

NEW LONDON COUNTY FOOD POLICY COUNCIL
UNITED WAY OF SOUTHEASTERN CONNECTICUT

NEW LONDON COUNTY FOOD HUB FEASIBILITY STUDY



September 2015



NEW LONDON COUNTY FOOD HUB FEASIBILITY STUDY



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ABOUT NEW LONDON COUNTY FOOD POLICY COUNCIL

The New London County Food Policy Council (NLCFPC) is a collaborative initiative comprised of community leaders that represent organizations, sectors and families striving to change the regional food system in order to improve community health and support the local economy.

The NLCFPC's mission is to transform the region's food system for improved health outcomes through policy advocacy and program innovation, alignment, and support. Toward this mission, the NLCFPC works to: 1) ensure that affordable and nutritious food is accessible by all residents of the county, 2) reduce food insecurity, 3) maintain and improve diet-related health, and 4) support local, environmentally and socially responsible agriculture in New London County.



Dina Sears-Graves, Vice President of Community Impact

ABOUT UNITED WAY OF SOUTHEASTERN CONNECTICUT

United Way of Southeastern Connecticut is a locally based nonprofit organization serving the towns of New London County. For more than 50 years, the organization has been advancing the common good by creating opportunities for a better life for all, focusing on the building blocks for a good quality of life – education, income, and health. United Way engages and mobilizes people and organizations that bring the passion, expertise, and resources needed to get things done. Contributions to United Way support a network of 71 health and human service programs and initiatives in Southeastern Connecticut that work together to help people in need and improve community conditions including United Way 2-1-1, the Gemma E. Moran United Way/Labor Food Center, the Mobile Food Pantry program, and United Way's Project Warm-up heating assistance.



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ABOUT NEW VENTURE ADVISORS LLC

New Venture Advisors helps communities and entrepreneurs identify market-based food systems solutions and build them into successful enterprises. In over 40 food systems projects, NVA has led a comprehensive and collaborative process that builds from existing assets to create enterprises that expand local food production, strengthen the livelihood of small and beginning farmers, promote healthy food access and improved eating habits, and bring economic development opportunities to the region.

CONTENTS

Executive Summary	4	Processing.....	44
Project Overview	8	Demand landscape	45
Background	8	Competitive Landscape	46
Project scope.....	8	Recommended Food Hub Business Model	48
Project Team	9	Core Business.....	49
Study Methodology.....	10	Legal Entity	49
Feasibility Assessment	10	Infrastructure and Technology	50
Business Planning.....	10	Collective Purchasing.....	50
Scope of Work.....	11	Additional Services	50
Timeline.....	12	Products.....	52
Primary Research	13	Revenue Model.....	52
Summary of Insights.....	14	Business Analysis	53
Grower Survey Results	16	Financial Model Assumptions.....	53
Characteristics of Overall Respondent Base	16	Overall Volume	53
Grower Interest and Concerns.....	19	Product Mix and Pricing.....	54
Buyer Survey Results.....	26	Core Revenue Model and Farmer Margin	55
Buyer Characteristics and Requirements.....	26	Collective Purchasing.....	56
Buyer Interest and Demands	30	Distribution Costs	56
Qualitative Research Insights.....	32	Facilities Costs.....	56
Kickoff and Grower / Buyer Meeting	32	SG&A and Personnel.....	57
Grower and Buyer Interviews	32	Steady State Financial Pro Forma P&L.....	57
Industry Analysis	33	Phase I Assumptions and Financials	59
Produce	33	Recommendations and Next Steps	61
Overview	33	Next steps	61
Production and Post-Harvest.....	34	Works Cited	63
Distribution	34		
Sales Outlets.....	35		
Buyer Trends	35		
Political Climate.....	35		
Beef	36		
Industry Trends	39		
Poultry and Eggs.....	40		
Industry Trends	41		
Local Market Assessment	42		
Agricultural production	42		

NOTE

THIS REPORT HAS BEEN MODIFIED FROM THE ORIGINAL TO REMOVE IDENTIFYING INFORMATION FOR SPECIFIC GROWERS. SECONDARY RESEARCH FROM PROPRIETARY SOURCES HAS ALSO BEEN REMOVED.

EXECUTIVE SUMMARY

PROJECT OVERVIEW

The New London County Food Hub Feasibility Study was spearheaded by United Way of Southeastern Connecticut and the New London County Food Policy Council. The study was undertaken to determine the optimal model for a food hub in New London County, determine the financial viability of such a food hub, and understand the impact the hub might have on health, wellness, agriculture and the economy.

The study had two components:

- Phase I: Market Assessment: This included (1) an assessment of current and future potential production of local food in the region, and barriers that producers face when entering or expanding their presence in local wholesale markets, (2) an assessment of current wholesale demand for local food in and around the region, and evaluation of the barriers that buyers face when purchasing local, and (3) an evaluation of existing infrastructure in the region, to determine what new infrastructure investments are needed to better connect New London County producers with wholesale markets. The objective of Phase I was to determine the optimal operating model for a food hub in the region, based on research conducted on each of the above three components.
- Phase II: Business Analysis: This included (1) establishing concrete assumptions for all components of the food hub's revenue, cost of goods, fixed costs and overhead, and startup costs and financing structure and (2) developing robust pro forma profit and loss statements representing the food hub's forecasted financial performance at steady state.

The core team responsible for executing the market assessment included United Way of Southeastern Connecticut, the New London County Food Policy Council, Farm Fresh New London County Schools, and New Venture Advisors.

This study was authored by New Venture Advisors, a Chicago-based consulting firm with expertise in the assessment, design, launch and development of businesses in the local food and sustainable agriculture arena. Since 2009, New Venture Advisors has worked on more than 40 food hub ventures and food systems projects across North America.

PRIMARY RESEARCH

Primary research included:

- Kickoff meeting with 30 attendees, representing food systems leaders, buyers and agriculture producers in New London County.
- Grower and buyer surveys: 35 growers and 16 buyers responded to the survey, via Survey Monkey.
- Interviews with 9 growers, 4 buyers, and 2 food systems leaders conducted by phone in February and March before surveys were launched, and again after surveys were closed.
- Grower/Buyer meeting, which engaged 3 buyers, 3 producers, and 2 food systems stakeholders.

The following chart summarizes key trends and data collected through these research steps. Overall, identified production among interested growers is fairly low, and annual spend on farm products among interested buyers is moderate. Alignment between the products buyers are seeking and the items producers want to sell into the hub is somewhat matched, though some big gaps exist. Interested buyers and interested producers are diverse, with producers representing many different product types and buyers ranging from large distributors to small restaurants.

Supply	Demand
<ul style="list-style-type: none"> • 16 interested growers identified through the survey with ~180 acres of current fruit and vegetable production. Potential to expand into an additional ~15-20 acres and ~30 greenhouses. One producer indicated the ability to expand indefinitely if demand warranted the investment. • Interested producers indicated that they would be interested in selling ~40 total acres of fruit and vegetable production into a food hub. • Interviews with four additional growers (who either did not complete the survey or completed the survey, but did not provide identifying information) identified an additional 110 acres of production; however, these producers all expressed relatively low interest in working with a food hub, unless the hub could serve as an outlet for surplus or seconds for processing. • Robust protein production among interested producers – 2,360 hogs, 2,000 laying hens, 1,900 chickens • 1 GAP certified grower, 10 with on-farm food safety plans. 6 would consider pursuing GAP if it were warranted. • Top products producers are interested in selling into the hub include (based on volume): Potatoes, winter squash, tomatoes, lettuce, kale/greens, chicken, pork and cheese 	<ul style="list-style-type: none"> • 10 interested buyers identified through the survey; 1 of these respondents was also interviewed • Three are independent, full line grocery stores; three are K-12 public schools; one is a broad line distributor, one is a college/university, and one a sit down, full service restaurant. One buyer did not identify themselves by type. • Spend among these buyers: <ul style="list-style-type: none"> ○ ~\$2.2 million per year on fresh, whole produce, of which 26% is local ○ ~\$850 thousand per year on processed produce, of which 21% is local ○ ~\$4.2 million per year on proteins (meat, poultry, dairy, eggs), of which 17% is local • Top products buyers are interested in purchasing from a food hub include: Squash, eggs, seafood, poultry, processed produce, cheese, broccoli, green beans, tomatoes, honey, greens

SECONDARY RESEARCH OVERVIEW

New London County was the top agricultural producing county in Connecticut in 2012, with over \$72 million in farm gate sales that year. However, the majority of New London County's farm gate sales came from poultry and eggs.¹ Dairy was the second largest contributor to agricultural sales in New London County. Fruit and vegetable production in the region is limited and is driven by very small scale farmers.² The National Agricultural Statistics Service (NASS) reported that New London County had 949 farms in operation in 2012, with 65,159 acres under production, including 99 vegetable farms (averaging 4.4 acres per farm), 51 orchards (averaging 5.5 acres per orchard), 192 cattle farms, 43 dairies and 34 poultry farms. Since 2007, the number of farms in Connecticut has increased by 22 percent, and the state agricultural commissioner ascribes the growth to an increased demand for local foods and younger, emergent farmers entering the market.³ Three shared-use kitchens have been identified in Connecticut, though none in New London County.

¹ (NASS, 2012)

² Ibid

³ (Grant, 2014)

Connecticut has five USDA-certified slaughter/processing facilities statewide, and 52 additional meat, poultry, and/or egg processors, as well as three additional processing facilities whose functions are currently unknown.⁴

Demand for local food is increasing in the state. In 2014, the Index ranked Connecticut as the 20th most “locavore-oriented” state in the U.S., whereas in 2015—with 156 farmers markets, 119 CSAs, 46 percent of school districts participating in farm-to-school programs and two food hubs—Connecticut rose to 10th. Estimated unmet demand for local fruits and vegetables, proteins, and grains in New London County is substantial, estimated to be \$149 million dollars across all farm product categories.

RECOMMENDED FOOD HUB BUSINESS MODEL

The Project Team recommends against the development of a centralized, physical aggregation and/or storage facility, due to the limited and highly diverse nature of interested producers who emerged and the moderate and dispersed identified demand.

However, primary and secondary research analysis suggests strong interest from both growers and buyers, setting a promising foundation. Over 40 acres of fresh fruit and vegetable production could be directed into a New London County food hub in the short-term along with a relatively high volume of poultry, eggs and hogs. Additionally, a small number of medium sized wholesale buyers emerged that are interested in purchasing more CT grown products. While these volumes are not high enough yet to justify large investments in physical infrastructure, it is a strong base upon which to launch a food hub that is focused on facilitating sales between New London County producers and wholesale buyers and increasing agricultural production in the region.

It is recommended that a New London County food hub be established as a nonprofit entity that offers a myriad of services and support to both producers and buyers. The ultimate goal of this food hub would be to build demand and supply in the region to volumes that warrant investment in centralized infrastructure. Key objectives of the food hub would include:

- Support producers who are interested in working with a food hub in building wholesale readiness and establishing food safety protocols and certifications for wholesale markets.
- Support producers in accessing processing services that will enable them to better serve wholesale markets, utilize their seconds, and smooth out peaks in supply.
- Help buyers secure farm products produced in New London County, to meet their current demand levels for local.
- Increase overall demand for local products in and around New London County.
- Encourage and support producers in increasing their overall production levels.

The food hub would offer the following services:

- Facilitating sales to a variety of buyers through an online marketplace
- Developing a robust branding, marketing and consumer education campaign
- Providing small scale, decentralized cold storage services for producers
- Facilitating pick-up from farms and delivery to buyers, through in-house delivery and connecting producers with logistics providers
- Providing collective purchasing of key supplies, including product specific wax and cardboard boxes
- Value chain facilitation services, including coordinating wholesale readiness training and food safety support with local partners, connecting producers to protein and produce processing services, facilitating pre-season demand and production planning, connecting producers to funding options

⁴ (USDA, 2015a)

BUSINESS ANALYSIS

At steady state, the nonprofit New London County food hub would generate approximately \$100,000 in earned income annually, with a gross margin of 16%, or \$16,000. Operating all components of the food hub, including robust value chain facilitation services, will require an annual operating budget (or SG&A – Sales, General & Administrative) of \$270,000. Therefore, this food hub would need to secure annual grants totaling \$254,000 to offset its annual losses.

The hub would need to generate \$2.5 million in earned income in order to break even, or reach a point at which its revenue covers both its costs of goods sold and organizational overhead.

The Project Team recognized that the most strategic approach may be to launch the food hub with a narrower, Phase I focus on a small subset of critical, foundational services in its first year of operation. These services would include:

- Brokering sales through an online marketplace
- Executing distribution between producers and buyers
- Branding, marketing and consumer education
- Critical Value Chain Facilitation services that will enable the expansion of supply over time

Based on these Phase I assumptions, the food hub would need to raise approximately \$110,000 in Year 1 to execute on these core services.

RECOMMENDATIONS AND NEXT STEPS

On September 23, 2015, the Project Team made a “go” decision on the recommendation to launch Phase I of a New London County food hub. Phase I of a New London County food hub will be established under the leadership and umbrella of an existing nonprofit organization that already has a strong presence and reputation among agricultural producers and local food systems. The hub would become a separate initiative or program within an organization, with dedicated resources and staff. The organization would need to raise approximately \$110,000 in Year 1 to launch the hub. Long-term the hub may be spun off as a separate nonprofit entity or be maintained as a program within the nonprofit.

The “go” decision moves the hub into the next phase of planning and launch. Critical next steps include:

- **Identifying incubating nonprofit organization:** Several organizations exist in the county that might effectively incubate this hub. The Project Team’s most immediate next step is to meet with potential incubating organizations across the county and identify the right one to launch and incubate this food hub within.
- **Developing a strategic plan and detailed budget for food hub:** This step is akin to the development of a business plan for a for-profit food hub. The step adds further rigor to the above feasibility study assumptions and business model, with partners identified, monthly and annual pro forma P&L and budget, comprehensive sales and marketing, and a detailed operations plan including vendors and locations for reefer coolers and distribution vehicles. This plan is critical for some grant or public funders, and will enable the incubating nonprofit to appropriately plan for and execute on the food hub.
- **Securing funding:** Securing grant funding is critical to the identified nonprofit’s ability to launch and grow this food hub. Grant options include USDA (including the Local Food Promotion Program implementation grant and rural development grants) and foundations focused on health, wellness, agriculture, sustainability and economic development.
- **Maintaining engagement from producers and buyers:** Mobilizing and further cultivating buyers and producers who emerged as interested throughout the study. Because the process of securing an incubating nonprofit organization, identifying funding sources, and launching food hub operations as described in this document will require six to twelve months, it is critical that the Project Team effectively communicate study findings and next steps, and maintain commitment from buyers and growers in this interim time period.

PROJECT OVERVIEW

BACKGROUND

The New London County Food Hub Feasibility Study was spearheaded by the United Way of Southeastern Connecticut and the New London County Food Policy Council.

United Way of Southeastern Connecticut

UWSECT is an independent not-for-profit organization and United Way Worldwide member agency that raises money and provides funding for 50 Partner Programs serving health and human service needs in New London County and additionally features 19 of its own UWSECT programs, initiatives or collaborations. The UWSECT mission is to change our community by helping people in need through responsible use of donations with a vision to be the recognized leader of challenging socially important projects while continuing to fund critical human service programs. UWSECT leadership will visibly change New London County for the better.

New London County Food Policy Council

The NLCFPC, a shared leadership initiative of UWSECT, strives to transform the region's food system for improved health outcomes through policy advocacy and program innovation, alignment and support. The NLCFPC endeavors to ensure that affordable and nutritious food is accessible by all residents of the county. The NLCFPC works to reduce food insecurity, maintain and improve diet-related health, and support local, environmentally and socially responsible agriculture in New London County.

In 2014, the New London County Food Policy Council (NLCFPC) released a report "Nourishing Change", describing findings from their study which assessed the needs, assets, and recommendations that will support New London County's food system, based on a combination of secondary and primary data collection methods. This report intended to shape the NLCFPC's priorities, actions, and future assessment areas to determine the collaborative next steps required to build a healthy and well-nourished community.

In considering strategies to support health and the community, improved food access and better food in school and childcare environments, a food hub emerged as one potential strategy to consider. By better connecting New London County's agriculture growers and the wholesome products they produce with local markets, a food hub could simultaneously support agriculture, economic development and community health and wellness priorities.

The New London County Food Hub Feasibility Study was undertaken to determine the optimal structure and model of a food hub in New London County, determine the financial viability of such a food hub, and understand the impact the hub might have on health, wellness, agriculture and the economy.

PROJECT SCOPE

There were two phases of the New London County Food Hub Feasibility Study.

Phase I: Market Assessment. The primary components of the market assessment included:

- **Market analysis:** Assessment of current and future potential production of local food in the region, and barriers that producers face when entering or expanding their presence in local wholesale markets.
- **Demand analysis:** Assessment of current wholesale demand for local food in and around the region, and evaluation of the barriers that buyers face when purchasing local.
- **Infrastructure analysis:** Evaluation of existing infrastructure in the region, to determine what new infrastructure investments are needed to better connect East End producers with wholesale markets.

The objective of Phase I was to determine the optimal operating model for a food hub in the region, based on research conducted on each of the above three components.

Phase II: Business Analysis. The primary components of the business analysis phase included:

- **Assumptions:** Establish concrete assumptions for all components of the food hub’s revenue, cost of goods, fixed costs and overhead, and startup costs and financing structure.
- **Financial assessment:** Develop a robust pro forma P&L representing the food hub’s forecasted financial performance at steady state. Conduct scenario testing to assess the impact that increases or decreases in assumptions that are key drivers of profitability (including price, throughput, fixed costs, etc.) have on the enterprise’s bottom line. Determine the startup costs required, as well as ongoing funding that will be required to cover the enterprise’s annual losses (if relevant).

At the close of the Business Analysis, the core team is well positioned to make a strategic decision on the right next steps for New London County. A “go” decision at this point moves the core team forward into preliminary implementation steps for the launch of a hub.

PROJECT TEAM

The core team responsible for executing the market assessment included United Way of Southeastern Connecticut, the New London County Food Policy Council, Farm Fresh New London County Schools, and New Venture Advisors.

New Venture Advisors is a Chicago-based consulting firm with expertise in the assessment, design, launch and development of businesses in the local food and sustainable agriculture arena. Since 2009, New Venture Advisors has worked on more than 40 food hub ventures and food systems projects across North America.

CORE TEAM	TITLE AND ORGANIZATION	PROJECT ROLE
Josh Stoffel	Co-Director, Office of Sustainability, Connecticut College Chair, New London Food Policy Council	Local Project Co-Lead
Dina Sears-Graves	Vice President of Community Impact, United Way of Southeastern Connecticut	Local Project Co-Lead
Alicia McAvay	Farm to School Coordinator, Farm Fresh New London County Schools	Local Research and Analysis
Brent Lo	Student Intern, Connecticut College	Local Research and Analysis
Saloni Doshi	Engagement Manager, New Venture Advisors	Lead Researcher, Study Author
Megan Bucknum	Food Systems Specialist, New Venture Advisors	Qualitative Researcher
Kathy Nyquist	Principal, New Venture Advisors	Project Oversight

The following individuals were part of the project steering committee or advisory board.

INDIVIDUAL	ROLE	ORGANIZATION
Susan Beeman	NLCFPC Steering Committee	University of Connecticut Health Center
Nancy Cowser	NLCFPC Steering Committee	United Community and Family Services
Jennifer Fetterly	NLCFPC Steering Committee	Backus Hospital and Thames Valley Council for Community Action
Jim Haslam	NLCFPC Steering Committee	Connecticut Legal Services
Paul Jakaboski	NLCFPC Steering Committee	Local Community Representative
Arthur Lerner	NLCFPC Steering Committee	FRESH New London
Patrick McCormack	NLCFPC Steering Committee	Uncas Health District
Cathy Osten	NLCFPC Steering Committee	Connecticut State Senator
MaryLou Underwood	NLCFPC Steering Committee	Thames Valley Council for Community Action

STUDY METHODOLOGY



The study is part of a stage-gate business planning approach, with informal go/no-go decisions made at each stage in order to reduce start-up risk and ensure that adequate due diligence instills confidence among future stakeholders.

FEASIBILITY ASSESSMENT

This study is a full food hub feasibility assessment, with two phases – market assessment and business analysis.

The market assessment is a comprehensive food systems assessment, driven predominantly by primary research in the form of interviews, surveys and stakeholder gatherings. This primary research results in a robust supply and demand analysis, and enables the team to quantify and characterize how much product might be moved through a food hub and what features and services it should provide. The primary research also uncovers competitive threats and potential partners with respect to infrastructure and services. The primary research is supported by secondary research on both national industry trends and the local food landscape. The purpose of the market analysis is to gain a firm understanding of the trends, challenges, gaps and opportunities in the regional food system; to determine if the food system is developed enough to potentially support a food hub; and to determine the optimal operating model for a food hub enterprise in the region.

The next phase in the feasibility assessment is a business analysis. The crux of this step is a financial model that analyzes the potential for the business to earn a satisfactory profit for owners and investors based on a set of reasonable assumptions. These assumptions are derived from primary and secondary research conducted in the market analysis, often borrowing available data from analogous operations. If the study reveals sufficient evidence that the business can be successful, a business plan is developed that adds further rigor to the assumptions and business model including complete operations, marketing and financial plans. The business plan will identify the funding needed from investors and project the level and timing of investor returns. As funding is secured, the entrepreneurial team can prepare to launch the business.

BUSINESS PLANNING

Once the business case has been validated through the feasibility assessment, and a decision has been made to move forward with the development of a food hub in a region, the next step is business planning.

Business planning ideally launches with an operator search, if an operator has not already been identified. By selecting an operator before business planning begins, the team can ensure that the strategies and proposals put forth in the business plan are fully aligned with the strengths, vision and risk appetite of that operator (and the types of funders the operator has identified).

A formal business plan is then developed alongside the identified operator that prepares the food hub for fundraising and implementation. The business plan adds further rigor to the feasibility assessment assumptions and business model, including complete operations, marketing and financial plans. It identifies the funding needed from investors and lenders and projects the level and timing of investor returns.

SCOPE OF WORK

Scope of Work	Approach	Roles
MARKET ANALYSIS		
Project Initiation <i>Identify Project Team</i> <i>Refine Work Plan</i> <i>Assign Roles</i>	<ul style="list-style-type: none"> Comprehensive review of <i>Nourishing Change</i> and primary and secondary research input into report Convene Local Partners and Steering Team to assess knowledge base and refine work plan Agree to questions to be answered in study and refine work plan if needed 	<ul style="list-style-type: none"> Project Team organizes kickoff meeting Steering Team and Project Partners attend meeting NVA completes work plan
Demand Analysis <i>Potential Customers</i> <i>Procurement Needs and Requirements</i> <i>Supply Gaps</i> <i>Other Barriers to Procuring</i>	<ul style="list-style-type: none"> Interview 1-2 stakeholders in each group (distributors, institutions, retailers, community members, etc) to assess opportunities and barriers Use insights from interviews to develop and implement buyer surveys Conduct follow-up interviews with key respondents to validate and deepen understanding of findings Convene grower/buyer meeting(s) to discuss findings and possible remedies; this will be the beginning of understanding the right enterprise structure, business model and operating plan Access secondary sources for industry analysis 	<ul style="list-style-type: none"> Project Team identifies and reaches out to key buyers NVA develops research instruments and conducts interviews Local Partners disseminate surveys NVA analyzes data and summarizes findings
Infrastructure Analysis <i>Aggregation</i> <i>Processing</i> <i>Wholesale</i> <i>Distribution</i> <i>Other</i>	<ul style="list-style-type: none"> Assess existing infrastructure availability across towns in New London County and major gaps, through primary research described above This includes, but is not limited to, underutilized warehouse, cold storage, distribution and processing space Secondary sources will be accessed to map locations of key players and food access dimensions in the regional food system 	<ul style="list-style-type: none"> Knowledge base of Project Team and Local Partners will be added to findings from primary and secondary research NVA compiles findings and creates maps
Production Analysis <i>Supply</i> <i>Capacity</i> <i>Assets</i>	<ul style="list-style-type: none"> Interview 1-2 stakeholders in each group (produce growers, ranchers, dairy farmers, grain farmers, etc) to assess opportunities and barriers Use insights from interviews to develop and implement grower surveys in order to characterize and quantify current production and projected volume if barriers are addressed Conduct follow-up interviews with key respondents to validate and deepen understanding of findings Convene grower/buyer meeting(s) (see above) Compare to demand characterized and quantified in buyer survey and interviews Secondary research will be conducted to assess total productive capacity of the region 	<ul style="list-style-type: none"> Project Team identifies and reaches out to key producers NVA develops research instruments and conducts interviews Project Team and Local Partners disseminate surveys NVA analyzes data and summarizes findings
Synthesis <i>Operating Model</i>	<ul style="list-style-type: none"> Food hub operating model is recommended, based on findings from Demand, Infrastructure and Production analyses Food hub operating model includes elements such as: brick and mortar vs. virtual food hub, in-house or outsourced distribution, commission based or buy/sell model, level of technical assistance services provided, processing services 	<ul style="list-style-type: none"> NVA conducts analysis and presents recommendations Project Team agrees to operating model(s) Steering Team and Local Partners agree to operating model(s)

provided, grading / sorting / packing included, umbrella brand developed, technology systems employed, etc.		
BUSINESS ANALYSIS		
Recommendations for Scale and Scope <i>Configuration of Components</i> <i>Most Suitable Financially Viable</i>	<ul style="list-style-type: none"> Data collected and the chosen operating model(s) will be the basis for two custom models: <ul style="list-style-type: none"> <i>Capacity model</i> to analyze facility specifications needed to handle volume at steady state, and <i>Financial model</i> to assess profitability / viability and return on investment, and to test cash flow sensitivity based on input cost, volume and pricing variances 	<ul style="list-style-type: none"> NVA builds custom models
Feasibility Study <i>Final report</i> <i>Economic impact</i> <i>Go/no-go decision</i>	<ul style="list-style-type: none"> Final report summarizes all findings and contains recommendations for next steps as agreed to by Core Team 	<ul style="list-style-type: none"> NVA writes report Core Team make go/no-go decision
Project Management <i>Meetings</i> <i>Travel</i>	<ul style="list-style-type: none"> Weekly Core Team meetings, with Local Partners and/or Steering Team engaged as needed Progress reports at key stages within the study. 2 trips to region for kickoff meeting, site visits, and grower/buyer meeting. 	<ul style="list-style-type: none"> Project Leader convenes meetings, channels communication NVA manages timeline and completes progress reports

TIMELINE

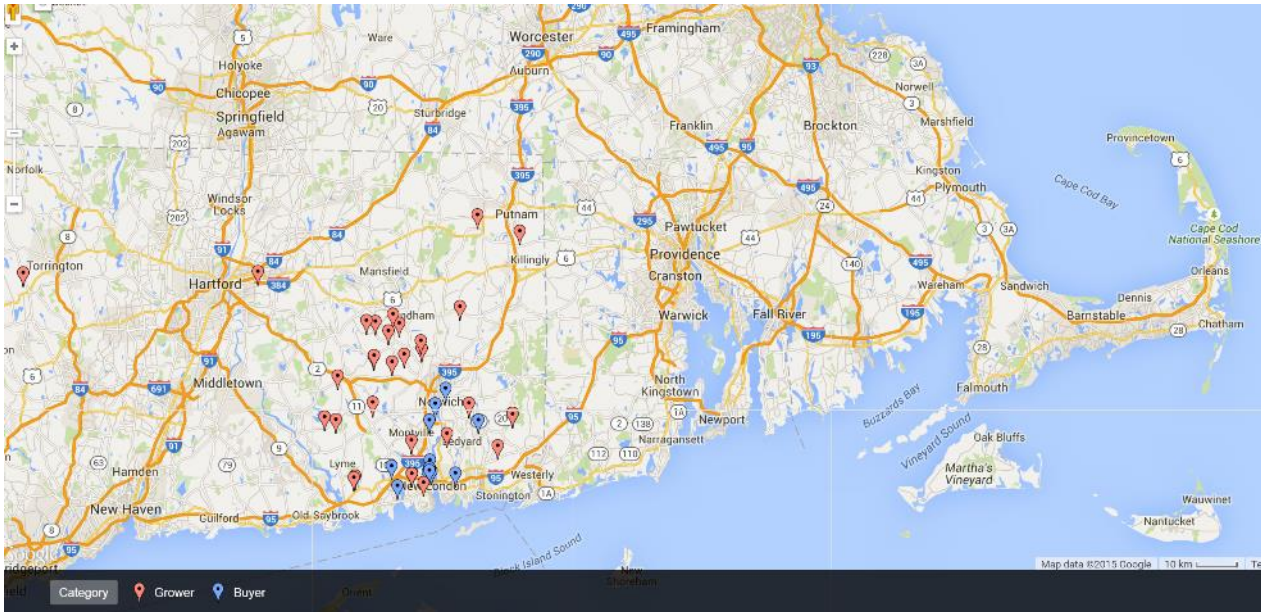
Core Team identified and work plan finalized	February 2015
Kickoff meeting with Project Team and Local Partners	February 27, 2015
Preliminary buyer and producer interviews conducted.....	March 2015
Research plan and survey instruments finalized.....	March 2015
Grower and buyer survey opened	March 6, 2015
Convened joint grower/buyer meeting to discuss interim findings	April 14, 2015
Grower and buyer survey closed	June 8, 2015
Grower and buyer interviews conducted.....	June – July 2015
Compiled findings	July 2015
Review Research Findings and Implications for Business Model	August 3, 2015
Review Recommended Business Model with	
Project Team	August 8, 2015
Local Partners and Steering Team	August 23, 2015
Final Business Model defined	August 28, 2015
Build models and complete business analysis	September 2015
Review Business Model with Project Team	September 23, 2015
Identify next steps	September 23, 2015
Complete feasibility study	October 2015

PRIMARY RESEARCH

KICKOFF MEETING was held on February 26, 2015. Approximately 30 attendees participated, representing food systems leaders, buyers and agriculture producers in New London County.

GROWER AND BUYER SURVEYS were active from March 15th – June 15th, 2015. 35 growers and 16 buyers responded to the survey, via Survey Monkey.

As outlined in the following map, growers and buyers are predominantly located in or near New London County, with several growers located north or west of the county.



INTERVIEWS WITH GROWERS AND BUYERS, as identified by the client team, were conducted by phone in February and March before surveys were launched, and again in June and July after surveys were closed.

GROWER/BUYER EVENT was held on April 13, 2015, with 3 buyers, 3 producers, 2 food systems stakeholders and the core team in attendance.

SUMMARY OF INSIGHTS

Production among interested growers is fairly low, and annual spend on farm products among interested buyers is moderate. Alignment between the products buyers are seeking and the items producers want to sell into the hub is somewhat matched, though some big gaps exist. Interested buyers and interested producers are diverse, with producers representing many different product type and buyers ranging from large distributors to small restaurants.

SUPPLY	DEMAND
<ul style="list-style-type: none"> 16 interested growers identified through the survey with ~180 acres of current fruit and vegetable production. Potential to expand into an additional ~15-20 acres and ~30 greenhouses. One producer indicated the ability to expand indefinitely if demand warranted the investment. <ul style="list-style-type: none"> Interested producers indicated that they would be interested in selling ~40 total acres of fruit and vegetable production into a food hub. Interviews with four additional growers (who either did not complete or completed the survey but did not provide identifying information) identified an additional 110 acres of production; however, these producers all expressed relatively low interest in working with a food hub, unless the hub could serve as an outlet for surplus or seconds for processing. Robust protein production among interested producers – 2,360 hogs, 2,000 laying hens, 1,900 chickens 1 GAP certified grower, 10 with on-farm food safety plans. 6 would consider pursuing GAP if it were warranted. Top products producers are interested in selling into the hub include (based on volume): Potatoes, winter squash, tomatoes, lettuce, kale/greens, chicken, pork and cheese 	<ul style="list-style-type: none"> 10 interested buyers identified through the survey; 1 of these respondents was also interviewed Three are independent, full line grocery stores; three are K-12 public schools; one is a broad line distributor, one is a college/university, and one a sit down, full service restaurant. One buyer did not identify themselves by type. Spend among these buyers: <ul style="list-style-type: none"> ~\$2.2 million per year on fresh, whole produce, of which 26% of local ~\$850 thousand per year on processed produce, of which 21% is local ~\$4.2 million per year on proteins (meat, poultry, dairy, eggs), of which 17% is local Top products buyers are interested in purchasing from a food hub include: Squash, eggs, seafood, poultry, processed produce, cheese, broccoli, green beans, tomatoes, honey, greens

The following insights on opportunities, challenges and potential barriers emerged.

- Buyer interest:** Buyers are generally interested in purchasing from a food hub, and are willing to invest resources in supporting the development and establishment of a central hub from which to access local produce. Smaller buyers are already sourcing directly from growers when feasible and are interesting in expanding these purchases, while larger and institutional buyers are eager to gain easier access to local sourcing opportunities. Buyers generally value local over organic and sustainably produced, and are willing to pay a price premium for local produce. Total spend among these buyers is approximately \$7.5 million, with more than half of this spend on protein and dairy items.

- **Grower interest:** Approximately half of the surveyed growers are interested in selling products to a food hub; an additional ten somewhat interested. Though most interested growers do not have significant room to expand their operations, one grower has unlimited expansion potential. Current supply among these interested producers is low, with this group indicating that they would be able to redirect a total of 40 acres of their current and future production into a hub. Somewhat interested growers would redirect another 35 acres into a hub. This indicates both the potential need for investments in production expansion before a physical food hub facility may be financially viable, and the importance of drawing in those “somewhat interested” producers who currently have hesitations.
- **Product set:** The following products were highlighted as of interest to both growers and buyers - squash, poultry, cheese, tomatoes and greens. While the diversity of product set, which contains vegetables, proteins and dairy represented, would set a nice foundation for the food hub, it is spread across a fairly small number of producers. Therefore, the volume of any one specific product that could be moved by a food hub given this interested producer base is fairly limited.
- **Current sales channels and wholesale readiness among producers:** Producers are currently predominantly selling direct to consumer – these channels account for 77% of revenue generated across all respondents. This is a low level of wholesale experience when compared to studies conducted nationwide. Wholesale readiness among these growers is low – the quality and safety requirements of direct-to-consumer sales outlets are generally much less stringent than most wholesale buyers. Only one interested producer is GAP certified. In contrast, approximately half of the interested buyers require GAP certification among their produce suppliers. There is significantly limited post-harvest handling infrastructure and knowledge among interested producers.
 - Almost all interested growers do have some baseline wholesale experience (such as direct sales to restaurants and independent grocers), with these small wholesale channels representing about one third of their revenue – suggesting that interested respondents have at least an initial understanding of the implications and advantages of moving into wholesale markets.
- **Pricing alignment:** Input from both buyers and growers on pricing is positive. Less than one quarter of interested growers felt strongly that they must receive pricing at or above their current levels, and all but one interested buyer indicated some level of flexibility in their pricing for local products. Interested growers did feel strongly that price transparency is critical across the supply chain, and that they prefer to be price makers in the market, though they are willing to engage in ongoing negotiations. Buyer feedback suggests a willingness to pay a price premium on local farm products, and that other considerations – including product freshness, quality and food safety – are more important than low pricing. It is important to note that buyers who are interested in the hub are sometimes also purchasing directly from growers. The food hub should be cautious about cannibalizing any of these existing sales relationships; and should understand current direct farm-to-buyer pricing rates.
- **Existing distributors:** Primary and secondary interviews, as well as the Grower/Buyer meeting identified that there are several distributors within the region who are already aggregating, marketing and distributing source-identified products and selling to interested buyers. Any food hub developed within New London County should address gaps in the services offered by these distributors and/or consider strategic partnerships with them.
- **Processing:** Interviews suggest that several, relatively large produce growers are keen on working with a food hub, only if processing capabilities were offered to support them in moving surplus and seconds. Buyers indicated high interest in purchasing processed produce. Approximately half of the interested producers identified through the survey are looking for contract manufacturing services. The majority of these respondents are protein and dairy producers. This sentiment was echoed by pork producers during the Grower/Buyer meeting, and through an interview with a pork producer. This suggests the need for further exploration into processing services to support protein, dairy and vegetable producers. Working with initiatives such as the CLiCK Kitchen in Willimantic (next to New London County) may be of interest. Strategies in which a food hub is coordinating connections and logistics between producers and existing slaughter and/or processing facilities, that do not require large up front investments, may be most viable and valuable at this stage.

- **Season extension:** There is a very limited level of season extension among interested growers (4 growers have ~25,000 square feet under high tunnel or greenhouse production); however, a handful of growers are interested investing in or expanding their season extension capabilities. Buyers suggested that inconsistency and lack of year round availability of farm products is one of their biggest barriers to purchasing local farm products, indicating that season extension strategies may be a critical step to strengthening the local food system.
- **Location and logistics:** Direct delivery is very important to interested buyers. Interested producers, however, do not have refrigerated delivery vehicles, suggesting the importance of distribution support (for both inbound and outbound deliveries) – either through a food hub or through third party logistics providers. Additionally, producer and buyer concerns about the accessibility of a food hub to all locations of the county suggest the importance of any aggregation services being provided in extremely strategic locations that minimize logistics concerns.
- **Online purchasing:** Online ordering was one of the most important features indicated by interested buyers. While online ordering capabilities was not universally agreed to be a critical feature for producers, several producers proactively indicated strong interest in a food hub providing an online ordering process, or even a food hub that is structured as an online marketplace.
- **Marketing, buyer and consumer education:** Marketing around the importance and value of local food, and education for both consumers and wholesale buyers is likely an important function of a food hub. During the Grower/Buyer meeting, almost all attendees flagged this as a critical priority that would expand the market and demand for New London County grown products. For growers, this was particularly important to ensure a food hub would be focused on generating new sales, and would not be cannibalizing their existing wholesale outlets. For buyers, these efforts would increase their ability to purchase local, and to pass on price premiums to end consumers where possible. It is important to note that both buyers and producers felt strongly that farm-identification is a critical food hub feature, suggesting that any overarching marketing and education efforts be executed in a way that maintains and promotes farm name and branding from field through delivery to buyers.

GROWER SURVEY RESULTS

A note on methodology: Buyers and growers were invited to take the survey with the opportunity to win a gift card. While 35 growers and 16 buyers responded to the surveys, respondents did not generally answer all of the questions. Due to the length of the survey, and due to the potentially sensitive nature of sharing business information, respondents have the option to skip questions. This means that different questions have somewhat differing respondent bases. While this can complicate the analysis, allowing respondents to drop off and respond only when they feel comfortable ensures that feedback is gathered from the maximum number of growers and buyers in a region. Each survey question analyzed below includes the specific count of the number of respondent for that particular question.

CHARACTERISTICS OF OVERALL RESPONDENT BASE

BREAKDOWN OF GROWER TYPES (Q2): 35 respondents, 31 of whom answered the majority of the survey. 86% of respondents produce fruits or vegetables, 63% produce proteins, and 40% produce dairy (inclusive of eggs).

ANSWER OPTIONS	RESPONSE PERCENT	RESPONSE COUNT
Vegetables	62.9%	22
Fruits	22.9%	8
Eggs	20.0%	7
Milk	11.4%	4
Cheese	5.7%	2
Other dairy	2.9%	1
Beef	17.1%	6
Pork	34.3%	12
Lamb	0.0%	0
Poultry	11.4%	4
Seafood	0.0%	0
Other meat	0.0%	0
Grains	0.0%	0
Other	14.3%	5
Total	N/A	35

“Other” includes: cut and annual flowers, angora rabbits, hanging baskets, hay, and corn for silage.

GROWER EXPERIENCE (Q3): Grower experience varies. While all growers have at least one year of commercial farming experience, most (76%) have been farming for at least three years and up to 20 years. Five growers (17%) have 20 or more years of experience; four of them have 30 or more years of experience. The average respondent reports that they have 10-20 years of farming experience, with an average of 14 years of experience.

FARM SIZE AND TOTAL ACREAGE (Q4 AND Q5): Fruit and vegetable growers vary drastically in their production acreage. On average, respondents cultivate 13 acres each, and in total, they cultivate ~274 acres.

ACREAGE	RESPONSE PERCENT	RESPONSE COUNT
<1	19.0%	4
1-3	38.1%	8
3-10	19.0%	4
10-20	14.3%	3
20-30	0.0%	0
30-40	4.8%	1
40-50	0.0%	0
50-75	0.0%	0
75-100	0.0%	0
100+	4.8%	1
Total	100%	21

10 growers (48%) are interested in expanding acreage if demand warranted the investment. Fruit and vegetable growers who are open to expanding their production have access to an additional 29 acres. One grower indicated that they would increase their production to as many acres that would be needed.

PRODUCTS (Q6 AND Q7): Respondents produce 35 different types of products. The crops cited most frequently by respondents include squash, tomatoes, kale and sweet corn.

CROP TYPE	RESPONSE COUNT	CROP TYPE	RESPONSE COUNT
Squash	10	Potatoes	3
Tomatoes	9	Carrots	3
Sweet Corn	4	Pumpkins	2
Kale	4	Cucumbers	2
Salad Greens	3	Chard	2
Peppers	3	Eggplants	2

The protein producers in our respondent base (34% of respondents) produce over 2,700 chickens, 2,350 laying hens, 2,400 hogs, 72 beef cattle, and 5 lambs. One respondent also reported producing angora rabbits, and has 12 animals.

LIVESTOCK	TOTAL NUMBER OF ANIMALS RAISED EACH YEAR	RESPONSE COUNT
Beef cattle	72	6
Lambs	5	1
Hogs	2,417	9
Chicken	2,700	3
Laying hens	2,350	2
Total	N/A	21

Finished products that protein producers bring to market include cheese, sausage, pork chops, bacon, butt roast, and hanging baskets. Out of the three respondents who report producing cheese, two produce goat cheese and one produces feta.

Note that where respondents indicated that they produced 'beef' or 'poultry', they were not counted as 'finished product' producers. Only those who indicated finished products, such as 'bacon' or 'pork chops' were included in this count.

FINISHED PRODUCTS	RESPONSE COUNT
Cheese	3
Pork Chops	2
Bacon	2
Sausage	2
Butt Roast	1
Hanging Baskets	1
Total	11

ORGANIC AND SUSTAINABILITY (Q8 AND Q9): Fruit and vegetable growers have ~28 acres of certified organic production, approximately 10% of their total acreage. They have 71 acres of sustainable production (but not certified), approximately 26% of their total acreage.

PERCENT OF HARVEST THAT IS CERTIFIED ORGANIC	RESPONSE PERCENT	RESPONSE COUNT
None	79%	22
<25%	0%	0
25-50%	4%	1
50-75%	0%	0
>75%	0%	0
All	18%	5
Total	100%	28

PERCENT OF HARVEST THAT IS SUSTAINABLY GROWN BUT NOT ORGANIC	RESPONSE PERCENT	RESPONSE COUNT
None	31%	9
<25%	3%	1
25-50%	3%	1
50-75%	3%	1
>75%	14%	4
All	45%	13
Total	100%	29

Several growers indicated that they have a significant portion of their farms under organic or sustainable production but either do not grow produce or did not indicate their acreage under production in Q4.

SALES OUTLETS AND CUSTOMER LOCATIONS (Q10 AND Q11): Farmers are somewhat diversified in their sales outlets, with the largest percentage of sales occurring at farmers markets (30%) and at the farmers' own farm stands (27%). Direct to consumer sales (including CSA sales) collectively represent 78% of sales across the respondent base. 14% of sales across respondents are through smaller, wholesale channels (independent grocery stores and restaurants) and 8% are through wholesalers/distributors.

SALES OUTLET	NUMBER OF RESPONDENTS THAT SELL THROUGH CHANNEL	REVENUE PERCENTAGE THROUGH EACH CHANNEL
Farm stand	18	27%
CSA	15	20%
Farmers market	19	31%
Direct sales to other on farm retail stores	2	1%
Direct to grocery stores	8	4%
Direct to restaurants	18	9%
Direct to institutions	2	0%
Wholesalers, distributors	6	8%
Total	26	100%

GROWER INTEREST AND CONCERNS

WHOLESALE MARKET BARRIERS (Q11 AND Q12): Nine growers (31%) are interested in expanding their participation in wholesale markets and 15 (52%) would consider expansion if certain barriers were addressed.

INTEREST IN EXPANDING WHOLESALE	RESPONSE PERCENT	RESPONSE COUNT
Yes	31%	9
Yes, if certain barriers are removed or conditions are met	52%	15
No	17%	5
Total	100%	29

The following chart illustrates the barriers to wholesale expansion that growers are most and least concerned about. Concerns about fair pricing, GAP certification concerns, and risk associated with buyer commitment were top concerns for growers.

BARRIER	EXTREMELY/VERY SIGNIFICANT	RESPONSE COUNT
Concerns about fair pricing	77%	20
Cost, time and/or labor to get GAP certified and to implement / follow GAP protocols	54%	14
Lack of commitment from buyers	50%	13
Risk of not selling what you grow	50%	13
Difficulties finding and/or negotiating with buyers	38%	10
Availability of labor	38%	10
Concerns about meeting food safety requirements	35%	9
Delivery cost or limitations in current delivery range	35%	9
Cost of suitable land	27%	7
Liability insurance costs	27%	7
Lack of processing capacity	27%	7
Availability of suitable land	23%	6
Lack of adequate slaughterhouse capacity	19%	5
Access to post-harvest handling facilities (cooling, washing, grading, packing)	12%	3
Management skill required to run a larger operation	12%	3
Knowledge about post-harvest handling (cooling, washing, grading, packing)	0%	0
Total	N/A	26

Other issues and comments flagged in open-ended responses include:

- *Advanced age presents a number of obstacles*
- *Need assistance with GAP certification for greenhouse hydroponics; most templates are for field growing*
- *The entire point of CSAs, Farm stands and farmers markets is to sell at RETAIL*
- *If I can find additional production space*
- *Gap certification is a huge hurdle*

OVERALL INTEREST IN A FOOD HUB (Q13): 16 (52%) of growers are very or extremely interested in selling into a food hub. An additional 10 (32%) are somewhat interested.

ANSWER OPTIONS	RESPONSE PERCENT	RESPONSE COUNT
Extremely Interested	26%	8
Very Interested	26%	8
Somewhat Interested	32%	10
Not Very Interested	6%	2
Not at All Interested	10%	3
Total	100%	29

Open-ended comments are listed below:

- *Not sure this would be the right outlet for my product*
- *For now, we are able to sell nearly 100% of our vegetables at full retail price to end user customers. We are a small (2 acre) farm and not intend to increase our acreage much. If the food hub connected us to buyers who were willing to pay near-retail prices it would be worth it to us because we would be able to make similar income while spending less time standing around at farmers markets. That said, it's important for local food to get into as many hands as possible, and increase its share of the food market, so a wide variety (type) of buyers would make it a vibrant hub, and be supportive of the local food movement.*
- *It would depend on what advantages a hub could bring to our operation*

In subsequent analysis, “interested growers” refers to trends within the respondent set that indicated “TOP 2 BOX” interest, defined by those who are “Extremely Interested” and “Very Interested.”

CHARACTERISTICS OF INTERESTED (I.E. TOP 2 BOX) GROWERS:

- *Producer type (Q2, xQ13):* Of the 16 interested producers, 8 (50%) produce vegetables and 1 (6%) produce fruits. Six (38%) growers produce pork.

ANSWER OPTIONS	RESPONSE PERCENT	RESPONSE COUNT
Vegetables	50%	8
Fruits	6%	1
Eggs	6%	1
Milk	13%	2
Cheese	13%	2
Other dairy	6%	1
Beef	19%	3
Pork	38%	6
Lamb	0%	0
Poultry	13%	2
Seafood	0%	0
Other meat	0%	0
Grains	0%	0
Other	6%	1
Total	N/A	16

- *Experience (Q3, xQ13):* Interested producers have an average of 14.4 years of experience farming, only slightly more experience than the full group of respondents, which reports an average of 14 years of farming experience.
- *Acreage (Q4 and Q5, xQ13):* Interested fruit and vegetable growers (16 total) report that they have a total of 180 acres under production. In terms of acreage, this represents roughly 66% of all land under production, which suggests that interested growers (46% of respondents) have more land under cultivation than disinterested growers. Five of these growers (57%) are interested in expanding their production. Of those interested in expanding their production, one respondent indicated that they could cultivate as many additional acres as needed. Other respondents reported a collective total of 16 acres available as well as 33 additional greenhouses for vegetable production. One respondent indicated that their farm size is restricted by their current land base.

ACREAGE IN PRODUCTION	RESPONSE PERCENT	RESPONSE COUNT
<1	12.5%	1
1-3	50.0%	4
3-10	12.5%	1
10-20	12.5%	1
20-30	0.0%	0
30-40	0.0%	0
40-50	0.0%	0
50-75	0.0%	0
75-100	0.0%	0
100+	12.5%	1
Total	100%	8

- *Proteins (Q6, xQ13):* Six respondents produce livestock, and together currently manage 2,360 hogs, 2,000 laying hens, 1,900 chickens, and 44 beef cattle.
- *Certified organic (Q8 and Q9, xQ13):* Interested growers have 30 acres of *certified* organic output and ~172 acres of sustainable but uncertified production, together representing over 100% of their total production. It should be noted that some individuals skipped one or both questions; but only two out of the 15 respondents to this question

reported that none of their land was sustainably managed. These two individuals farmed between one and three acres.

PERCENT OF ACREAGE THAT IS CERTIFIED ORGANIC	RESPONSE PERCENT	RESPONSE COUNT
None	86.7%	13
<25%	0.0%	0
25-50%	0.0%	0
50-75%	0.0%	0
>75%	0.0%	0
All	13.3%	2
Total	100%	15

PERCENT OF ACREAGE THAT IS SUSTAINABLY PRODUCED	RESPONSE PERCENT	RESPONSE COUNT
None	13.3%	2
<25%	6.7%	1
25-50%	6.7%	1
50-75%	0.0%	0
>75%	13.3%	2
All	60.0%	9
Total	100%	15

- *Current sales channels (Q10 and Q11, xQ13):* Interested growers collectively sell 69% of their goods through direct to consumer channels, versus 77% for the entire respondent base. While not significantly different, this suggests that interested growers sell more of the produce at wholesale prices and may, therefore, be more amenable to working with a food hub given prior and current experience.

SALES OUTLET	AVERAGE REVENUE THROUGH EACH CHANNEL	NUMBER OF RESPONDENTS WHO SELL THROUGH CHANNEL
Farm stand	28%	10
CSA	15%	7
Farmers market	26%	10
Direct to on farm retail stores	6%	3
Direct to grocery stores	6%	6
Direct to restaurants	11%	11
Direct to institutions	0%	3
Wholesalers, distributors	13%	7
Total	100%	15

DESIRED FOOD HUB FEATURES [UNAIDED] (Q14, XQ13): Interested growers mentioned the following features and services that they would like to see a food hub provide.

- *Ability to aggregate with other farmers products for wholesale customer pick up*
- *Connections with major buyers*
- *See farm fresh Rhode island-market mobile*
- *I want an online marketplace like they have in Vermont. And I want a program to subsidize CSA share purchases. I also want a Glean team to harvest produce and donate it to the local food pantry.*
- *Nonprofit*

- *Mostly would just like it to be well run with clear good communication and paying regularly, I'm not sure if all the bells and whistles will complicate things too much, or make it better*

DESIRED FOOD HUB FEATURES [AIDED] (Q15, XQ13):

Top desired features and services, marked as extremely or very important by at least 50% of interested growers include the following:

- Locally owned and operated
- Handles sales and marketing so I can focus on farming
- End customers know produce comes from my farm (farm-identified)
- Offers cold storage or freezer service
- Makes healthy food available to schools and/or low income shoppers
- Offers cooling service
- Has an online marketplace where I can post my products for buyers to view/purchase

FOOD HUB FEATURE	% INTERESTED GROWER RESPONDENTS	INTERESTED GROWERS WHO ARE VERY / EXTREMELY INTERESTED IN FEATURE
Locally owned and operated	80%	12
Handles sales and marketing so I can focus on farming	67%	10
End customers know produce comes from my farm (farm-identified)	67%	10
Offers cold storage or freezer service	60%	9
Makes healthy food available to schools and/or low income shoppers	60%	9
Offers cooling service	53%	8
Has an online marketplace where I can post my products for buyers to view/purchase	53%	8
Offers pick-up service	47%	7
Offers contract processing services	33%	5
Offers washing, grading and/or packing services	27%	4
Provides access to a shared-use kitchen so I can process my farm products	27%	4
Offers low-cost short-term financing for production expenses	27%	4
Offers or coordinates wholesale training classes	7%	1
Total	N/A	

PRODUCTS (Q16 AND Q17, XQ13): 10 interested producers provided responses to this question asking what products they are looking to sell into a food hub and at what volume. The following chart outlines the products of interest identified and the approximate total volume of product that these producers would want to sell to a hub.

PRODUCT	VOLUME	UNIT	PRODUCT	VOLUME	UNIT
Potatoes	200,000	lbs	Greens	7,000	lbs
Winter squash	150,000	lbs	Beets	5,500	lbs
Tomatoes	60,000	lbs	Onions	3,600	lbs
Lettuce	50,000	lbs	Squash	3,000	lbs
Kale	36,000	lbs	Herbs	1,000	lbs
Chicken	20,000	lbs	Leeks	1,000	lbs
Pork	14,500	lbs	Peppers	1,000	lbs
Cheese	10,000	lbs	Beef	200	lbs
Carrots	9,500	lbs	Milk	1,000	gallons

Growers were asked what percentage of their production they would be interested in selling into the food hub. Eleven out of the 16 interested growers answered this question. These 11 growers collectively have 180 acres under production, and are looking to sell output from 40 of these acres to the food hub. (Some growers indicated that they would be willing to sell a percentage of their yields to the food hub but did not indicate how many acres they had under production; these respondents were left out of the analysis.)

“Top 3 Box” respondents, or those 26 respondents who are somewhat, very or extremely interested in selling into a food hub, have a total of ~255 acres of produce under production, and ~25 potential expansion acres. These respondents indicated collective ability to direct 75 acres of production into a food hub.

SEASON EXTENSION (Q18 AND Q19, XQ13): Four (36%) interested growers already employ season extension strategies. An additional 2 growers (18%) would be open to pursuing season extension in the future.

CURRENTLY EMPLOY SEASON EXTENSION STRATEGIES	RESPONSE PERCENT	RESPONSE COUNT
Yes	36%	4
No	46%	5
Not currently, but I am interested in doing so in the future	18%	2
Total	100%	11

These four respondents who indicated that they currently employ season extension strategies have approximately 25,000 square feet under hoop house or greenhouse production.

High infrastructure cost was cited as the biggest barrier to employing or expanding season extension strategies. Other concerns included limited sales outlets for products growing during the off-season, while five growers were satisfied with the way their farm is currently setup.

ANSWER OPTIONS	RESPONSE PERCENT	RESPONSE COUNT
High cost of infrastructure	67%	8
Limited sales outlets for products grown during off season months	33%	4
Other	33%	4
Satisfied with the way things are	25%	3
Limited available land	8%	1
Labor shortages throughout the year	8%	1
Lack of knowledge	0%	0
Importance of using off season months to focus on other activities	0%	0
Total	N/A	12

Four respondents cited other barriers and concerns in open-ended feedback:

- *I'm old*
- *Growing. Have not gotten there yet.*
- *Although there are grants through the NRCS for high tunnels they have strings attached*
- *No land tenure*

FOOD SAFETY (Q20 AND Q21, XQ13): 10 (71%) of interested growers have a food safety plan. One interested grower is GAP certified. Six (46%) are open to pursuing GAP certification if there was reliable demand, and an additional 5 (39%) would consider it with additional information.

ON-FARM FOOD SAFETY PLAN	RESPONSE PERCENT	RESPONSE COUNT
Yes	71%	10
No	29%	4
Total	100%	14

OPEN TO PURSUING GAP CERTIFICATION	RESPONSE PERCENT	RESPONSE COUNT
My farm is already GAP certified	8%	1
Yes	46%	6
No	8%	1
Maybe	39%	5
Total	100%	13

ASSETS (Q3, XQ13): None (0%) of the interested growers have access to refrigerated trucks for deliveries. Five growers (55%) have access to quick cooling to remove field heat.

ACCESS TO EQUIPMENT	RESPONSE PERCENT	RESPONSE COUNT
Refrigerated truck(s) for deliveries	0%	0
Access to quick cooling to remove field heat	7%	1
Total	N/A	14

Open-ended comments indicated the following:

- *There are grants for grain and hay storage but refrigerated storage grants would be helpful*
- *Not applicable*
- *[Quick cooling distance is] .0001 miles*

INFRASTRUCTURE PARTNERSHIPS (Q24): Among all respondents (not just interested growers), 2 would be open to providing neighboring farmers with access to their cold storage or freezer capacity and 1 would be interested in supporting farms with delivery to the food hub.

INTEREST IN OFFERING SERVICES AND INFRASTRUCTURE TO NEIGHBORING GROWERS AND/OR THE HUB	RESPONSE PERCENT	RESPONSE COUNT
Providing growers with access to my dry storage capacity	0%	0
Providing growers with access to my cold storage or freezer capacity	67%	2
Providing growers with access to my quick cooling capacity (to remove field heat)	0%	0
Delivering produce from nearby farms to a food hub using my vehicle	33%	1
Offering growers access to my processing equipment	0%	0
Total	N/A	3

Two growers indicated that they are not interested in sharing infrastructure with other farmers:

- *None of the above! Too much concern with fungal and bacterial contamination*
- *Maxed out for space*

PRICING AND DESIRED RELATIONSHIP WITH FOOD HUB (Q22, XQ13): Most interested growers agree that price transparency across the supply chain is critical.

POSITION ON PRICING	STRONGLY AGREE PERCENTAGE	RESPONSE COUNT
Price transparency across the supply chain is critical	57%	8
I want to set my own prices	46%	6
I am open to negotiating price on an ongoing basis	38%	5
I am willing to accept lower prices as long as there is enough volume	23%	3
I am willing to accept lower prices if the food hub takes on sales, marketing and distribution	46%	6
I am willing to accept lower prices for some of my product in support of food access or food justice	8%	1
I must receive prices that are equal to or greater than prices I am currently receiving for my goods	23%	3
Total	N/A	14

One open-ended comment indicated:

- *I am willing to receive prices that are equal to or greater than the WHOLESale prices I am currently receiving for my goods*

ADDITIONAL CONCERNS OR COMMENTS:

- The distance to the food hub must be cost effective. Since we would travel from Manchester we would want to ship a full truckload of product each delivery.

BUYER SURVEY RESULTS

BUYER CHARACTERISTICS AND REQUIREMENTS

BUYER TYPES (Q1): 15 buyers responded to the survey. Note that one additional respondent started the survey but only responded to the first question. Six (42%) are institutions, five (36%) are grocery stores, one (7%) is a distributor and one (7%) is a restaurant. One classified itself as “other” and operates a food cooperative. Three respondents who categorized themselves as “other” clarified that they operate casinos.

BUYER TYPE	RESPONSE PERCENT	RESPONSE COUNT
Grocery – chain	0%	0
Grocery – independent full line store	36%	4
Grocery – online	0%	0
Grocery – corner store or convenience store	0%	0
Distributor – broad line	7%	1
Distributor – specialty	0%	0
Distributor – direct to consumer (e.g. CSA, online, home delivery)	0%	0
Institution – hospital	0%	0
Institution – private K-12 (or other grade) school	0%	0
Institution – public K-12 (or other grade) school	21%	3
Institution – college or university	21%	3
Institution – retirement community, assisted living or nursing home	0%	0
Restaurant – sit down, full service	7%	1
Restaurant – fast casual, cafe, deli, etc	0%	0

Brewery or distillery	0%	0
Processor	0%	0
Other	7%	3
Total	100%	15

LOCAL PROGRAM (Q3): Buyers are using the following wholesalers /distributors for produce, proteins, grains and dairy. Thirteen suppliers indicated that they were selling and/or distributing product that they purchased directly from 20 different regional farms.

LOCAL PROGRAM (Q4): Most institutional buyers (88%) are self-operated. One respondent indicated that they are operated by a food service management company.

BUYER TYPE	RESPONSE PERCENT	RESPONSE COUNT
Self-operated	87.5%	7
Operated by a food service management company	12.5%	1
Other	0.0%	0
Total	100%	8

LOCAL PROGRAM (Q5, Q8, Q9): The definition of local varies among buyers, with <100 miles as the most popular definition (indicated by 6 respondents).

DEFINITION OF LOCAL	RESPONSE PERCENT	RESPONSE COUNT
< 50 miles	13%	2
<100 miles	40%	6
<150 miles	7%	1
<200 miles	0%	0
<250 miles	13%	2
<400 miles	7%	1
In-state	0%	0
Other	20%	3
Total	100%	15

Where respondents indicated that their definition of local was different from the categories provided, they indicated that local meant the following:

- *North East*
- *In-state and RI and Mass*
- *The closer the better, but up to 150 miles covers a good base of producers*

The most pressing challenges that buyers face sourcing local farm products is the seasonality of local produce (73%), followed by finding products at the required price point (53%). Other top concerns are finding suppliers with necessary volumes and diversity of local products.

CHALLENGES SOURCING LOCAL FARM PRODUCTS	RESPONSE PERCENT	RESPONSE COUNT
Seasonality of local produce	73.3%	11
Finding product at required price point	53.3%	8
Finding suppliers that can supply necessary volumes	46.7%	7
Diversity of local products	40.0%	6
Finding suppliers with required certifications (i.e. GAP – USDA's Good Agricultural Practices, USDA's GHP – Good Handling Practices, etc)	26.7%	4
Limited ability to meet my delivery requirements and expectations	26.7%	4

Complexity of dealing with multiple suppliers	26.7%	4
Contracts with current suppliers that prevent us from purchasing from suppliers that have local produce	20.0%	3
Lack of processed, frozen options	20.0%	3
Complexity of handling produce from local farms (receiving, cooling, storing, repacking, processing, etc)	6.7%	1
Lack of fresh processed options	6.7%	1
Purchasing constraints set by a food service management company	6.7%	1
We are not facing any challenges in implementing our local food program	6.7%	1
Quality of local products	0.0%	0
Other	0.0%	0
Total	N/A	15

Open-ended comments include:

- *Our challenges are limited as our needs are small and we have established relationships with our suppliers that allow both parties to be flexible*
- *We try very hard at Tri town to overcome the sometimes small hurdles*

When asked how important different criteria are when purchasing local, buyers indicated that food quality, freshness and food safety were the most important (price was mentioned fourth).

CHALLENGES SOURCING LOCAL FARM PRODUCTS	RESPONSE PERCENT	RESPONSE COUNT
Food quality	100%	15
Food freshness	87%	13
Food safety	87%	13
Price	73%	11
Growing practices and/or certifications	47%	7
Vendor customer service	40%	6
Ability to receive through existing distributors	33%	5
How well the product adapts to your menu	33%	5
Vendor brand recognition	7%	1
Total	N/A	15

Open-ended comments included:

- *Practices more important than certification*
- *Order procedures, timely deliveries, use of technology*
- *Growing practices*

FOOD SAFETY AND LIABILITY INSURANCE (Q10, Q11): Almost all buyers have at least basic food safety requirements in place for produce suppliers. The vast majority (73%) of buyers required growers to offer traceability.

FOOD SAFETY REQUIREMENTS	RESPONSE PERCENT	RESPONSE COUNT
Must offer traceability	73%	11
We depend on our distributors' requirements	47%	7
Must be HACCP certified (for processed produce)	40%	6
Must be GAP and/or GHP certified (for whole produce)	33%	5
Must have on-farm food safety plan	13%	2
Other	7%	1
None	7%	1
Must pass our on-farm audit	0%	0
Total	N/A	15

One respondent selected 'other' and indicated that growers must be a licensed business.

8 respondents out of 15 (54%) indicated that liability insurance is a requirement. Four answered that they depend on their distributors' requirements for liability insurance. 4 respondents provided a minimum coverage amount: 1 indicated \$2 million in coverage and 3 indicated \$1 million.

PURCHASING VOLUME (Q12, Q6): In total, buyers who provided information on their annual spend on farm products purchase a total of \$7.6M. 9 out of 15 buyers answered this question. If buyers purchase an average of 850,000 each, we can extrapolate that across the buyer pool, the total spend might be close to \$13M. Among the buyers who indicated their annual spend, they spent the following amount across three categories:

- Approximately \$2.3 million per year on fresh, whole produce
- Approximately \$880 thousand per year on processed produce
- Approximately \$4.4 million per year on proteins (meat, poultry, dairy, eggs)

ANNUAL PURCHASING VOLUME	RESPONSE COUNT FOR WHOLE PRODUCE	RESPONSE COUNT FOR PROCESSED PRODUCE	RESPONSE COUNT FOR PROTEINS
Less than \$10,000	0	3	2
\$10,000 - \$50,000	2	3	2
\$50,000 - \$100,000	2	1	0
\$100,000 - \$150,000	1	0	1
\$150,000 - \$200,000	1	0	0
\$200,000 - \$250,000	0	0	1
\$250,000 - \$350,000	1	1	0
\$350,000 - \$500,000	0	1	0
\$500,000 - \$1,000,000	2	0	2
\$1,000,000 - \$2,000,000	0	0	0
\$2,000,000 - \$3,000,000	0	0	1
Total	9	9	9

Buyer respondents purchase most of their produce and meat and dairy products from non-local sources.

- 26% of this annual whole produce purchase volume is made on local products
- 21% of this annual processed produce purchase volume is made on local products
- 17% of this annual proteins purchase volume is made on local products

Buyers indicated in the open-ended comments:

- *We do as much local seafood as we can get – meat is more difficult. In season we reach out to local farmers*
- *More local produce in summer season*
- *Varies at different times of the year*

BUYER INTEREST AND DEMANDS

INTEREST LEVEL (Q13): Ten buyers (83%) are very or extremely likely to purchase directly or indirectly from a food hub. One additional buyer (8%) is somewhat interested.

INTEREST LEVEL IN PURCHASING FROM A FOOD HUB	RESPONSE PERCENT	RESPONSE COUNT
Not at all likely	0%	0
Not very likely	8%	1
Somewhat likely	8%	1
Very likely	58%	7
Extremely likely	25%	3
Total	100%	12

Open-ended feedback to this question:

- *Broadline contractual obligations*
- *We also have the available cooler space to store products if you guys need help storing and distributing it*
- *I would be willing to work on this project to do my share*

In subsequent analysis, “interested buyers” refers to the respondent set that indicated “Top 2 Box” interest, defined by those who are “Extremely Likely” or “Very Likely” to purchase from a hub.

CHARACTERISTICS OF INTERESTED BUYERS

- *Buyer type (Q1, xQ13):* Three (30%) interested buyers are independent, full line grocery stores; three (30%) are K-12 public schools; one is a broad line distributor (10%), one is a college/university (10%) and one a sit down, full service restaurant (10%). One buyer indicated in the comments that they were a casino (10%).
- *Purchasing volume (Q12, Q6):* Interested buyers have a total of \$7.3 million in annual spend on farm products, broken down as follows:
 - Approximately \$2.2 million per year on fresh, whole produce, of which 26% of local
 - Approximately \$850 thousand per year on processed produce, of which 21% is local
 - Approximately \$4.2 million per year on proteins (meat, poultry, dairy, eggs), of which 17% is local

Two of the ten interested buyers did not provide information on their annual spend on farm products. The eight interested buyers who provided this information have an average annual spend of \$900,000. Extrapolating this to all ten interested respondents suggests total spend of \$9 million among this group.

REQUIRED FOOD HUB FEATURES (Q14 AND Q15, XQ13): Unaided input from interested buyer respondents suggests that the following features are most important:

- *Online ordering*
- *Delivery, Quality, Pricing, Accountability*
- *Receive deliveries at least 2x/wk*
- *I would like to know what farms I am ordering from and online ordering would be best*
- *Organic is nice but not mandatory. Source is important because we need to “tell the story to our consumers”*
- *Hard to say, I can be pretty flexible and work with what you have to offer*
- *Would need to know that growing practices align with organic or Farmers Pledge type. It would be nice to order online, I would like to know exactly which farm is supplying, would really like access to farms that are too far to deliver themselves but within our local radius. Even if it just organizing growers to have products at different times and for an extended season would be great*

Aided input from interested buyers indicates that the following features and services are most important:

- *Offers consistent supply of the items we use most*
- *Delivers orders directly to my facility*
- *Is locally owned and operated*
- *Has an online ordering system*
- *Offers farm-identified products*

FOOD HUB FEATURE	PERCENT OF INTERESTED BUYER RESPONDENTS TOP 2 BOX (VERY/EXTREMELY IMPORTANT)	NUMBER OF INTERESTED BUYER RESPONDENTS TOP 2 BOX (VERY/EXTREMELY IMPORTANT)
Offers consistent supply of the items we use most	100%	10
Delivers orders directly to my facility	70%	7
Is locally owned and operated	60%	6
Has an online ordering system	60%	6
Offers farm-identified products	60%	6
Offers sustainable products (can be uncertified)	40%	4
Offers processed local produce (fresh cut, frozen, etc)	40%	4
Has a strong consumer-facing brand that stands for local/regional products	30%	3
Offers proteins and/or dairy	30%	3
Offers grains	20%	2
Offers certified organic products	10%	1
Other - Please describe below	10%	1
Total	N/A	9

The one respondent who selected other indicated:

- *Important is not the word I would use here. I substituted Extremely to be that it is "almost necessary", Very to be "Would be awesome if" and Somewhat to be "indifferent, as long as growing practices are in line with a farmers pledge"*

DESIRED PRODUCT SET (Q16, XQ13): 9 interested buyers indicated what products they are hoping to purchase from a food hub. Note that several respondents provided generic feedback on this question, such as “whole produce” or “meat.” The following chart outlines the specific products buyers indicated interest in purchasing, and the number of respondents that flagged each item.

PRODUCT	RESPONSE COUNT	PRODUCT	RESPONSE COUNT
Squash	3	Corn	1
Eggs	3	Carrots	1
Seafood	3	Apples	1
Poultry	3	Fruit	1
Processed Produce	2	Herbs	1
Cheese	2	Cucumbers	1
Broccoli	2	Beef	1
Green Beans	2	Kale	1
Tomatoes	2	Cabbage	1
Honey	2	Maple syrup	1
Greens	2	Sweet Potatoes	1
Fish	1	Grains	1
Dairy	1	Milk	1

REQUIRED FOOD HUB FEATURES (Q17, XQ13): Interested buyers have a high level of flexibility when it comes to the pricing levels they can accept for local farm products.

LEVEL OF PRICING FLEXIBILITY	RESPONSE PERCENT	RESPONSE COUNT
Extremely flexible – can purchase any quantity from any local supplier at any price	30%	3
Very flexible - can purchase any quantity from any local supplier, can pay a price premium for local within reason	30%	3
Somewhat flexible – have some limitations with respect to approved vendor or budget I have to work within	40%	4
Not flexible – almost all is procured within existing contracts	0%	0
Have some discretion to meet institutional or legislative procurement targets	0%	0
Total	100%	10

QUALITATIVE RESEARCH INSIGHTS

KICKOFF AND GROWER / BUYER MEETING

The following themes emerged as insights during the April 13th Grower/Buyer meeting in Preston, CT:

- **Consumer Education and Transparency:** Many buyers, producers and community members that attended the meeting agreed that the regional food system would benefit from a higher degree of transparency and consumer education efforts. This can be accomplished by educating consumers (of all scales) about the benefits of sustainable agriculture and creating readily available resources that can connect different parts of the food supply chain, such as producers, processors, distributors and buyers.
- **Processing Facilities:** The pork producers at the meeting communicated how difficult it is to access slaughter and post-harvest protein processing within the state of Connecticut. This issue was echoed by Farm to School facilitators who recognized the need for produce processing in order to connect producers to the institutional market, as well as sharing their separate initiatives of processing produce within the county and region.
- **Price Making and Affordability:** These potentially conflicting issues were discussed several times throughout the meeting. Several producers emphasized the importance of price making, instead of the price taking they are typically doing if they are in wholesale environments already. Other community members stressed the importance of creating a system/program where all, no matter their income area, can access fresh food.
- **Need for matchmaker:** The idea of having an intermediary connect buyers and growers appropriately to one another was suggested by a grower, a buyer and a food system advocate. A concern was making sure that producers are able to find markets for their product and not have local food unsold.

GROWER AND BUYER INTERVIEWS

Interviews were conducted with growers, buyers and food systems leaders to understand their operations, available infrastructure, potential partnership opportunities and key takeaways for consideration within the study. The number of interviews per type is as follows:

- Nine producers (8 produce and 1 protein producer); 5 of whom also took the survey
- Four buyers (2 retail and 2 foodservice operations); 1 of whom also took the survey
- Two food systems leaders

INDUSTRY ANALYSIS

PRODUCE

OVERVIEW

The five stages of the conventional supply chain for whole produce in the U.S. includes production, post-harvest, distribution, sales outlets and consumption.

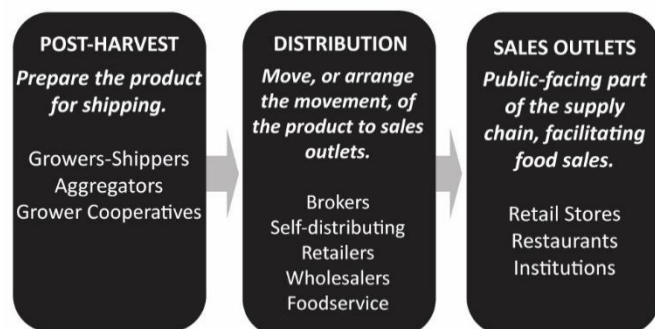
FIGURE 1: FIVE STAGES OF A FOOD-BASED SUPPLY CHAIN



In direct-to-consumer supply chains – like farmers markets and community supported agriculture (CSA), or in the case of a Grower-Shipper – the producer takes on the responsibility of post-harvest handling, distribution and either creates a sales outlet or delivers their product directly to a sales outlet.

97% of all food travels through a more conventional supply chain, in which these middle steps (highlighted in black in Figure 1) are handled by separate parties who specialize in safely transporting large quantities from the producer to the end consumer.⁵

FIGURE 2: MIDDLE OF FOOD SUPPLY CHAIN



Post-harvest includes the steps immediately following harvest that have a direct impact on the quality level of the product at the point of sale. Post-harvest tasks might include cooling, washing, grading, sorting and packing, and vary based on the crop type.

Distribution refers to the movement of product from the post-harvest stage to sales channels. This can be done directly by a sales outlet – such as a self-distributing retailer. However, the majority of fruit and vegetables are moved by third party wholesalers who are responsible for the aggregation, marketing and delivery of product into sales outlets. Wholesalers may or may not take possession of products – those that do not take possession are considered brokers.

Sales Outlets are the public-facing portion of the supply chain and include restaurants, grocery stores and other food retailers, and institutions such as schools and hospitals with a foodservice component. Here, products are sold directly to consumers or are used in the production of meals and other products for sale.

⁵ (Woods, Velandia, Holcomb, Dunning, & Bendfeldt, 2013)

PRODUCTION AND POST-HARVEST

DOMESTIC: The majority of agriculture in the U.S. consists of 5 crops – corn, soybeans, wheat, rice and cotton – which are commonly referred to as commodity crops. Fresh fruits and vegetables are classified as specialty crops. In 2013, the annual cash receipts for fruits and vegetables totaled \$50.5 billion, a 5% increase from 2012 (and a 20% increase from 2010). The specialty crop segment represents 12.5% of the \$401 billion total annual farm receipts for all agriculture in the U.S. (including proteins).

The economic forecast for crop production in the U.S., including specialty crops, was expected to decline in 2014, retreating back to pre-2011 levels.⁶ Specialty crop farm businesses are predicted to experience a 24% decrease in farm income in 2014, driven by price declines (after price increases in 2011-2013) and a forecasted increase of 4.5% in labor expenses.⁷

IMPORTS: Over 44% of U.S. fresh fruit consumption and 16% of fresh vegetable consumption come from imports.⁸ The rapid growth in the volume and variety of fresh fruit and vegetable imports has been driven by the North American Free Trade Agreement (NAFTA) and World Trade Organization (WTO), rising consumer incomes and increased produce consumption, consolidation and industrialization of farms in developing countries that have low labor costs, and technology advancements that have allowed importing countries to improve their agricultural yields.⁹

The vegetables and fruit most commonly imported include bananas, grapes, tropical fruit (such as kiwis, papayas and mangos), tomatoes, peppers and cucumbers. Vegetable trade is concentrated within NAFTA (Canada and Mexico) and Asia, while fruit trade is more dispersed, with the majority of product coming from banana producing countries such as Costa Rica, Ecuador, Mexico and Guatemala.¹⁰

While the increase in imports since NAFTA and WTO took effect in the mid-1990s has led to an expansion in the variety and volume of fresh produce consumption in the U.S., the trend has hurt U.S. family farms which are often unable to compete on prices due to their size, and cannot supply year-round product due to their climate. WTO mandated the elimination of price supports that previously helped small farmers weather year-over-year volatility. The influx of imports and elimination of these government policies contributed to approximately 170,000 family farms (21% of total family farms) going out of business in the first ten years after NAFTA and WTO took effect.¹¹

Trade is sensitive to changes in exchange rates with imports gaining strength along with the dollar (a stronger dollar makes imports cheaper for consumers) and exports making up ground when the dollar depreciates. Fluctuating exchange ranges, along with weather patterns in the U.S. and importing countries, leads to significant volatility in both the value and volume of imports and exports in a given year.

DISTRIBUTION

Distribution is generally done by wholesalers or brokers. Wholesalers take title to goods, whereas brokers facilitate sales without handling the product directly.

WHOLESALE: Self-distributing grocery and food service retailers (such as Kroger or Safeway), merchant wholesalers (such as Sysco) and contract food service providers (such as Compass) collectively account for 80% of total wholesale food sales. Vegetable and fruit wholesale is concentrated in the West, Southeast and Mid-Atlantic regions of the U.S., which collectively account for 68% of the industry's establishments.

⁶ (USDA ERS, 2014)

⁷ Ibid

⁸ (Huang & Huang, 2007)

⁹ Ibid.

¹⁰ Ibid

¹¹ (Citizen, 2014)

BROKERS: Brokers facilitate sales between buyers and sellers, rather than purchasing goods to sell them at a profit. Brokers can also simply facilitate the meeting of buyers and producers – as in the case of produce auctions – where they provide the infrastructure for sales and earn their income as a percentage of sales. Brokers are small in comparison to the more consolidated wholesalers, but often have more accessibility to a region’s local producers, making them desirable partners to sales outlets whose customers demand regional food, such as local-focused grocery stores like Whole Foods Market.

SALES OUTLETS

Sales outlets largely consist of supermarkets, grocery stores, restaurants and institutions with foodservice components such as schools and hospitals. Each of these diverse outlets are experiencing an increase in consumer demand for fresh, whole, minimally processed produce. In 2014, US consumers purchased approximately 40.4 billion pounds of produce; 225 million more pounds of produce sold in 2013. Following this demand for fresh produce, consumers are increasingly interested in purchasing fresh produce that is locally-grown.

BUYER TRENDS

Conventional supply chain players are answering the local call by adopting local procurement and business practices. Consumer demand for local produce has increased the amount of retailers who are bypassing the conventional supply chain and purchasing directly from producers or aggregators who work directly with producers. At the same time, wholesalers, like Sysco, are working collaboratively with small to mid-sized producers to offer a wider line of local foods to their product offerings and even forming internal initiatives such as Local Foods Advisory Committees.¹²

In 2006, 87% of fine-dining restaurants and 75% of family and casual dining establishments served items that were sourced locally. Even quick service restaurants joined the trend – almost one-third of them have some sort of local sourcing initiative in place.¹³ National Farm to School programs have also increased in popularity. In the 2011-2012 school year, 40,328 schools participated (44% of all U.S. schools) resulting in \$385 million spent on local food.¹⁴

POLITICAL CLIMATE

The political climate for the development of local food enterprises is extremely favorable. According to the USDA Economic Research Service, “Federal, state, and local government programs increasingly support local food systems. Many existing government programs and policies support local food initiatives, and the number of such programs is growing.”¹⁵ One prominent example is the \$4.5B Healthy, Hunger-Free Kids Act, a federal program signed into law in December 2010 which provides schools with incentives to source local foods.

The government is doing its part to increase fruit and vegetable consumption with the USDA’s January 2011 release of the 2010 Dietary Guidelines for Americans and the Food Guide Pyramid replacement with MyPlate. The Guidelines recommend that consumers compose half of their plate with fruits and vegetables, and the campaign shows fruit and vegetables on half of the plate. In addition, First lady Michelle Obama launched her Let’s Move! campaign in February 2010, an initiative to solve the problem of obesity within the next generation by fostering collaboration among leaders in government, medicine, science, business, education, athletics, and community organizations. Also, the release of new standards for school meals, effective from the beginning of July 2012, should aid the government’s efforts to increase nutritional awareness and lead to increased consumption of fresh fruits and vegetables.

Consumers’ increasing awareness of food safety and the origins of the supply chain have driven companies to voluntarily sign up for Product Traceability Initiative (PTI), launched in 2008 by the United Fresh Produce Association,

¹² (Winrock, 2009)

¹³ (Martinez et al., 2010)

¹⁴ (“National Farm to School Network,” n.d.)

¹⁵ (Martinez et al., 2010)

Canadian Produce Marketing Association and the Produce Marketing Association. The PTI helps its members implement traceability programs, and is integral to standardizing the industry.

Government agencies have followed suit with the FDA Food Safety Modernization Act of 2011, which gives the FDA authorization to initiate food recalls, conduct inspections of high-risk facilities, oversee imports and also requires proactive participation by food facilities to assess the risks involved in fruit and vegetable production. In addition, players in the food industry are constructing brands on a “high integrity” foundation as a marker of differentiation, emphasizing the production and use of natural and organic ingredients and focusing on local farms as its supply base, i.e. Chipotle Mexican Grill and its concept of “food with integrity”.

National restaurant chains are boosting the produce market by bettering their menus with more fruits and vegetables. In July 2011, the National Restaurant Association (NRA) launched its Kids LiveWell program in collaboration with its Healthy Dining Finder database of restaurants. According to the NRA’s website, “Restaurants that participate in the voluntary program commit to offering healthful meal items for children, with a particular focus on increasing consumption of fruit and vegetables.”

The Agricultural Act of 2014, commonly referred to as the Farm Bill, was signed into law on February 7, 2014. The bill provided \$501 MM in fiscal support over the next five year to many programs that promote local and regional food systems, organic agriculture and healthy food access. Expanding the scope of the Farmers Market Promotion Program, which specifically supported direct-to-consumer local food channels, the new Farmers Market and Local Food Promotion Program now also will provide grants to farm-to-institution, food hubs and other local and regional food enterprises that focus on creating supply chains around regionally produced foods.¹⁶

The Farm Bill not only provides more support for local and regional food, but it also has favorable programs for specialty crops in general. Produce industry leaders have commented that they feel the bill was a victory for specialty crops, with most resources geared towards specialty crops either remaining the same or increasing.¹⁷ The bill touts investments that are 55% increases over 2008 farm bill funding for specialty crop initiatives and programs. The bill has several advantages for organic producers, including increased funding for the National Organic Program and greater access to agricultural research and promotion that has historically only been available for conventional producers.¹⁸

BEEF

The stages of conventional supply chain for protein in the U.S. include inputs, production, processing and distribution, marketing, and consumption.

There is a high degree of vertical integration—an arrangement in which a company owns its own supply chain— in the beef industry. Researchers at the University of Missouri estimated that within the beef industry alone, more than 85 percent of processed beef moves through only four firms nationwide (Cargill, Tyson, JBS, and National Beef).¹⁹ Because of the high degree of consolidation within the industry, proprietary business data for individual steps along the supply chain is closely held and not easily accessible. Vertical integration is far greater in the protein supply chain than in the produce supply chain.

Beef production comprises a large segment of American agriculture, and the United States is the largest beef producer in the world. The USDA reported that total U.S. cattle and calf production in 2013 was valued at \$49.5 billion, with ten percent leaving the country for export markets. In spite of the huge volume of premium, grain-fed beef production, the

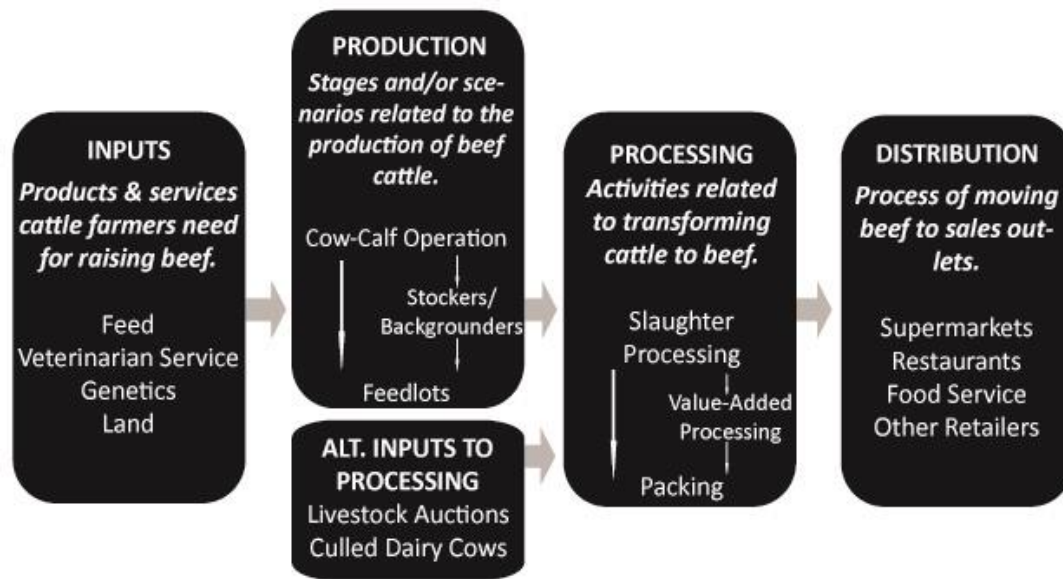
¹⁶ (NSAC, 2015)

¹⁷ (“United Fresh: farm bill victory for specialty crops,” 2014)

¹⁸ (Murphy, 2014)

¹⁹ (Hendrickson & Heffernan, 2007)

U.S remains a net importer of beef due to significant importation of processed, lower quality, and grass-fed meat. The top four importers of beef to the U.S. are (in order) Australia, New Zealand, Canada, and Mexico.²⁰



The conventional supply chain for beef consists of four links:

1. **Inputs:** Cattle farmers require three primary inputs for raising beef cattle, including feed, veterinarian services and genetics or seed stock for breeding. Feed typically comprises the largest direct cost of beef production. Using seed stock bulls and/or reproductive matter for breeding diversifies the genetic makeup of a herd, increasing herd vigor. Land is another input factor. Depending on geographic location, it can be costly or challenging to acquire.
2. **Production:** Beef production consists of three primary stages along the production sub-supply chain. Some producers handle all three stages; others focus on only one stage. From birth, calves follow the following production route:
 - a. Cow and calf operations focus on calves from breeding through weaning, when the calf no longer depends on a cow's milk for nutrition. Calves are weaned at approximately six to ten months old, weighing 400–700 pounds. Most cattle ranches are small and dispersed. Only nine percent of cow-calf operations have herds over 100 head.²¹
 - b. Stockers and backgrounders purchase “feeder” calves at a livestock auction market. Their purpose is to add weight to cattle with pasture, range, and/or forage feeding. “Stocker operators put additional weight on the animals through pasture or range; backgrounding operations confine the cattle and give them hay, wheat, or other forage; both types of operation bring cattle to 600-800 pounds, or 8-14 months of age.”²² Stocker animals can come from a backgrounder or directly from a cow-calf operator.
 - c. Feedlots are confined feeding operations that combine high-energy grains (as well as silage and manufacturing by-products) with minimal exercise to quickly and efficiently increase cattle to slaughter weight of 900 to 1,400 pounds at 12 to 22 months of age.
 - d. Alternative supply chains are tapped for beef for processing. Lateral supply—dairy cows that are processed into ground beef for fast-food hamburgers or supermarket retail—contributes about 18 percent of beef production. These animals are culled from dairy herds because they have stopped producing milk. They are used for ground beef because their age and multiple births result in unfavorable prime cuts.

²⁰ (ERS, 2015)

²¹ (NRDC, 2015)

²² (Lowe & Gereffi, 2009)

With grain-feeding the predominant U.S. method for beef production, beef prices are closely tied to grain prices; and besides the cost of the animal, feed is the largest production cost. Feed costs reach 62 percent of costs in the stocker/backgrounder stage, and increases to 84 percent in the feedlot stage.²³

3. **Processing and distribution:** Once cattle have reached the desired weight, they are slaughtered, processed, and distributed. This step in the supply chain also has three primary components: packing and processing, value added processing, and wholesaling.
 - a. Processing begins when cattle have reached slaughter weight at 1,100-1,300 pounds. They are slaughtered by packing operations, “some of which also produce processed beef products such as sausage or meat balls.”²⁴
 - b. Processing includes slaughter; cutting and wrapping into typical retail packages; and value-added processing, which can entail “grinding, casing, smoking, cooking, drying, and otherwise transforming meat and trimmings from the cutting step into sausage, ham, bacon, jerky, and other products; includes “portion cutting,” cutting subprimals into fixed-weight steaks, roasts, and other retail cuts.”²⁵
 - c. Beef is distributed by wholesalers, or by direct sales to retailers, although large packers and processors are increasingly serving as their own wholesalers. Food service suppliers such as SYSCO and Aramark also perform distribution.

Depending on the specific supply chain, feedlot operations can have their own slaughter and processing facility. There are examples of large corporate retail chains entering into beef supply agreements with large beef production companies, demonstrating the role of vertical integration in connecting retail to production.²⁶ The USDA requires that beef intended for export across state lines or outside the country be slaughtered in a certified facility, and a USDA Food Safety and Inspection Service (FSIS) representative must be present during slaughter. The USDA currently employs 7,800 FSIS plant inspectors to staff the nation’s 6,200 federally inspected slaughtering facilities. Inspectors monitor the health of live animals before slaughter and test vital organs immediately following slaughter.

4. **Marketing:** Traditional outlets for commodity beef production include supermarkets, restaurants, and food service suppliers who provide dining and vending services for corporate clients such as offices, universities, and healthcare institutions. Distribution systems vary depending upon the requirements of the end user. If a retailer has a beef supply agreement for case-ready beef (beef that is already packaged), for example, the retailer will either pick up supply directly from the packing plant or have the processor deliver to a central warehouse.

The above supply chain represents traditional, large-scale, commodity driven supply chains.

In smaller-scale beef operations, the supply chain varies dramatically by scale and marketing outlets. Alternative supply chains consolidate production such that animals are born and grow to weight on one farm, or two when calves are sold at auction to other local producers. Alternative supply chains feature decentralized ownership, with separate owners dealing with production, processing, distribution, and marketing. Small scale producers may be able to access direct sales, niche marketing or specialty buyers.²⁷

Because small scale producers play an important role in the growing grass-fed beef marketplace, the U.S. Agricultural and Marketing Service (AMS) has scaled up efforts to offer “USDA certified grass-fed beef” certification to these producers. In 2007, small scale (less than 100 head) cow/calf operations accounted for an estimated 45.6 percent of all

²³ (Lowe & Gereffi, 2009)

²⁴ Ibid.

²⁵ (Gwin, Thiboumery, & Stillman, 2013)

²⁶ (Hendrickson & Heffernan, 2007)

²⁷ (Pirelli, Weedman-Gunkel, & Weber, 2000)

beef cows nationwide and 90.4 percent of all farms with beef cows.²⁸ However, non-traditional production from calving until slaughter only accounted for three percent of the national beef market in 2010.²⁹

INDUSTRY TRENDS

INVENTORY AND PRODUCTION³⁰

Commercial slaughter inventories in 2013 included approximately 32 million head, down nearly seven percent from 34.4 million head in 2008 (USDA 2013). In 2013, beef cattle imports were estimated at just over two million head.³¹ The U.S. produced 25.8 billion pounds of beef in 2013, down one percent from the previous year. Commercial plant production comprised 99.8 percent of this production, with the remainder from on-farm slaughter.

There were 831 slaughterhouses in the U.S. as of January 2014, up from 826 in 2013. Slaughterhouses are distributed throughout the country, with the highest concentration in the Midwest and northeastern states.

PRICING

The average price per pound for beef was \$5.29 in 2013, up 27 percent from \$4.16 in 2007. Beef prices have steadily risen since 2002, from \$3.32/lb to \$5.29/lb in 2013 (except for a slight decline in 2007). Factors affecting price increases include rising grain prices and record droughts. Since 2000, inflation-adjusted meat prices have reflected slower production growth as meat output responded to lower producer profits due in part to higher feed costs. Cattle production costs, production, and prices also have been affected by poor forage conditions due to lingering droughts over much of the past decade, particularly in the Southern Plains.³² These conditions have contributed record high herd culling.³³

CONSUMPTION

Beef consumption in the U.S. has steadily declined over the past four decades, from a high of nearly 95 pounds per capita in 1976 to a low of 54.2 in 2014.³⁴ Total U.S. beef consumption in 2013 was 25.5 billion pounds, down more than nine percent from 28.1 billion pounds in 2007. Total red meat consumption has also steadily declined, from a high of 150 pounds in 1971 to a low of 102 pounds per capita in 2014.

Export markets, on the other hand, have steadily increased since 2005, after crashing in late 2003 when the first BSE (mad cow disease) case was diagnosed in the U.S. Beef exports increased from 322K metric tons in 2004 to 1.17M metric tons in 2013.³⁵ Mintel (2013) reported that from 2004-12, U.S. beef exports increased 252 percent.

Declining red meat consumption in the U.S. can be tied to growing concerns over health and price. A large-scale, decade-long study published in the Archives of Internal Medicine in 2009 concluded an increased mortality risk tied to higher levels of red meat consumption.³⁶ Additionally, consumers often “struggle to afford beef due to tighter cattle numbers, a weak economy, and high unemployment,” Beef Magazine asserts. “With rising food and fuel costs, Americans are now trading down from steak to burgers, in what Erin Borrer, U.S. Meat Export Federation economist, calls ‘The Hamburger Economy.’”³⁷

²⁸ (APHIS, 2011)

²⁹ (Mathews & Johnson, 2013)

³⁰ (USDA, 2014a)

³¹ (USDA 2013)

³² (USDA ERS, 2015a)

³³ (Lowe & Gereffi, 2009)

³⁴ (NCC, 2015)

³⁵ (USMEF, n.d.)

³⁶ (Brody, 2009)

³⁷ (Radke, 2012)

But “the market still has opportunities to infuse some excitement into the category with premium positioning, new cuts of meat, value-added products, and new packaging,” according to Mintel food analyst Sarah Day Levesque (2013). The Consumer Beef Index reports that in 2013, 76 percent of Americans felt more positive than negative about beef consumption—up seven percent from the previous year; and 90 percent reported constant or increasing consumption of beef (Consumer Beef Index, 2013).

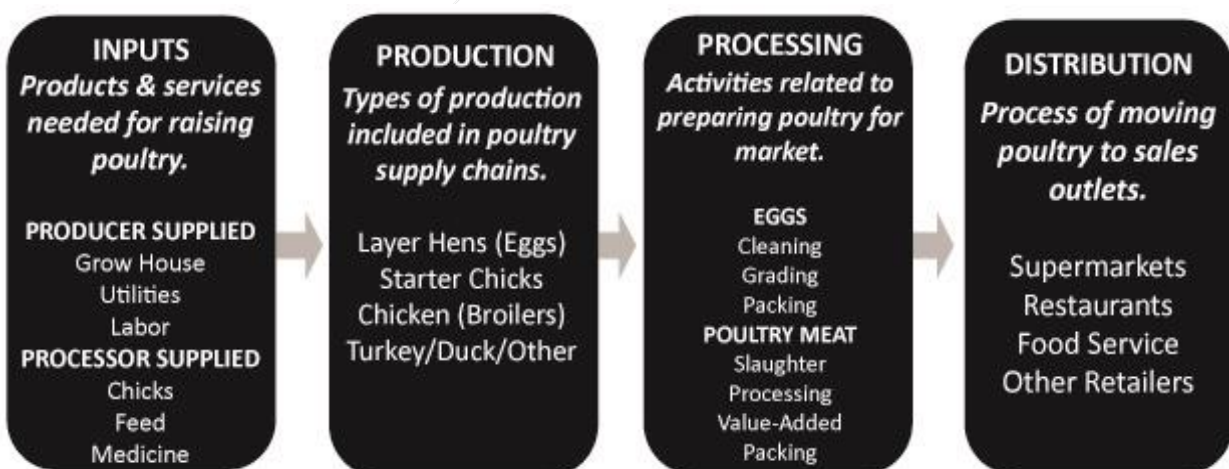
POULTRY AND EGGS

Poultry, like beef, comprises a large segment of American agriculture, and as with beef, the United States is the largest poultry producer in the world. The U.S. is also the second largest exporter of poultry in the world, led only by Brazil. The USDA reported that the combined value of poultry production in 2013, including broilers, eggs, turkeys, and other chickens was \$44.1 billion, up 15 percent from \$38.2 billion in 2012. Poultry consumption increased dramatically post-WWII, and in 2013 consumers ate more than 99 pounds of poultry per capita.³⁸ Per capita poultry consumption in the U.S. is projected to be higher than beef and pork combined in 2015.³⁹

“Poultry” serves as a catch-all term, generally including chickens, turkey, ducks, geese and other exotics such as ostrich and game birds. The majority of poultry meat is from broilers (chickens under 13 weeks old). The USDA ERS reports that four-fifths of commercially-produced chicken in the U.S. is comprised of broilers (USDA 2015). Since poultry is largely grain-fed, poultry prices in the U.S. are dependent on grain prices.

The conventional supply chain for poultry products, comprised of four main links, is even more vertically integrated than that of beef. In commercial supply chains, 90 percent of poultry production is captured by two dozen companies. The two largest broiler companies, Pilgrim’s Pride Corp. and Tyson Foods Inc., accounted for 40 percent of the 2010 market.⁴⁰

Poultry production is highly climate sensitive. Vertical integration translates into geographic concentration, with the majority of poultry production in states with comparative climate advantages in the southeast, Appalachia and mid-Atlantic. Top poultry producing states include Arkansas, Alabama, Mississippi, and North Carolina. Top egg producing states include Iowa, Ohio, Pennsylvania, Indiana, and Texas.⁴¹



³⁸ (NCC, 2015)

³⁹ Ibid.

⁴⁰ (Miles, Anderson, Mason, & Schwartzkopf, 2012)

⁴¹ (USDA, 2015b)

The conventional supply chain for poultry/eggs includes the following links:

1. **Inputs:** Typically, producers supply grow houses, utilities and labor, and contracting processors supply chicks, feed, and medicine, and sometimes transportation to processing sites. The poultry industry is considered one of the most strictly coordinated commodity markets in the country.⁴²
2. **Production:** Poultry production includes chickens, turkeys, ducks, geese, emus, ostriches, and game birds. In commercial markets producers typically concentrate on raising a single species. Generally, producers either raise starter pullets (female chicks raised to adult for producing eggs) or birds for meat production.⁴³ Some farms keep hens to produce eggs for human consumption, others for breeding purposes. In 2013, 70 percent of poultry production was comprised of broilers, 19 percent eggs, 11 percent turkeys, and less than one percent other birds.⁴⁴
3. **Processing and distribution:** In order to get their products to market, poultry producers require access to “appropriately scaled processing facilities with the skills, inspection status, and reliability to prepare these products safely, legally, and to customer specifications.”⁴⁵ Poultry processing offers “multiple avenues to add value and margin to the product through differentiation. Options for further processing include cutting up the chicken, deboning, blending and cooking the meat.”⁴⁶
Egg producers sometimes grade and clean their own eggs before they are distributed. The process of laying, grading and transporting to distributors usually occurs in the same day.⁴⁷
4. **Marketing:** Traditional outlets for commodity poultry production include supermarkets, restaurants and food service suppliers. Further processing also allows producers to use product differentiation and branding to add value.

INDUSTRY TRENDS

INVENTORY AND PRODUCTION

Early in the 20th century, more efficient systems emerged for producing eggs in specialized facilities. Population shifts from farms to towns and cities increased and concentrated the demand for fresh eggs. As a result, many dairy farmers added egg production to their enterprise. Mid-century saw co-ops, feed companies and other private producers organize egg production into a vertically-integrated, coordinated industry. Egg production was no longer a secondary, small-scale farm enterprise, but a primary, large-scale industry; and small-scale egg farming virtually disappeared.

Small-scale egg production has made a comeback since the 1980s because of changing consumer demands.⁴⁸ Niche markets include organic, brown, free-range, designer, and specialty eggs that tap into consumer desire for product safety, freshness, taste, and color. When layers raised organically stop producing eggs, they still have value (unlike commercial layers) as roasting chickens. “Conventionally grown layers have less value because of size and body structure and are sold to make protein supplements for pet food or sold to a live bird market as a stewing hen.”⁴⁹

Eggs and poultry are now among the fastest growing food products in the U.S. organic sector. Organic eggs are widely available in both conventional and natural food supermarkets and organic chicken is appearing in grocery stores as well. In niche markets, such as farmers’ markets, gourmet food shops, and restaurants, customers are offered farm-fresh organic eggs and locally processed organic chicken and poultry products.⁵⁰

⁴² (Perry, Banker, & Green, 1997)

⁴³ (USDA, 1995)

⁴⁴ (USDA, 2014b)

⁴⁵ (Gwin et al., 2013)

⁴⁶ (Miles et al., 2012)

⁴⁷ (Pullman & Zhaohui, 2012)

⁴⁸ (Patterson, Martin, Kime, & Harper, 2012)

⁴⁹ Ibid.

⁵⁰ (Oberholtzer, Greene, & Lopez, 2006)

Organic poultry and egg sales currently account for a small share of the overall U.S. egg and poultry market. Both markets, however, like much of the organic sector, are growing rapidly, organic poultry in particular. Both sectors are still in their infancy, and many changes are likely as they develop.

The combined value of production from all poultry in the U.S. was \$44.1 billion in 2013, up 15 percent from 2012. This includes:

- **Total broiler value:** \$30.7 billion in 2013, up 24 percent from 2012.
- **Total turkey value:** \$4.84 billion in 2013, down 11 percent from \$5.45 in 2012.
- **Total U.S. egg value:** \$8.5 billion in 2013, up eight percent from 2012.

PRICE

Average price-per-pound for poultry has not varied dramatically in the last decade, rising only 12 percent from \$1.57 in 2006 to \$1.75 in 2010.

CONSUMPTION

U.S. consumption of poultry has increased dramatically over the last 60 years. In the 1940s, the average American consumed less than 20 pounds of poultry annually. By 1995, the average American consumed approximately 63 pounds of poultry per year—a 300 percent increase.⁵¹ In 2013 total U.S. per capita poultry consumption reached nearly 100 pounds.

Across the board, consumers increasingly want to know more about product origin, and this is no less true about poultry. One third of those who buy poultry consider product origin to be important, and 68 percent are interested in knowing where their poultry comes from. Consumers are willing to pay more for poultry if they know its origin.⁵²

Consumers are concerned not just with origins, but also with humane treatment of chickens on the farm. A recent survey found that “more than 80 percent of respondents feel it’s important that the chickens they eat be humanely raised. Yet, less than a third of respondents trust the companies that make chicken products to treat their chickens in a humane fashion.”⁵³

LOCAL MARKET ASSESSMENT

AGRICULTURAL PRODUCTION

With precipitation evenly distributed throughout the year and freezing conditions usually limited to mid-October through mid-April, the climate in Connecticut and New London County specifically is well suited for agricultural production. This, combined with the region’s well-draining soils, makes the state ripe for fruit and vegetable production, as well as nursery crops, the state’s top product.⁵⁴ A 2010 study on agriculture in Connecticut estimated that statewide agricultural production has a total impact of \$3.5 billion on the state’s economy and generates 20,000 jobs statewide.⁵⁵

New London County was the top agricultural producing county in Connecticut in 2012, with over \$72 million in farm gate sales that year, outpacing the next top-producing county, Hartford, by nearly \$45 million.

⁵¹ (USDA 1995)

⁵² (ASPCA, 2014b)

⁵³ (ASPCA, 2014a)

⁵⁴ (Bureau, n.d.)

⁵⁵ (Lopez, Joglekar, Zhu, Gunther, & Carstensen, 2010)

Over half of New London County's sales came from poultry/eggs sales.⁵⁶ Farm gate sales of poultry and eggs in New London County are 36 times higher than any other county in the state. Dairy was the second largest contributor to agricultural sales in New London County. Out of Connecticut's eight counties, New London County was the sixth largest producer of vegetables in 2012 and had 432 acres in produce under production.⁵⁷

Market value of relevant agricultural products

COUNTY	VEGETABLES	FRUITS & NUTS	GRAINS	CATTLE/CALVE	DAIRY*	POULTRY/EGGS	TOTAL
Fairfield	2,041,000	1,365,000	(D)	88,000	377,000	81,000	3,952,000
Hartford	14,100,000	9,579,000	(D)	748,000	3,102,000	238,000	27,767,000
Litchfield	2,750,000	2,717,000	(D)	2,151,000	15,348,000	549,000	23,515,000
Middlesex	1,581,000	2,196,000	188,000	304,000	819,000	56,000	5,144,000
New Haven	8,989,000	3,774,000	(D)	514,000	2,585,000	317,000	16,179,000
New London	2,153,000	3,074,000	3,298,000	2,378,000	15,217,000	46,223,000	72,343,000
Tolland	3,359,000	1,934,000	2,297,000	1,630,000	14,614,000	108,000	23,942,000
Windham	1,413,000	2,711,000	(D)	1,937,000	20,276,000	1,287,000	27,624,000
2012 TOTAL (\$1,000)	36,386	27,350	5,783	9,750	72,338	48,859	200,466

**Most recent available data is from 2007*

The National Agricultural Statistics Service (NASS) reported that New London County had 949 farms in operation in 2012, with 65,159 acres under production. This included:

- Beef - 192 farms with 1,298 head total
- Milk - 43 farms with 3,799 head total
- Broilers - 34 farms with 70,299 head total
- Layers - 158 farms, including Kofkoff Farm, the largest egg farm in the state located in New London, with 4.7 million birds⁵⁸
- Corn (grain/silage) - 70 farms with 6,628 total acres
- Forage (hay etc.) - 306 farms with 10,297 total acres
- Vegetables - 99 farms with 432 total acres (averaging 4.4 acres per farm)
- Orchards - 51 farms with 301 total acres (averaging 5.5 acres per farm)

New London County has a large percentage of hobby farmers. Of the 949 farms in the county, about half (454) have sales of less than \$2,500 per year. An additional 355 farms have yearly sales between \$2,500-25,000, with just 64 farms with farm-related sales of over \$100,000.⁵⁹ Accordingly, the majority of New London County's farms are relatively small, with a median farm size of 28 acres. Only 13 farms operate on 500 acres or more and very few farms operate on over 180 acres.⁶⁰ Less than two percent of New London County's farms were certified organic in 2012. NASS identified eight organic farms, nine exempt farms, and two transitional farms.⁶¹ In 2012, these farms saw sales of more than \$315,000.⁶²

⁵⁶ (NASS, 2012)

⁵⁷ Ibid.

⁵⁸ (Pauze, 2014)

⁵⁹ (NASS, 2012)

⁶⁰ (NASS, 2012)

⁶¹ (NASS, 2012)

⁶² Ibid.

Since 2007, the number of farms in Connecticut has increased by 22 percent, and the state agricultural commissioner ascribes the growth to an increased demand for local foods and younger, emergent farmers entering the market.⁶³

With some of the states most popular attractions, including the Thames River Vally and access to the Atlantic Ocean, New London County is considered a tourist desitation, which serves to attract agri-tourists as well.⁶⁴

PROCESSING

Three shared-use kitchens have been identified in Connecticut, though none in New London County. Of existing shared-use kitchens, CLiCK, located near New London County in Windham, is likely the most promising food hub partner because of its proximity to New London County growers. Additionally, FRESH New London and community members implemented “Farm Fresh New London County Schools” in 2013, connecting farmers to commercial kitchens developed within schools. These schools can process farm products, making them available and usable during the school year. This unique initiative within New London County could serve as a potential partner for local producers and a food hub.

Shared-use Kitchens and Contract Manufacturers in Connecticut

COMPANY NAME	CITY	STATE	CATEGORY
CLiCK, inc.	Windham	CT	Shared-use kitchen
Dartmouth Grange Shared-Use Kitchen	Dartmouth	MA	Shared-use kitchen, technical assistance
Rean Smith Catering	Milford	CT	Shared-use kitchen
Fairfield Kitchen	Fairfield	CT	Shared-use kitchen
Franklin County CDC	Franklin	MA	Contract manufacturer
Industrial Packaging	Worcester	MA	Contract manufacturer
D&M Packing	Waterbury	CT	Contract manufacturer; cold fill, dry-pack
Gourmet Products	Thomaston	CT	Contract manufacturer; hot and cold pack
Palmieri Food Products	New Haven	CT	Contract manufacturer; cold fill, hot fill
Farm to Table Copackers	Kingston	NY	Contract manufacturer for value added, local produce
IAM International	Lebanon	NJ	Contract manufacturer; commercializes recipes
Hot Mama’s Food	Springfield	MA	Contract manufacturer; sauces and specialty items

Connecticut has five USDA-certified slaughter/processing facilities statewide, and 52 additional meat, poultry, and/or egg processors, as well as three additional processing facilities whose functions are currently unknown.⁶⁵ None of the meat processing facilities are located in New London County.

⁶³ (Grant, 2014)

⁶⁴ (Bureau, n.d.)

⁶⁵ (USDA, 2015a)

USDA-certified slaughter and processing facilities in Connecticut

BUSINESS AND CONTACT	CITY AND COUNTY	TYPE OF FACILITY AND SPECIES COVERED	SLAUGHTER CAPACITY	PROCESSING CAPACITY
New England Meat Packing	Stafford Springs, Tolland County	USDA Inspected Slaughter	200 cattle per day for slaughter alone; 30 cattle equivalents per day based on 10 day hanging; cooler capacity 350 head at one time	No processing/packaging capacity at this time; no rental freezer space available
Bristol Beef	Bristol, Hartford County	USDA Inspected Slaughter	8-12 cattle equivalents per day; cooler capacity 35 cattle at one time	No processing/packaging capacity; no rental freezer space available
Barbarossa LLC -- Tarzia Meat	New Milford, Litchfield County	USDA Inspected Slaughter and Processing	30 cattle per day; present hanging capacity 30 cattle at one time with new cooler under construction; this means effective daily capacity with hanging at present time is 3 -5 head	Have a scale/labeling machine; no vacuum packaging as yet 3-5 cattle/day processing capacity; limited freezer storage capacity
Big Dog Meats LLC	West Haven, New Haven County	USDA Inspected Meat Slaughter	None	Small scale meat processor, with three employees
Litchfield Locker	Litchfield, Litchfield County	USDA Inspected Meat Processing	None	Custom cuts, packages and labels products for resale and for personal use. Focus on hunters during deer season.

DEMAND LANDSCAPE

The Locavore Index indicates an increasing demand for local food across the state of Connecticut. In 2014, the Index had ranked Connecticut as the 20th most “locavore-oriented” state in the U.S., whereas in 2015—with 156 farmers markets, 119 CSAs, 46 percent of school districts participating in farm-to-school programs and two food hubs—Connecticut rose to 10th.

Despite indications that local food production is growing throughout Connecticut, the unmet demand for local fruits and vegetables, proteins, and grains in New London County is substantial, estimated to be \$149 million dollars across all farm product categories.

NEW LONDON COUNTY, CONNECTICUT				
	DAIRY	MEAT	POULTRY & EGGS	FRUIT & VEGETABLES
Local Quotient*	25%	5%	23%	13%
Local Food Demand	\$40,257,423	\$45,429,548	\$19,369,187	\$69,654,120
Local Food Supply	\$10,190,033	\$2,069,296	\$4,549,585	\$8,851,509
Un-met Demand for Local Food	\$30,067,390	\$43,360,252	\$14,819,602	\$60,802,611
<i>in wholesale dollars</i>				

*The percentage of category food sales produced within the area.

Local Quotient is the percentage of category food sales produced within the area. It is calculated at the state level and is overstated if production is shipped to other states. A result of greater than 100% indicates that local demand could be met entirely with local production if it were directed to these markets through a local food system.

The growing demand for local and the increase in small-scale farms across the state may be attributed to the support and resources now available at the state level for local, small-scale agriculture production and marketing. Additionally, there are several nonprofits that are actively engaged in improving the local food landscape and food systems throughout Connecticut.

These initiatives include:

- **BuyCTgrown:** BuyCTgrown is Connecticut's most prominent current local food campaign. Based on businesses and consumers voluntarily committing to spend 10 percent of their food and gardening dollars with Connecticut producers. While there are no subsidies or direct financial incentives associated with the program, the BuyCTgrown initiative does provide free advertising to businesses that make the commitment by allowing them to be listed on the BuyCTgrown website. The website also serves as a clearinghouse for local food information, programs and upcoming events statewide. BuyCTgrown was initiated by a Connecticut local nonprofit called CitySeed, and is supported by UConn Extension, Connecticut Farm Bureau, Connecticut NOFA, and the Connecticut Department of Agriculture (CDA).⁶⁶
- **CT Grown:** CT Grown acts as a regional branding campaign, with the "CT Grown" logo added to agricultural products that are grown in state. This initiative was developed in 1986 and is supported by the Connecticut Department of Agriculture. The CDA is also involved in promoting local food production and consumption by producing the Connecticut Grown Crop Availability Calendar and making it available both online and in print. The CDA also supports Connecticut producers by producing agricultural directional signage (with pictures of produce for street signs) and is active in partnering with farm-to-school programming.⁶⁷
- **Connecticut FarmLink.** The Connecticut FarmLink is designed to connect young, new farmers with available land in order to maintain intergenerational farming links and preserve agricultural lands throughout the state. Farm Owners and Farm Seekers register on the website with a brief description of their farmland or farmland needs. The description serves as the applicant's "advertisement" on the website and as the basis for which potential seeker or owner matches will request more information.⁶⁸

COMPETITIVE LANDSCAPE

Connecticut is home to four food hubs, as identified by the USDA and National Good Food Network. There is at least one other confirmed feasibility study underway within the state, in the northwest region of the state.

The majority are direct-to-consumer or serving a very small niche in terms of product or buyer type. For example, the Farmer's Cow is a farmer-owned cooperative exclusively focused on dairy. CT Farm Fresh Express and Highland Art Farm both focus on aggregation of local products and sales and delivery to end consumers.

Hartford Regional Market is both a direct-to-consumer farmers market and a wholesale food hub with locally, nationally and internationally grown farm products available. The market has secured USDA Specialty Crop Block Grant money to add additional vendor capacity and extend the market's season to year round. Currently, it's the largest produce distribution center between Boston and NYC. However, because the market does not offer delivery to buyers, its wholesale buyers tend to be either smaller scale businesses that are willing to pick up, such as restaurants and caterers or distributors that purchase product from the market, charge a markup and distribute these products to institutional and restaurant buyers. While some product at the Hartford market is farm-identified, some of it is aggregated and therefore not farm identifiable at the case level.

⁶⁶ ("BuyCTGrown: Experience Local Agriculture," 2015)

⁶⁷ ("DOAG: Connecticut Grown Program," 2015)

⁶⁸ (*Connecticut FarmLink Program*, 2015)

It is important to note that states around Connecticut are also home to many food hubs. Red Tomato and Farm Fresh Rhode Island are two examples of relatively large-scale hubs in neighboring states that may be able to successfully serve New London County buyers with products they would consider local.

Additionally, several regional small-to-large produce distributors are effectively moving local farm products as part of their existing operations, including FreshPoint and Sardilli Produce in Hartford, Roch's and Robert's Precut in Rhode Island, and Baldor Foods in Massachusetts. These existing distributors appear to be successfully establishing relationships with CT producers and are capitalizing on the rapidly expanding demand for local in and around the state.

These distributors are, however, often face challenges in sourcing local products, including:

- Many are limited to only working with GAP certified producers; constraining the supply they have access to across the state. These companies do not provide any technical assistance services to their growers, so they do not help growers pursue GAP certification and therefore are not actively expanding their supply base for local products.
- Many of these distributors predominantly serve institutional buyers, making their price point too low for local producers to accept.
- Source identification can be limited. Buyers want to know exactly what farm each of their cases of product came from, and ideally, would have easy access to marketing material promoting these farms to their end consumers. Many regional produce distributors aggregate all local products (or even local and nonlocal products) together, making farm-identification difficult.
- Producers' post-harvest handling capabilities are not compatible with distributors' requirements; i.e. quick cooling, grading and packing.

Name	City	County / State	Offers Local	Diverse Crop Mix	Farm Identified	Whole sale/ Retail	Key points of differentiation
Food Hubs							
Berkshire Organics	Dalton	Berkshire Cty, MA	Y	Y	Y	R	Sells baskets, online order, delivers
Boston Organics	Boston	Suffolk Cty, MA	Y	Y	Y	R	Seems small, year-round
Corbin Hill	NYC	NY	Y	Y	Y	W/R	Only NY
CTFarm Fresh Express	East Haddam	Middlesex Cty, CT	Y	Y	Y	R	Online, delivers locally grown foods, mostly organic
Farmer's Cow	Lebanon	New London Cty, CT	Y	N	Y	W/R	Dairy Cooperative, 6 farms
Farm Fresh RI	Pawtucket	Providence Cty, RI	Y	Y	Y	W/R	Delivers from farmers
Field Goods	Athens	Greene Cty, NY	Y	Y	Y	W/R	Subscription, pickup
Green Market Co.	NYC	NY	Y	Y	Y	W	Delivers, year round
Hartford Regional Market	Hartford	Hartford Cty, CT	Y	Y	Y	R	Independent businesses sell (tenants)
Highland Art Farm	Bloomfield	Hartford Cty, CT	Y	Y	Y	R	Collaboration between multiple CSAs
Lucky Dog	Hamden	Delaware Cty, NY	Y	Y	Y	W/R	Pickup w/ truck
MA Local Food Co-op	Gardner	Worcester Cty, MA	Y	Y	Y	R	Online ordering
RAFFL	Rutland	Rutland Cty, VT	Y	Y	Y	R	Online ordering
Red Tomato	Plainville	Norfolk Cty, MA	Y	Y	Y	R	Only logistics and branding
World PEAS Food Hub	Boston	Suffolk Cty, MA	Y	Y	Y	W/R	Partnered with Tufts, educates
Distributors							
Baldor Food	Boston	Suffolk Cty, MA	Y	Y	Y	W	Huge selection
Cedar Foods	Ward Hill	Essex Cty, MA	N/A	N/A	N/A	W	Mediterranean snacks
Coast to Coast Produce	Cheshire	New Haven, CT	N/A	Y	N/A	W	Grower, distributor

Name	City	County / State	Offers Local	Diverse Crop Mix	Farm Identified	Whole sale/ Retail	Key points of differentiation
City Line Distributors	West Haven	New Haven, CT	N/A	N/A	N/A	W	Full food service distributor
CS Brokers	Milford	New Haven, CT	N/A	N/A	N/A	W	
Dandy Distributors	Danbury	Fairfield Cty, CT	Y	Y	N	W	Mostly west CT
FreshPoint	Hartford	Hartford Cty, CT	Y	Y	Y	W	
Gordon's Food Service	Taunton	Bristol Cty, MA	N	Y	Y	W/R	
Guida's Dairy	New Britain	Hartford Cty, CT	Y	N	N	W	Only Dairy
HAFSCO	West Haven	New Haven, CT	N/A	N/A	N/A	W	Full food service distributor
Hartford Provision Company	Windsor	Hartford Cty, CT	Y	Y	N/A	W/R	HACCP/GAP/GMP processor
Heart of the Harvest	Hartford	Hartford Cty, CT	Y	Y	N	W	"Processor"
Lindley Food Service	New Haven	New Haven Cty, CT	N/A	N	N	W	School lunch, day care, seniors, processing, distribution
Map Food Service	Manchester	Hartford Cty, CT	N	Y	N	W	
Michaels Produce LLC	Hartford	Hartford Cty, CT	Y	Y	N	W	Schools, restaurants
Miller Foods INC	Avon	Hartford Cty, CT	N	N	N	W/R	Mainly poultry
Mina Foods	Milford	New Haven, CT	Y	Y	N	W	
Onofrio's Ultimate Food	New Haven	New Haven, CT	N/A	N/A	N/A	W	HACCP, GMP
Performance Food Group (Vistar)	Windsor	Hartford Cty, CT	N/A	Y	N/A	W	Wholesale distributor
Pezzelo Brothers	New London	New London Cty, CT	Y	Y	N	W/R	
Robert's Precut Vegetables	Cranston	Providence Cty, RI	N/A	Y	N	W	HAACP/Kosher
Roch's Fresh Foods	Warwick	Kent Cty, RI	Y	Y	Some	W/R	Produce processor, distributor
Sardilli Produce & Dairy	Hartford	Hartford Cty, CT	Y	Y	Y	W	Distributor, processor HACCP, GMP
Tinarose Produce LLC	Hartford	Hartford Cty, CT	Y	Y	N	W	
Thurston Foods	Wallingford	New Haven Cty, CT	N	Y	N	W	
US Foods	Norwich	New London Cty, CT	N/A	Y	N/A	W	Wholesale distributor
Waybest Foods	South Windsor	Hartford Cty, CT	N	N/A	N	W	Meat focused
Wildowski Dairy	Lisbon	New London Cty, CT	Y	N	Y	W/R	Small operations

RECOMMENDED FOOD HUB BUSINESS MODEL

The team **recommends against the development of a centralized, physical aggregation and/or storage facility**, due to the limited and highly diverse nature of interested producers who emerged and the relatively low volume of identified demand at this point.

However, primary and secondary research analysis suggests a promising foundation. Over 40 acres of fresh fruit and vegetable production could be directed into a New London County food hub in the short-term along with a relatively high volume of poultry, eggs and hogs. Additionally, a small number of medium sized wholesale buyers emerged that are interested in purchasing more CT grown products.

While these volumes are not high enough yet to justify large investments in physical infrastructure, it is a strong base upon which to launch a food hub that is focused on facilitating sales between New London County producers and wholesale buyers and increasing agricultural production in the region.

Therefore, the **team recommends that the Project Team and all local stakeholders pursue the development of a nonprofit food hub in New London County that offers a myriad of services and support to both producers and buyers.** The ultimate goal of this food hub would be to build demand and supply in the region to volumes that warrant investment in centralized infrastructure. The nontraditional food hub would aim to:

- Support producers who are interested in working with a food hub in building wholesale readiness and establishing food safety protocols and certifications for wholesale markets.
- Support producers in accessing processing services that will enable them to better serve wholesale markets, utilize their seconds, and smooth out peaks in supply.
- Help buyers secure farm products produced in New London County, to meet their current demand levels for local.
- Increase overall demand for local products in and around New London County.
- Encourage and support producers in increasing their overall production levels.

CORE BUSINESS

The food hub's primary function will be to drive sales and increase overall demand. Secondary functions will be to support logistics and distribution, and to provide technical assistance services to producers to improve their readiness for wholesale markets.

- *Sales:* Sales would be facilitated through an online marketplace. Producers would post their products online, and buyers would be able to view products, pricing and pack sizes available from each producer, and place their orders. It is yet to be determined if buyer would be transacting directly with producers, or if they would be transacting directly with the food hub (in which case the food hub would receive payments and transfer payments to producers). This can be determined in execution phases of this food hub, and does not impact the financial models.
 - The core team recommends that the food hub have a **dedicated salesperson on staff**. This salesperson will be focused on identifying and cultivating buyers in New London County and across the state, garnering their interest, understanding their requirements, encouraging regular orders from these buyers through the online marketplace, and ensuring customer satisfaction. Note that ultimately, the food hub's role is to get buyers to engage with the online marketplace, help producers maximize the quality of their product and encourage buyers to maximize their purchase volumes. The food hub is not purchasing products and then selling these products to buyers.
- *Branding, marketing and consumer education:* An important role of the food hub will be to catalyze increased demand for local farm products. This can be driven by several steps, including:
 - Consumer education – Campaigns that educate end consumers about the benefits of eating local farm products on health and wellness, environmental protection, and local economic development.
 - Buyer education – Campaigns that educate wholesale buyers on the benefits of local, including the impact on taste and yield and the ability for buyers to promote local sourcing efforts to end consumers. The food hub could help establish and organize collective initiatives that encourage businesses to “buy local.”
 - Branding and marketing material – While neither buyers nor growers suggested that a regional brand representing New London County farm products is critical, most did emphasize the importance of farm identification. The food hub can help ensure farm identification is maintained throughout the order purchasing and fulfillment process, and develop farmer-specific point of sale material that buyers can easily print and utilize in their cafeterias to promote their local sourcing efforts to customers. An effective online marketplace system can facilitate this, as all farmer information and pictures can be stored on producers' profile pages, and can be used to develop printable marketing material.

LEGAL ENTITY

The core team recommends that the food hub be structured as a not for profit entity. The entity could be a 501(c)3 nonprofit, a private/public partnership or a cooperative.

INFRASTRUCTURE AND TECHNOLOGY

- *Online marketplace:* Given the level of interest that emerged from both producers and buyers in an online marketplace or purchasing model, the core team recommends that the food hub establish an online portal through which producers can post their available products and buyers can place orders (from the food hub or directly from growers). The online portal should be simple for both producers and for buyers, and should streamline communication between the two. Potential online models to look at include Farmers Web, Farm Fresh Rhode Island, Local Food Marketplace, 47 Farms and Local Orbit.
- *Cold storage:* Cold storage – critical to maintaining quality and safety through the supply chain – is lacking among many interested growers, including both produce and protein producers. The core team recommends that the food hub facilitate shared aggregation between growers and provide them with access to cold and frozen storage capacity. This can be provided through a combination of:
 - The food hub investing in small scale frozen or cold storage facilities, such as reefer coolers, located in clusters of interested producers across New London County.
 - Establishing growers and buyers who have excess frozen and cold storage capacity as storage providers. The food hub can coordinate between these providers and producers who are seeking cold storage capacity, help set appropriate monthly fees, and support payment handling and transactions as needed.
 - The food hub identifying existing cold storage rental facilities, establishing competitive rates, and coordinating services between interested producers and these facilities.
- *Logistics:* The core team also recommends that the food hub facilitate pick-up services and delivery to buyers. The hub's business model should incorporate one or more of the following three distribution strategies.
 - In-house distribution: Lease refrigerated delivery vehicles and hire an in-house driver to support distribution.
 - Shared distribution: Facilitate shared distribution among growers, leveraging growers' existing routes and excess capacity in their vehicles. Note that just one grower has thus far emerged with the capability and interest in providing shared distribution services to fellow growers.
 - Outsourced distribution: Enlist third party logistics providers to pick up and/or deliver to buyers. **3PL providers** could include buyers who provide backhaul services, distribution providers and bidders on technology platforms such as Farmers Web.

Note that in instances when the food hub is distributing products for producers, the hub would take ownership of the product while it is in transit.

COLLECTIVE PURCHASING

Current aggregation efforts, especially the Farm to School processing kitchen, have proven that many producers can find the cost of acquiring packing materials (e.g. product specific wax and cardboard boxes) that meet the food safety standards of some wholesale and institutional customers, cost prohibitive. This is often the case because producers may not have the financial means or storage capabilities to take advantage of some of the bulk discounts available by packaging manufacturers. If a food hub was able to purchase and store a large number and variety of boxes, producers may be able to purchase them through the hub either at cost or with only a marginal handling fee associated. If the food hub begins to physically aggregate product, the cost of the boxes could be deducted from the price of their products.

ADDITIONAL SERVICES

Finally, the core team recommends that a food hub provide a myriad of support services to support producers and enable them to more successfully sell to wholesale markets. The term "Value Chain Facilitation (VCF)" is often used to describe these types of functions. The following are specific services that have emerged as critical among interested growers.

- **Wholesale readiness training:** Often when producers begin to transition from direct to consumer to wholesale sales channels, they need support and training to meet the requirements of this new buyer set. Wholesale buyers, who typically purchase from more conventional and international supply chains, need uniform pack sizes (number of units in a case), cases packed with produce that meet industry-grading specifications (size, shape, color, volume of actual product) and vendors that comply with food safety and liability requirements. Direct to consumer sales channels typically do not have these requirements. The core team recommends that the food hub work with nonprofits and/or extension offices to conduct and market wholesale readiness training sessions.
 - **Partners:** While UCONN Extension has not held a wholesale readiness training within the state (to the knowledge of the research team), they have collaborated with Farm to Institution New England (FINE) to conduct these trainings throughout New England, which CT producers have attended. Nationally, FamilyFarmed.org conducts wholesale readiness trainings nationwide. Interested organizations and communities can apply to host one of their workshops that are free for producers.
 - **Role of a Food Hub:** It is recommended that the food hub support these wholesale readiness trainings by identifying producers who are likely participants, marketing the event to these growers and helping to secure financial support to enable farmers to attend.
- **Food safety support:** As noted above many larger buyers have stringent food safety and liability requirements, including on-farm food safety plans and GAP (Good Agricultural Practices) certification. Acquiring these food safety levels can be challenging and expensive for producers because of the protocols that need to be put in place, the amount of compliance paperwork as well as the audit and inspection cost. There are currently initiatives underway to help offset the cost and time accompanying these certifications, one example being Group GAP. Instead of each farm undertaking GAP certification and hiring a third party auditor, regional producers are pursuing GAP in collaboration, amortizing audit and auditor travel costs across multiple growers and completing the pre-audit paperwork with the support of a single food safety expert.
 - **Partners:** UCONN Extension can offer one-on-one support for producers looking to become GAP certified. In terms of Group GAP Certification, no local partners were identified in the research, there are national organizations piloting Group GAP in several communities throughout the country. USDA Agricultural Marketing Services and the Wallace Center at Winrock International are involved in the implementation and evaluation of this program and will likely publish findings that can support Group GAP initiatives.
 - **Role of a Food Hub:** It is recommended that the hub help catalyze partners to provide these food safety supports and organize Group GAP certification programs.
- **Proteins processing coordination:** Many protein producers (especially pork producers) spend a great deal of time transporting product to slaughter and processing facilities throughout the region. It is recommended that a food hub facilitate transportation to and communication on behalf of these producers, with the various processors throughout Connecticut and neighboring states. A few examples of support a food hub may be able to provide for protein producers include:
 - Scheduling slaughter slots with slaughter facilities on behalf of the producer.
 - Cold chain management of product, such as transporting slaughtered animals to specialty processors for further processing (e.g. pork to sausage) and delivering processed product back to their farm or to a customer that the producers have arranged.
 - Providing storage facilities for frozen and/or fresh product
- **Produce processing coordination:** To meet the needs of buyers (especially institutional buyers) who often want fresh cut or frozen produce, a food hub can either invest in processing equipment or coordinate with existing processors to have local product processed under a food hub or individual farm label. It is recommended that the food hub establish relationships with local processors and shared-use kitchens, and coordinate between producers

seeking processing support or equipment. The region has several unique initiatives in place that make this strategy particularly viable in New London County. In 2013, Norwich Public Schools was awarded a grant of \$49,999 with a commitment for 100% matching funds from the school district to create and institute a processing kitchen in one of its schools. That school now acts as a central processing kitchen for others schools within the district. New London Public Schools is also interested in building a processing kitchen and may be able to incorporate this into the remodeling of one of their schools in the next three years. To date, schools have coordinated these processes internally, but with the development of a food hub with a value chain facilitation component, this food hub may be able to play a productive role in supporting this process. In particular, they can educate producers about these opportunities, enabling them to better plan for what products to produce, and what types of processing would be attractive to buyers.

- **Demand and production planning:** Because food hubs connect producers and buyers, they are well positioned to work with producers to plan their production to meet the stated needs (both product type and volume) of interested buyers and help ease some of the burdens felt by producers when the market is flooded with one type of product. Production planning can range from staggering production to suggesting new varieties of product that are being requested by buyers.
- **Funding support:** Food hubs can support regional agriculture by helping to secure funding to support producers looking to scale up, diversify or extend their production. From funding for additional land acquisition to seasonal extension, a food hub can work to obtain grant and investment funding that can support agriculture within their region.

PRODUCTS

The proposed food hub would focus on vegetables, meat, and poultry, products that are produced by interested growers in fairly high volumes and for which coordination and support services would be extremely valuable.

While the food hub will facilitate sales and foster connections for producers and buyers of all items in the above product categories, survey data identified the following as the top products of interest: **Potatoes, squash, greens, tomatoes, lettuce, chicken and pork.**

REVENUE MODEL

The hub will earn income through several revenue streams.

- The hub would charge a brokerage fee or markup on each transaction it facilitates, either offline or through the website. This fee would be fixed or a percentage of sales, and be driven by the specific service provided for each transaction including sales brokering and distribution.
- The hub would also charge a markup on collectively purchased goods.
- The hub will charge monthly storage rental fees and distribution fees to producers who are leveraging these services.

Earned income is unlikely to cover the hub's operating costs, both because the overall volume of transactions will remain fairly small (especially in early years) and because of the myriad of important additional services the hub will provide or support, including wholesale readiness training and processing coordination. Therefore, it is assumed that this food hub will access grant funding on an annual basis to cover operating losses.

BUSINESS ANALYSIS

FINANCIAL MODEL ASSUMPTIONS

The following assumptions will be used to create a financial model simulating the business P&L (profit and loss statement) at steady state. This model forecasts the hub's cash flow, to predict if the business is likely to be successful within a reasonable risk tolerance. The model will use "base case" assumptions that are derived from the business model decisions that are outlined above. While these assumptions are based on rigorous research and are vetted against comparable industry models, they should not be viewed as exact revenue and cost figures. The actual cost, revenue and budget figures will vary based on final decisions made by the hub's management team, as well as market conditions.

OVERALL VOLUME

Produce Sales: The base case of supply for the model assumes that 40 acres of specialty produce will be sold through the food hub at steady state. This is based on the following survey results and assumptions related to available supply among interested grower respondents:

- Sixteen growers are interested in selling to the food hub and 11 interested growers indicated the volume that they would like to sell to the food hub. These 16 growers collectively have 180 acres under production, and are looking to sell output from 40 of these acres to the food hub.
- Interested producers have 16 potential expansion acres. Additionally, one interested grower indicated that they can expand to as many acres as needed. The base case for the financial model will assume that only current production among interested producers is available for this hub; however, an additional set of scenarios will be modeled in order to understand the upside potential for the food hub should interested growers expand their production capacity to these additional acres.

40 acres of production in New London County yields approximately **36,473 cases annually** – based on an average yield per acre of 25,112 pounds and 31 pounds per case for the top crops identified by grower and buyer survey respondents.^{69 70}

Demand has not been identified for this volume of produce. 36,473 cases of produce represent approximately \$860K in annual sales.

Interested buyers who responded to our survey indicated that they purchase a total of \$2.3M in whole produce purchases each year. These 10 interested buyers are currently purchasing 26% of their produce locally, for a total spend on local produce of \$598,000.

The food hub may be able to capture 10% of total produce spend among these buyers (the equivalent of 43% of buyers' current spend on locally grown produce). It is unlikely that the hub could capture more than 10% of buyers' produce spend given the constraints of the limited product diversity that producers would make available, the low prevalence of season extension among producers, and the inherent limitations of this business model which will not be able to move large volumes of product. Capturing 10% of this total spend results in \$230,000 in annual revenue from interested buyers.

The throughput of the financial model for this food hub will therefore be driven by demand, and is assumed to be \$230,000 annually in terms of produce sales to buyers.

Protein and egg sales: Buyers purchase approximately \$4.2 million in proteins and dairy annually.

⁶⁹ Average yield per acre based on research conducted by Cornell Extension

⁷⁰ Average pounds per case for top crops based on North Carolina Extension Services – Pack Size Reference Guide

Protein producers are raising hogs, hens and chickens, a set of products that represents only a portion of buyers' full set of spend in this overall category. Input from protein producers suggested the importance of their being able to secure high prices for their products; while buyers indicated relative price sensitivity for all products. Additionally, protein producers are constrained by their ability to access slaughter and/or processing facilities. Addressing this challenge will be the food hub's primary focus with respect to protein producers. All of these factors suggest that the hub may not be well positioned to move significant supply of proteins, especially early on, suggesting that capturing more than 3% of their total spend would be difficult.

Therefore, the baseline model assumes that no more than 3% of these sales can be captured by the food hub, resulting in \$126,000 in annual sales to buyers.

It is assumed that one-half of protein sales is in pork, one-quarter is in whole chickens, and one-quarter is in eggs. This is driven by the mix of protein and dairy supply among interested producers identified through the survey.

PRODUCT MIX AND PRICING

While the food hub will facilitate sales and foster connections for producers and buyers of all produce, meat and poultry items data identified the following as the top products in production and of interest among buyers: potatoes, winter squash, tomatoes, lettuce, kale, chicken and pork. Other products that will be moved, but are currently available in lower quantities include beets, carrots, onions and peppers. The business model assumes that producers are setting their own prices (acting as "price makers") for buyers. This assumption is driven both by stated requirements from interested producers and the core business model through which sales are driven by producer and buyers transacting via an online marketplace where producers post and price their own products.

Produce case pricing: The assumed average case price that growers will charge buyers is based on the average trailing 12-month Boston terminal market price for the product list outlined above. Average case price is weighted by crop according to their seasonal availability.

Boston Terminal Market pricing is available for organic products for only three of the crops listed above. Among these crops, organic products secured a 10.5% price premium. Because this data is extremely limited, the model assumes a 40% premium for organic products on top of the conventional price point. This is based on the Rodale Institute's current comparisons of conventional versus organic produce across the Northeast.

A 15% local product premium is applied, assuming that the operator is successful in capturing a higher price on the basis of higher quality and longer shelf life.

This results in \$23.31 weighted average case price to buyers. The actual price will fluctuate widely – base case is assumed as the average, and high/low scenarios are tested.

CROP	CASE PRICE	WEIGHTING
Beets	\$14.77	5%
Carrots	\$20.93	4%
Greens	\$17.38	4%
Kale	\$16.54	7%
Lettuce, Boston	\$20.27	5%
Lettuce, Green Leaf	\$19.43	5%
Lettuce, Iceberg	\$23.40	5%
Lettuce, Red Leaf	\$18.71	5%
Lettuce, Romaine	\$21.85	5%
Onions	\$16.88	3%
Peppers, Bell	\$17.73	3%

Potatoes	\$25.46	23%
Squash	\$13.75	18%
Tomatoes	\$18.72	8%
Weighted Average Conventional Price	\$19.46	100%

	PRICE	% OF TOTAL SUPPLY
Conventional price per case (from above)	\$19.46	87%
Organic price per case (40% premium)	\$27.24	13%
Weighted average	\$20.49	
15% local premium	\$23.57	

Protein pricing: Two year historical market pricing analysis indicates that whole chickens have sold for an average of \$1.53 per pound and pork has sold for \$4.19 per pound (averaged across a variety of common cuts).⁷¹ The price per pound for whole chickens is utilized (versus price for cuts of chickens) because input from interviewees suggested that, particularly in the absence of new investments in poultry processing facilities across the state, this is how most interested producers would need to sell their products. Two year average pricing for large eggs delivered to store door is \$2.27 per dozen.

A 15% local premium is applied to these prices, based on national averages of local meat and dairy pricing when compared to standard, conventional pricing.

CORE REVENUE MODEL AND FARMER MARGIN

The hub would charge a brokerage fee or markup on each transaction it facilitates, either offline or through the website. The model assumes multiple tiers of fees:

- 6% per transaction as a baseline broker fee, as compensation for the hub's role in facilitating sales and marketing for producers, managing the relationship with the online marketplace provider. This is significantly lower than many brokers and food hubs in the market. Traditional produce brokers charge 5-20% per sale. Red Tomato, a nonprofit food hub in Massachusetts, charges 10%. This fee will be applied to each transaction, and be paid for by producers.
 - Note that half of this fee would be leveraged to pay for the online marketplace, many of which charge 1-3% per transaction for their platform.
- 20% of total sale is for physical distribution of goods between producers and buyers (charged in addition to the transaction price). It is assumed that this fee will be applied to each transaction for which the hub is facilitating delivery. The fee will be paid for by producers; and many producers may choose to add some or all of this cost of distribution into their produce per goods (ensuring that buyers cover some portion of the cost of distribution).

The 20% distribution fee is competitive based on national averages,⁷² and is designed to ensure that the revenue generated by distribution covers the costs of delivery labor, vehicle maintenance and diesel while also generating a small margin for the organization.

It is assumed that 40% of transactions will require the food hub to distribute from the farm to the buyer, based on both the percent of producers who have refrigerated logistics capabilities and initial feedback gathered from producers on

⁷¹ http://www.bls.gov/regions/mid-atlantic/data/AverageRetailFoodAndEnergyPrices_USandMidwest_Table.htm

⁷² Based on industry averages for distribution, which average 20% and do not exceed 30-40%, according to <http://www.tom-gray.com/2012/04/26/pricing-to-distributors-what-is-reasonable-markup/>

this fee structure. Other transactions will either be moved by the producer, or be moved by a third party logistics provider. With third party logistics providers, the producer will transact directly with the logistics company.

Finally, the hub will also charge monthly storage rental fees and distribution fees to producers who are leveraging storage services provided by the hub. Producers will be charged \$30/pallet/month plus an in and out fee of \$25 and a pick fee of \$0.35/case.⁷³ It is assumed that nine growers will take advantage of the storage service, as nine interested producers indicated that cold storage was extremely or very important to them. On average, these growers will rent four pallets per month, turn their products four times per month, and that each pallet hold 35 cases of product on average.⁷⁴

COLLECTIVE PURCHASING

The food hub can purchase skids of cardboard and wax produce boxes from ULINE at a cost of \$1.60-4.25 per box (180 boxes per skid), depending on the size and style, and resell them to growers at a 35% markup after COGs. This markup enables the food hub to earn income for providing a service at the same time that it provides valuable produce boxes to its members at competitive prices.⁷⁵

Assuming that the food hub can provide growers with 50% of the boxes they require on an annual basis for the cases the food hub will help distribute each year, the food hub can expect to sell \$19,267 in the sale of wax corrugated each year.

Cost of goods includes the price of purchasing each box, shipping (a total of \$217.48 delivered for 5 skids), labor (assumed to be \$11.80/hour for 1 hour per skid), and storage (estimated to be \$50 per skid, depending on the velocity at which these boxes turn on the shelf).

DISTRIBUTION COSTS

Labor is assumed to be \$11.40/hr,⁷⁶ and inbound and outbound deliveries are assumed to take place four times per week. On average, one eight hour delivery shift will cover approximately 150 miles. Diesel fuel currently costs an average of \$2.50 per gallon in the Northeast but our model assumes \$3.00 per gallon to adjust for today's low oil prices.⁷⁷ The baseline financial model assumes 16 miles per gallon for a refrigerated diesel sprinter van.⁷⁸

A refrigerated reefer sprinter van will cost \$1,400 per month to lease,⁷⁹ insurance is expected to cost roughly \$2,000 per year, and permits and tolls will be \$500 per year.

The food hub should expect to make deliveries for 6-8 months a year based on the prime months that their product set will be available. Assuming an 8-month delivery schedule, this brings the total estimated cost of making deliveries to \$30,234 per year.

FACILITIES COSTS

The food hub will have approximately 200 square feet⁸⁰ of office space in New London County. The market rate of this office space would be approximately \$11.75/sqft per year for rent⁸¹ and \$3.30 per square foot for utilities and

⁷³ Based on conversations with local Northeastern providers of cold storage, including Greens and Grapes (NY), Kreider's Cold Storage (PA), and Polar Crossing (NY).

⁷⁴ Based on feedback from food hubs nationwide

⁷⁵ In order to determine the appropriate markup, we researched the cost of purchasing boxes in lots of 90 and included a 20% markup in order to determine the food hub's retail price to its growers.

⁷⁶ Based on MIT's Living Wage Calculator: <http://livingwage.mit.edu/counties/09011>)

⁷⁷ <http://www.eia.gov/petroleum/gasdiesel/>

⁷⁸ <http://sprinter-source.com/>

⁷⁹ Ryder, including maintenance.

⁸⁰ Based on ~225 square feet per person for 2.5 employees, per <http://www.officefinder.com/how.html#sthash.pL7uRBe6.dpbs>

maintenance.⁸² However, as the food hub is structured as a nonprofit and would operate through informal and formal partnerships with various for-profit and nonprofit entities in the county, it is assumed that this office space and related utilities, equipment and office supplies will be donated from a local company.

While the food hub will not have a central warehouse with cold storage capabilities, it will set up three reefer trailers across New London County for producers to use for cold storage. These will cost an estimated \$1090 per month,⁸³ plus an additional \$110/mo in utilities and maintenance each. Assuming 8 months of use, the total cost comes to \$28,800 per year, or \$9600 per reefer.

SG&A AND PERSONNEL

The model assumes that at steady state, the entity would have one full-time Executive Director, a full-time salesperson, and a full-time operations person, as well as an hourly driver.

- The Executive Director's salary is assumed to be \$75,000/year, based on comparable salaries as found in Indeed.com in the region. This person will be responsible for general management of the entity, fundraising, board development and management, hiring and partnership development.
- The salesperson's salary is assumed to be \$60,000/year, based on comparable salaries as found in Indeed.com in the region. This person will be responsible for all components of sales and marketing - developing a pipeline of customers, managing the online marketplace and transactions support, supporting the branding and marketing elements of the food hub, etc.
- The operations person's salary is assumed to be \$50,000/year, based on comparable salaries as found in Indeed.com in the region. The operations person is responsible for coordinating with producers and supporting them in their uses of the online marketplace, managing the cold storage facilities, managing the fulfillment of transactions across the supply chain, and coordinating between producers and processing / slaughter facilities.
- The driver is paid \$11.40/hour, based on MIT's living wage calculator.

Payroll taxes and benefits are estimated to be 24% of gross wages for the 3 FTEs.

The model assumes \$12,000 in annual costs for marketing and branding, including brand development and maintenance, printing of marketing material, website design, hosting and maintenance, etc.⁸⁴ It is likely that this will be structured as a \$1000 monthly retainer. Note that these cost assumptions do not include startup costs associated with branding and marketing.

The model assumes \$10,000 per year to pay contractors and outside agencies for technical assistance support services and training for its network producers.

Additional SG&A includes cell phones and computers for three full-time staff members, bookkeeping, tax and legal services, and liability insurance – which collectively total approximately \$18,100. These assumptions are based on national industry averages.

STEADY STATE FINANCIAL PRO FORMA P&L

As outlined in the following pro forma P&L, based on the steady state financials outlined above, this nonprofit food hub would **generate approximately \$100,000 in earned income annually**, with a gross margin of 16%, or \$16,000.

⁸¹ Loopnet: [http://www.loopnet.com/xNet/MainSite/Listing/Search/SearchResults.aspx#/New-London,CT/All-Types/For-Lease/c!ARYC\\$BAQ](http://www.loopnet.com/xNet/MainSite/Listing/Search/SearchResults.aspx#/New-London,CT/All-Types/For-Lease/c!ARYC$BAQ)

⁸² Businesses pay an average of \$1.34 per square foot on electricity and 18 cents per square foot on natural gas for utilities, according to Officefinder.com.

⁸³ <http://www.polarleasing.com/>

⁸⁴ These figures are based on ongoing conversations with marketing, branding, and website development agencies.

Operating all components of the food hub, including the robust value chain facilitation services described above, will require an annual operating budget (or SG&A – Sales, General & Administrative) of \$270,000.

This food hub would need to secure annual grants of \$254,000 to offset its annual losses. Until sales volumes can be significantly increased beyond the \$356,000 identified through this research based on buyer and producer interest, it is unlikely that the hub could secure debt funding given the low gross margin and high annual losses.

	Total	% of Sale
<i>Total product sales (to buyer)</i>	\$ 356,000	
Food hub revenue	\$ 99,059	
Brokerage	\$ 21,360	
Distribution	\$ 28,480	
Storage	\$ 29,952	
Collective purchasing	\$ 19,267	
Cost of Goods Sold	\$ 83,280	84%
Technology platform	\$ 7,120	
Distribution	\$ 30,234	
Storage	\$ 28,800	
Collective purchasing	\$ 17,126	
Gross Margin	\$ 15,779	16%
SG&A	\$ 269,500	272%
Staff salaries	\$ 185,000	
Fringe and benefits	\$ 44,400	
Marketing and branding	\$ 12,000	
Other	\$ 28,100	
Operating Losses	\$ (253,721)	

This food hub would need to generate \$2.5 million in earned income in order to break even, generating enough revenue to cover both its costs of goods sold and organizational overhead. This breakeven scenario assumes that the hub would secure significant volume discounts on its collective purchasing of supplies and would achieve efficiencies by maximizing utilization of its delivery fleet.

	Total	% of Sale
<i>Total product sales (to buyer)</i>	\$ 2,479,000	
Food hub revenue	\$ 539,032	
Brokerage	\$ 148,740	
Distribution	\$ 198,320	
Storage	\$ 89,856	
Collective purchasing	\$ 102,116	
Cost of Goods Sold	\$ 268,718	50%
Technology platform	\$ 49,580	
Distribution	\$ 76,234	
Storage	\$ 86,400	
Collective purchasing	\$ 56,504	
Gross Margin	\$ 270,314	50%
SG&A	\$ 269,500	50%
Staff salaries	\$ 185,000	
Fringe and benefits	\$ 44,400	
Marketing and branding	\$ 12,000	
Other	\$ 28,100	
Net Income	\$ 814	

Assumes that income generated by the nonprofit entity would not be subject to UBIT (unrelated business income taxes) given that all income generated would advance its charitable mission.

PHASE I ASSUMPTIONS AND FINANCIALS

The assumptions and financials outlined above describe the food hub at steady state, or approximately three years after the organization's launch.

It is recommended that the food hub focus on a small subset of services in its first year of operation that serve as the most critical foundation to the organization's long term success.

Foundational services to be included in Phase I include:

- *Brokering sales through an online marketplace:* In year 1, this marketplace is unlikely to generate significant revenue, but is a critical foundation to the hub's long-term success. In its first year, ~\$65,000 in product sales could be moved by an online market place. The food hub would charge its 6% broker fee during Year 1, and would pay a technology provider ~2% of sales for its online marketplace functionality and hosting.
- *Executing distribution between producers and buyers:* Because limited delivery capabilities is one of the biggest obstacles for growers, it is recommended that the hub begin offering this service in Year 1. It is assumed that 50% of all transactions would be moved by the hub, and that the hub would lease a significantly smaller vehicle than would be needed in subsequent years (at a lease cost of \$900 per month for eight months versus \$1,400 per month). Additionally, deliveries would take place only 1-2 days per week (versus four days per week at steady state). The food hub will lose money offering this service in its first year.
- *Branding, marketing and consumer education:* Catalyzing increased demand for local farm products through consumer education, buyer education, and the development of a strong brand and associated marketing material.
- *Critical value chain facilitation services that will enable the expansion of supply over time:*
 - Wholesale readiness training, in partnership with organizations such as UCONN Extension, Farm to Institution New England (FINE) and organizations like FamilyFarmed.org.

- Food safety support, helping growers institute on-farm food safety plans and pursue GAP (Good Agricultural Practices) certification.
- Demand and production planning, working with producers to plan their production to meet the stated needs (both product type and volume) of interested buyers and help ease some of the burdens felt by producers when the market is flooded with one type of product.

After Phase I is launched and demonstrating initial success moving products, generating a buyer pipeline and supporting producers in wholesale readiness, the following services will be pursued:

- Value Chain Facilitation services including coordination and support of produce and proteins processing, as well as helping producers connect with funding opportunities.
- Storage and collective purchasing services.

The food hub would require \$65,000 in annual gross staff compensation. This may cover the annual cost of a single person who can manage all aspects of the hub in its first year, or two part-time working during the peak eight months of the year.

The hub's marketing and branding budget would remain high at \$10,000, but only \$5,000 is budgeted for contractor services to support technical assistance services. All other SG&A items (including bookkeeping, tax and legal services, insurance, licenses, and technology) would require \$9,100.

Based on these Phase I assumptions, the food hub would need to raise approximately \$110,000 in Year 1 to execute on these core services.

	Total	% of Sale
<i>Total product sales (to buyer)</i>	\$ 67,000	
Food hub revenue	\$ 10,720	
Brokerage	\$ 4,020	
Distribution	\$ 6,700	
Storage	\$ -	
Collective purchasing	\$ -	
Cost of Goods Sold	\$ 14,173	132%
Technology platform	\$ 1,340	
Distribution	\$ 12,833	
Storage	\$ -	
Collective purchasing	\$ -	
Gross Margin	\$ (3,453)	-32%
SG&A	\$ 104,700	
Staff salaries	\$ 65,000	
Fringe and benefits	\$ 15,600	
Marketing and branding	\$ 10,000	
Other	\$ 14,100	
Operating Losses	\$ (108,153)	

RECOMMENDATIONS AND NEXT STEPS

The team recommends that a nonprofit New London County food hub be established, with a mission of building supply and demand of local food across the county, to support health and wellness, economic development and agricultural producers. At steady state, the food hub would provide a myriad of services, including:

- Facilitating sales to a variety of buyers through an online marketplace
- Developing a robust branding, marketing and consumer education campaign
- Providing small scale, decentralized cold storage services for producers
- Facilitating pick-up from farms and delivery to buyers, through in-house delivery and connecting producers with logistics providers
- Providing collective purchasing of key supplies, including product specific wax and cardboard boxes
- Value chain facilitation services, including coordinating wholesale readiness training and food safety support with local partners, connecting producers to protein and produce processing services, facilitating pre-season demand and production planning, connecting producers to funding options

This nonprofit food hub would generate revenue through a variety of different lines, and would raise grants to support its launch and offset its annual operating losses. The hub's long-term goal would be to catalyze the development of a larger, for-profit food hub with a central warehouse that can procure and sell over \$1 million in local farm products annually. Depending on key variables, such as product categories moved, pricing and margin structure, and local real estate and labor costs, an aggregation / distribution food hub typically must generate \$1 million - \$3 million in revenue in order to break even.⁸⁵

In year 1, it is recommended that the food hub launch with narrow, Phase I focus on a strategic subset of the full suite of services that would be offered at steady state. Phase I services will include:

- Brokering sales through an online marketplace
- Executing distribution between producers and buyers
- Branding, marketing and consumer education
- Top Value Chain Facilitation services, including coordinating wholesale readiness and food safety training, and preseason demand and production planning

The team recommends that Phase I of this food hub be launched under the leadership and umbrella of an existing nonprofit organization that already has a strong presence and reputation among agricultural producers and local food systems. The hub would become a separate initiative or program within this organization, with dedicated resources and staff.

The organization would need to raise approximately \$110,000 in Year 1 to launch the hub. Long-term the hub may be spun off as a separate nonprofit entity or be maintained as a program within the nonprofit.

NEXT STEPS

On September 23, 2015, the Project Team approved the recommendations to move forward with Phase I of the proposed New London County food hub, moving the project into the next phase of planning and launch.

Critical next steps include:

- **Identifying incubating nonprofit organization:** Several organizations exist in the county that might effectively incubate this hub. The Project Team's most immediate next step is to meet with potential incubating organizations across the county and identify the right one to launch and incubate this food hub within.

⁸⁵ 2013 NGFN Food Hub Survey; input from best practice research

- ***Developing a strategic plan and detailed budget for food hub:*** This step is akin to the development of a business plan for a for-profit food hub. The step adds further rigor to the above feasibility study assumptions and business model, with partners identified, monthly and annual pro forma P&L and budget, comprehensive sales and marketing, and a detailed operations plan including vendors and locations for reefer coolers and distribution vehicles. This plan is critical for some grant or public funders, and will enable the incubating nonprofit to appropriately plan for and execute on the food hub.
- ***Securing funding:*** Securing grant funding is critical to the identified nonprofit's ability to launch and grow this food hub. Grant options include USDA (including the Local Food Promotion Program implementation grant and rural development grants) and foundations focused on health, wellness, agriculture, sustainability and economic development.
- ***Maintaining engagement from producers and buyers:*** Mobilizing and further cultivating buyers and producers who emerged as interested throughout the study. Because the process of securing an incubating nonprofit organization, identifying funding sources, and launching food hub operations as described in this document will require six to twelve months, it is critical that the Project Team effectively communicate out study findings and next steps, and maintain commitment from buyers and growers in this interim time period.

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