (TOFGA)	Research on operational requirements, outreach to organic growers, stakeholder input
Pedro Schambon	Owner/operator, My Father's Farm	Research on operational requirements, crop production, and economics
Technical Advisors	**Title/organization**	**Role/expertise**
Juan Anciso	Texas A&M AgriLife Extension Service	Food safety and GAP audit trainer
Jim Barham	USDA Rural Development	Advisor on food hub design and development
Susan Beckwith	Rural Development Specialist, City of Elgin	Outreach to growers and other stakeholders
Rick Carrera	Director, Texas Rural Cooperative Center	Grower organization trainer
Fidel Delgado	USDA-Agricultural Marketing Service	Advisor on food hub facilities design
Brent Demarest	Produce Purchasing, Whole Foods Market	Sales estimates, policies and procedures
Roger Harkrider	Director, H-E-B Produce Operations	Sales estimates, policies and procedures
Chad Julka	Grow North Texas	Outreach to growers, stakeholder input
Sandi Kronick	CEO, Eastern Carolina Organics	Advisor on food hub organization and operation
Annelies Lottmann	Texas Rural Cooperative Center	Cooperative development specialist
Amy McCann	CEO. Local Food Marketplace	Technical assistance: hub management software
Leslie McKinnon	Organic Certification Consulting	Researcher with organic certification expertise
Austin Moore	Business Development Manager, H-E-B Produce	Sales estimates, policies and procedures
Marco Palma	Texas A&M AgriLife Extension Service	Economic modeling and impact analysis
Chris Romano	Global Produce Coordinator, Whole Foods Market	Sales estimates, policies and procedures

completed the survey, including 38 commercial growers. The results are summarized in the Background section of this report, and presented in more detail in Appendix 1.

To gather input from the state's *conventional* (i.e. non-organic) growers, NCAT staff spoke at five grower meetings attended by mostly conventional farmers and ranchers: the Texas International Produce Association, Texas Fruit Growers Association, Texas Certified Farmers Markets Association, Fort Bend Vegetable Growers Conference, and Texas Pecan Growers Association. At these meetings we explained the concept of an organic food hub, provided information about the organic certification process, and asked producers about their interest level and concerns. We also offered three trainings on food safety and organic certification—two in Guadalupe County and one via webinar—attended by a mix of conventional and organic growers.

NCAT contacted 30 *wholesale* produce buyers, of whom 22 expressed at least some interest in buying from a food hub and four expressed strong interest. We also contacted buyers from the 15 largest grocery retailers in Texas. Of these, 11 expressed at least some interest in buying from a food hub and three (H-E-B, Whole Foods, and Brookshire's) expressed strong interest.

NCAT had extensive and ongoing discussions with Whole Foods and H-E-B, the two largest organic produce retailers in Texas. Both companies took an active interest in this feasibility study and provided valuable information, including estimates of the items and volumes they would be interested in buying from an organic food hub. In July 2014 we met with Whole Foods Market's Global Produce Coordinator at the company's headquarters in Austin, Texas. In October 2014 we met with the Produce Purchasing Team Leader for the Whole Foods Southwest Division in Austin. We also had six meetings with senior H-E-B managers, at the company's Retail Produce Center in San Antonio.

Determining technical feasibility

To find out what crops can feasibly be grown with organic methods in Texas, the Grower Survey asked farmers what crops they had grown in the past three years. NCAT also contracted with TOFGA to create *enterprise budgets* for over 20 crops, estimating the cost and labor requirements of organic production.

To find out the operational requirements of a statewide organic food hub, NCAT:

- attended dozens of webinars about food hub management, including webinars on specialized topics such as trucking, financing, and financial software;
- contracted with TOFGA to research insurance requirements, job descriptions, and infrastructure needs;
- received quotes from vendors for large equipment (such as vehicle, cooler, and trailer leases);
- met with about ten food hub managers at the annual meeting of the Southern Sustainable Agriculture Working Group *(*Southern SAWG*);*
- participated actively in the Southern SAWG Food Hub Working Group listserve;
- read dozens of food hub case studies; and
- consulted with the management of Eastern Carolina Organics, a food hub specializing in certified organic produce and headquartered in Durham, North Carolina.

It should also be noted that members of the project team and several technical advisors have extensive firsthand experience with marketing fresh produce in Texas..

Determining market and financial feasibility

The National Good Food Network (NGFN) lists over 300 food hubs currently operating in the United States (*NGFN,* 2014a). We regularly compared our assumptions to industry averages reported in the NGFN's Benchmarking Study (NGFN, 2014).

Most food hubs run on slim profit margins, meaning that small miscalculations or unexpected market shifts can create cash flow problems. (See, for example, NGFN, 2014 and Abellera et al., 2014.) The fresh produce industry is also subject to price fluctuations that vary from crop to crop. With these challenges in mind, NCAT wanted to start from the most realistic possible assumptions about likely prices and sales volumes. We also wanted to carry out a wide-ranging sensitivity analysis, testing the hub's economic performance and viability under many price and volume scenarios.

We accomplished both objectives by creating a Weekly Sales Forecasting spreadsheet that allowed us to input specific prices and sales volumes, crop-by-crop and week-by-week.

The two largest organic produce retailers in Texas, H-E-B and Whole Foods, both took an active interest in this feasibility study.

Creating this spreadsheet gave us the ability to study the hub's financial performance under an almost unlimited number of hypothetical conditions: asking "what if" questions like "What would happen to the hub's cash flow if tomato prices fell to $10 a box in July instead of staying at $15 per box?"

To forecast the hub's likely sales, we used estimates provided by major retailers, indicating the kinds and volumes of produce they would expect to buy from the hub. We consider these estimates realistic and conservative because these retailers have expressed strong interest in buying from the hub. To create a realistic forecast of weekly case prices, we drew from historical data in the USDA-AMS Fruit and Vegetable portal (USDA-AMS, No Date). We consider this historical data to be the most reliable guide to expected prices available to the general public.

The Weekly Sales Forecasting spreadsheet is included in the *Food Hub Planning Workbook* that was created during this study. This workbook is available from NCAT's ATTRA website, and includes templates for groups that want to study the financial performance of a potential or existing hub under varying assumptions.

How this report is organized

A Background section explains the purpose for creating a Texas organic food hub, including information about small- to mid-sized farms, organic food sales, and the Texas wholesale produce market. The Assumptions section next explains how the hub is expected to operate, making many recommendations and describing likely market conditions. With these assumptions in mind, the next four sections show how the hub would perform, considering its feasibility from several angles (Technical Feasibility, Market Feasibility, Financial/Economic Feasibility, and Management Feasibility). We estimate sales, profitability, and cash flow in the hub's first three years. We also assess and prioritize risks, building a detailed picture of the food hub's chances of success. The Conclusion summarizes strengths, weaknesses, opportunities, and threats, and makes tentative recommendations for moving towards capitalization and startup.

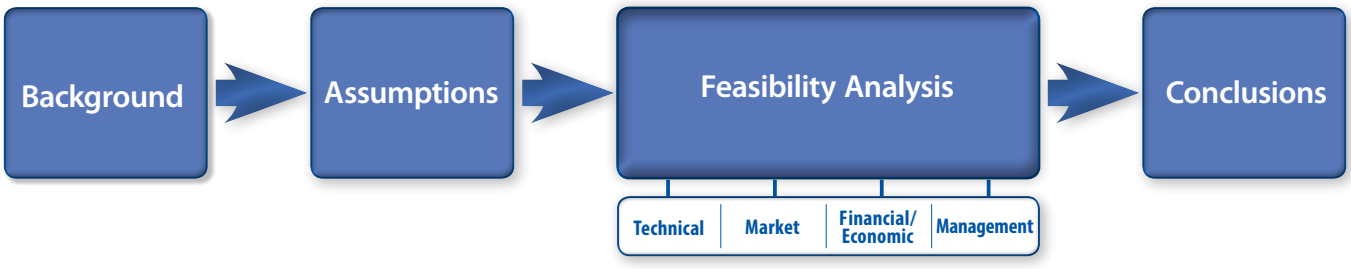
Background

Challenges faced by small- to mid-sized farms

Small- to mid-sized farms face challenges that include limited marketing options; high levels of personal, financial, and market risk; and unpredictable conditions such as weather. Prices depend on factors that are generally beyond the control of the individual farmer and can drop sharply because of production gluts. Texas farmers compete with growers all over the world, including countries with lower labor costs. In negotiating with buyers, fruit and vegetable growers often have a weak bargaining position because their products are so perishable. Federal programs to reduce agricultural risk, such as crop insurance and direct payments, have historically been used mainly by growers of *commodities* like wheat, corn, soybeans, and cotton, and have been less widely used for growers of fruits, vegetables, and other specialty crops (Schahzenski, 2012).

The recent growth in the number of farmers markets, community supported agriculture (CSA) subscription programs, and other *direct marketing* channels has created opportunities for small specialty crop farms (Rodriguez, 2006). On the other hand, direct-marketing is time-consuming and requires intense involvement in promotion, record-keeping, and the business aspects of farming. Many farmers lack the training or aptitude for these activities (Wiswall, 2009). And mid-sized farms often find that direct-marketing channels do not generate enough sales to support them (Lerman, 2012).

Figure 1: How this report is organized



Food hubs can potentially address many of the challenges above.

- Aggregating products may create enough volume and variety to interest larger retailers and institutional buyers, opening new marketing channels (Barham et al., 2012).
- Diversifying marketing methods and selling some products wholesale through a food hub may add a measure of predictability and reduce a farm's financial risk.
- Food hubs preserve information about the farm origin of foods, enabling them to seek price premiums. Many U.S. consumers are willing to pay higher prices for locally-produced and source-identified food (Bloom and Hinrichs, 2011).
- Growers can focus on what they do best—farming—leaving business management and marketing to professional staff.
- Growers may have opportunities for ownership and profit-sharing, as well as continuing education and other attractive services such as direct technical assistance or discounted liability insurance (Pressman & Lent, 2013).

Despite these potential benefits, food hubs are not a panacea. Profit margins are often low, and a California study found that food hubs, unless they are farmer-owned, merely "add on an extra layer of costs to the supply chain, duplicate existing efforts/infrastructure, and struggle financially without subsidy" (Abellera et al., 2014).

In our interviews with Texas growers, many expressed frustration with low or declining net profits available through direct marketing, and a willingness to try something different. The food hub envisioned in this report would be either farmer-owned or at least strongly "grower-centric": intended to increase the net incomes of farms, reduce their risks, and improve their resilience and long-term profitability. These are the main objectives of the enterprise and the primary measures of its success.

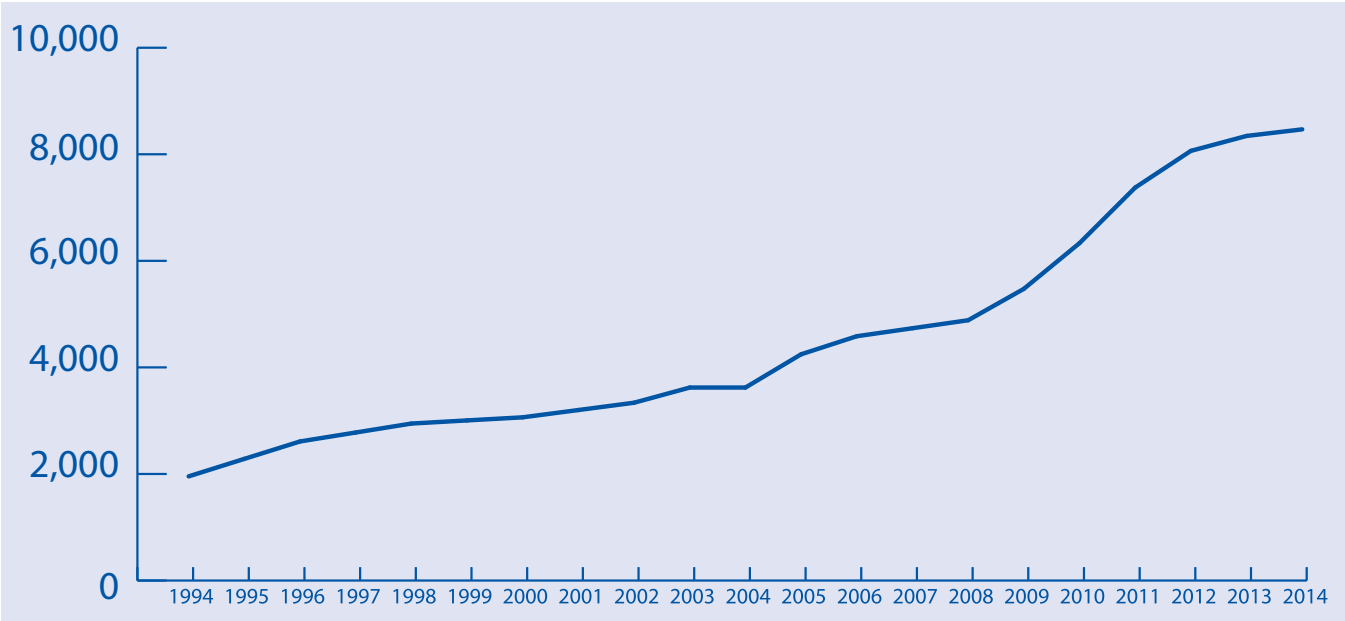
Organic certification

The term *certified organic* refers to products that have gone through the rigorous USDA regulatory process allowing them to carry the USDA organic logo and be branded as and sold as organic. Unlike common but legally meaningless terms such as "chemical free," "all natural," or "naturally grown," "organic" is a legally protected term whose use requires meeting USDA standards (Baier, 2005).

Maintaining organic certification requires an annual on-site inspection to confirm that a farm is following approved methods. These methods are based on promoting soil health, biodiversity, and water quality, while also protecting food safety and human health. Organic farms must comply with the National List of Allowed and Prohibited Substances maintained by USDA's National Organic Program (NOP) (USDA-AMS, 2015). Farmland that has been treated with prohibited substances must undergo a three-year transition period before it can be certified organic.

The food hub envisioned in this feasibility study is strongly grower-centric: intended to benefit participating farms.

Figure 2: Number of U.S. farmers markets



Texans spent at least $365 million on organic produce in grocery stores during 2014—equivalent to one million dollars per day.

Table 2: Food hub national averages

Average age of hubs:	7 years
Average revenue:	$2.83 million
Average enterprise income:	$108,241
Annual operation (days open):	276
Number of paid staff (FTE's)	6.2
Number of farmer vendors	20.2
Labor as % of revenues	18.3%
Labor as % of sales	16.4%
Cost of goods sold	72%
Gross profit margin	14.5%
Strictly organic	3.0%
Not for profit	38%
No term debt	46%
Grocery stores as customers	28%
Other distributors as customers	14%
Food safety certification required	31%

Source: NGFN 2014 Food Hub Benchmarking Study (48 food hubs reported performance numbers.)

There are 82 organizations accredited by the NOP to issue organic certification to growers, processors, and handlers. Of these, 18 were active in Texas in 2015 (Maggiani, 2015). They are listed in Appendix 3.

Demand for organic foods

According to the Organic Trade Association (OTA), U.S. sales of organic food and non-food products have grown by double-digits every year since the 1990s, and reached $39.1 billion in 2014. The OTA estimates that 81 percent of U.S. families now choose organic food at least sometimes (OTA, 2014).

In general, farms receive substantially higher prices for certified organic crops, although markets are volatile and there are wide variations between products (Post & Schahczenski, 2012). One recent study found that retail prices for organic foods in the grocery store were, on average, 47 percent higher than prices for equivalent conventional products. In some cases the organic product was found to cost less, while in other cases it was found to cost as much as 300 percent more (Marks, 2015).

Texas represents an enormous market for organic food, with 27 million residents, four of America's eleven largest cities (Houston, Dallas, San Antonio and Austin), and 33 other cities with at least 100,000 people. The Food Marketing Institute estimates that total 2014 U.S. grocery store sales were $638 billion. Texas represented 7.4 percent of total national sales, and produce department sales are about 11.3 percent of total grocery store sales (FMI, 2014).

Based on these three assumptions, we can estimate total 2014 Texas grocery stores sales at $47 billion and produce department sales at $5.3 billion. The OTA claims that organic produce now accounts for 12 percent of produce department sales in U.S. groceries, whereas another industry research group (FreshLook Marketing) has calculated a lower estimate of 6.9 percent (Karst, 2014). Taking the lower estimate of 6.9 percent, we reach the conclusion that Texas consumers spent at least $365 million on organic produce in grocery stores during 2014—equivalent to one million dollars per day.

Organic farming in Texas

In 2014 there were 294 farms in Texas certified by the USDA to grow organic crops, although the great majority of these grew grass or pasture (92 farms), or commodities such as corn (63 farms), rice (58 farms), or cotton (53 farms). Only 75 Texas farms were certified to produce organic specialty crops (USDA-AMS, 2014). These 75 farms represented the entire supply of Texas-grown certified organic produce in 2014. They are listed in Appendix 4.

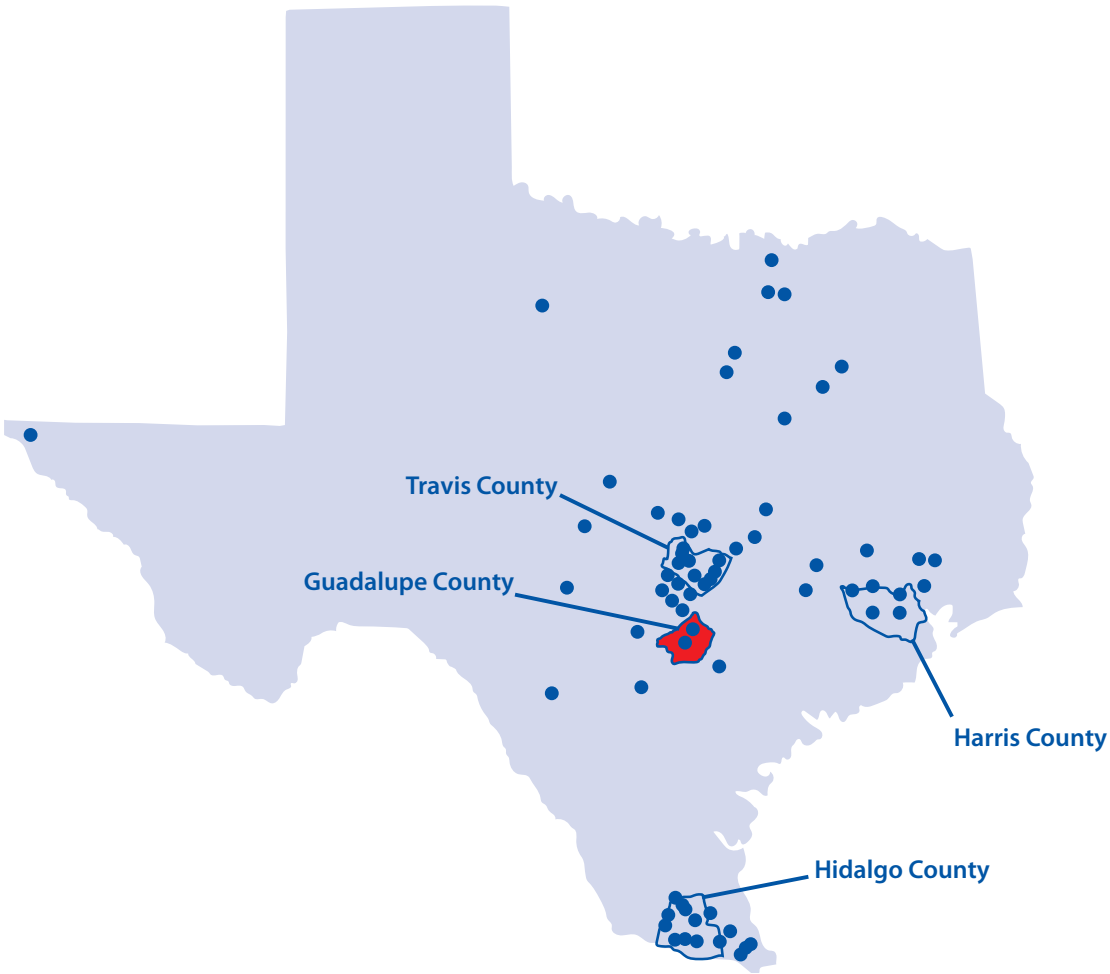
Despite having far more farms than any other state, and ranking third among all states in total agricultural production, Texas ranks only about 20th in the number of certified organic operations. In comparison to the 294 certified organic crop farms in Texas, there are 2,644 of these farms in California, 1,304 in Wisconsin, and 936 in New York—to name three high-ranking states (USDA-AMS, 2014). A Texas Department of Agriculture (TDA) study concluded, "The number of certified organic operations in Texas has remained relatively stagnant while nationally the organic food sector has experienced double-digit growth" (York et al., 2007).

Why does Texas have so few organic farms? In 2006-7 researchers at Sam Houston University surveyed a random sample of 4,006 Texas farms, studying attitudes towards organic farming. 977 growers completed the survey. (See York et al., 2007 and Constance & Choi, 2010.) About 45 percent of the conventional producers who responded had at least some interest in organic production, but 80 percent of these reported "a lack of both informational and services support regarding organic production methods" and only 11 percent of this group indicated that they "understood the process of organic certification" (Constance & Choi, 2010). These results suggest that low familiarity with organic certification and limited research and technical assistance on organic production methods are two of the major barriers to the expansion of organic farming in Texas.

Many Texas farms that use organic farming practices choose not to become certified organic. As an indicator of how many farms fall into this "sustainable-but-not-organic" category, at the time of publication 781 Texas farms on the Local Harvest website were representing their products as "naturally grown" (Local Harvest, 2015). Unlike "organic," the term "naturally grown" has no legal meaning and any farm can legally describe itself this way. Nonetheless, these farms represent an important recruitment pool for the food hub since many of them use organic methods and avoid using synthetic fertilizer, pesticides, and other substances prohibited in organic farming. Farms that have not applied prohibited substances within three years (and can document it) can become certified organic without the standard three-year waiting period faced by conventional growers. We conclude that for every USDA certified organic specialty crop farm in Texas, there are probably five to ten others that could quickly become certified.

Despite having far more farms than any other state, Texas ranks only about 20th in the number of certified organic farms.

Figure 3: Certified organic specialty crop farms in Texas



For every USDA certified organic specialty crop farm in Texas, there are probably five to ten others that could quickly become certified.

The Texas wholesale produce market

Texas has a long growing season, wide variations in climate and soils, and eight established and named growing regions for fresh produce: Wintergarden, Coastal Bend, High Plains, Trans Pecos, Central Texas, East Texas, North Texas, and Rio Grande Valley. With a few exceptions (such as avocados, pineapples, and head lettuce at certain times of the year), most fruits and vegetables commonly consumed in Texas can be grown within the state. In every month of the year harvests are taking place in some part of Texas.

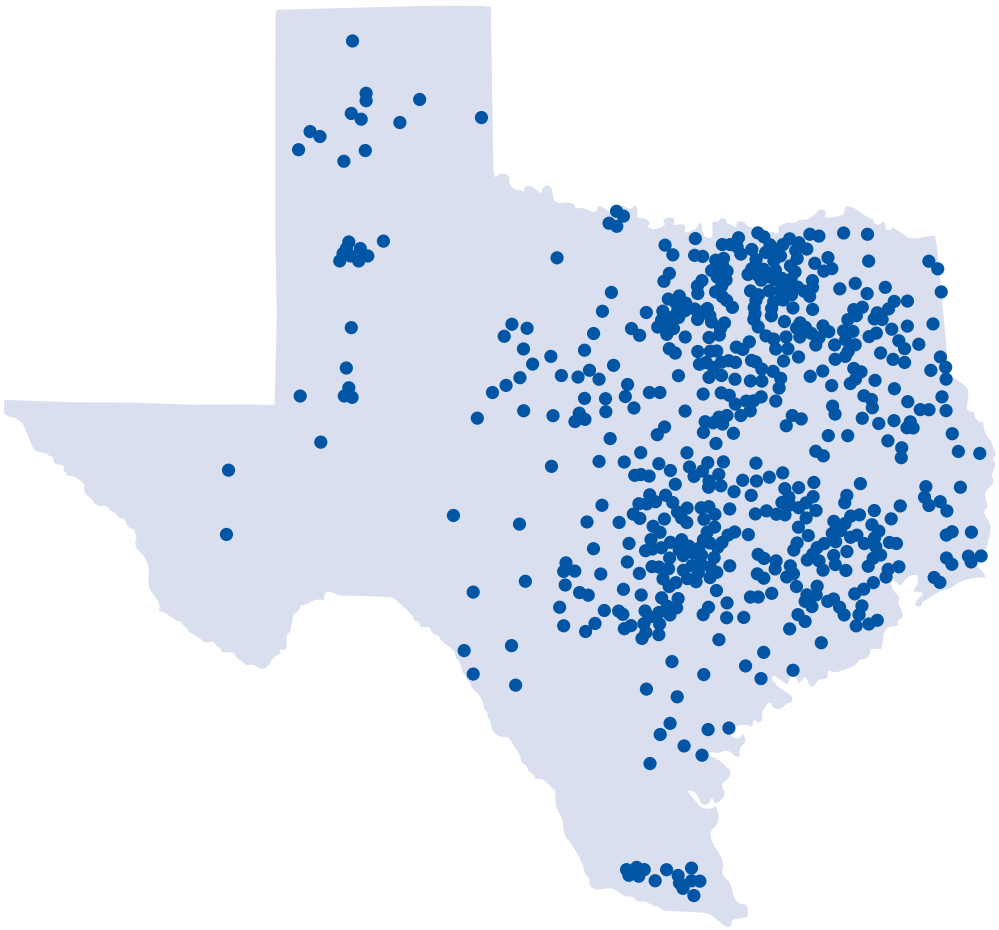
In the fresh produce world, a sales transaction from a grower to someone who is going to re-sell the product is considered a wholesale transaction. There are essentially two channels for wholesale marketing of fresh produce: selling to retailers (including grocery chains as well as *box clubs* and other home delivery services) and selling to the food service industry (which includes distributors, restaurants, universities, hospitals, and other institutions).

The wholesale sector of the Texas fresh produce industry is a mature, competitive sector, with produce terminal markets in Dallas, Houston, San Antonio and the Rio Grande Valley. Each of these terminal markets consists of many *distributors* and *brokers* who move produce sourced from all over the world.

A handful of grocery chains dominate the Texas produce market: Brookshire's, Brookshire Brothers, Fiesta Mart, Kroger, H-E-B, H-E-B-Central Market, Market Basket Stores, Safeway/Tom Thumb/Randall's, Sprouts Farmers Markets, United Supermarkets/Albertsons, Walmart, and Whole Foods Market. Whole Foods and H-E-B are the two largest organic retailers in Texas.

Headquartered in Austin, Whole Foods is the largest organic produce retailer in the United States. Headquartered in San Antonio, H-E-B is the largest grocery chain in Texas, and the 15th largest privately held corporation in America

Figure 4: Texas farms claiming "naturally grown" production



(Murphy, 2014). In March 2014 H-E-B announced a storewide private label brand of organic products, as part of a major campaign to increase its organic offerings (Angrisani, 2014).

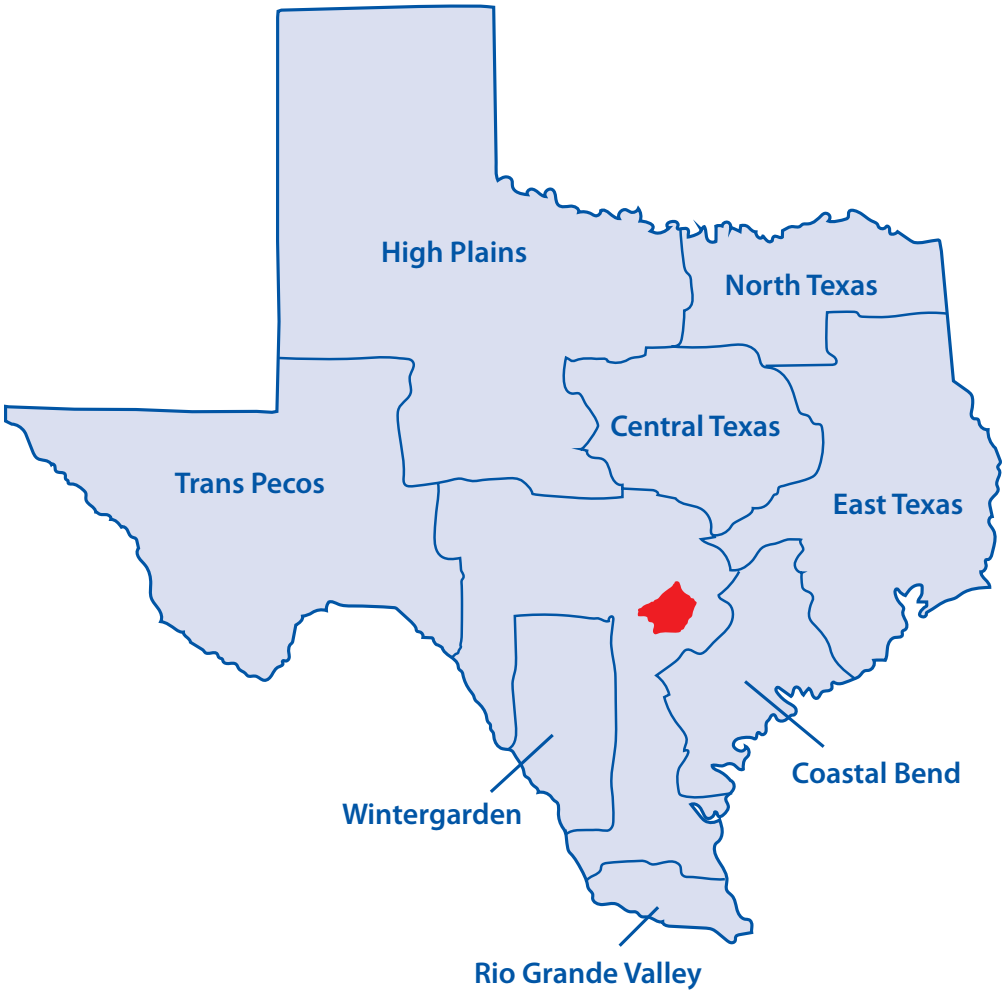
Currently there is no single source for a varied offering of Texas-grown, organic produce. If a retailer, restaurant, or hospital chain wanted to purchase organic produce from Texas they would have to deal with individual farms one at a time. Consequently, most large retailers and wholesale customers in Texas buy very little of their organic produce from Texas growers (Maggiani, 2015). Instead they buy from brokers and wholesalers in other states and countries (Edwards et al., No Date). Industry experts interviewed during this study agreed that the percentage of Texas-grown organic produce in Texas grocery stores is extremely small. One used the term "minuscule."

Both Whole Foods and H-E-B strongly support the creation of a Texas organic food hub. Roger Harkrider, H-E-B Director of Produce Procurement, said, "We here at H-E-B support Texas-grown agriculture and its development. Consumer demand for organics continues to grow as well. We are interested in working toward the success of this organic food hub project to provide fresh organic produce to our customers."

How big is the market within Texas for Texas-grown organic produce? Farm gate prices received by growers are typically 55-60 percent of retail prices. So based on the calculation (above) that Texas consumers spend $365 million per year on organic produce, the farm gate value of these products would be about $200 million year. Keeping in mind the seasonal limitations on production of many crops, we estimate that Texas organic producers could theoretically grow half of the organic produce currently being purchased in Texas grocery stores, or about $100 million per year at farm gate prices.

The current percentage of Texas-grown organic produce in Texas grocery stores was described as "minuscule."

Figure 5: Major Texas produce-growing regions



Grower survey results

Fifty-two respondents completed the Grower Survey, with 38 of these being commercial growers. We rated all farm respondents on a scale of 1 to 5. Ten farms received our highest rating of 5, meaning that they are very strong prospects for food hub participation. All of these farms are already certified organic, have at least five acres under production, and said they were "very interested" in selling to the kind of organic food hub envisioned here. One of these is a grain farm with 2,000 acres under production. The other nine are specialty crop farms with a combined total of 560 acres. These results show that at least 10 Texas organic farms with substantial acreage are well-prepared and highly motivated to participate in the food hub.

Four other farms received a rating of 4, meaning that we consider them good prospects. All are certified organic and have at least five acres under production, but said they were either "slightly" or "somewhat interested" in food hub participation. All four are specialty crop farms, with a combined total of 225 acres under production.

Some highlights from the Grower Survey are shown below, and a more complete summary is included as Appendix 1.

Table 3: Grower survey highlights

Are you already a certified organic producer? 47% YES, 53% NO

If not organically certified, how likely is it for you to become certified in the next 5 years?
52% VERY LIKELY, 24% SOMEWHAT LIKELY, 24% NOT VERY LIKELY

Are you already Good Agricultural Practices (GAP) certified? 16% YES, 84% NO

How would you rate your level of interest in selling to an organic-only food hub?
62% VERY INTERESTED, 17% DEFINITELY INTERESTED, 19% SLIGHTLY OR NOT INTERESTED

What would make you more likely to participate in the food hub? (Please select all that apply)
34% The food hub is grower-owned,
22% The food hub is owned by Texas residents,
42% The food hub is a grower-owned cooperative,
24% You are offered the opportunity to become an investor,
48% None of the above matter as long as you get a fair price for your produce.

Would you be willing to participate in preseason crop planning with the food hub and other growers to schedule the type, quantity, and approximate timing of the produce? 82% YES, 18% NO

How long have you been farming fruits and vegetables? Average # of years farming is 14. At least 15 of the growers responding have more than 10 years farming fruits and vegetables commercially.

Evaluate the following statements about yourself:

	Considerable knowledge	Some knowledge	Very little knowledge	No knowledge at all	# responses
Good Agricultural Practices (GAP)	15	11	10	8	44
Good Handling Practices (GHP)	9	6	11	7	43
Food Safety Modernization Act (FSMA) requirements	7	15	10	10	42
Organic Certification process	26	9	7	1	43
Wholesale packaging standards	7	12	14	10	43
Wholesale grading standards	6	10	15	12	43
Wholesale insurance requirements	7	9	16	10	42
Financial recordkeeping	22	16	3	1	42
Crop production planning	21	14	7	1	43

Discussion

- The factor that mattered most to respondents, in deciding whether or not to participate, was that they get a fair price for their products. Nearly as important to them was the question of whether the hub would be a grower-owned cooperative.
- The overwhelming majority respondents (82%) expressed willingness to do pre-season crop planning. This suggests that they understand the importance of working together.
- More than half of all respondents had very little or no knowledge of the wholesale trade, including packaging and grading standards and insurance. This suggests a need for grower education and training on these topics.

Economic impact

In the first year of operation we estimate that four people will be employed at the hub, with one of these being part time. (See Appendix 5, Job Descriptions.) Of far greater economic importance will be the financial benefit to growers throughout Texas who sell to the hub. According to the IMPLAN economic planning model (IMPLAN, 2015), every million dollars in Texas vegetable sales generates 12.4 full-time equivalent (FTE) jobs, while every million dollars in fruit sales creates 15 FTE's.

Table 4: Job creation estimates

	FTE's at Hub	FTE's on Farm	Total FTE's
Year 1	3.5	21.0	24.5
Year 2	6.0	34.0	40.0
Year 3	8.0	52.0	60.0

In addition to these direct job-creation impacts, there will be many additional "indirect" economic impacts, as growers purchase more inputs from local suppliers and as their workers spend more money at local businesses, keeping money turning over in their local economies. We make no attempt to estimate these indirect impacts here.

We also expect the existence of the hub to raise awareness of organic farming in Texas, encouraging many growers to consider certification.

Those who do transition successfully to organic production will gain access to the generally higher prices in the marketplace for organic fruits and vegetables.

Finally, the operation of the hub will likely create a new market for less-than-perfect produce that has little value in small quantities and often goes to waste on small farms. This produce could be aggregated at the hub and re-sold to the many food processors in and around Austin and San Antonio. This new market for *seconds* (also known as *number twos* or *culls*) could amount to hundreds of thousands of dollars per year.

Other benefits

Organic farming has well-known environmental benefits that include protecting water quality, promoting biodiversity, preventing soil erosion, and increasing organic matter and microbial life in the soil. The use of toxic chemicals is greatly reduced or eliminated, resulting in safer conditions for farmers and their workers and families.

Although some jobs will be created at the hub, the economic benefit will be much greater for farms throughout Texas who sell to the hub.

Assumptions

Guiding principles

We will next outline and explain a series of assumptions about the food hub. Taken together, these provide a fairly detailed description of the hub's operations and set the stage for the feasibility assessments in the following sections. Readers interested in a more complete listing of our assumptions and calculations should consult the *Food Hub Planning Workbook*, available as a free download from NCAT's ATTRA website.

In making decisions about how the hub should be designed and run, we have been guided by the following questions:

- Would it create significant economic growth in rural Texas?
- Would it enhance the profitability of farms?
- Would it incorporate a strong degree of grower control and ownership?
- Would it increase the market leverage of small farms and create new marketing options for them?
- Would it reduce risk and increase the resilience of farms?
- Is it realistically achievable?
- Is it sustainable in the long term without grants?

The hub should strongly align itself with the USDA organic program, building a reputation as a superior source of certified organic products.

Products sold

We assume that the hub will sell only USDA certified organic produce, and suggest that it strongly align itself with the USDA organic program, building a reputation as a superior source of certified organic products. According to the 2014 NGFN Benchmarking Study, only three percent of food hubs nationally limit themselves to exclusively organic produce. However, the large Texas markets for organic food and the lack of any source for a varied offering of Texas-grown, organic fruits and vegetables provide a strong rationale for focusing on organic produce.

There are many other eco-labels (such as "pesticide free" and "naturally grown"), but retail buyers tend to ignore all of these except "certified organic." For example, there are only two price lists on the USDA-AMS Fruit and Vegetable Portal: one for organic products and the other for conventional products. (See USDA-AMS, No Date.)

Focusing exclusively on certified organic produce should help the hub build a reputation for superior quality. Organic farmers are already subject to stringent regulations and record-keeping requirements, and undergo third-party inspections every year. They are, in a sense, ideal candidates for learning to meet the exacting food safety, packaging, and quality standards of the wholesale market.

The hub may eventually choose to include some growers who are transitioning to certified organic production. The hub will undoubtedly want to encourage and support such growers, in order to expand its pool of potential grower members. If the hub should decide to carry some non-organic products, it will be extremely important to keep them clearly labeled and physically separated. They will be sold in the conventional marketplace, not the organic marketplace.

Appendix 2 provides a complete list of the crops that the hub could sell during its first three years of operation, along with their seasonal availability. Several of these products are already available in good supply from Texas organic growers—such as kale, collards, onions, potatoes, oranges, and grapefruit. In order to limit head-to-head competition, it will be wise to avoid these crops in at least the first year or two of the hub's operation.

Size and location

We assume that the hub will begin its operations in or near Guadalupe County, in central Texas. The county's central location and proximity to the large city of San Antonio (at the intersection of several major interstate highways) make it an ideal location for receiving produce from all parts of Texas and shipping it almost anywhere. Most parts of the county are within an hour of the main distribution warehouses for Whole Foods (in Austin) and H-E-B (in San Antonio): the two largest retailers of organic produce in Texas.

Table 5 Distance from Guadalupe County to major markets

Market	Population	Distance (miles)
Dallas Fort Worth	3,718,472	260
Houston	2,248,494	160
San Antonio	1,197,816	40
Austin	790,390	50
El Paso	649,121	580
Corpus Christi	305,215	140
Laredo	236,091	190
Lubbock	229,573	420
Amarillo	190,695	540
Brownsville	175,023	280
McAllen	129,877	260
Killeen	127,921	130
Waco	124,805	160
Beaumont	118,296	240
Abilene	117,063	270
Denton	113,383	290
Midland	111,147	360
Wichita Falls	104,553	360
Odessa	99,940	370
Round Rock	99,887	80

In the short term (at least the first two years), the startup food hub business should keep its costs and fixed asset purchases as low as possible. As much as possible of the equipment should be rented. We assume that the hub will rent a 1,000-1,500 square foot trailer, a 53-foot reefer cooler, and two reefer trucks (a 28-foot reefer truck and a 20-foot reefer cargo van). These would be parked at a participating farm.

This arrangement would create an initial capacity of 700 cases of cold storage at the hub. In order to maximize the use of this capacity, the hub should plan its operations to minimize the need for cold storage, taking what has been called a "just in time" approach (Matson et al., 2015). Products should rarely spend more than one night at the hub, and should usually leave the same day that they arrive.

We assume that the eight established growing regions of Texas would be divided into five sub-hub regions: the North (North Texas), South (Rio Grande Valley and the Wintergarden), East (East Texas and Coastal Bend), West (High Plains and Trans Pecos), and Central. (See the map below.)

The sub-hubs will be set up with minimal investment and operating cost. We assume that a participating grower in each sub-hub region will allow the hub to use an existing shed. A 20'x20' shed can be renovated with insulation and a CoolBot refrigeration system, for around $1,000 (Betancourt and DesRoberts, 2015). In addition to electrical work, room insulation, and a CoolBot setup, each sub-hub will need a manual pallet jack and packing supplies. There will also be rental costs, paid to the farmer who provides the facility.

Only two sub-hubs will be operational in the first year. Total initial investment for the main hub and two sub-hubs will $77,920, as follows:

Table 6: First year investment

Deposits	$24,420
Leasehold improvements	$11,500
Equipment	$18,000
Marketing expenses	$7,000
Supplies	$6,000
Legal expenses	$5,000
Miscellaneous expenses	$6,000
Total	**$77,920**

The startup food hub business should keep its costs and fixed asset purchases as low as possible.

Figure 6: Potential Sub-hubs

Sourcing produce from all Texas growing regions will allow the hub to offer fruits and vegetables year-round.

- Deposits are for rented equipment: office space, utilities, cooler, trucks, and forklift.
- Leasehold improvements are improvements to the electrical system at the hosting farm and grading for loading docks.
- Equipment includes two electric pallet jacks, three manual pallet jacks, three pallet-wrapping devices, and two CoolBot setups (portable air conditioner plus control unit).
- Marketing expenses include signage for the main hub and trucks.
- Supplies include office and packing supplies, as well as printing and reproduction supplies.
- Legal expenses are for assistance with incorporation, business planning, and other topics.
- Miscellaneous expenses include organic certification, hand tools, office furniture, phone system, computers, scales, and many smaller items.

Although we assume that the hub will initially be located in Guadalupe County, it could eventually be located at almost any community in central Texas. The hub should be located at whatever location is most financially and logistically advantageous. The managers should encourage communities throughout central Texas to compete and offer financial incentives.

Geographical scope

By the end of its third year, we assume that the hub will be statewide in its operations, sourcing produce from all established Texas growing regions. This arrangement will allow the hub to offer products year-round. It will also be an important aspect of the hub's diversification and risk-reduction strategy, since a crop failure in any one region would not put the enterprise out of business, and would leave the hub with many options.

In the first year, we assume that the South Texas and East Texas sub-hubs would be established. The South Texas sub-hub will have produce available January through May and October through December. The East Texas sub-hub will have produce available year-round, varying with the seasons. The Central Texas growing area will be served by the main food hub and will have produce available from April through December. These three regions will provide a good variety of fruits and vegetables throughout the year.

In the second year, we assume that a sub-hub will become active in the North, offering late-season salad vegetables: tomatoes, peppers, cucumbers, lettuce, and so on. In the third year, we assume that a sub-hub will be activated in the West, providing late-season melons and also onions and potatoes.

Because of their climates and crop harvest schedules, all of the sub-hubs would shut down in certain months, and none would operate year-round. We assume that the South Texas sub-hub would run from November through May. The East Texas hub would run its cooling system from April through December. The North Texas cooler would run May through November. And the cooler at the West Texas sub-hub would be active from June through November.

Transportation

Transportation costs will be a major ongoing challenge, and the cost of delivering small quantities will often be prohibitive. Taking advantage of its network of sub-hubs, we recommend that the hub seek all opportunities for low-cost backhauling. By this we mean loading produce onto empty or partially empty trucks (sometimes called "less than loaded" or LTL) that have already delivered their load and are returning to their starting point.

From the beginning, the willingness of customers to do backhauls should be a major factor in the hub's decision whether or not to do business with them. If a customer is willing to use their own fleet trucks to pick up and deliver produce from sub-hub locations, this would greatly reduce transportation costs for the hub, expanding its geographic reach and opening possibilities to transport lower-value products. Conversely, if few customers are willing to do backhauls, the hub may have a limited ability to source produce from locations that are far from the main hub location in central Texas.

Although backhauling will be a key to the hub's ability to serve the whole state, for purposes of forecasting the hub's financial performance we have assumed (conservatively) that no backhauling takes place. Transportation costs are between five and six percent of sales in each of the first three years, including fuel, insurance, rental, and minor maintenance costs.

Ownership and governance structure

Nationally there are successful examples of food hubs organized as for-profit corporations, non-profit organizations, and producer cooperatives. Each of these business structure has its advantages, and there is considerable flexibility within each category. (So, for example, an LLC can be structured so as to have features more typical of cooperatives.) However it is organized, we assume that the hub will exhibit a strong degree of grower control and ownership. But we make no assumption about the business structure that would serve the needs of grower members best. We recommend that the grower members make this decision for themselves, after informed consideration of the options and with the help of business and legal experts.

There would be significant advantages in postponing incorporation and a final decision on the hub's business structure until it has been running for one or two years, in a pilot or trial period. At that point there should be a formal organizing meeting, where growers, managers, and investors decide long-term goals, business structure, membership requirements, and other operational matters. In the Conclusion we offer some brief comments on how such a pilot or trial period might be accomplished.

Major markets and sales focus

We assume that the hub will focus its sales overwhelmingly (and probably more than 90 percent) on retail groceries such as H-E-B, Kroger, Safeway, and Whole Foods Market. Both nationally and in Texas, retail grocery chains purchase the vast majority of organic produce, and at volumes that vastly exceed any other class of customers. They also serve consumers who are happy to pay premium prices for local and organic food. By contrast, restaurants, universities, hospitals, and corporate cafeterias are typically more price-conscious, limiting their ability to buy organic produce.

We assume that the hub will sell mainly through direct contacts with buyers, and will spend modest amounts of time and money on formal advertising, apart from signage on trucks. We do recommend, however, in-store product sampling (demos) in grocery produce departments—particularly in the spring and the fall holiday season—since the hub would be a new vendor establishing its presence and name-recognition.

In the fresh produce world, sales take place mainly on the Internet and over the phone. Personal trust, personal relationships, and a reputation for honesty are imperative. In the early years of the food hub, a significant percentage of the General Manager's time should be spent networking, building relationships with retail buyers, and learning how to meet their needs.

Workforce

Initially, the hub would have just four employees: a General Manager, a Sales Manager, a Warehouse Laborer/Driver, and a half-time Accountant/IT Manager. In the second year, the hub's growth would support six full-time equivalent positions, including two Drivers and one Warehouse Laborer. The Accountant/IT Manager will be increased to full-time. In the third year, we assume the staff would grow to eight, including two Warehouse Laborers, two Drivers and a Marketing Manager. Detailed job descriptions are included as Appendix 5.

The hub needs to hire and retain excellent employees, particularly the general manager. All workers at the hub should be paid staff, not volunteers. In order to avoid disruptive departures by employees, we recommend attractive salary and benefit packages. Salaries should also be consistent with the values of the hub, which means keeping a modest ratio between the highest- and lowest-paid employee and ensuring that all staff members earn a living wage.

Table 7: Assumed annual salaries

General manager	$70,000
Sales manager	$56,000
Marketing manager	$56,000
Accountant/IT Managers	$42,000
Driver	$35,000
Warehouse Laborers	$30,000

The hub should establish a revenue split of 70/30—meaning that 70 percent of gross sales would be retained by growers.

The hub should not wash or pack produce, since these functions significantly increase the cost and complexity of infrastructure.

Revenue split and profit sharing

We recommend that the hub establish a revenue split of 70/30—meaning that 30 percent of gross sales will cover the operational cost of the business, with 70 percent of gross sales retained by the growers. This is the average split for food hubs nationally (NGFN, 2014). The stakeholders and owners may wish to revise this choice later. Many food hubs also include some form of profit-sharing, and we assume that this will be taken up by the owners and members when formalizing the organizational structure of the food hub.

Activities and services

The hub will have the following core functions:

- Production planning and coordination
- Planning and forecasting
- Grower relations
- Purchasing (pallets, labels, shrink-wrap, boxes, etc.)
- Availability sheet creation
- Sales order processing and fulfillment
- Customer relationship management
- Web-based sales
- Inventory and product management
- Traceability
- Routing and delivery
- Analysis and reporting
- Payroll
- Food safety training
- Organic production training

A question that will need to be decided at the beginning is whether the hub will wash and pack produce. We recommend against this because these functions would significantly increase the cost and complexity of infrastructure: requiring a washing line, sorting equipment, and many more employees. In its first few years the hub should keep its fixed asset purchases to a minimum. Holding growers responsible for sorting and packing their own produce will also require them to learn how to do these tasks, and will reinforce the idea that quality and food safety are their responsibility.

We also recommend keeping cold storage to a minimum. No produce should ever spend more than two nights at the hub. This will help keep costs down, and is consistent with the goal of delivering extremely high quality produce at its peak of freshness.

Grower relations and membership

We assume that the food hub will be committed first and foremost to enhancing the profitability and well-being of its grower members. The hub should provide, for example, onging training for members in the areas of food safety, packing and handling, organic production, and financial assistance. The hub could help its growers get their Good Agricultural Practices (*GAP*) certifications, establish traceability protocols related to the new Food Safety and Modernization Act (*FSMA*), and develop *HACCP* plans. (See Pressman & Lent, 2013.) The hub could also ensure that growers take full advantage of programs and services offered by the Natural Resource Conservation Service (NRCS), Farm Service Agency (FSA), and GO TEXAN marketing program of the Texas Department of Agriculture (TDA).

The hub should screen potential grower members carefully, giving priority to those with wholesale marketing experience. For growers accustomed to direct marketing, the move to wholesale is a big step, and the hub will need to provide ongoing training for its growers.

An important decision will be whether to require some form of exclusive commitment, limiting the growers' freedom to sell to other buyers. We recommend that there should be few if any restrictions of this kind. This recommendation calls for explanation, since it would allow grower members to sell to the hub's competitors or directly to one of the hub's retail customers, undercutting the hub's prices.

- First, allowing this freedom will help the hub recruit growers, including those who are understandably nervous about committing all of their production to one customer. Low participation is one of the greatest risks to the hub's viability, and the number of organic specialty crop growers in Texas is limited.
- Second, allowing growers this freedom is consistent with the hub's grower-centric philosophy: its commitment to reducing risks and increasing net profits for members.

- Third, peer pressure would likely limit the frequency of side deals. The managers would also have the option of discontinuing their relationship with a grower who consistently undercut the hub's prices.

Like almost everything else, this is a policy that the grower/members might decide to change later. And to avoid one possible misunderstanding, allowing growers to sell outside the hub is in no way meant to imply that they would be allowed to back out of production and sales commitments that they have made to the hub.

Branding and Labeling

Preserving information about the origin of foods is extremely important to food hubs because it allows them to capture price premiums. We assume that the hub's product labelling will co-brand the name of the hub with each farm name. Co-branding is essential for any food hub, and proves to the marketplace that growers are at the center of the hub and its reason for being.

Winning and Maintaining Grower Trust

Texas has only 75 certified organic specialty crop farms and they have many marketing options. In order to succeed, the hub will need to attract growers and win their trust and confidence. We assume that the hub will:

- Communicate frequently to growers that the hub is focused on their profitability and success.
- Inform and involve established organizations that represent organic farmers and have won their trust. Four examples are TOFGA, NCAT, Growers Alliance of Central Texas (Gro-ACT), and the Farm and Ranch Freedom Alliance (FARFA).
- Provide ongoing education and technical assistance, including help with organic certification, organic production methods (including pest and weed control), sources of grants and loans, GAP training, and other food safety and regulatory issues.
- Maintain a high degree of transparency and a strong commitment to fairness and excellent communication. In a sense, communication will be the main business of the hub: bringing together willing buyers and sellers and preventing misunderstandings.
- Constantly advocate to buyers for fair payments to farmers, representing growers' needs and their point of view.
- Always seek to reduce risk for growers, for example by doing production planning so that growers rarely if ever plant and grow crops that are not sold. A major ongoing responsibility of the hub management is to forecast market demand and coordinate production planning to match it as closely as possible.

Financial/Economic Feasibility

Sales Projections for Years 1-3

In the following projections, assumptions about sales volume are based on estimates received from two major Texas retailers. Estimates of case prices for each item and each week are based on historical data extracted from the USDA-AMS Fruit and Vegetable Portal, Custom Average Pricing application. (USDA-AMS, No Date)

In order to limit head-to-head competition with existing organic farmers who are already selling to the major retailers, the projections below reflect weekly sales of just 18 vegetable items and three fruit items for the first year of operation, avoiding onions, potatoes, kale, collards, mustard greens, oranges, grapefruit, and several other products. The list of products grows to 34 vegetable items and six fruit items in the second year, and 36 vegetable items and eight fruit items in the third year.

Table 8: Net Revenues from Vegetable and Fruit Sales

Year	Vegetables	Fruits	Total
1	$ 1,420,772	$ 303,823	$ 1,724,595
2	$ 2,089,380	$ 489,496	$ 2,578,876
3	$ 3,227,985	$ 637,557	$ 3,865,542

As a reality check, projected first year sales of $1.72 million are 67 percent of the average food hub revenue ($2.83 million) reported in the NGFN 2014 Benchmark Study (NGFN, 2014). By its third year the Texas food hub would become larger than the average food hub in the NGFN study. This appears to be a reasonable possibility, considering the large markets available in Texas.

In a sense, communication will be the main business of the hub: bringing together willing buyers and sellers and preventing misunderstandings.

Income Statements

Expected profit and loss results in the first three years of operation:

Net profit would drop to zero in the first year if sales fell eight percent short of expected levels.

Table 9: Consolidated Income Statements

	Year 1	Year 2	Year 3
Revenues			
Revenue from Product Sales	$1,777,933	$2,658,635	$3,985,095
Returns†	<53,338>	<79,759>	<119,553>
Cost of Goods Sold	<1,244,553>	<1,861,045>	<2,789,567>
Net Revenue	480,042	717,831	1,075,976
Expenses			
Salaries	182,004	268,000	353,984
Payroll Taxes	15,507	22,834	30,159
Health Insurance	12,000	18,000	24,000
Office and satellites	52,090	63,240	86,720
Marketing/Promotion	12,500	24,000	36,000
Transportation	96,216	136,102	207,109
Other	73,825	80,475	98,676
Total Expenses	444,142	612,651	836,648
Earnings Before Income Taxes			
EBIT	$35,900	$105,180	$239,327

† "Returns" are produce items for which—on account of spoilage or some other reason—the customer is not charged. Because produce is so perishable, it is almost never literally returned to the seller. A return rate of three percent is assumed here, the approximate industry average..

Sensitivity Analysis

Table 10: Pricing Sensitivity Analysis

Year One

Sales per week	Yearly income	Net profit
$25,000	$1,300,000	$(80,000)
$30,500	$1,586,000	0
$33,165	$1,724,595	$35,900 †
$40,000	$2,080,000	$134,850

† Estimated outcome Year 1

Year Two

Sales per week	Yearly income	Net profit
$40,000	$2,080,000	$(30,250)
$42,080	$2,188,035	0
$49,600	$2,579,200	$105,180 ††
$55,000	$2,860,000	$188,150

†† Estimated outcome Year 2

Year Three

Sales per week	Yearly income	Net profit
$55,000	$ 2,860,000	$ (35,850)
$57,460	$2,988,035	0
$74,300	$3,865,540	$239,327†††
$80,000	$4,160,000	$328,150

††† Estimated outcome Year 3

Discussion

The tables above and to the left show that net profit would drop to zero if sales fell 8% below expected levels in year one, 15% below expected levels in year two, or 23% below expected levels in year three. This highlights the narrow margin for error in year one, but somewhat exaggerates the vulnerability of the hub because it assumes, in effect, that operations would continue unchanged despite low prices. The managers would have many options for reacting to a major market shift, such as temporarily discontinuing routes or equipment rental contracts.

Cash flow projections

Operating the hub in the manner described in the Income Statements will result in the following cash flow:

Table 11: Cash flow projections

	Year 1	Year 2	Year 3
Beginning Cash Balance	$277,920	$262,282	$254,967
Inflow from Sales†	1,579,666	2,464,280	3,779,833
Total Available Cash	1,857,586	2,726,562	4,034,800
Outflow from Expenses	1,819,304	2,466,896	3,593,191
Outflow from Assets	53,920	4,700	4,700
Ending Cash Balance	$262,282	$254,967	$436,909

†We assume conservatively that cash will not be received until 30 days after sales. Payment in two weeks is the industry standard.

Balance sheet

Operating the hub in the manner described in the Income Statements will result in the following Balance Sheet at the end of Year 3

Table 12: Balance sheet

Assets		Liabilities & Stockholder Equity	
Cash & Bank Accounts		**Current Liabilities**	
Petty Cash on Hand	0	Accounts Payable	0
Checking Account	436,909	Interest Payable	0
Savings Account	0	Taxes Payable	0
Othe Current Assetsr	0	Accrued Expenses	0
Total Current Assets	**$436,909**	**Total Current Liabilities**	**0**
Other Assets			
Accounts Receivable	315,425	**Long Term Liabilities**	
Deposits Rent/Utilities/Equipment	17,920	Line of Credit	200,000
Deposits Rent/Utilities	0		0
Prepaid Insurance	2,500		0
Deposits Farmers	0		
Total Other Assets	**$335,845**	**Total Liabilities**	**$200,000**
Property Plant & Equipment	0		
Lease Hold Improvement	11,500		
Warehouse Equipment	12,000		
Office Equipment	6,000	**Stockholders Equity**	
Equipment Satellites	12,000	Common Stock	389,926
Less: Accumulated Depreciation	<15,000>	Retained Earnings(Deficit)	239,327
Total Property & Equipment	**$56,500**	**Total Stockholders Equity**	**$629,254**
Organization Cost	0		
Total Assets	**$829,254**	**Total Liabilites & Equity**	**$829,254**

Getting the hub off the ground would take $277,920—for asset purchases, deposits, insurance, and enough funds to cover operating expenses for three months.

Total capital requirements

The Texas organic food hub will be a new startup in the first year. There is no other business that will transfer assets for the company's use. So the management will have to raise equity funds and borrow at least some of the capital needed to get the hub off the ground. As explained earlier, the hub will need $77,920 for asset purchases, deposits, pre-paid insurances, and other startup expenses. We are assuming that the owners and managers will be able to raise that amount in equity capital.

In addition, we assume that management will take out a five year balloon payment line of credit loan for $200,000 at six percent interest rate. We have somewhat arbitrarily assumed the hub would begin operations in January. These funds would cover cash expenses for the months of January through March, a period when sales are typically slow because the hub has no fruit to sell and high-volume vegetable items such as cucumbers, squash and tomatoes do not start coming in until mid-April.

Sources of capital and credit

Within USDA there are several sources from which the food hub could borrow money. Since the hub's central facility as well as its sub-hubs will be in rural areas, it would be eligible to apply to USDA-Rural Development programs such as the Business and Industry Loan Guarantee or Value-Added Producer Grant Program.

Other traditional sources of agricultural capital in Texas are Capital Farm Credit, AgTexas, Texas Farm Credit, Lone Star Ag Credit, and Texas Agricultural Finance Authority.

Three sources of small- to mid-sized credit in Texas that are not traditionally involved in agriculture but might be interested in providing funds to the hub are People Fund, Lift Fund (formerly Acción, Texas), and Community Development Financial Institutions (CDFI) Fund. All CDFI member institutions in Texas (about 30 of them) receive funding from this program of the US Department of the Treasury to make loans and grants in low-income communities and rural areas.

Reliability of financial projections and assumptions

Several issues merit discussion:

Potential errors in the Weekly Sales Forecasting spreadsheet

NCAT's Weekly Sales Forecasting spreadsheet is the basis for all financial projections reported in this section. While created with care, it contains many formulas and has not yet been extensively tested in real-world conditions. Errors in this spreadsheet would spread throughout the other financial statement spreadsheets.

The reliability of pricing assumptions

Anyone familiar with the fresh produce industry would agree that weekly sales prices are hard to predict. Historical data from the USDA-AMS Fruit and Vegetable Portal is based on millions of transactions per year, and is the most comprehensive source of pricing information available to the general public. (There are other proprietary sources for some of this data, but they cost thousands of dollars per year.)

Even though historical data from AMS is accurate for what it measures, interpretation is required to apply this information. For example, there are highly accurate and reliable records of the average price at the Dallas Wholesale Terminal Market every week last year for 25-pound boxes of bulk-packed tomatoes. However, interpretation is involved in translating this into the price a food hub could charge to grocery retailers in the coming year.

The reliability of sales volume assumptions

Buyers often gave ranges of their likely purchases. For example, one buyer anticipated buying 200-300 cartons of broccoli per week. When given a range, we generally went with the lowest (most conservative) number provided.

The sales projections developed with the Weekly Sales Forecasting spreadsheet were used to create the Revenues portion of the Income Statement above. There are many additional assumptions and estimates reflected in the other expense categories shown on the Income State-

ment. These are our best estimates, given the expected level of sales and expected progress in building the capacity of the food hub.

As one illustration, initial staffing and annual salary levels are based on industry knowledge and the assumption that employee turnover in the startup phase of the food hub could be devastating. So the projected salary levels are meant to be high enough to keep the staff on the job, even in the scenario of sometimes working six days a week and odd hours.

Table 13 compares the financial projections in this study to the 2014 Benchmarking Study by the National Good Food Network (NGFN, 2014).

Table 13: Comparison to national food hub averages

	NGFN study average	Texas food hub
Age of food hub:	7 years	1-3 years
Annual revenue:	$2.83 million	$1.7 - 4.0 million
Enterprise income:	$108,241	$35,900 (year 1) to $239,327 (year 3)
Operation (days open):	276	300 (main hub)
Number of farmer vendors	20.2	10 (year 1) to 20 (year 3)
Labor as % of revenues	18.3 %	15.1%
Cost of goods sold	72%	70%
Net profit	<1.8 %>	2.1% (year 1) to 6.2 % (year 3)

Discussion

Low profit margins are common for food hubs, and it is noteworthy that the 48 food hubs in the 2014 NGFN benchmarking study had a negative average net profit. The top-performing 25% of food hubs in the NGFN study showed an average net profit of 3.8% (NGFN, 2014). Our economic model shows the Texas organic food hub performing at a similar level by its second year of operation.

Market Feasibility

Commitments from customers

The two largest organic produce retailers in Texas, H-E-B and Whole Foods, have both expressed strong interest in buying from the food hub, and provided estimates of products and volumes that they are interested in buying from such a hub. While in no way legally binding, these commitments have been treated as a reasonable expectation and used to define the appropriate scale of the hub's operations.

Competition

Products from the hub should command price premiums in the marketplace, because they are both local and certified organic. However, by necessity pricing will need to be competitive with alternative sources of organic produce..

In general, competition is not expected to be a great source of risk. The essential role of the food hub would be to open a portion of the largely untapped market for Texas-grown organic produce while limiting or avoiding competition with existing economic interests. The market niche for wholesale distribution of Texas-grown organic produce appears to be nearly empty.

Although eight existing Texas food hubs are identified in the National Good Food Network list (NGFN 2014a), all are quite different from the hub envisioned in this study. Most or all rely on direct-marketing, whereas the hub we have described would focus on wholesale marketing.

Because there is so much pent-up demand for Texas-grown organic produce, it seems likely that various new retail and wholesale enterprises will soon be devised to meet this demand. If the hub were successful there could certainly be competitors at some point in the future. However, because of the slim profit margins in the fresh produce business generally—and at food hubs in particular—this is not going to an easy or particularly lucrative business opportunity.

The number of organic produce farms in Texas is also currently limited. The type of food hub most likely to win their participation would be (like the one considered in this study) either grower-owned or at least grower-centric, returning most of its gross sales directly to farmers and depending for its continued survival on their enthusiastic participation.

As noted earlier, most of the 75 certified organic specialty crop growers in Texas sell directly to consumers, through farmers markets, CSAs, and other arrangements. However, a few mid-sized growers sell through wholesale channels.

To reach its potential as a statewide distribution network, the hub will need an aggressive transportation strategy that includes extensive backhauling.

Most of these growers would compete with the Texas organic food hub to some extent. But it is also possible that some of these growers would decide to sell through the food hub or join it as a member, particularly since we are assuming that they would not be restricted from continuing with their other sales arrangements.

There are also some established wholesale distributors in Texas that sell a limited amount of organic produce to their food service customers. Since we are recommending limited sales to the food service industry, these businesses should not be in competition. Some of them may also buy from the hub, as a way to satisfy their customers without having to do the hard work of sourcing local organic produce.

Access to market outlets

As noted throughout this report, retail grocery chains are the major target market for products of the food hub. Access to this market appears to be feasible. Indeed, the largest retailers are enthusiastic and supportive. A successful food hub will enter into partnerships with existing retailers and become their trusted ally: directly benefiting them by giving them increased supplies of Texas-grown organic produce.

On the other hand, no matter how good or unique their products, new fresh produce purveyors often have to make concessions such as providing lower prices or extra marketing services in order to persuade grocery stores to buy their products for the first time. This is a scenario the hub should expect to see repeated with each retailer. This is one reason why sales forecasts in this study are conservative. The income statement above also includes money allocated to marketing in every month of the first year.

Branding and reputation

The opportunity is certainly present to establish a strong brand that will win loyalty from consumers and retailers. Texas has a tradition of pride in its agricultural heritage. And the food hub will support local food, fresh food, family farmers, healthy eating habits, and environmentally sensitive farming techniques.

On the other hand, a mistake in sizing, cleaning, packaging, or food safety by even one member could harm the reputation of the entire organization. The hub will need to be extremely vigilant. This is one reason why limiting the hub to certified organic products is recommended, since it entails a rigorous set of standards with a third-party verification.

The hub can mitigate quality control risks by limiting participation to the very best and most conscientious farmers. It should be an honor for a producer to be chosen to sell to the food hub. The message to the consumer and the retailer needs to be one of superior quality and superior food handling standards.

Technical Feasibility

Facility requirements

There will be no buildings in the first three years, since the hub will operate from trailers. All equipment needed for the hub (trucks, coolers, pallet jacks, communication system) is readily available "off the shelf," and there are no technical challenges in purchasing this equipment and setting up the infrastructure for the hub.

Availability of suitable sites

Four farms in Guadalupe County have already expressed strong interest, and there are dozens of others who could host the hub temporarily, so there should be no problem finding a suitable site.

Transportation

There are significant challenges and risks for the food hub related to the high cost of transportation. Long travel distances are inevitable between the sub-hubs as envisioned, especially in the case of the West Texas hub. As discussed in the Assumptions section, the hub will need an aggressive and efficient strategy that includes extensive backhauling. Should backhauling options be limited or unavailable, the hub could still operate within a smaller radius. We assume the hub will start small and expand its network and range only as the feasibility of long-distance delivery is proven.

Workforce

The necessary trained and trainable labor would be abundantly available. Employees could live in Seguin, Austin, San Marcos, New Braunfels, or San Antonio and still work at a hub in Guadalupe County.

Availability of organic produce

The diversity of products available year-round in Texas is a major advantage, unmatched by any other state except possibly Florida and California. Assuming that the hub starts small, we do not foresee major problems in finding enough willing growers to provide the volume of produce that would be required.

In support of this statement, we can begin with a study by Wiswall (2009), who calculated average gross income of $22,900 per acre for 22 organic specialty crops in Vermont. Almost all of these crops are harvested only once per year in Vermont but could be double-cropped in Texas, yielding about twice the annual income. So average gross income levels of $20-$30,000 per acre in Texas appear realistic and even conservative.

Assuming gross income of $20-$30,000 per acre, enough crops to meet our first-year sales target of $1.7 million could be grown on just 60-80 acres of land. The nine highest-rated specialty crop growers who completed our Grower Survey manage a total of 560 acres.

Crop production risks

Organic farmers everywhere face special challenges in the areas of pest and weed control, because they are not allowed to use most synthetic pesticides or herbicides. These challenges are often highly location-specific, and many states maintain strong research programs to support their organic farming industry. By comparison, there is limited research support for organic farming in Texas.

Environmental impacts

There are no known adverse environmental impacts and many well-known environmental benefits from organic farming.

All produce "shrink" will be composted on participating farms at or near the hub, so there should be little or no addition to the waste stream in Guadalupe County.

Risks related to regulatory requirements

The hub's activities will be subject to regulation by the USDA National Organics Program (NOP). In addition to requiring certification for all participating farms, the hub itself will need to be certified for organic handling. NOP rules and regulations often change and are strictly enforced, creating a risk that certification of the hub or a participating farm could be withdrawn for a violation of these rules.

The major governmental regulatory risk affecting hub operations is the Food Safety Modernization Act, which will be administered by the Food and Drug Administration (FDA). Two aspects of the Act will affect hub operations: the Produce Rule and the Preventative Controls Rule. The hub will have several years to come under full compliance, but these rules will undoubtedly add to the management complexity of the food hub. All growers who supply produce to the hub will have to be GAP certified and be able to pass a food safety audit (Wolfe & Dufour, 2010). Training on food safety should be an ongoing service provided to participating growers.

> The diversity of products available year-round in Texas is a major advantage, unmatched by almost any other state.

Management Feasibility

Business structure

As noted earlier, various food hub business structures have been successful, and the hub could be organized as a cooperative, non-profit organization, or LLC. There are no known challenges or problems with choosing a business structure.

Continuity and adequacy of management

No matter how well the hub is designed, it will need excellent management to succeed. Sandi Kronick, CEO of Eastern Carolina Organics, described the General Manager's qualifications to us this way:

"In addition to the usual critical entrepreneurial skills, you really need someone who can develop intensely strong relationships with both farmers and buyers, enough for them to trust that the hub will be a success and they need to get behind it for their own benefit. Finding a dynamic leader who isn't afraid to drive the truck, and who possesses the right balance of

professionalism and optimism isn't easy but is an absolute requirement. More important than anything else, it needs to be someone that the farmers and the buyers are impressed by. Turnover for any reason is NOT an option so choose wisely, and make sure they're literally invested in this for the long-term" (Kronick, personal communication 2015).

> You really need someone who can develop intensely strong relationships with both farmers and buyers... a dynamic leader who isn't afraid to drive the truck.

Availability of Consultants and Service Providers

As with the workforce generally, qualified consultants and service providers would be abundantly available from the large cities (especially Austin and San Antonio) nearby.

Conclusion

Summary of Recommended Approach

NCAT recommends that a Texas organic food hub specialize in selling primarily to large retail grocery outlets. Hub operations should be designed to maintain superior quality and freshness, but the hub should keep startup costs low: renting most of its equipment initially and starting with just four employees. By the third year the business would grow to eight employees.

In its mission and activities, the enterprise should strongly focus on delivering benefits to its grower members, who would receive 70 percent of gross sales and have opportunities for revenue sharing. Depending on the wishes of its grower members, the hub could be organized as a cooperative, nonprofit, or limited liability corporation.

In order to source produce from all parts of the state and take advantage of year-round growing season in Texas, the hub should eventually deploy a network of four sub-hubs in the northern, southern, eastern, and western parts of the state.

Hub employees would plan and coordinate crop production by participating farms, create availability sheets, negotiate purchases with retail customers, place orders with farms, and receive produce at the central storage and shipping facility. Farms would be responsible for washing, packing, and cooling produce, as well as delivering it to the nearest hub or sub-hub. Once received at the main hub, produce would be inspected, sorted, placed into temporary cold storage, loaded onto refrigerated delivery vehicles, and shipped to customers—rarely spending more than one night in cold storage.

The hub should focus on the largely untapped retail market for Texas-grown organic produce. The produce needed to meet the first hub's year sales target of $1.7 million could be grown on 60-80 acres of certified organic farmland.

Requiring all grower members to be organically certified will ensure that they undergo a third-party inspection at least annually and follow stringent food safety protocols and environmentally beneficial practices.

To reduce transportation costs, NCAT recommends that the hub take advantage of all opportunities for backhauling on the part of retail customers. The hub will need to be flexible, reducing its geographical scope if low-cost transportation options are not available.

This study concludes that a Texas organic food hub could be implemented profitably. NCAT recommends that food hub organizers continue outreach and grower recruitment efforts and develop a fundraising plan and timeline, towards the goal of a pilot effort such as the one described in this report.

Some funders and lenders will require a much more complete and specific business plan than what is provided in this report. Before actual fundraising can begin there will also need to be a legal entity to apply for and administer funds. The organizers can either choose an existing organization to play the role of fiscal agent temporarily or else proceed directly to the incorporation of the food hub as a legal entity in Texas.

In either case, before deciding on a business structure there should be a deliberate process to disseminate information about the food hub's purpose and educate and involve many stakeholders. This process should not be rushed and will take several months at a minimum. If the organizers wish to start operations quickly, we recommend the first path: finding an appropriate organization to serve as a temporary fiscal agent.

Summary of Strengths, Weaknesses, Opportunities, and Threats

Strengths

- Thirteen organic growers have been identified as promising candidates for participation (rated 4 or 5), with 800 acres of certified organic land available.
- An additional 20 growers have been identified as having some potential for participation (rated 2 or 3).
- Many hundreds of farmers are not certified organic but use at least some organic production methods, and can be considered part of the hub's recruitment pool.
- A facility in Guadalupe County would be less than one hour from the central distribution warehouses of both H-E-B and Whole Foods: the state's top two organic produce retailers. Both companies have expressed strong interest in buying from the hub.
- The hub would be a resilient enterprise with low initial capital investments and assets, enabling it to scale back operations quickly and survive market fluctuations. It could also adapt to crop failures by shifting production to other regions of the state.
- Since it would be either grower-owned or at least strongly grower-controlled, the hub should enjoy strong support, trust, and loyalty from its grower members.
- Since all growers would be organically certified, the hub would have strong quality control protocols in place from day one.

Weaknesses

- More than half of respondents had little or no knowledge of wholesale marketing.
- Many growers are located far from the likely central hub location in Guadalupe County
- Only a limited amount of research has been done on organic farming methods appropriate to Texas.
- Conventional growers in Texas have a limited understanding of the organic certification process, and also report a lack of information and technical support with regard to organic production methods.

Opportunities

- The market for organic produce in Texas is $200 million per year (farm gate prices) and Texas farmers could realistically grow at least half of this food, worth $100 million.
- Texas has a year-round growing season and can grow most commonly eaten fruits and vegetables.
- The central hub facility is within five hours of 14 million people, including four major metropolitan areas, and within one hour of two of these.
- No other wholesaler offers a full product line of organic produce in Texas.
- The organic produce industry is growing at a 10-12% annual rate, and is now at least 6.9% of grocery store produce sales.
- Many direct-market growers are frustrated with their low net incomes and ready to try something different.

Threats

- The fresh produce business is stressful (partly because of the extreme perishability of products), and operates on low profit margins. Small miscalculations can sink a business.
- Low net profit levels from the hub's operations will create cash flow risks that will be most severe in the first year, while the employees will also be learning the business and gaining experience.
- Other mid- to large-sized Texas organic growers could expand their product lists, becoming competitors.
- The new Food Safety Modernization Act creates uncertainties about food safety requirements, and these could affect hub operations or costs.
- Organic farmers face many crop production risks, because of pest and weed pressures.
- Weather conditions could cause actual production to be far lower or higher than estimates by hub management.
- Prices received by hub could be lower than those estimated by hub management
- As a new business, the hub may have trouble winning acceptance by grocery produce buyers..

Reference List

Abellera, Diana, Diane Del-Signore, Erin Derden-Little, Ariane Michas, Dave Runsten, and Megan Sabato. October 2014. Making the Invisible Visible: Looking Back at Fifteen Years of Local Food Systems Distribution Solutions. Community Alliance with Family Farmers, Davis, CA.

Angrisani, Carol. March 2014. H-E-B Launches Organic Store Brand. http://supermarketnews.com/private-label/h-e-b-launches-organic-store-brand

Baier, Ann. 2005. Organic Certification Process. ATTRA Publication IP262. National Center for Appropriate Technology. Butte, MT.

Barham, James, Debra Tropp, Kathleen Enterline, Jeff Farbman, John Fisk, and Stacia Kiraly. April 2012. Regional Food Hub Resource Guide. USDA Agricultural Marketing Service, Washington, DC.

Betancourt Jennifer & DesRoberts Amanda. 2015. Current Options in Cheese Aging Caves. Silvery Moon Creamery. www.albc-usa.org/dairy/documents/FinalCheeseCaveReport.pdf

Bloom J. Dara & Hinrichs C. Clare. 2011. Moving local food through conventional food system infrastructure:. Renewable Agriculture and Food Systems.

Brockhouse W. John, Jr & Wadsworth J James. 2010. Vital Steps: A Cooperative Feasibility Study Guide. USDA Rural Business-Cooperative Service Report 58.

Constance, D. H. & Choi, J. Y. January 2010. Overcoming the Barriers to Organic Adoption in the United States: a Look at Pragmatic Conventional Producers in Texas. Sustainability 2010, 2, pp. 163-188.

Edwards, Richard, Charles Hall, and Jeff Johnson. No Date. Guide to Marketing Organic Produce. Texas A&M University AgriLife Extension. http://aggie-horticulture.tamu.edu/vegetable/guides/guide-to-marketing-organic-produce

Farm Marketing Institute. May 2014. Supermarket Sales by Department – Percent of Total Supermarket Sales. http://bit.ly/1p5Z8CC

IMPLAN Group website. Sourced June 2015.www.implan.com

Karst, Tom. 2014. Fruits and Vegetables Continue to Show Organic Gains. May 16. The Packer. http://bit.ly/1rvBTtI

Lerman, T. 2012. A Review of Scholarly Literature on Values-Based Supply Chains. Agricultural Sustainability Institute, University of California, Davis., CA

Local Harvest. Community Supported Agriculture. Sourced June 2015. www.localharvest.org/csa

Maggiani, Robert. 2015. Organic Specialty Crop Production in Texas: a Grower's Handbook. ATTRA Publication IP488. National Center for Appropriate Technology. Butte, MT.

Marks, Tod. March 19, 2015. The Cost of Organic Food. Consumer Reports. Sourced from www.consumerreports.org.

Matson, James, Jeremiah Thayer, and Jessica Shaw. 2015. Running a Food Hub: Lessons Learned from the Field Volume One. USDA Rural Development. Washington, DC.

Murphy Andrea. November 2014. America's Largest Private Companies 2014. www.forbes.com/largest-private-companies

National Good Food Network. September 2014. Food Hub Benchmarking Study 2014. Webinar . http://ngfn.org.

National Good Food Network. 2014a. Resources: US Food Hubs- Full List. http://ngfn.org/resources/food-hubs#section-4

Organic Trade Association. 2014. State of the Industry. Organic Trade Association. Washington, DC. www.ota.com/contact-ota

Post, Emily and Jeff Schahczenski. November 2012. Understanding Organic Pricing and Costs of Production. ATTRA Publication IP431. National Center for Appropriate Technology. Butte, MT.

Pressman, Andy and Chris Lent. July 2013. Food Hubs: a Producer Guide. ATTRA Publication IP455. National Center for Appropriate Technology. Butte, MT.

Rodriguez G. Veronica. June 2006. Farmers Markets. The Small Business Development Center Network and National Information Clearinghouse. www.sbdcnet.org/small-business-research-reports/farmers-markets-2

Schahczenski, Jeff. 2012. Crop Insurance Options for Specialty, Diversified, and Organic Farmers. ATTRA Publication IP438. National Center for Appropriate Technology. Butte, MT.

USDA-Agricultural Marketing Service. No Date. Market News: Fruits and Vegetable Portal. USDA- Agricultural Marketing Service. Washington, DC. www.marketnews.usda.gov/mnp/fv-home

USDA-Agricultural Marketing Service. June 17, 2015. National List of Allowed and Prohibited Substances. www.ams.usda.gov/AMSv1.0/NOPPetitionedSubstancesDatabase

USDA-Agricultural Marketing Service. 2014. 2014 List of certified USDA organic operations. Sourced from http://apps.ams.usda.gov/nop. USDA Agriculture. Agriculture Marketing Service,. Washington, DC.

Wiswall, Richard. The Organic Farmer's Business Handbook 2009. Chelsea Green Publishing Company, White River Junction, VT.

Wolfe, Pamela and Rex Dufour. An Illustrated Guide to Growing Safe Produce on Your Farm. 2010. ATTRA Publication IP382. National Center for Appropriate Technology. Butte, MT.

York, Mary, Douglas Constance, Roger Hanagriff, and Michael Lau. October 2007. Identifying Barriers to Entry into the Organic Market and Possible Strategies to Increase the Likelihood of Success for Potential Organic Producers. Texas Department of Agriculture.

Qualifications

The national non-profit National Center for Appropriate Technology (NCAT) has conducted previous feasibility studiesrelated to institutional food markets, beef marketing, energy conservation, irrigation systems, and many kinds of renewable energy. As a non-profit organization, NCAT has no financial interest in a potential Texas organic food hub, accepts no corporate advertising, and is well-situated to conduct an independent and objective study.

NCAT's ATTRA Project (www.attra.ncat.org), in operation since 1987 and funded through USDA Rural Development, is widely viewed as the leading source of technical information on organic and sustainable farming in America. ATTRA provides direct technical assistance to farmers, ranchers, and educators around the U.S. In 2014, the ATTRA web site offered over 400 publications and received more than 2 million website contacts. Responding to high demand from Texas farmers and ranchers, NCAT opened a Southwest Regional Office in San Antonio in 2010.

The Co-Directors of this feasibility study are Robert Maggiani and Dr. Mike Morris.

Robert Maggiani is an NCAT Sustainable Agriculture Specialist, and has BBA degree and an MS degrees from the University of Texas at Austin. He was an organic vegetable farmer in South Texas and Mexico in the 1970's and 1980's before joining the Texas Department of Agriculture (TDA) as a Direct Marketing Specialist in 1985. His responsibilities were to organize grower cooperatives and train growers in production planning of fruits and vegetables. He was the first staff person in the TDA Marketing Division to be assigned to the project of starting an organic certification program, which came into existence in 1989 as only the second of its kind in the country (after California). In 1991 Robert became the Chief of Marketing in the San Antonio Regional Office of TDA, supervising a staff of four specialists. He served in that position for the next 20 years and developed extensive contacts with growers, retailers, wholesalers, restaurants, and specialty crop trade associations.

Dr. Mike Morris is Director of NCAT's Southwest Regional Office and a researcher and writer for NCAT's ATTRA Program. He has a Ph.D. in Philosophy from the University of Pittsburgh. Dr. Morris has directed over 20 projects at NCAT. His recent projects and publications have included irrigation efficiency, renewable energy training for agriculture professionals, and a support program for beginning farmers in the state of North Carolina. He is currently a principal investigator for the Subtropical Organic Agriiculture Research project, a three-year partnership with the University of Texas-Rio Grande Valley, funded by USDA's National Institute of Food and Agriculture. He is also director for the project "Beyond Fresh: Expanding Markets for Sustainable Value-added Food Products in Texas," funded by the Southern Sustainable Agriculturel Research & Education program.

Glossary

AMS: the Agricultural Marketing Service of the U.S. Department of Agriculture.

ATTRA: The national sustainable agriculture information service operated by NCAT: Appropriate Technology Transfer for Rural Areas. (www.attra.ncat.org)

Backhaul: The return trip of a commercial freight truck that has delivered its load.

Balance Sheet: A financial statement that gives an overview of a business's financial state, usually including assets, liabilities, and owner equity.

Box club: Subscription service where the consumer pays a subscription fee and receives boxes of food on a regular basis.

Broker: Someone who connects buyers and sellers without taking legal ownership or physical possession of the product.

Co-branding: Branding that credits two companies.

Commodity: Agricultural product that is unspecialized and usually sold in large quantities, such as corn, wheat, rice, or cotton. Distinguished from *specialty crops*.

Conventional produce: Produce that is not *certified organic*.

CoolBot: Device allowing a standard air conditioner to cool a space far below the usual minimum of around 60° F. Often used by farmers to create a low-cost walk-in cooler.

CSA (Community-supported agriculture): a subscription arrangement where the consumer pays a subscription fee and receives regular deliveries of produce. (See *box club*.)

Direct marketing: Sales from producer to consumer, with no intermediary. Distinguished from ***wholesale*** marketing.

Distributor: Someone who buys, aggregates, and re-sells to customers who are not the end user. (Synonymous with *wholesaler* in the produce industry.)

Enterprise budget: Estimate of the overall cost and profitability of an agricultural operation such as growing a particular crop, usually based on the cost of producing one acre.

Farm gate price: The price available at the farm, not including delivery costs.

FDA: the Food and Drug Administration, an agency of the U.S. government responsible for administering the Food Safety Modernization Act.

Food hub: An organization that manages the aggregation, distribution, and marketing of source-identified foods primarily from local and regional producers to strengthen their ability to satisfy wholesale, retail, and institutional demand.

FSMA: the Food Safety Modernization Act. Passed in 2010, it will require changes in food safety regulations.

GAP: Good Agricultural Practices, a voluntary USDA program promoting safe production, field handling, and packing practices for fruits and vegetables, aimed mainly at farmers.

GHP: Good Handling Practices, a voluntary USDA program to reduce the risk of microbial contamination, aimed mainly at packing houses.

HACCP: "Hazard analysis and critical control points." A food safety system that focuses on preventing hazards that could cause food-borne illnesses. The USDA requires all meat producers to have HACCP plans.

Income statement: Shows the profit or loss that a business is expected to incur by detailing revenue and expense streams. Also known as a *profit and loss* statement.

LTL: Less Than Loaded or Less Than Truckload. A term used in the shipping industry to refer to partially empty freight trucks. Shipping LTL quantities increases cost per container compared to shipping a full truckload.

NCAT: National Center for Appropriate Technology, the national non-profit organization that conducted this study.

NGFN: National Good Food Network. Offers extensive resources for food hubs on its website.

NOP: The National Organic Program of the U.S. Department of Agriculture.

Organic (or certified organic): A legally defined term that may not be used by farms or food handlers unless they meet the standards defined by USDA's National Organic Program.

Produce: Crops in a fresh, harvested state. This includes fruits, vegetables and nuts.

Profit and loss (P&L) statement: See *income statement*.

Pro forma statement: Projection or estimate of a company's financial performance in the future.

Returns: Unused produce for which—on account of spoilage or some other reason—the customer is not charged.

Specialty crop: USDA term for raw fruits, vegetables, and nuts for human consumption.

Sub-hub: Branch of a food hub that is used to store produce temporarily before it is shipped to the central facility.

TDA: The Texas Department of Agriculture.

TDSHS: the Texas Department of State Health Services.

TOFGA: the Texas Organic Farmers and Gardeners Association, a non-profit member organization for sustainable and organic farmers and ranchers.

Transitional farm: A farm in the process of becoming certified organic. Conventional farmland must generally be managed according to organic standards for three years before it can receive certification.

Wholesale: Sales to a retailer or aggregator for the purpose of resale or processing. In general, sales to anyone but the consumer.

Appendix 1: Grower Survey Results

How long have you been growing fruits and vegetables?

	# Responses	% Responses
<1 year or never	5	11.6%
0-5 years	12	27.9%
6-10 years	8	18.6%
11-25 years	9	20.9%
25+ years	9	20.9%
Skip	9	

What percentage of your current sales is to wholesale accounts?

	# Responses	% Responses
0%	21	51.2%
1-25%	6	14.6%
26-50%	5	12.1%
90-100%	9	21.9%
Skip	11	

Are you currently a USDA certified organic producer?

	# Responses	% Responses
Yes	23	46.9%
No	26	53.1%
Other	11	
Skip	3	

If not organically certified, how likely is it for you to become certified in the next 5 years?

	# Responses	% Responses
Very Likely	13	52%
Somewhat Likely	6	24%
Not Very Likely	6	24%
Skip	27	

Are you already Good Agricultural Practices (GAP) certified?

	# Responses	% Responses
Yes	8	15.7%
No	28	54.9%
I don't even know what that is.	15	29.4%
Skip	1	

How would you rate your level of interest in selling to an organic-only food hub?

	# Responses	% Responses
Very Interested	32	61.5%
Definitely Interested	9	17.3 %
Slightly Interested	8	15.4%
Not Interested at all	2	3.8%
I would be more interested in a non-organic food hub	1	1.9%
Skip	0	

What would make you more likely to participate in the food hub? (Please select all that apply.)

	# Responses	% Responses
The food hub is grower owned	17	34%
The food hub is owned by Texas residents	11	22%
The food hub is a grower owned cooperative	21	42%
You are offered the opportunity to become an investor	12	24%
None of the above matter as long as you get a fair market price for your produce	24	48%
Skip	2	

Would you be willing to participate in preseason crop planning with the food hub and other growers to schedule type, quantity, and approximate timing of the produce?

	# Responses	% Responses
Yes	42	82.4%
No	9	17.6%
Skip	1	

What concerns do you have that might prevent you from selling wholesale produce to the food hub? (Please select all that apply.)

	# Responses	% Responses
Doubtful that the price would be high enough to make it profitable.	24	54.5%
Lack of knowledge about GAP certification.	15	34.1%
Lack of on-farm storage.	15	34.1%
Lack of farm labor to harvest.	14	31.8%
Unsure if I grow enough to sell into a food hub.	15	34.1%
Unsure about liability insurance and my responsibility.	14	31.8%
Lack of transportation for delivery to the food hub.	5	11.4%
Cannot afford GAP certification.	3	6.8%
Skip	8	

Appendix 2: Seasonal Availability of Texas Crops

Key: S=South, E=East, C=Central, W=West, N=North

Product	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Asparagus			S	S,E,C	C,E,N	N,W						
Artichokes			S	S,E,C	S,E,C	C,E,N						
Arugula	S,E	S,E	S,E	S,E,C	E,C	E,N,W	E,N,W	E,W	E,W	E,W,N,C	S,E,C,N	S,E,C
Beets	S,C	S,C	S,C	S,E,C	S,E,C	W	W	W	W,C	W,C,E	S,C,E,W	S,C,W
Blackberries				C,E	C,E	C,E,N						
Blueberries					C,E	C,E	C,E,N	N				
Broccoli	S,C	S	S	S,E,N	E,N					E,N	ALL	ALL
Brussel Sprouts	S,E	S,E	S,E	S,E,C	S,E,C	ALL	E,C,N,W	C,W	C,W	ALL	ALL	ALL
Cabbage	S,E	S,E	S,E	S,E,C	S,E,C	ALL	E,C,N,W	C,W	C,W	ALL	ALL	ALL
Cantaloupes					S	ALL	ALL	C,E,W	C,E,W	ALL	S,E	S
Carrots	S	S	S	S,E,C	S,E,C	N,W	N,W	W	W	W	W	S
Cauliflower	S,C	S	S	S,E,N	E,N					E,N	ALL	ALL
Collards	S,E	S,E	S,E	S,E,C	E,C	E,N,W	E,N,W	E,W	E,W	E,W,C,N	S,E,C,N	S,E,C
Cucumber				S	S,E	ALL	E,C,N,W	E,C,N,W	E,C,N,W	ALL	S,E,C,N	S
Fennel	S	S	S	S,C,E	S,C,E	N,W	N,W					S
Figs	S	S	S	S,E,C	E,C	E,C,N	N			C,E,N	C,E,S	S
Grapefruits	S	S	S	S	S					S	S	S
Green Beans			S	S,E,C	S,E,C	E,C,N	N,W	N,W	N,W	C,N,W	S,C	S
Honeydews					S	ALL	ALL	C,E,W	C,E,W	ALL	S,E	S
Kale	S,E	S,E	S,E	S,E,C	E,C	E,N,W	E,N,W	E,W	E,W	E,W,C,N	S,E,C,N	S,E,C
Leaf Lettuces	S,E	S,E	S,E	S,E,C	E,C	E,N,W	E,N,W	E,W	E,W	E,W,C,N	S,E,C,N	S,E,C
Leeks	S	S	S,E	S,E,C,N	ALL	C,E,N,W	W	W	W	S,E,N	S,E,N	S,E,N
Mustard Greens	S,E	S,E	S,E	S,E,C	E,C	E,N,W	E,N,W	E,W	E,W	E,W,C,N	S,E,C,N	S,E,C
Onion (Dry)			S	S	S,C,W	S,C,W	C,W,N,E	C,W,N,E	E,W	W		
Onion (Green)	S	S	S,E	S,E,C,N	ALL	C,E,N,W	W	W	W	S,E,N	S,E,N	S,E,N
Oranges	S	S	S	S	S					S	S	S
Parsnips	S,C	S,C	S,C	S,C,E	C	W	W	W	W	C,E,W	C,E,W	S,C,E,W
Peaches				S	S,E	C,E,N	C,E,N,W	C,E,N,W	E,W			
Pear				S	S,E	C,E,N	C,E,N,W	C,E,N,W	E,W			
Pepper (Bell)	S			S	S,E,C	E,C,N	N,W	W	W	ALL	ALL	S,E
Peppers (Hot)	S			S	S,E,C	E,C,N	N,W	W	W	ALL	ALL	S,E
Plums				S	S,E	C,E,N	C,E,N,W	C,E,N,W	E,W			
Pomegranates									C,E	C,E	C,E	
Potatoes (Red)			S	S,C	S,C,E	S,C,E,W	W	W				
Potatoes (White)						C	C	N	N	N,W	W	W
Potatoes (Yukon)						C	C	N	N	N,W	W	W
Pumpkins									C,E	C,E,W,N	C,E,W,N	N,W
Snap Peas	S	S	S,C,E	C,E	C,E,N	N,W				N,W	C,E,S	C,E,S
Snow Peas	S	S	S,C,E	C,E	C,E,N	N,W				N,W	C,E,S	C,E,S
Squash (Yellow)			S	S,C	ALL	C,E,W,N	C,E,W,N	N,W	N,W	C,E,W,N	S,C,E	S
Tomatoes (Cherry)			S	S,C	S,C,E	ALL	N,E,W	N,E,W	N,E,W	E,W	C,S,E	C,S,E
Tomatoes (Slicing)				S	S,C,E	ALL	N,E,W	N,E,W	N,E,W	E,W	C,S,E	C,S,E
Tomatoes (Roma)				S	S,C,E	ALL	N,E,W	N,E,W	N,E,W	E,W	C,S,E	C,S,E
Tomatoes (Heirloom)				S	S,C,E	ALL	N,E,W	N,E,W	N,E,W	E,W	C,S,E	C,S,E
Spinach	S	S	S	C,E	C,E,N,W	N,W				N,W	ALL	ALL
Sweet Potatoes	E	E	E	E	E			C,E,W	C,E,W	C,E	C,E	C,E
Turnips	S,C	S,C	S,C	S,C,E	S,C,E	W	W	W	W	C,E,W	ALL	ALL
Watermelon (Seed)					S	S,C,E	S,C,E,N	C,E,N,W	C,E,N,W	C,S	S	
Watermelon (Seedless)					S	S,C,E	S,C,E,N	C,E,N,W	C,E,N,W	C,S	S	
Winter Squash	S	S								ALL	ALL	S
Zucchini			S	S,C	ALL	C,E,W,N	C,E,W,N	N,W	N,W	C,E,W,N	S,C,E	S

Appendix 3: Organic Certifying Agencies Operating in Texas

Agency	Main office	E-mail	Website
A Bee Organic (ABO)	De Luz, CA	sarah@abeeorganic.com	www.abeeorganic.com
Agricultural Services Certified Organic (ASCO)	Salinas, CA	Kat@ascorganic.com	www.ascorganic.com
Americert International (AI)	Gainesville, FL	americert@gmail.com	http://americertorganic.com/home
CCOF Certification Services, LLC (CCOF)	Santa Cruz, CA	jake@ccof.org	www.ccof.org
Ecocert ICO, LLC (ICO)	Greenwood, IN	dave.decou@ecocert.com	www.indianacertifiedorganic.com
Global Organic Alliance, Inc (GOA)	Bellefontaine, OH	goaorg@centurylink.net	www.goa-online.org
International Certification Services, Inc (ICS)	Medina, ND	dawn@ics-intl.com	www.ics-intl.com
Mayacert S.A. (MAYA)	Guatemala City, Guatemala	noe.rivera@mayacert.com	www.mayacert.com
Natural Food Certifiers (NFC)	Spring Valley, NY	nfccertification@gmail.com	http://nfccertification.com
Nature's International Certification Services (NICS)	Viroqua, WI	dave@naturesinternational.com	www.naturesinternational.com
OneCert, Inc. (ONE)	Lincoln, NE	sam@onecert.com	www.onecert.com
Oregon Tilth Certified Organic (OTCO)	Corvallis, OR	organic@tilth.org	www.tilth.org
Organic Certifiers, Inc (OC)	Ventura, CA	susan@occert.com	www.organiccertifiers.com
Organic Crop Improvement Association (OCIA)	Lincoln, NE	atunink@ocia.org	www.ocia.org
Quality Assurance International (QAI)	San Diego, CA	jlackie@qai-inc.com	www.qai-inc.com
Quality Certification Services (QCS)	Gainesville, FL	denise@qcsinfo.org	www.qcsinfo.org
Texas Department of Agriculture (TDA)	Austin, TX	Mary.Holliman@texasagriculture.gov	Organic@TexasAgriculture.gov

Appendix 4: Certified Organic Specialty Crop Farms in Texas

Farm Name	County
Eugene Martinez Farm	Atascosa
Animal Farm	Austin
San Domingo Ranch	Bee
Sidney Kacir Ranch	Bell
Nature's Sweet	Bexar
Aquatic Greens Farm	Brazos
Hairston Creek Farm	Burnet
Wet Weather Creek Farm	Burnet
Aloe Laboratories Inc.	Cameron
Mid Valley Agriculture, LLC	Cameron
MO Produce, LLC	Cameron
Yahweh's All Natural Farm	Cameron
Spring Creek Organic Farm	Collin
Rife Vineyards	Collin
KDJ Pecan Farm	El Paso
Jones and Naegelian, JV	Frio
Texas Organic Mushrooms	Grayson
My Father's Farm	Guadalupe
M & R Farm	Guadalupe
Scott Arbor	Guadalupe
Springwood Farms	Harris
Hibiscus Hill Plantation	Harris
Amy's Food Service Inc.	Harris
Rio Grande Organics	Harris
Morrison Organic Farm	Haskell
The Farm at Montesino Ranch	Hays
Millberg Farms	Hays
Onion Creek Farm	Hays
Austin Organics	Hays
Pure Luck Inc.	Hays
Texas Hill Country Olive Co.	Hays
Berry Best Farm	Henderson
South Tex Organics, LLC	Hidalgo
Gearhart Farms	Hidalgo
Donald E. Thompson	Hidalgo
Ruby Red Harvest	Hidalgo
William B. Davis Farm	Hidalgo
Joe A. Garza	Hidalgo

Farm Name	County
Strohmeyer Family Farm, LLC	Hidalgo
Triple J Organics	Hidalgo
Terra Preta	Hidalgo
Good Earth Organic Farm	Hunt
H and M Farms	Jefferson
Morrison Organic Farm	Johnson
Whispering Hills Pecan Orchard Inc.	Kerr
Hilltop Herb Farm, LLC	Liberty
ANT JV	Lubbock
Carl Pepper Farm	Lynn
Buena Tierra	Mason
Melissa's Farm	Medina
Boggy Creek Farm	Milam
Kacir Wheeler Farm	Milam
Spiral Sprouts Of Houston	Montgomery
Generation Farms	Navarro
Hewett Orchard & Ranch	Navarro
Cimarron Organics	Potter
King's Crossing Farm	San Saba
Genes Greens, LP	Tarrant
Bingham Family Vineyards	Terry
Johnson's Backyard Garden	Travis
Dr. Dirt Organic Productions	Travis
Texas Produce Farm	Travis
Tecolote Farm	Travis
Rancho Bendicion de Dios	Travis
Clover Hill Farms	Travis
Green Gate Farms	Travis
Keep It Real Farm	Travis
Barr Mansion	Travis
Oakridge Valley Farm Organics	Van Zandt
Dos Brisas Ranch	Washington
Gundermann Acres	Wharton
Gabriel Valley Farms	Williamson
Angel Valley Organic Farm	Williamson
Day Star Organic Farm, LLC	Williamson
Orange Blossom Farm	Zavala

Appendix 5: Job Descriptions

Four positions were identified as key to making the hub run efficiently: general manager, marketing manager, sales manager, office and IT manager, and transportation worker.

General Manager

Job Description:

The general manager will have overall responsibility for the management of the Food Hub. The general manager will work with farmers to aggregate and distribute product to meet customer demand, expand the customer base by exploring new markets, ensure Food Hub standards are met by farmers, and maintain good communication between staff, customers, and other local food system stakeholders. The ideal candidate will have excellent time management skills, outstanding verbal and written communication skills, and be comfortable utilizing technology to communicate with farmers and customers. Previous experience with sustainable farming practices is preferred.

Responsibilities:

- Recruit new farmer/suppliers by networking, conducting farm visits and phone calls;
- Place orders directly with growers, confirming quantities needed for production;
- Oversee all receiving, storing, and issuing of inventory;
- Develop invoicing, ordering, and other business procedures.
- Identify, evaluate, and explore market channels to increase sales.
- Organize production lines and oversee entire production process, including maintaining the integrity/quality of product and accurate order fulfillment;
- Establish, monitor and improve production systems to maximize efficiency and product quality;
- Maintain records to verify certification status and/or production practices of farmer/suppliers;
- Recruit, interview, and hire all team members for the Food Hub;
- Responsible for training all staff of the Food Hub in their respective positions;
- Review employee schedules weekly to ensure adequate staffing is available during shifts;
- Oversee all cleanliness and upkeep of Food Hub facility per USDA requirements.

Qualifications:

- Minimum 5 years managerial experience in foodservice or produce distribution;
- Highly motivated and capable of working independently;
- Experience managing a group of employees;
- Must have excellent verbal and written communication skills and be a good motivator;
- Must project a positive attitude and promote a safe, efficient and productive workplace;
- Must possess a valid driver's license;
- Must be able to continuously lift 75 lbs and work standing up for 8 hours per day;
- Required be punctual, onsite and ready for work at scheduled hours;
- Must have good math skills and be proficient in EXCEL and other computer software;
- Must be forklift certified and/or trainer certified and be able to maintain all equipment, coolers, heavy equipment including scheduled maintenance.

Marketing Manager

Job Description:

The Marketing Manager is responsible for growing brand awareness and for marketing the Food Hub in the most efficient and engaging way possible. As the voice of the Food Hub, this high energy individual will represent the Food Hub to new suppliers and customers by identifying and executing local marketing opportunities and will work closely with the General Manager.

Responsibilities:

- Plan, schedule, manage & execute initial launch events and ongoing marketing events;
- Frequently update General Manager on marketing activity and calendar of events;
- Continuously identify marketing gaps and opportunity areas in the market;
- Regularly contribute to the Food Hub's social media presence;
- Actively participate in discussions across communities, social networks & blogs;
- Serve as the source of marketing information within the Food Hub team, including regular communication with sales and operations staff;
- Work on local partnerships with events, businesses, and brands;
- Build and maintain relationships with community groups, organizations and institutions;
- Identify and attend events to engage with customers and build brand awareness;
- Facilitate successful advertising as well as internal communications;
- Participate in evaluation of marketing initiatives and report writing.

Qualifications:

- Bachelor's Degree required, preferably within Marketing;
- 5 years marketing or project management experience;
- Exceptional written and verbal communication skills required;
- Must be extremely organized and have the ability to multitask;
- Willing to identify and attend events and engage with customers and prospective customers on a daily basis;
- Team player, self-motivated, efficient, outgoing, flexible, reliable;
- Must take initiative without constant supervision;
- Easily adapts to rapidly changing environment and demands;
- Strong knowledge of MS Office, database, email and internet systems;
- Active online presence and familiarity with social media;
- 100% comfortable putting yourself out there and talking to customers;
- Passion and excitement about local, sustainable food and expanding the Food Hub;
- Ability to work evenings and weekends and adjust to a varied and flexible schedule.

Sales Manager

Job Description:

The Sales Manager will be responsible for growing the sales of fresh market produce from small- and medium-sized growers to wholesalers, institutions, and retailers. Will work collaboratively with a small team on the day-to-day functioning of the Food Hub. He or she will establish and carry out strategies, goals, policies, pricing, operating budgets, grower relations, trade relations, reporting and communications to achieve profitable growth of the Food Hub. The Sales Manager is responsible for contributing to sales growth through new customer acquisition, customer retention and growth opportunities with current customer base.

Responsibilities:

- Work with General Manager to establish sales goals and operating budgets and communicate sales results;
- Sell produce by utilizing strategies and tactics that will result in the best possible daily, weekly and seasonal pricing;
- Work with General Manager, growers and buyers to plan, coordinate and implement production plans and sales plans;
- Work with General Manager and growers to establish grower protocols and practices for food safety and other purposes;
- Communicate with growers and work with General Manager towards achieving consistent quality among growers;
- Coordinate with Office Manager to ensure accurate and timely grower payment;
- Manage, develop and sustain relationships with growers/suppliers;
- Manage sales operations, develop and prepare sales reports;
- Work with customers to develop plans and address their specific needs;
- Identify new sources of sales and sources of produce in an effort to extend sales;
- Coordinate freight and logistics in a manner that keeps costs low.

Qualifications:

- Bachelor's Degree;
- 5-10 years of relevant (specialty food, agriculture, natural and organic produce) related experience in sales with proven success;
- Appreciation for principles of sustainable agriculture and food;
- Knowledge of buyers in the wholesale food service and retail business;
- Experience working with small and medium growers;
- Experience with accounting and computer software in accounting and logistics;
- Experience with transportation and logistics, including warehousing;
- Excellent analytical, problem solving, and negotiating abilities;
- Excellent verbal, written and interpersonal skills for representing the Food Hub through emails, phone, and in-person meetings with customers and suppliers;
- Positive attitude and commitment to customer service;
- High attention to detail and accuracy, good decision making skills;
- Strong knowledge of MS Office.

Office Manager and IT Manager

Job Description:

Assist in the operations and logistics of a regional multi-farmer Food Hub, providing fresh, locally-grown fruits and vegetables to customers in the Food Hub distribution area. Work collaboratively with a small team on the day-to-day functioning of the Food Hub. The Office Manager/IT Manager will oversee all administrative functions of the Food Hub. The ideal candidate will be proactive, hands on, an effective communicator, fast learner, will possess strong leadership abilities, always maintain a professional image and have a good sense of business management.

Responsibilities:

- Provides clerical and administrative support to the General Manager;
- Drafts any needed letters and documents; collects and analyzes information; initiates telecommunications as requested;
- Maintain Food Hub website, including use of social media;
- Responsible for office supplies procurement and inventory;
- Assists in the recruitment and hiring process as needed;
- Coordinates payroll functions as needed;
- Performs data input and other information in a timely and accurate manner;
- Ensures that all HR and Employee Safety matters are directed to the General Manager;
- Facilitates communication with local Government Agencies.

Qualifications:

- Bachelor's degree (business administration, accounting or related);
- At least 3 years of experience as office manager, administrative or executive assistant;
- Experience in Outlook, Word and Excel (tables, filters, graphics and reporting);
- Basic knowledge of accounting and/or human resources is a plus;
- Self-motivated and able to multi-task responsibilities;
- Experience working with cross functional team;
- Able to maintain confidential information;
- Excellent verbal and written communication skills;
- Motivated and capable of working independently;
- Proficient in website & social media management;
- Ability to operate a variety of office equipment including personal computer, photocopier, and fax machine.

Transportation Worker

Job Description:

Assist in the operations and logistics of a regional multi-farmer Food Hub, providing fresh, locally-grown fruits and vegetables to customers in the Food Hub distribution area. Work collaboratively with a small team on the day-to-day functioning of the Food Hub. Ensure that orders are delivered to customers safely and efficiently.

Responsibilities:

- Pick up produce from area farms and deliver to the Food Hub;
- Unload produce in Receiving Area, including product staging and proper storage;
- Provide delivery reports for inventory management staff;
- Maintain quality of service by following operational and food safety standards;
- Pack produce in proper volumes daily to ensure accurate order fulfillment;
- Assess produce quality before and during packing, and implement a system of feedback and education for farmers to address any quality issues;
- Deliver orders using refrigerated box truck, ensuring timely delivery;
- Work with customers to trouble shoot delivery or pickup concerns;
- Assist in daily monitoring of operational needs of delivery vehicle and cooler facility, and schedule maintenance as needed in order to ensure proper operation of essential equipment;
- Assist daily in maintaining a clean and organized packing site;
- Provide customer service to ensure customer satisfaction and represent the Food Hub in a professional and thoughtful manner.

Qualifications:

- High school diploma or equivalent;
- 2 years of driving experience in delivery operations;
- Clean driving record;
- Experience handling produce and assessing produce quality;
- Experience in commercial farming, wholesaling, supervising of produce preferred;
- Able to lift boxes up to 50 pounds, able to move freely within warehouse environment;
- Previous customer service experience;
- Outstanding communication skills;
- Good time management skills, experience working on a deadline;
- Strong organizational skills;
- Familiarity with basic computer skills; ability to learn and use new software;
- Able to use standard warehousing tools;
- Friendly, reliable, high energy level, comfortable performing multiple tasks in conjunction with day-to-day activities;
- Good interpersonal skills; team player, able to interact with diverse personalities, tactful, flexible;
- Good reasoning abilities and sound judgment;
- Self-motivated and directed; ability to work well within a rapidly changing environment.

Notes