

HUDSON VALLEY FOOD HUBS INITIATIVE

Research Findings and Recommendations



*Research conducted by Hudson Valley Pattern for Progress and the Urban Design Lab at the Earth Institute, Columbia University
Funded by the Local Economies Project*



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The Local Economies Project of the New World Foundation would like to thank the researchers, advisors, project partners, and all of the people who attended our listening sessions and agreed to be interviewed for this report. The overwhelming lesson of this past year is that there is immense dedication and knowledge in the Hudson Valley food system. It is our hope to continue to support and enhance these resources in the Hudson Valley to achieve a more resilient food system for the benefit of farmers and local communities.

We also owe a debt of gratitude for the time and valuable contributions of our advisory team and report reviewers:

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At the Local Economies Project (LEP), we believe that resilient agriculture is a cornerstone of local economies because farming sits at the intersection of health, the environment, education, business and economics. It is the primary objective of LEP to help identify and catalyze the necessary resources to develop a replicable model for local economic and community development, focusing on regional farmers and encouraging ongoing efforts to create a truly sustainable regional food system. We also believe that the Hudson Valley is an ideal place to demonstrate how this can be accomplished.

We recognize the many challenges facing agriculture and regional food systems. These include unpredictable weather in the face of climate change, the economic and structural challenges of a global food system, and the non-farm development pressure here in the Hudson Valley. We are also deeply committed to the idea that a sustainable food system is one that provides everyone access to high quality food. It is a tremendous comfort to know that the natural resources, human capital, and diversity of farming in our region provide both hope and opportunity for a very bright future here.

Our theory of change calls for a phased approach that begins with ensuring local ownership and economic viability of our farms and related businesses. As part of this effort, LEP commissioned a study from Hudson Valley Pattern for Progress, which engaged the very talented Sarah Brannen in its design and implementation. The study focuses on infrastructure issues for regional food systems, with a particular focus on the emerging interest in Food Hubs as a way to strengthen regional food systems. Broadly stated, the goal of the study is to analyze how to build capacity and infrastructure for the benefit of the Hudson Valley Region's farmers, citizens and communities.

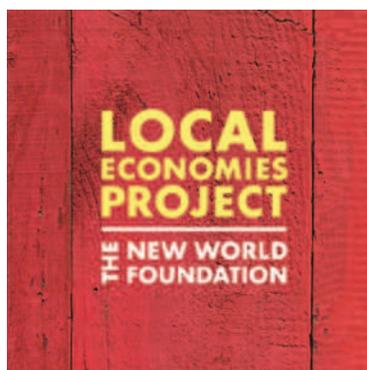
At LEP we are pleased to present this report and welcome the discussion that it will stimulate. Working together with interested partners, we can make dramatic changes happen relatively quickly. Ultimately, this hastens the potential for our larger goals to unfold – a truly just food system that ensures healthy food for all, nurtures our environment, promotes fair trade and labor practices, and builds wealth at the local level.

We thank everyone who contributed to this report and look forward to our future work together.

Sincerely,

Bob Dandrew

Director, Local Economies Project
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TABLE OF CONTENTS

1.	Executive Summary.....	ii
2.	Introduction.....	1
3.	Study Scope.....	3
4.	Context for Food Hub Development.....	5
5.	Testing a New Infrastructure Concept: Food Hubs.....	15
6.	Food Hubs Best Practices.....	21
7.	Examining Hudson Valley Food Value Chains.....	27
	<i>Fruit</i>	27
	<i>Vegetables</i>	36
	<i>Dairy</i>	44
	<i>Meat and Livestock Products</i>	50
	<i>Poultry and Eggs</i>	60
	<i>Grain</i>	65
	<i>Cross-cutting Themes</i>	69
8.	Conclusions and Recommendations.....	77
9.	Next Steps for Implementation.....	87
10.	Endnotes.....	92
11.	Appendices.....	101
	<i>Appendix 1: Methodology</i>	101
	<i>Appendix 2: Best Practice Review</i>	106
	<i>Appendix 3: Buyer Questionnaire</i>	113
	<i>Appendix 4: Distributor Questionnaire</i>	125
	<i>Appendix 5: Farmer Questionnaire</i>	142
	<i>Appendix 6: Processor Questionnaire</i>	155

EXECUTIVE SUMMARY

INTRODUCTION

This study occurs at a time when much of the national focus on local and regional food system development is turning to the need for infrastructure. After several generations of decline in the number of farms and farmland acres, along with increasing consolidation in the food system, there is now a strong and growing consumer demand for locally and sustainably produced food. Whether through farmers markets, community supported agriculture (CSA) programs, farm-to-institution initiatives, restaurants or grocery stores, the demand for local and sustainable food shows no signs of abating.

Although there has been progress in recent years in building consumer awareness about food, expanding direct-to-consumer market venues, and enacting policies to support local and regional food systems, many researchers and practitioners have concluded additional focus must be made on scaling up these efforts. The dialog among these researchers and practitioners is now focused on the means for increasing the scale of local food systems and helping small and mid-sized farmers access larger volume, wholesale markets. Past research has concluded that doing so will require a greater focus on aggregation, processing, and distribution infrastructure to better connect farmers in the local food system to these new market outlets. Food hubs have arisen as one means for addressing the need for infrastructure to scale up local food distribution and assist small and mid-sized farms access new markets.

STUDY SCOPE

A broad mission guided this study: build the capacity and infrastructure of a resilient food system for the benefit of Hudson Valley farmers and communities. To that end, this study sought to identify potential infrastructure challenges that hinder the growth of the local farm economy and whether food hubs could be one means for addressing these potential issues. Our research answers three specific questions:

Research Question 1: Are food hubs needed to support and strengthen sustainable agriculture and a regional food value chain in the Hudson Valley?

Research Question 2: Which food hub features could most benefit Hudson Valley farms and communities?

Research Question 3: Who are the potential partners for food hub development in the Hudson Valley?

To answer these research questions, we gathered qualitative and quantitative information. We analyzed data on agricultural production, processing, distribution, and food consumption in the Hudson Valley, New York City, and broader Northeastern regions. Additionally, we interviewed 113 farm and other food businesses, convened an advisory group, and held seven listening sessions attended by more than 200 people.

To determine whether food hubs would be a successful means for addressing any potential infrastructure gaps, we reviewed current literature on food value chains and food hub development. Additionally, we conducted a best practice review of 12 food hubs nationally to better understand their business models and finances. This enabled us to draw conclusions about food hubs' challenges and their means for achieving financial sustainability, lessons that could be applied locally.

OVERVIEW OF FOOD HUB DEVELOPMENT

The USDA reports there are nearly 200 examples of food hubs across the US, many of which have come into existence only recently. These new food hubs are a concept born of the movement toward local, source-identified, and higher value food. Food hubs, like this broader movement, are attempting to address challenges, such as the loss of farms and farmland, financial pressures on small and mid-sized farms, and broader environmental, health, and social issues in the food system. Yet, food hubs are also a response to the accompanying rapid increase in consumer demand for higher value, local foods.

Food hubs can be more specifically defined by their business structure and functions. Perhaps more importantly, they can also be defined by their mission and role in building food value chains. Food hubs are one of four general business structures: private enterprise, not-for-profit, cooperative, or public entity. Across these business types, food hubs serve two basic functions. They market and distribute local food that is differentiated from the conventional, commodity supply chain. In the case of food hubs, marketing is an active function, not just about branding, but also about pursuing market opportunities and cultivating buyers for local food products.

Food hubs aim to serve a transformational role in the food system. Through their activities, they fill a gap in the supply chain for small and mid-sized farmers by aggregating their product for sale through wholesale channels those farmers otherwise might not be able to ac-

cess independently. In doing so, they actively facilitate relationships along local food value chains and seek to bring added value, or “shared value” to farmers and local communities. The economic theory of Shared Value recognizes the symbiosis between businesses and their communities in so far as communities demand businesses’ products and services, provide public infrastructure and resources, and can therefore provide a supportive business environment. Companies can create shared value by taking several steps to identify where societal needs overlap with company needs to enlarge the overall economic pie. Therefore, food hubs are organizational structures that seek to build relationships throughout the supply chain for local food and distribute added value among the food chain actors. In doing so, food hubs also seek to strengthen local food value chains longer-term.

FOOD HUB BEST PRACTICES

During our review of food hub literature, we learned the research on food hubs’ finances and impact is limited. Our study therefore sought to partly fill this gap by conducting a best practice review. We selected 12 hubs to interview hubs based on three criteria: they were close to an urban market, there was anecdotal evidence of some measure of their success, and they provided an equal sample of each type of business structure—private enterprise, not-for-profit, cooperative, and public. These interviews led to seven lessons learned about food hubs’ launch, operations, and finances:

- 1) Launch requires “anchor” buyers and sellers.
- 2) Farms may need initial assistance with packing and obtaining new food safety certifications.
- 3) Inventory management, quality control, and customer service are minimum requirements for business survival.
- 4) Products must be marketed as high value, source-identified with a connection to the farms that produce them.
- 5) Seasonality must be addressed, but some potential strategies exist.
- 6) Food hubs continue to struggle to achieve financial viability.
- 7) High quality staffing is one of the greatest challenges food hubs face, but also the greatest contributing factor to their success.

EXAMINING HUDSON VALLEY FOOD VALUE CHAINS

The Hudson Valley is home to more than 3,100 farms and 474,000 farmland acres. These farms collectively produce more \$322 million of food each year. Dairy, fruit, and vegetables comprise the bulk of regional farm sales. However, there are also numerous farms that produce meat, poultry, and eggs. Based on data and interviews, we assess for each of these product types the region’s productive capacity, processing capacity, distribution system, infrastructure resources, and market demand. Although grain is not currently a high volume product in the Hudson Valley, we also analyzed the value chain for grain as there is anecdotal evidence of growing demand locally.

From this analysis, we are able to draw conclusions about each value chain’s particular strengths, weaknesses, opportunities and challenges for food hub development. Because our interviews returned information that cut across these product-specific value chains, we include a summary of cross-cutting themes as well. Below is a summary of the key findings from this analysis.

Fruit

Strengths and Weaknesses:

- The Hudson Valley remains a strong fruit-growing region.
- Given the size and concentration of orchard growers in the region, there are supportive resources, human capital, and physical infrastructure available to them and related businesses in the region.
- Despite these resources, the locally focused value chain and the mainstream value chains are not currently integrated.
- A weakness in the localized value chain is the lack of packing, storage, and processing infrastructure and services to facilitate access to wholesale channels, such as institutions and retailers.

Challenges and Opportunities for Future Development:

- The nascent, rapidly growing hard cider and micro-distilling sectors in the region could be promising opportunities for fruit producers.

- The market for fresh and minimally processed fruit, especially non-citrus and fresh cut fruit, has a promising outlook nationally.
- The fruit sector in the Hudson Valley faces serious challenges due to recent weather events, the local climate, and climate change overall that increase financial risk for fruit growers and make adoption of some new environmental standards costly.
- Additionally, there has been a decades-long decline in the number of orchards and orchard acres that indicate the sector has been under some pressure.

Vegetables

Strengths and Weaknesses:

- The Hudson Valley vegetable sector benefits from robust and growing market demand in both the New York City and Hudson Valley regions that far exceeds the amount of vegetable production in the area.
- The number of vegetable farms and acres in some counties have increased, while the decline in the sector has slowed in other counties.
- There are already distribution infrastructure and relationships that allow vegetable farms to market their products through a variety of channels.
- Institutions express a desire to purchase more local produce, but purchase only small volumes of local produce, potentially due to price constraints, emphasis on processed products, reliance on distributors, and lack of time and knowledge to source locally.
- Despite Farm to Table Copackers and two additional fresh cut vegetable processors, the region lacks capacity for value-added vegetable processing, particularly fresh cut, to service small and midsized farms in the region.

Challenges and Opportunities for Future Development:

- Increasingly common weather events potentially threaten the productivity and resilience of vegetable farms in the region.
- Unlike the fruit growers, the vegetable growers we interviewed were less well networked and did not utilize shared local resources and infrastructure to the same degree.

- The market for Hudson Valley vegetables, though large, is competitive. This is true of both the mainstream, commodity supply chain and the local food value chain.

Dairy

Strengths and Weaknesses:

- Although the number of dairy farms has been declining steadily, the dairy industry remains a vital sector in Hudson Valley agriculture.
- Additionally, there is still a strong knowledge base for dairy production in the region.

Challenges and Opportunities for Future Development:

- The strong and growing demand for yogurt and cheese present an opportunity to Hudson Valley dairy farms.
- Farms that continue to market through the conventional distribution system may have difficulty seizing on this demand as they are price takers.
- Specialty producers may be able to better capitalize on this growing demand for value-added products, but also on demand among restaurants and retailers for local, source-identified dairy products. Their challenge will be making the investments necessary to begin or expand appropriately scaled, value-added dairy production.

Meat and Livestock Products

Strengths and Weaknesses:

- Beef production in recent years has been increasing, likely in response to consumer demand for alternatives to conventional meats.
- Additionally, there are a number of farmers who have been adopting alternative to conventional methods, such as using grazing and organic feed.
- Other types of small livestock are also promising sector for the Hudson Valley agriculture industry as there are several anchor farms.
- Across all of these types of livestock farms, there exists a community, albeit not yet explicitly formed, of farmers who are knowledgeable and could be drawn on for expertise in the future.

- One potential weakness that could hinder the growth in the Hudson Valley meat sector is the lack of processing capacity.

Challenges and Opportunities for Future Development:

- Given the strong and growing demand among buyers for local and other added-value meat, the Hudson Valley is likely well positioned to continue growth in this sector. In particular, the demand for organic and pastured livestock is experiencing considerable growth on the national scale.
- The amount of Hudson Valley land available for livestock grazing is not yet clear and could be a challenge to future growth in the sector.
- Another challenge to growth in the livestock sector is the ability of farmers to make high quality meat products that can sustain the farm. Several of the grass-based beef farmers we interviewed report their difficulties in covering their costs, given the longer time to raise cattle before slaughter and the cost of feeding them over the winter. Additionally, we heard differing perspectives on the taste and texture of pastured livestock. Both of these issues—the financial viability of grazed livestock and its culinary desirability—indicate a potential need for experimentation and research to develop and disseminate best practices for pastured livestock in the Hudson Valley.

Poultry and Eggs

Strengths and weaknesses:

- There are many farms in the Hudson Valley that produce poultry, many of which also produce other products. Additionally, there is a cluster of larger scale poultry and egg producers that contribute significantly to the Sullivan County economy.
- However, whereas the larger producers have adequate processing capacity through USDA facilities, there are no options for smaller and local farmers to use USDA facilities. Instead, they are able to process on-farm or through another 5-A exempt facility. However, relying on these processors limits their ability to market out of state and, depending on the exemption, through wholesale channels.

Opportunities and challenges for future development:

- One opportunity for future development could be to assist farmers in obtaining more processing licenses and helping them to market their products through wholesale channels, which are currently not well served by most poultry farms.
- One challenge to future development in this sector could be matching buyers to the producers on volume and price, as smaller and local farmers have smaller volumes and may be accustomed to higher price points from their direct-to-consumer venues.

Grain

Strengths and weaknesses:

- The greatest strength in the local grain value chain is the burgeoning market among livestock farmers, bakers, brewers, and distillers. All of these market segments, taken together, indicate a need for future development of local grain growing.
- Currently, the greatest weakness in the local grain value chain is the very small volume of grain grown locally, outside of conventional feed corn, and the lack of local experience in grain growing due to the small size of the sector.
- Additionally, because there is little grain growing activity, the processing sector is similarly under-represented in the region and would require investment if grain growing were to increase.

Opportunities and challenges for future development:

- The Greenmarket rule, which requires bakers to use 15% local grains, development of micro brewing and distilling, and growth in small scale livestock farming offer a very good opportunity for future development of the grain sector.
- One major challenge to scaling the grain sector is the lack of technical knowledge on a regional scale as to the best varieties for local grains and to meet the needs of the local market.
- Additionally, given the limited acreage devoted to grain growing (aside from conventional feed corn), there may also arise a tension between the demand for food grain and feed grain.

CONCLUSIONS AND RECOMMENDATIONS

RESEARCH QUESTION 1: Are food hubs needed in the Hudson Valley?	
<i>Conclusions</i>	<i>Recommendations</i>
<ul style="list-style-type: none"> • Our research suggests food hub development would benefit Hudson Valley farms and communities. 	<p>Recommendation 1: Invest in Hudson Valley food hub development to meet the needs of regional farmers and better serve the market for local food.</p>
RESEARCH QUESTION 2: What food hub features would be most beneficial?	
<i>Conclusions</i>	<i>Recommendations</i>
<ul style="list-style-type: none"> • Major strengths of the Hudson Valley local food system include the established relationships, pre-existing distribution routes, and infrastructure to help bring local farmers’ products to the market. • Despite these pre-existing distribution channels, there remain several weaknesses in the local food distribution system that food hub development could address. • A number of the functions offered by food hubs could address these needs in the local food value chain and fall into two categories: distribution and logistics, and marketing services. • In addition to the two core functions of food hubs, distribution and logistics, and marketing services, there are several related needs in the Hudson Valley—on farm infrastructure, farm business and production planning, and value-added processing infrastructure. 	<p>Recommendation 2: Focus food hub development on two core functions: distribution and logistics, and marketing services.</p> <p>Recommendation 2a. Target a variety of products i.e. meat, dairy, and value-added products in addition to produce to maintain a year-round supply of products.</p> <p>Recommendation 2b. Provide traceability, information about product sourcing and production methods, which are demanded by buyers.</p> <p>Recommendation 2c. Target anchor buyers in the retail and institutional markets.</p> <p>Recommendation 2d. Identify, train, recruit and support staff knowledgeable in the food industry and logistics.</p> <p>Recommendation 3: Invest in food hub development by working within the existing distribution network and infrastructure.</p> <p>Recommendation 4: Provide farmer business and production services to improve efficiency, increase production, and get “wholesale ready.”</p> <p>Recommendation 5: Enhance production, processing, and distribution infrastructure to strengthen the local food value chain and complement food hub development.</p>
RESEARCH QUESTION 3: Who are the potential partners for food hub development?	
<i>Conclusions</i>	<i>Recommendations</i>
<ul style="list-style-type: none"> • The concept of food hubs received strong support among most farmers, different types of buyers and all local distributors. • There are also many local programs and organizations that could become valuable partners to food hub development. 	<p>Recommendation 6: Recruit farmers and other food businesses that expressed an interest in participating in food hub development.</p> <p>Recommendation 7: Partner with existing organizations where possible to deliver services and help coordinate local food system information and resources.</p>

NEXT STEPS FOR IMPLEMENTATION

- Launch a new, service-oriented local food distribution project to facilitate value chain development and provide food hub functions.
- Coordinate and target funding for on-farm infrastructure development.
- Launch a new initiative to provide business and production planning services to farmers.
- Identify funding and other resources to expand value-added processing infrastructure.
 - Invest in specialty dairy processing equipment and facilities and product development.
 - Invest in high quality, local meat slaughter and processing capacity.
 - Explore fresh cut capacity for value-added produce.
 - Invest in grain production, milling and other processing.
- Establish a new network for information sharing, collaboration, and B2B networking in the Hudson Valley and New York City regions.
- Support additional analysis, including:
 - Conduct a review of vacant and available land.
 - Research the capacity for increasing low density livestock grazing.
 - Commission a report on farm labor issues in the region.
 - Support scientific and practical research on crop conservation and farming methods.
 - Explore opportunities for food waste and composting.
 - Research and develop a marketing effort for Hudson Valley food.



Glynwood Farm, Putnam County
Photo credit: Frankie Kimm

INTRODUCTION

This study occurs at a time when much of the national focus on local and regional food system development is turning to the need for infrastructure. After several generations of decline in the number of farms and farmland acres, along with increasing consolidation in the food system, there is now a strong and growing consumer demand for locally and sustainably produced food. Whether through farmers markets, community supported agriculture (CSA) programs, farm-to-institution initiatives, restaurants or grocery stores, the demand for local and sustainable food shows no signs of abating.

Policymakers have begun to realize this consumer demand is an opportunity to support small and mid-sized farmers. For example, the last Farm Bill allowed for geographic preference in school food programs. Since that time, the proliferation of farm-to-school and farm-to-institution programs has continued and now number in the thousands.¹ Additionally, in 2009 the United States Department of Agriculture (USDA) launched their Know Your Farmer, Know Your Food (KYF) initiative to better connect farmers and consumers and strengthen the local and regional food systems that produce and distribute food. Along with the ensuing KYF federal programs, state and local governments, foundations, and businesses are investing in research, programs, and collaborations to further support local and regional food system development. Much of this work focuses on the need for “value chain” development, activities and investments that seek to build relationships along the local and regional food supply chains and bring added value to farmers and communities. Added value may come in the form of increased profitability for farmers; access to

source-identified, local, higher quality, and sustainable food among customers; improved environmental outcomes; or economic growth and vitality for communities.

Although there has been progress in recent years in building consumer awareness about food, expanding farmers markets and CSAs as alternative market venues, and enacting policies to support local and regional food systems, many researchers and practitioners have concluded additional focus must be made on scaling up these efforts.² The dialog among these researchers and practitioners is now focused on the means for increasing the scale of local food systems and helping small and mid-sized farmers access larger volume, wholesale markets. Past research has concluded that doing so will require a greater focus on aggregation, processing, and distribution infrastructure to better connect farmers in the local food system to these new market outlets.³

Food hubs have arisen as one means for addressing the need for local food system infrastructure. Food hubs are organizational structures that facilitate relationships along local food value chains and seek to bring added value to farmers and local communities. They take on various forms, but all focus on bringing more local, source-identified food to a broader market. While a new concept, their growth nationally has been remarkable and gained much attention. Our study explores this new food hubs concept and assesses whether there are needs in the Hudson Valley and New York City local food value chains that could be addressed by food hubs.



W. Rogowski Farm, Orange County
Photo credit: Cheryl Rogowski

STUDY SCOPE

A broad mission guided this study: build the capacity and infrastructure of a resilient food system for the benefit of Hudson Valley farmers and communities. This study therefore sought to determine if there are infrastructure challenges in the regional food value chain that hinder the growth of the local farm economy and whether food hubs could be one means for addressing these potential issues. To that end, our research answers three specific questions:

Research Question 1: Are food hubs needed to support and strengthen sustainable agriculture and a regional food value chain in the Hudson Valley?

Research Question 2: Which food hub features could most benefit Hudson Valley farms and communities?

Research Question 3: Who are the potential partners for food hub development in the Hudson Valley?

To answer these research questions, we gathered qualitative and quantitative information to better understand the current Hudson Valley local food value chain and assess what infrastructure and other gaps exist. Over the past year, we analyzed data on agricultural production, processing, distribution, and food consumption in the Hudson Valley and New York City regions. Additionally, we interviewed more than 100 farm and other food businesses, convened an advisory group, and held seven listening sessions attended by more than 200 people.

To determine whether food hubs would be a successful means for addressing any potential infrastructure gaps, we reviewed current literature on food value chains and food hub development. Additionally, we conducted a best practice review of 12 food hubs nationally to better understand their business models and finances. This enabled us to draw conclusions about food hubs' challenges and their means for achieving financial sustainability, lessons that could be applied locally.

The analysis that follows is grounded in local wisdom, previous research, the best available data, and a thorough qualitative assessment of the local food value chain. A more detailed description of our methodology can be found in the appendix to this report.

Given the large geography and diversity of the Hudson Valley, defining its boundaries is difficult. For the purposes of this study, we focus on the counties generally defined as the Mid-Hudson Valley, between New York City and the Capital District: Westchester, Rockland, Putnam, Orange, Dutchess, Ulster, Sullivan, Columbia, and Greene. The study also reviewed data from the adjacent counties and the northeast region to understand the local food value chain in context of the broader regional food system.



Pelleh Farm, Sullivan County
Photo credit: andyryanphotography.com

CONTEXT FOR FOOD HUB DEVELOPMENT

Before we could answer the question of whether food hubs are needed in the Hudson Valley, we first sought to better understand why food hubs are coming into existence now and whether these motivating factors exist in the Hudson Valley. Based on our review of food hubs literature and food hub models, it is clear the rapid increase in food hubs throughout the country is a response not only to historical challenges, but also current opportunities in the food system.

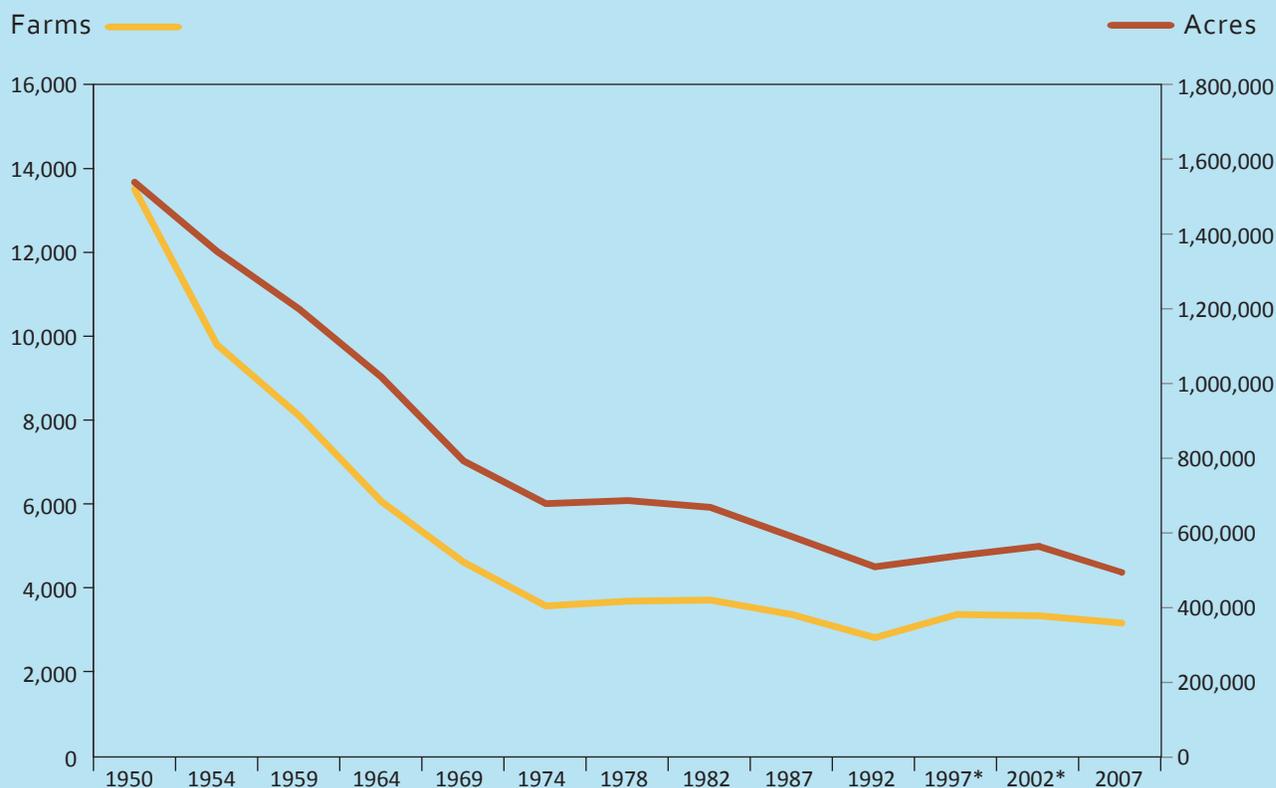
Food hubs are a concept born of the movement toward local, source-identified, and higher value food. Food hubs, like this broader movement, are attempting to address challenges, such as the loss of farms and farmland, financial pressures on small and mid-sized farms, and broader environmental, health, and social issues in the food system. Yet, food hubs are also a response to the accompanying rapid increase in consumer demand for higher value, local foods. Not all food hubs explicitly

address all of these concerns, but many of them share these common motivations. Below is a summary of the food system challenges on the national and local level that food hubs aim to address, along with an overview of the potential market opportunity for food hubs.

HISTORICAL DECLINE IN FARMS AND FARMLAND

The story of Hudson Valley agriculture is long and varied. In many ways, it brings the story of American agriculture into sharp relief. The Hudson Valley's agricultural story traces back to the region's early role as breadbasket to New York City, as a pastoral landscape marked by small, diverse family farms. The story continues with farms' financial struggle, increasing farm consolidation, and farmland loss as the region began to develop highways and suburban housing developments for a post-war middle class boom. But the most recent chapter in this

Decline in Hudson Valley Farms and Farm Acres



* Data collection methods changed between census years.

Source: USDA Census of Agriculture 1950-2007

Change in Farms and Farm Acres, 1950 - 2007

County	Farms		Acres	
Columbia	-67.3%	-1,138	-59.0%	-153,424
Dutchess	-62.1%	-1,073	-66.3%	-201,403
Greene	-78.0%	-1,014	-74.2%	-127,507
Orange	-78.3%	-2,316	-70.4%	-192,830
Putnam	-77.4%	-247	-86.9%	-37,300
Rockland	-94.9%	-387	na	na
Sullivan	-82.8%	-1,558	-73.7%	-141,535
Ulster	-80.4%	-2,051	-66.9%	-152,292
Westchester	-84.0%	-558	-82.4%	-40,024
Hudson Valley	-76.6%	-10,342	-69.2%	-1,063,691
New York State	-70.9%	-88,625	-55.2%	-8,841,978

na: Not available because data not disclosed for 2007. Source: USDA Census of Agriculture 1950 and 2007

story is perhaps one of the most promising. It tells of agricultural resurgence, innovation, and resilience.

The Hudson Valley has historically been a hospitable environment for farming. Flanking either side of the Hudson River, the valley boasts high quality soils and an ample water supply. The varied topography and large size of the region create microregions, characterized by different types of agriculture. Today, these microregions include the Black Dirt region in Orange County, known for deep and rich topsoil good for growing onions and other vegetables; the historic apple orchards and cider mills that snake northward along the river from Orange and Ulster Counties up to the Capital region; the farms along the fertile valley of the Rondout Creek, a Hudson River tributary in Ulster County; and the Route 9, Route 9H, and Route 22 corridors in northern Dutchess and Columbia Counties. Yet even these areas do not fully capture the picture of the region's agricultural diversity. There are also dairy farms of differing sizes and types and small-scale livestock producers that dot the landscape throughout Hudson Valley.

Despite its long history as an agricultural region, the Hudson Valley, much like other regions that border large US cities, has experienced a dramatic decline in the number of farms and farm acres in the past several decades. From 1950 to 2007, the Hudson Valley lost over 10,000 farms and more than one million farm

acres,⁴ enough land to cover all of New York City five times.⁵ Although the loss of farms and farm acres has also occurred nationally and across the state, the rate of decline has been faster in the Hudson Valley. Whereas New York State lost 70.9 percent of its farms from 1950 to 2007, the Hudson Valley region's farms declined by 76.6 percent.⁶ Additionally, the Hudson Valley saw a 69.2 percent reduction in farm acres, whereas the rate of decline in New York State acres was 55.2 percent.⁷ All counties within the Hudson Valley experienced this decline in farms and farm acres since the 1950s, although some counties, such as Orange, Ulster, and Sullivan experienced larger reductions in farms and Dutchess, Orange, Columbia, and Ulster lost more farm acres.

PRESSURES ON SMALL AND MID-SIZED FARMS

With the decline in farms and farmland, fewer farms are needed now than ever before to feed the growing US population.⁸ Much of the agricultural production nationally, 84 percent, is now concentrated among the largest 12 percent of farms.⁹ Small and mid-sized farms struggle to compete in this food system, which favors larger-scale operations and encourages consolidation. Companies throughout the food system are integrated both horizontally and vertically to lower the cost to produce and distribute food through economies of scale, thus becoming more competitive.¹⁰ Processors, wholesalers,

Context for Food Hub Development

and retailers prefer to procure from larger suppliers to reduce their transaction costs and, by increasing in size themselves, can improve their bargaining power among other large businesses with whom they deal.¹¹ Currently, very few firms dominate each of these segments of the national food system. The top 20 food manufacturers captured more than half of all industry sales in 1997; the top four broadline wholesalers held 41 percent of the market in 1997; and, the top ten grocery chains captured 68 percent of retail grocery sales in 2005.¹²

Increased consolidation, consumption of more processed foods, and longer supply chains across the US has meant farmers capture a shrinking portion of the food dollar. In just the period from 1993 to 2010, farms' portion of the food dollar dropped more than 17 percent, from 17.1 to 14.1 cents on the dollar.¹³ In order to maintain profitability, farms have had to increase efficiency and have been confronted with the fact that net income and profitability are strongly associated with farm size. In the US, among small farms with sales under \$100,000 annually, the average operating profit margin is -48.6 percent, highlighting their strong reliance on off-farm income.¹⁴ In contrast, farms with sales of more \$500,000

are able to reap an average operating profit margin of 25.7 percent.¹⁵ Confronted the strong association between farm size and profitability, and the trend toward increasing scale and consolidation in the food system, the decision facing farmers has seemed to be either grow or get out of the commodity market.

Some farms have been able to market their products as distinct from products in the national commodity food system. These farms have been able to capitalize on the strong and growing consumer interest in locally and sustainably produced food. To fill this demand, many farms sell through direct channels, such as farmers markets and CSA programs. The national market for direct sales has grown considerably, with sales through these venues doubling from just 1997 to 2007, more than twice the rate of growth for all farm sales.¹⁶

Direct sales are an attractive outlet because they enable farms to capture a larger portion of the food dollar by assuming responsibility for marketing and distributing products themselves, thus eliminating the costs to have other businesses serve these functions. Even once these internal costs are accounted for, direct sales farms often



enjoy higher net returns per unit because consumers will pay a higher price for their products.¹⁷ One study comparing mainstream and local supply channels estimated these increased farm returns could range from over 50 to 600 percent higher, depending on the products sold and individual farm practices.¹⁸ By decoupling their prices from the commodity markets through direct marketing, producers are able to charge a price that reflects their individual production costs.¹⁹

Farmers' ability to charge higher prices in direct sales venues is not solely because the products are locally produced. Rather, the products can be differentiated from mainstream products in several ways. Consumers are motivated to buy local foods through these direct channels because it enables them to have more information about the provenance of their food—where it is produced, by whom, and with what production practices. As former CEO of Sysco, Rick Schnieders has characterized this demand, consumers are seeking “romance, memory, and trust” when purchasing local products.²⁰ They are willing to pay for a greater connection to their food, for the assurance they are supporting local farms and the economy, for sustainable production practices, and for characteristics of the food itself, such as quality, variety, and freshness.

By targeting these consumers, some farms have found a higher value market for their products. These direct

sales venues are therefore a means for farms to remain competitive even in the context of food system consolidation and the global commodity market. As instructed by Michael Porter in the classic business text, *The Competitive Advantage of Nations*, there are two ways businesses reach competitiveness; they either provide low cost, undifferentiated commodities or they provide a unique product with special attributes that differentiate them from commodities.²¹

Although the high value, direct sales venues offer a promising trend in the food system, they remain very low volume compared to mainstream channels and the national food market.²² Because direct sales tend to be low volume, they do not provide a full time occupation for some farms that also must rely on off-farm income to supplement their sales.²³ Additionally, farms that produce a higher volume may struggle to sell their products exclusively through direct sales venues.

With the national market for food increasingly split between the highly consolidated, low cost, large volume commodity market and the low volume, high value direct sales market, mid-sized producers are under pressure to find suitable outlets for their products.²⁴ These mid-sized family farms historically comprise the largest share of “working farms,” those for whom agriculture is the primary occupation and source of income.²⁵ These farms, sometimes characterized as the “agriculture of

Hudson Valley Farm Profitability

County	Total Farms	Farms with Net Gain	% Farms with Net Gain
Columbia	554	221	39.9%
Dutchess	656	195	29.7%
Greene	286	106	37.1%
Orange	642	240	37.4%
Putnam	72	21	29.2%
Rockland	21	12	57.1%
Sullivan	323	90	27.9%
Ulster	501	187	37.3%
Westchester	106	31	29.2%
Hudson Valley	3,161	1,103	34.9%
New York State	36,352	16,047	44.1%

Source: USDA Census of Agriculture 2007

Context for Food Hub Development

the middle,” also control most of the country’s agricultural lands and assets.²⁶ Because they also tend to be generational family farms, they occupy an important place in rural communities and economies.²⁷ Unfortunately, the farms in this category have been declining at an alarming rate across the country in recent years as the agriculture industry has become concentrated at either end of the spectrum, among very small and very large farms. Some researchers have predicted that if this current trend continues, these mid-sized family farms could disappear in the coming decade, threatening to “dramatically change the very landscape of rural America, jeopardize the future productive capacity of the land, and severely limit our food choices.”

The Hudson Valley has not been immune to these trends. Many of the farms in the Hudson Valley are small farms and, as is true of small farms throughout the country, do not provide a sole source of income for their operators and are less likely to be profitable.²⁸

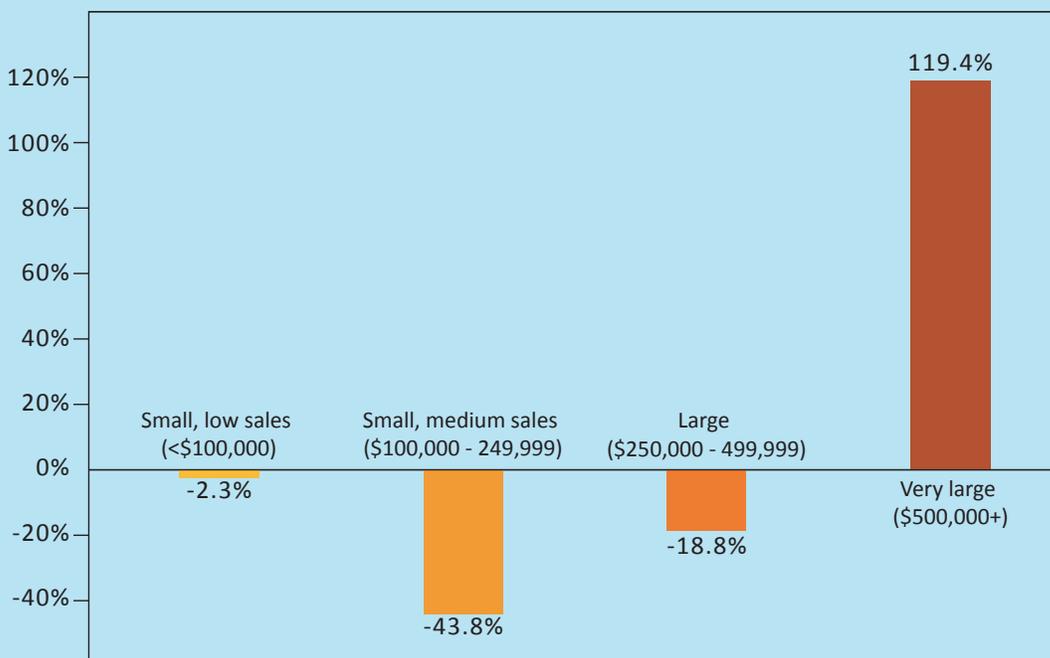
On average, only 34.9 percent of Hudson Valley farms report a positive income, with some variation across counties.²⁹ It is likely that many farms in the Hudson Valley are lifestyle farms, rather than commercial farms,

thus contributing to the high portion of farms that do not generate a positive net income. However, as our research findings later in this report indicate, one unique feature of Hudson Valley is that the local market does support some small farms to cover their costs through direct marketing and higher value products.

Over the past two decades, there have been changes in the composition of Hudson Valley farms. Much like the national trends over this period, in the Hudson Valley, farms in the highest revenue class have experienced the largest gains, while those in the middle range of annual sales have decreased in numbers and as a portion of all farms.³⁰ From 1997 to 2007 in the Hudson Valley, small farms grew in number by 20.2 percent and large farms grew more than 37 percent.³¹ In contrast, farms in the middle range of income, making \$100,000 to \$249,999 and \$250,000 and \$499,999, declined by 43.8 percent and 18.8 percent, respectively.

The loss of mid-sized farms in the Hudson Valley is especially troubling, as they comprise a significant portion of the farm economy and more than half of local agricultural lands. In terms of acreage, small farms, those on fewer than 50 acres, are 44 percent of all Hudson Valley

Change in Number of Farms by Revenue Class, 1987- 2007



Source: USDA Census of Agriculture, 1987 - 2007

Portion of Hudson Valley Farms in Each Revenue Class

	1987	1997	2007
Small, low sales (<\$100,000)	80.6%	80.1%	83.8%
Small, medium sales (\$100,000- \$249,999)	12.8%	11.8%	7.6%
Large (\$250,000- 499,999)	4.6%	4.2%	4.0%
Very large (\$500,000+)	2.0%	3.9%	4.7%
Total	100.0%	100.0%	100.0%

Source: USDA Census of Agriculture, 1987, 1997, 2007

Portion of Regional Farms and Sales by Revenue Class

	% of Regional Farms	% of Regional Sales
Small, low sales (<\$100,000)	83.8%	10.8%
Small, medium sales (\$100,000- \$249,999)	7.6%	11.7%
Large (\$250,000- 499,999)	4.0%	13.9%
Very large (\$500,000+)	4.7%	63.7%
Total	100.0%	100.0%

Source: USDA Census of Agriculture, 2007

farms but control only 5.4 percent of local agricultural land.³² In contrast, large farms are only 6 percent of all farms and control 38 percent of all agricultural lands.³³ Mid-sized farms, those operating on 50 to 500 acres, are 50.4 percent of all farms and control nearly 55 percent of farmland.³⁴ Some counties with fewer farms overall, such as Rockland, Westchester, and Putnam, tend to have smaller farms while other counties, such as Sullivan, Greene, and Columbia have more medium and large-scale farms.

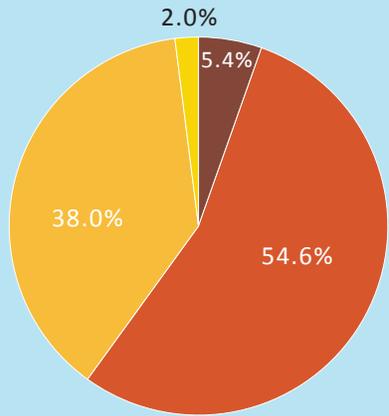
Similar trends are found when examining farm size categorized by income in the region. While 86.3 percent of all farms in the Hudson Valley have less than \$100,000 in sales each year, these farms generate only 10.8 percent of all farms sales in the region.³⁵ Medium farms, those with sales between \$100,000 and \$499,000, are 11.6 percent of all farms in the Hudson Valley, but contribute 25.6 percent of all farm sales.³⁶ Large farms, those with more than \$500,000 in sales comprise only 4.7 percent of all farms but generate 63.7 percent of all sales.³⁷

LOSS OF LOCAL INFRASTRUCTURE

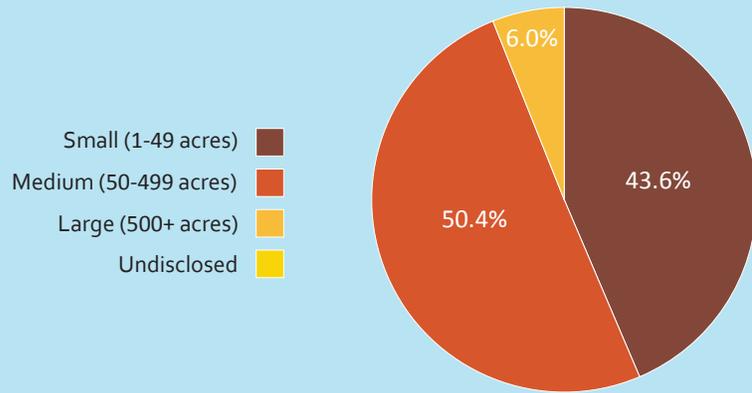
Compounding the loss of agriculture of the middle throughout the country has been the loss of infrastructure that used to service local farms. With the advent of the national highway system and improved cooling technologies, food that had been packed, processed, distributed and sold in local supply chains could be transported longer distances over greater periods. While creating some efficiency in the distribution network, this transition also led to a loss of mid-sized and locally focused infrastructure, which continues today despite the increased demand for local foods.

As food companies have become vertically integrated, distribution networks have changed. In particular, retailers have developed their own warehousing and transportation systems, reducing the demand for regional wholesale markets and distributors.³⁸ To better meet the volume requirements of large retailers, the food processing industry has also become increasingly

Portion of Hudson Valley Farms per Size Category



Portion of Hudson Valley Acres per Size Category



Source: USDA Census of Agriculture, 2007

consolidated, either absorbing or pushing out smaller and mid-sized food processors along the way.³⁹ For example, just in the period from 1992 to 2008, the United States lost half of its slaughterhouses, believed to create a shortage in meat processing options for small and mid-sized livestock farms.⁴⁰ More recent USDA research indicates there are regions throughout the country that lack small and mid-scale slaughter and meat processing capacity to service small and mid-sized livestock farms.⁴¹ The competitive advantage among larger food

processors is compounded by their ability to pay for slotting and advertising their products on grocery store shelves. These fees can be a powerful factor in grocery stores' procurement decisions as they can comprise up to 50 or 75 percent of retailers' net profits.⁴²

Researchers have begun to analyze the impact of these infrastructural changes on small and mid-sized local farms. In particular, the lack of appropriately scaled infrastructure is now cited as contributing to a bottle-

Portion of County Farms by Size Category

County	Total Farms	Small (1-49 acres)	Medium (50-499 acres)	Large (500+ acres)
Columbia	554	39.7%	50.7%	9.6%
Greene	286	35.7%	58.0%	6.3%
Dutchess	656	46.2%	47.6%	6.3%
Ulster	501	42.1%	52.9%	5.0%
Sullivan	323	31.0%	61.9%	7.1%
Putnam	72	70.8%	27.8%	1.4%
Orange	642	46.4%	49.5%	4.0%
Westchester	106	69.8%	26.4%	3.8%
Rockland	21	90.5%	9.5%	0.0%
Hudson Valley	3,161	43.6%	50.4%	6.0%
New York State	36,352	32.2%	59.4%	8.4%

Source: USDA Census of Agriculture, 2007

neck in local food value chains for small and mid-sized farms.⁴³ However, that bottleneck may also represent an opportunity for small and mid-sized farms: unmet demand for local, higher value, differentiated products among larger, wholesale outlets.

DEMAND FOR HIGHER VALUE, LOCAL FOOD AND OPPORTUNITIES FOR SMALL AND MID-SIZED FARMS

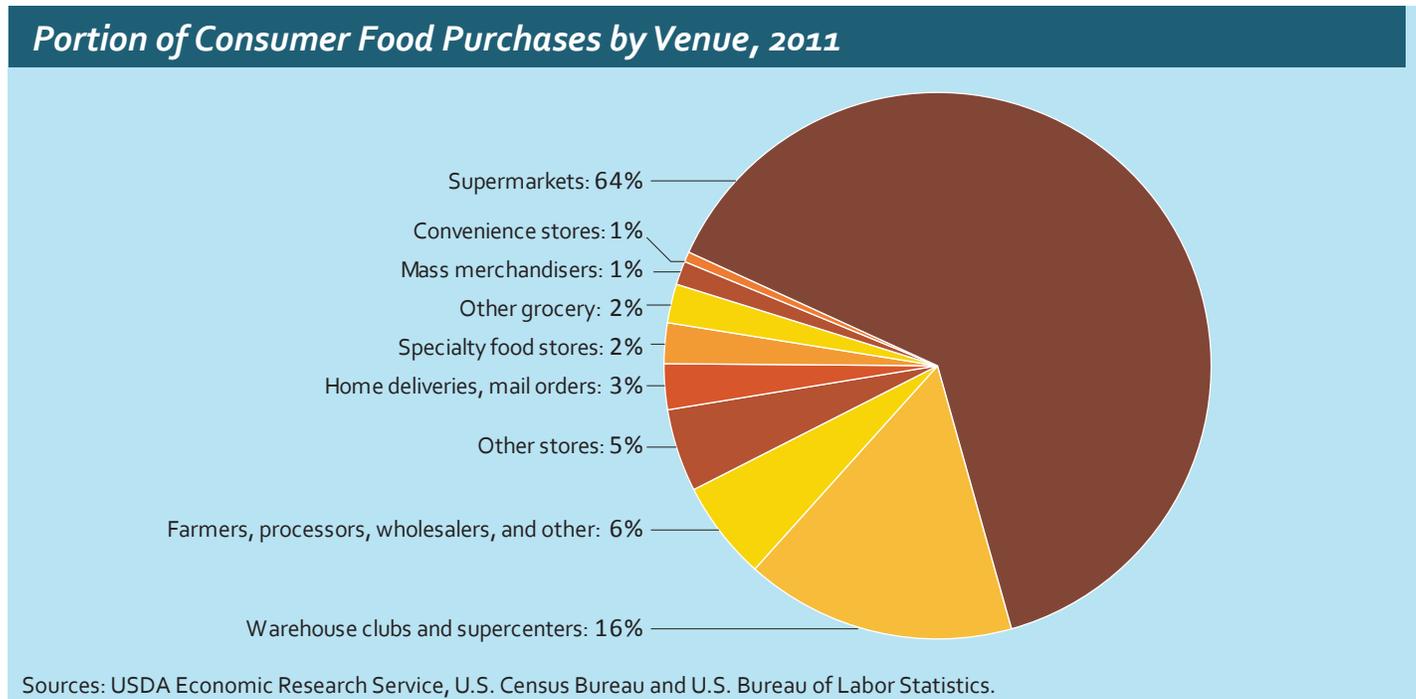
The Hudson Valley sits at the center of the largest market for food in the country. More than 2.4 million people live within the Hudson Valley itself and an additional 8.5 million people reside in New York City.⁴⁴ Together, these two consumer markets represent \$6.8 billion and \$23.4 billion in annual food purchases, respectively.⁴⁵ Of this total, Hudson Valley residents spend \$4.1 billion on food prepared at home and \$2.7 billion on food away from home and New York City residents spend \$14.1 billion on food at home and \$9.3 billion on food away from home.⁴⁶ Based on our interviews, we learned the market for Hudson Valley products stretches farther than the immediate Hudson Valley and New York City regions. However, for the purposes of this study, we focused our data analysis on the Hudson Valley and New York City as a starting point for understanding the local market.

The consumer demand for locally produced food is especially visible in New York City and the Hudson Valley,

as exhibited by the proliferation of farmers markets and CSAs. There are 92 farmers markets in New York City, and Union Square, the largest farmers market in the city, has upwards of 60,000 customers on a peak market day, roughly the same size as the entire population of Columbia County.⁴⁷ The Hudson Valley also boasts 57 farmers markets, with an additional 29 markets in the neighboring Capital region.⁴⁸

Direct-to-consumer sales have been increasing and are a higher portion of farms sales in the Hudson Valley than other regions. Among Hudson Valley farms, direct-to-consumer sales have risen as a portion of total sales, from 2.4 percent in 1978 to 5.9 percent in 2007.⁴⁹ This is a much greater portion of total sales than among farms across New York State or nationally, which are 1.8 percent and 0.4 percent, respectively.⁵⁰ These forms of direct-to-consumer sales, along with on-farm and roadside stand sales throughout the Hudson Valley, now generate at least \$19 million in annual sales for more than 500 local farms.⁵¹

Despite the visibility of these direct sales venues in Hudson Valley and New York City, they remain a small portion of the overall food market. Direct sales comprise only approximately one-tenth of one percent of all consumer purchases of food for at home consumption, i.e. grocery purchases.⁵² Rather, consumers buy the majority of their food, 67.5 percent, at supermarkets, grocery



stores, and specialty food stores.⁵³ In addition to grocery stores and supermarkets, warehouse clubs and supercenters have become an increasingly large portion of the retail food market since the mid-1990s.⁵⁴

Fully 99 percent of the food consumed in the United States comes through wholesale channels.⁵⁵ Organizations in these wholesale channels are now also recognizing the strong consumer demand for higher value and differentiated food products. The National Restaurant Association surveyed chefs and forecast that three of the top four restaurant trends for 2013 will be locally sourced and sustainably produced foods.⁵⁶ Additionally, of the largest 10 retailers in the US, fully seven of them actively pursue local food sourcing.⁵⁷ There has also been a proliferation of farm-to-school programs nationally, which now number more than 2,000.⁵⁸ These higher volume buyers represent a potential opportunity for small and mid-sized farms that can meet, or aggregate products to meet, their volume requirements.

A recent USDA report indicated that these “intermediated” channels, in which food is purchased by a restaurant or school or other business before reaching the final consumer, are a larger portion of the local food supply chain than are direct sales.⁵⁹ In 2008, the marketing of local foods grossed \$4.8 billion nationally, four times higher than the estimate of local food sales through direct channels only.⁶⁰ Most local foods now move through these intermediated channels, which comprise 50 to 66 percent of all local food sales.⁶¹ The authors conclude combining direct-to-consumer and intermediated marketing of local foods could be a promising strategy for mid-sized farms.

Applying these estimates to the Hudson Valley and New York City markets suggests much of the local agricultural product is likely staying in the local market, but even including intermediated channels, local food still only fills a small portion of overall consumer demand. As the USDA report indicates, approximately 56.5 percent of locally marketed foods move through intermediated channels, with an additional 25.1 percent marketed through both intermediated and direct channels and 18 percent moving through direct sales venues.⁶² If these estimates are applicable to the Hudson Valley, then the current total for local food sales is at least \$100 million annually.⁶³ Given that the USDA estimates total farm sales in the Hudson Valley at \$322 million annually, then a significant portion, 31 percent, of regional farm product is likely already staying within the local market.⁶⁴ Nonetheless, the market for food is \$30 billion annually in New York City and the Hudson Valley.⁶⁵ When the

farm value of the food dollar (14.1 cents, on average) is taken into account, locally produced food from the Hudson Valley is filling a small portion, around 2 percent, of the total food market.⁶⁶

The Hudson Valley and New York City are home to numerous colleges, public schools, private schools, hospitals, and other institutions. It would seem then that Hudson Valley farms have abundant opportunity for addressing the increasing demand for larger scale local food marketing by selling their products through these types of intermediated channels. However, many businesses and farm-to-school advocates now realize there are logistical challenges in obtaining larger volumes of local products. This has prompted federal investment in a national farm-to-school implementation initiative.⁶⁷ Additionally, there have been numerous studies highlighting the infrastructural and distribution bottlenecks in local value chains.⁶⁸

One example of the tension between the need for scale in intermediated, wholesale channels and the consumer demand for local, higher value foods comes from one of the largest food companies in the country: Sysco. After more than 40 years in business, Sysco now boasts 400,000 customers served by 180 locations nationally.⁶⁹ Their business identity is one of efficiency and convenience for their customers in the food service industry. However, nearly ten years ago, they recognized their focus on efficient, streamlined, and national supply chains began to negatively impact their business.⁷⁰ As a result of their business model, Sysco was no longer able to meet their customers’ growing demands for fresher, more diverse products with a meaningful connection to their provenance. Sysco recognized they would have to offer products with added value, those offering variety and social and environmental values attached to them. As a consequence, Sysco engaged in a two-year effort to build more localized value chains. They report that it led to greater purchasing from local farmers, product innovation among local suppliers, and large institutional accounts.⁷¹ Although Sysco is not a food hub, this example highlights the growing demand for local food through wholesale channels and the need for added attention to developing local supply chains to meet that demand.

One potential means for addressing the challenges faced by small and mid-sized farms is to meet the demand for higher volume and the existing infrastructure gaps in local food value chain. Food hubs have arisen as one model for accomplishing this. The following chapter explores food hubs’ missions, models, and functions.



Hudson Valley Fresh, Dutchess County
Photo credit: Richard Triumpho / Farming Magazine, June 2011

TESTING A NEW INFRASTRUCTURE CONCEPT: FOOD HUBS

The USDA reports there are nearly 200 examples of food hubs across the US, many of which have come into existence only recently. The proliferation of food hubs has-tened several years ago, nearly doubling from 2007 to 2011.⁷² These food hubs can be defined in terms of their missions, functions, and organizational structures.

FOOD HUBS DEFINITION AND MISSION

Given the diversity of models and the evolving nature of food hubs, identifying one consistent definition for them can be challenging. Several organizations and researchers have provided definitions of food hubs, with each variously defining food hubs according to their functions, lead organizations, or missions. The USDA and Wallace Center offer a working definition of food hubs as a

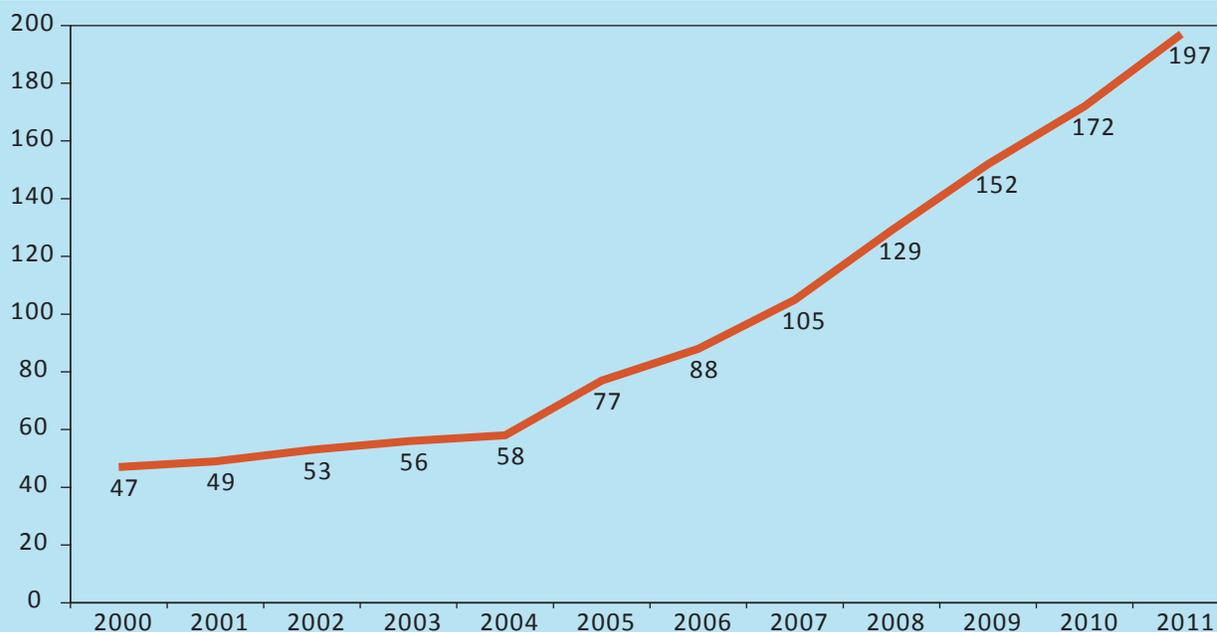
...business or organization that actively manages the aggregation, distribution, and marketing of source-identified food products primarily from local and regional producers to strengthen their ability to satisfy wholesale, retail, and institutional demand.⁷³

The USDA and Wallace Center further refine this definition by offering additional “defining characteristics” of

food hubs. As they explain, food hubs “consider producers as valuable partners instead of interchangeable suppliers,” tend to buy from small and mid-sized farmers, and strive to achieve financial viability and economic, social, and environmental goals. The basic definition they offer focuses on the product offerings and distribution functions of food hubs; they are formed to scale up the distribution of local food to meet increasing demand and provide new market outlets for farmers. According to this definition, pre-existing food distributors who source local food that they market as distinct from their regular product offerings could be labeled food hubs. However, by offering additional defining characteristics, the USDA and Wallace Center present food hubs as distinct organizations that are driven by a broader set of goals for improved food system relationships and outcomes.

Additional literature builds on the motivations for food hub development. One study of food hubs defines their mission as moving beyond commodity production to higher value activities.⁷⁴ Another review of food hubs provides a more comprehensive definition that ties together both activities and the mission of food hubs: they are intermediaries that bring together suppliers

Estimated Number of Food Hubs in the U.S.



Source: Barham, James and John Fisk. “Regional Food Hubs: Understanding the Scope and Scale of Food Hub Operations” Presentation for New York Farm Day, September 12, 2012

and buyers to add value to the exchange of goods and promote the development of a local supply chain.⁷⁵ This added value in the supply chain may arise from new economies of scale, social value, environmental benefits, or educational services. By this definition, the food hubs' distribution functions are only one of their defining features; just as important are their motivations and the value they add to the local supply chain through their operations and relationships. Therefore, food hubs are organizational structures that seek to build relationships throughout the supply chain for local food and distribute added value among the food chain actors. In doing so, food hubs also seek to strengthen local food value chains longer-term.

The concept of value chains is not unique to the agriculture and food industries. Rather, it is an emerging theory in the field of business strategy.⁷⁶ According to the theory of "Shared Value," businesses' maintain an outmoded concept of value creation in terms of their internal costs and revenues, with societal costs and value defined as external to their operations and success. By

this framework, there is a tradeoff between a company's economic efficiency and addressing social, environmental or community-based issues. While many companies focus on "social responsibility" or "corporate responsibility," they nonetheless consider these programs and investments as charitable, rather than intrinsic to their business functions. The notion of Shared Value changes this calculation for businesses. It states that both societal needs and economic needs shape markets and that issues historically seen as external, such as environmental degradation or employee health, create internal costs to businesses. By incorporating these societal impacts into their decision-making, Shared Value transitions businesses from shorter-term cost valuation to longer-term valuation and focuses businesses on the longer-term stability of their supply chains and markets.

Shared Value recognizes the symbiosis between businesses and their communities in so far as communities demand businesses' products and services, provide public infrastructure and resources, and can therefore provide a supportive business environment. Companies



Kiywana Farm. Photo credit: drewharty.com

Testing a New Infrastructure Concept: Food Hubs

can create shared value by taking several steps to identify where societal needs overlap with company needs to enlarge the overall economic pie. These specific steps include reconceiving products, focusing on building stronger value chains, and supporting local industry clusters.

In the food system, food hubs seek to create shared value by delivering consumers higher value, source-identified, and differentiated products. They also seek to build stronger food value chains by scaling up distribution of these products to meet demand and provide greater value to farmers, consumers, and others in the supply chain. Each of these supply chain actors defines this value somewhat differently, but many of their motivations overlap. Among consumers, there is a growing demand for local food and a transparent supply chain, allowing consumers to know the origin of their food and information about how it was produced.⁷⁷ Farmers seek added value in the form of new market outlets and the ability to aggregate their products and market them collectively with other farmers. In doing so, these farmers seek to share the costs of distribution and marketing, increase overall sales, receive better prices, and compete more effectively for larger clients, such as institutions and food retailers.

FOOD HUB MODELS

Food hubs may be developed at the impetus of different stakeholders. A retailer may require additional supply channels to support the demand for local food and thus develop a hub. Similarly, a wholesaler or foodservice distributor may identify a demand for local food and create a “niche” local food line within their broader distribution model. Farmers may also develop a new business to open more market channels, or form a cooperative with other producers to access larger clients together. Lastly, food hub development might be led by public interest initiatives, with public resources and either managed by the public sector or not-for-profit organizations. In each of these scenarios, there are strengths and weaknesses. Wholesalers and retailers may possess more logistics and industry knowledge but may be driven more by market opportunity than by broader societal goals. Producer-led hubs may have more product knowledge but cooperative arrangements might be vulnerable to management challenges.⁷⁸

Food hubs are one of four general business structures: private enterprise, not-for-profit, cooperative, or public entity. According to a recent USDA survey of existing food hubs, 46 percent of food hubs are private, 29 percent are not-for-profit, 20 percent are cooperative, and 4 percent are public entities, with the remaining 1 percent lacking a formal structure.⁷⁹ While all of these types of hubs aim to bring more local food to customers, they may target different venues. Some focus primarily on bringing food directly to customers; some aggregate food for sale to businesses and institutions; and some target both types of customers.⁸⁰

Generally, food hubs strive to fill a gap in the value chain for small and mid-sized farmers by aggregating their products for sale through wholesale channels those farmers otherwise might not be able to access independently. This potentially benefits not only farmers who have broader marketing options, but it also may benefit larger buyers who seek to achieve a consistent and reliable supply of local food to meet their volume needs. To accomplish this, food hubs engage in a variety of activities. They may assist farmers with packing and co-packing product to ready it for sale in industry standard packaging. Additionally, food hubs may provide aggregation services and storage or warehousing to facilitate distribution of farmers’ products. Some hubs transport the food themselves, either with trucks they rent or own. Alternatively, some hubs act as brokers to match suppliers to buyers and then assist in arranging for transportation of food products. To help cultivate buyers for farmers’ products, food hubs may also provide marketing and branding assistance.

Aside from these distribution functions, some food hubs provide additional services to farmers and other food businesses. These can include production planning assistance, so that farmers can coordinate their supply of products to better serve customers. Additionally, food hubs may provide business planning assistance. Lastly, some hubs enable farmers to reduce their production costs by sharing the costs for insurance, staffing, marketing, or facilities.

PREVIOUS FOOD HUBS RESEARCH

Accompanying this rapid growth in food hubs has been new research and support for hubs among organizations and policymakers. The USDA has issued several reports with food hub case studies, survey data, and recommendations for launching successful hubs.⁸¹ They also created an online clearinghouse of information for practitioners and researchers interested in food hub development.⁸² Additionally, the Wallace Center has been working with the USDA, the National Good Food Network, and others to build a national coalition of food hub practitioners to share best practices and other information.⁸³

Much of the research to date has focused on defining food hubs and describing their potential role in building local food value chains.⁸⁴ These articles have recommended food hub development to assist small and mid-size farmers in selling more product to improve their financial viability and potentially increase production. Additionally, these articles have explored specific geographic regions' needs for food hubs and the potential feasibility of developing food hubs in their target market.⁸⁵

There have also been case studies of existing food hubs that detail how they are organized, what functions they serve, and their lessons learned. The USDA has published a resource guide⁸⁶ for food hubs and another researcher has published a literature review of food hub studies⁸⁷ focused on practical questions about food hubs management. These articles are primarily focused on sharing information about challenges faced by food hubs and the practical means for overcoming them. This literature is therefore targeted primarily at food hub practitioners or those aspiring to launch a food hub.



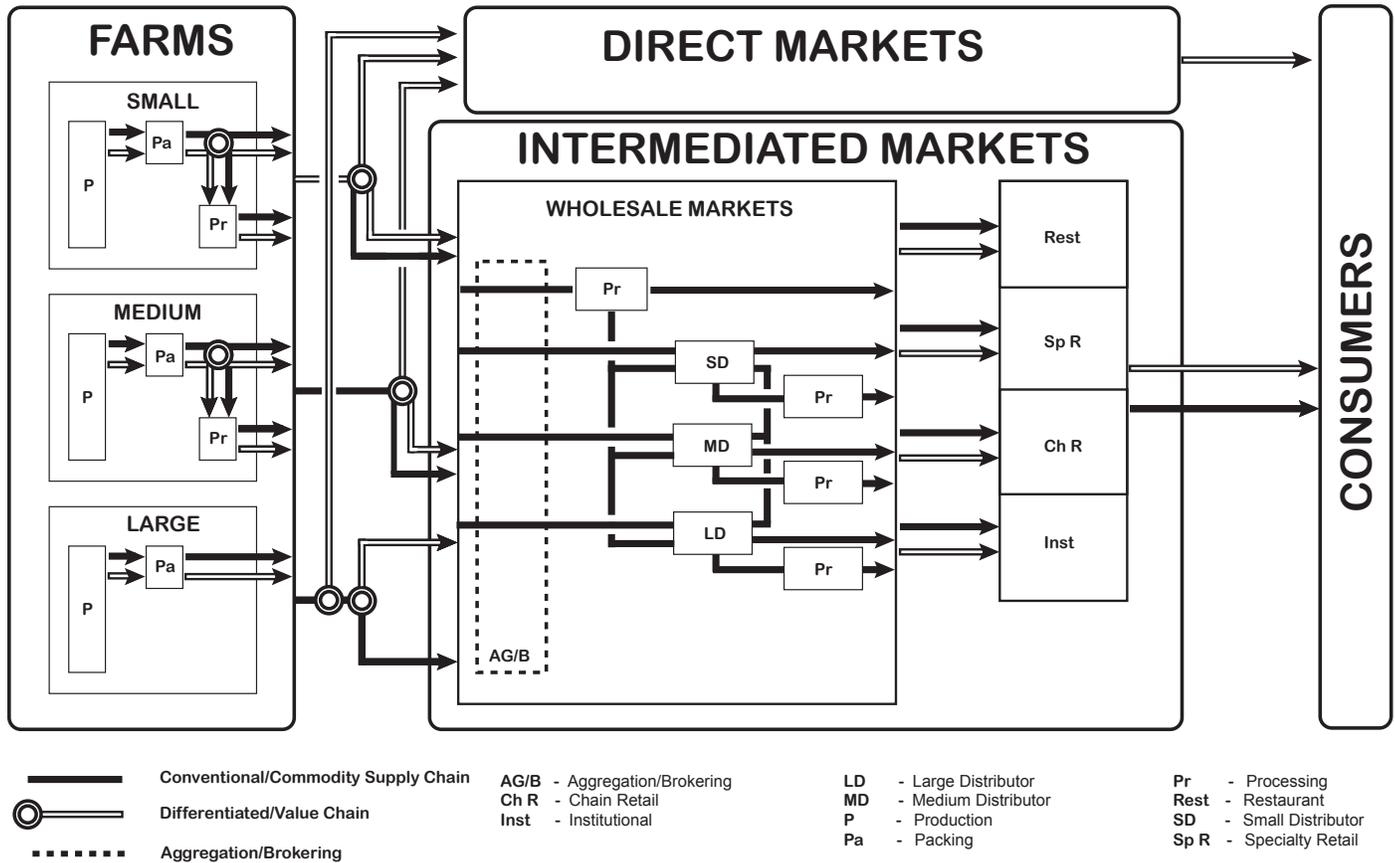
While there has been abundant descriptive literature on food hubs, there has not yet been scholarly or quantitative data on food hubs' performance or impact on value chain development, such as their impact on local economies or farm profitability. This research gap likely exists because food hubs are a new concept and new models are rapidly developing. Thus far, there are few published sources of analysis into food hub performance and impact. The USDA and Wallace Center, in partnership with the National Good Food Network, led a survey of food hubs nationally. What they discovered is that food hubs are a new type of enterprise, with 60 percent of those surveyed in business fewer than five years.⁸⁸ Additionally, food hubs source from an average of 40 suppliers and sell nearly \$1 million of food each year.⁸⁹ Their research also identified food hubs that report having successful impacts on local producers and increased buyers' purchases of local food. For example, they cite Local Food Hub in Charlottesville, Virginia, which increased farmers' sales by an average of 25 percent each and increased buyers' purchases of local products by 30 percent. Yet these reports are still anecdotal, as rigorous analysis of food hubs' impacts on the food value chain, farmer profitability, and other outcomes has not yet been conducted.

Despite their rapid growth and some positive anecdotal evidence of their success, many food hubs struggle financially. Of the food hubs chosen for a more in-depth interview in USDA's research, fully half of them were operating at a loss.⁹⁰ Those hubs that were operating at a break-even point or earning a profit tended to generate higher sales volume. This might indicate a tipping point for many hubs to target so they can achieve financial sustainability.

There is limited research on food hubs' systemic impact as many of them are relatively new. At least one study attempted to calculate the potential impact increased local food sales by food wholesalers would have on the farm economy.⁹¹ Using several quantitative models, the researchers learned that increased local food sales through wholesale intermediaries would have a positive, but small, impact on gross sales among farmers who market their products locally.⁹² One reason for the small size of the impact, the researchers conclude, is that farmers who market their products locally do not utilize local distributors as their primary means for transporting and marketing their products.⁹³

Testing a New Infrastructure Concept: Food Hubs

Diagram by Urban Design Lab



This diagram displays the different pathways for food distribution from farm to consumer along the conventional supply chain and the alternative value chain. Conventional pathways are represented by the solid arrows and added value pathways are represented by the outlined arrows. Products may move along these two pathways either directly to consumers or through intermediated channels. Intermediated channels include off-farm aggregation, brokering, sale through distributors, and farms' direct sales to restaurants, specialty retail, chain retail, or institutions. Value can be added at various points in the alternative value chain through product differentiation, on-farm or third-party processing, direct-to-consumer sales and special packaging.



Movable Beast Farm, Ulster County
Photo credit: Sarah Copeland

FOOD HUBS BEST PRACTICES

RESEARCH QUESTIONS

Because the research on food hubs' finances and impact is limited, our study sought to partly fill this gap by conducting a best practice review. Our research into food hubs best practices was based on semi-structured telephone interviews with 12 hubs throughout the country. We chose these hubs because they were close to an urban market, much like the Hudson Valley, and there was anecdotal evidence of some measure of their success. Additionally, we chose three of each type of business structure—private enterprise, not-for-profit, cooperative, and public.

The interviews with hubs sought to answer several questions that would inform potential food hub development in the Hudson Valley. Specifically, we sought to understand if particular business structures lead to different outcomes, such as more financial sustainability or better relationships with farmers. We also gathered information on their management and distribution models to understand how to operate food hubs successfully. Lastly, we focused on food hubs' finances, how they capitalized their launch, what equipment and operational costs are required, and whether they are achieving financial sustainability.

BEST PRACTICE REVIEW FINDINGS

The 12 hubs interviewed span the country, including hubs from the West coast, Midwest, the South, Eastern seaboard, and New England. However, much like food hubs nationally, our sample was more concentrated in the eastern half of the US, with half of our sample operating there. Similar to previous research findings, the hubs we interviewed share some common features, benefits, and challenges from which we can learn. The results of our findings are summarized below.

Common Missions

All of the hubs we interviewed shared the mission of connecting local farmers to new market outlets and supporting local farms. Similarly, increasing consumer access to local food was a common theme among five hubs and economic development was a common mission among four hubs. While many of the private enterprise, not-for-profit, and cooperative examples explicitly mentioned sustainability and land stewardship as part of their mission, only a couple of hubs formalized this mission through programming and procurement decisions.

Business Start up and Tenure

The time in business among the hubs interviewed ranged from one to 74 years, with five opening in the past five years. Some of the older hubs grew out of the organic foods and food cooperative movements⁹⁴ while the other older hubs are part of the public market system. Both of these types of older organizations predate the more recent concept of food hubs, with some of them self-identifying as food hubs and others instead identifying as distributors or markets where farmers sell their product. The newer hubs started up because they recognized the growing demand for local foods and that small and mid-sized farms needed assistance accessing markets. Of the five newest hubs, all of them conducted feasibility analyses or began with a written business plan. Most of the new hubs also received grant funding to start up. Hubs also reported having “anchor” buyers established up front to help generate sales and “anchor” farmers who helped achieve a consistent supply of product at launch.

Product and Service Offerings

Although the literature reviewed indicates food hubs may offer a variety of services, such as business and production planning assistance, the hubs we interviewed derive nearly all of their income from the sale and transport of food. Some hubs we interviewed indicate that farmers required initial assistance updating their packing processes on-farm to become ready for the wholesale market, but this was a learning curve farmers easily overcame. Some hubs also provide packing and repacking services for farmers. Several hubs refer farmers elsewhere for additional business assistance or for food safety training and information, rather than providing those services directly through the hub.

The hubs typically began with fewer “anchor” farmers to provide a stable supply of product at start up, but those we interviewed are presently sourcing from between 80 and 150 local farmers each. Although all of the hubs focus on supplying some local or regional foods, their definitions of local vary. In general, they all define local as either within 100 miles or within their state. Additionally, the portion of products offered by hubs that is from local farmers varies across the hubs. Seven of the 12 report they only source products locally whereas the remaining five hubs supplement their local food sourcing from elsewhere.

All of the hubs interviewed sell fresh produce, with one-third of them focused exclusively on produce. The remaining hubs offered a mix of products, including dairy, meat, flowers, and value-added foods. Because all but one operates year-round, the hubs confronted challenges due to short growing seasons. The hubs attempted to overcome seasonality issues through two strategies. First, they expanded their product offerings to items such as root vegetables and other produce that can be wintered and to Christmas trees and value-added, minimally processed foods. Second, hubs expanded their geographic range for sourcing in the off-season to back-fill supply. One hub reported this presented an issue with one of their larger clients who purchased from the hub because they offered local product and then shifted their purchasing back to their mainstream supplier in the off-season.

Staffing and Administration

Nearly everyone interviewed indicated that maintaining high quality staffing is one of the greatest challenges of managing a hub. Their issues regarding staffing ranged from finding good quality truck drivers to having a knowledgeable, mission-driven manager. Hubs typically required several key staff members. One such critical staff member is a high quality sales person. As the hubs explained, a sales person must know the products intimately and be able to communicate with customers. Without a high quality sales person, some hubs reported that their organization had suffered or could suffer. Additionally, among the hubs that maintain a warehouse, an inventory manager was another key staff member. This person ensures products are in industry standard packaging and that the products maintain their freshness and quality throughout the distribution process. Some hubs also shared stories about challenges they faced due to having an ineffective manager. Generally, these challenges arose because the manager lacked sufficient industry knowledge.

The number of full-time staffs ranged from 3 to 32 among the hubs interviewed. They did not require many administrative personnel unless their operations centered on larger scale warehousing and transportation functions. Among the hubs that provided transportation in-house, there was a need for either part-time or full-time truck drivers, depending on the volume of sales.

Hubs reported they have other administrative needs as well. These included liability insurance, food safety certifications, and information technology. Four of the 12 hubs had Hazard Analysis and Critical Control Points (HACCP) plans to track and maintain food safety.⁹⁵ Additionally, all hubs either required farmers to have good agricultural practices (GAP) certification, were helping farmers to obtain GAP certification, or required some other safety plan from farms. A common theme among some hubs was the difficulty farmers faced in obtaining GAP certification, due to cost, lack of inspectors, or lack of farmers' knowledge about GAP. While the not-for-profits used QuickBooks to track finances, many of the private enterprises and cooperatives used more sophisticated software to track inventory and finances.

Transportation and Logistics

Nine of 12 the hubs interviewed offered delivery service for customers, with the exception of hubs that are structured as markets where customers come to shop. The smaller hubs that delivered had shorter delivery ranges of approximately 100 to 150 miles and either owned or rented two to three delivery trucks. Several hubs were able to expand their delivery range through backhaul arrangements with distributors or retail stores. The larger, more established hubs had greater delivery ranges and owned larger fleets of trucks, with the largest hub owning 38 trucks. Several hubs leased trucks as a safety measure because if the truck breaks down, the lessor will provide a backup truck on loan until the other truck is repaired. Generally, hubs offered delivery an average of six days per week.

Five hubs that offer delivery service required a minimum order of \$100 to \$750, but the remaining four hubs that offer delivery did not require any minimum order. However, at least one of the hubs without a minimum order requirement does charge a delivery fee for longer distances. Of the 12 hubs interviewed, only five could estimate their transportation costs. Four of those hubs estimated their costs ranged from \$25 to \$65 per pallet, while one estimated their transportation costs added 15 to 20 percent onto the product price. All but one hub worked with at least some farmers who were able to provide transportation of products to the hub.

Marketing

The nine hubs that offered delivery of food also tracked their customer bases. They generally targeted retailers and institutions as their primary customers. One of these hubs reported selling to large corporate dining services as a key client as well, an interesting finding considering the Hudson Valley and New York City regions are home to numerous corporate institutions. Challenges to reaching larger retail for some hubs included a lack of sales staff to target that market and the pre-existing relationships retailers have with distributors.

Hubs that handled orders with customers did so over the phone. As they explain, telephone orders are critical because their sales representatives are able to provide detailed information about the products to the buyer, including the condition of the products, explaining any difficulties inherent to working with small farms, and managing buyers' expectations for the growing season. These discussions allow the hubs to provide better customer service.

Hubs defined their most critical service to customers as delivering the best quality product on time. Without that, they would not be in business. However, they all emphasized identity and branding are a requirement to maintaining their position in the market. Hubs offer a unique value to their customers; they provide food that can be traced back to the farm and build relationships between farmers and buyers. Five hubs also provided detailed information about their farms on their websites.

Finances

Similar to the findings from the USDA and Wallace Center survey of food hubs, half of the food hubs we interviewed are not yet financially viable in that they are not yet covering their costs. Annual gross sales ranged among the hubs from \$200,000 to over \$300 million, with median sales of \$1.2 million. While not all hubs were able to estimate their gross margin, based on the information provided from some hubs, a typical gross margin ranges from 20 to 30 percent. Six of the 12 hubs were revenue positive in that they were at least covering their costs, with some of them also earning a profit. However, five of the 12 hubs are operating at a loss (and one did not report whether they were profitable).

We grouped the hubs into two groups—those that were covering costs and those that are not yet financially viable—to determine if there are commonalities among hubs in each group. There was no clear relationship between ownership type, e.g. not-for-profit versus for-profit, and whether the hub was revenue positive. However, we did find some common themes. Among the hubs that are financially viable, they are all longer established businesses with higher sales volume. All of them were in business at least 10 years and had median annual sales of \$1.5 million. In contrast, among the five hubs that were not covering costs, all had been launched within the past four years and had a much lower median sales volume of approximately \$600,000 annually.

An additional financial issue that hubs raised is their ability to manage cash flow. Hubs have learned that faster payment to farms engenders more willingness among farmers to work with the hub. Additionally, some hubs maintain farmer viability as part of their mission and therefore strive to maintain short payment schedules with farmers. Five hubs were able to pay farmers within two weeks and three hubs were able to pay farmers within one month. However, half of the hubs reported they invoice buyers on a one-month schedule, with buyers taking up to 60 or 90 days to pay them. This mismatch in payment schedules caused cash flow issues for many of the hubs.

Lessons Learned

Several conclusions about food hubs can be drawn from our interviews and provide lessons that could be applied to future food hub development.

1) Launch requires “anchor” buyers and sellers.

As many of the food hubs interviewed reported, having anchor buyers enabled them to have a steady stream of revenue at launch to help cover their start up costs. Additionally, having anchor sellers during the start up phase provided hubs with a reliable, consistent supply of product. That supply of product enabled them to attract larger buyers, but having anchor farmers also encouraged other nearby farmers to join the hub.

2) Farms may need initial assistance with packing and obtaining new food safety certifications.

As farmers transitioned to selling to new types of markets, those for larger retailers and institutions, they were required to change their packaging and faced new demand for third party food safety certifications. It appears that farmers need initial assistance with learning industry standard packing, but once informed of the new requirements, they easily became integrated into their on-farm operations. However, the third party certifications for GAP continued to present a challenge to both farmers and food hubs. Some food hubs were interested in means for training farmers in groups to lower the costs of inspection, but none had identified any best practice for more readily obtaining GAP certifications. All of the hubs seemed to recognize this will have to be overcome to continue growing their operations and expanding to new sales venues.

3) Inventory management, quality control, and customer service are minimum requirements for business survival.

The more established hubs and at least one of the newer hubs maintained staffs that had experience in supply chain logistics and the wholesale food industry. Additionally, they purchased inventory tracking software off-the-shelf or customized software to assist in inventory management. All of the hubs emphasized that carefully managed inventory enables them to maintain quality of the product and deliver it on time. Rather than identifying product quality as a selling point, the hubs we interviewed framed it as a minimum requirement for staying in business. Future hub development should therefore include careful planning for inventory management and quality control throughout the distribution system.

4) Products must be marketed as high value, source-identified with a connection to the farms that produce them.

As previous literature indicates, maintaining the connection between the farms and customers is an important feature of local food value chains.⁹⁶ Because customers can obtain information about the provenance of their food, it holds higher value for them.⁹⁷ Many of the hubs interviewed supported this finding as well and actively market not just the food but also the farms as well.

5) Seasonality must be addressed, but some potential strategies exist.

Because many of the hubs we interviewed focus on produce and operate in areas with shorter growing seasons, seasonality presents a challenge for staying open year-round. Expanding their geography and product lines offered two strategies for addressing seasonality, but they were not without risk. Relying on expanded geography alone could reduce the hubs' competitive advantage over mainstream supply channels. Hubs should therefore explore multiple options for addressing seasonality.

6) Food hubs continue to struggle to achieve financial viability.

Only those hubs in business for at least 10 years had achieved financial viability. Many of the new hubs required grant funding for start up, had cash flow issues, and were not yet covering their operating costs. Although the wholesale market for local products seems adequately large based on previous literature, wholesale distributors operate on thin margins. There may be a tipping point in annual revenues after which hubs are able to break even. While our research indicates this tipping point is greater than \$600,000 and likely closer to \$1.5 million, detailed exploration of food hub finances should be a topic for future research. Based on our interviews, food hubs may generate higher revenues by having high quality sales staff with product knowledge and maximize their net income through careful inventory and logistics management.

7) High quality staffing is one of the greatest challenges food hubs face, but also the greatest contributing factor to their success.

Several of the food hubs that were in business longer and that were financially viable pointed to having knowledgeable staff or mission-driven leadership that also knew the wholesale food business. On the other hand, several of the hubs that had experienced difficulty in the past or that were currently struggling mentioned the lack of qualified management staff as their key issue. Although all hubs reported their mission is to provide better access to local foods and open markets to local farmers, having sales and management staff with industry or product knowledge was just as important to their operational success. New hubs should therefore choose staff with prior experience in the food industry and staff that understand the wholesale market.





Kiywana Farm, Westchester County
Photo credit: drewharty.com

EXAMINING HUDSON VALLEY FOOD VALUE CHAINS

The Hudson Valley is home to more than 3,100 farms and 474,000 farmland acres.⁹⁸ These farms collectively produce more \$322 million of food each year.⁹⁹ Despite the significant loss of farms and farmland and the pressures on small and mid-sized farms, there are also positive signs of change and resilience in the Hudson Valley agriculture industry. More recent data indicate there has been a significant slowing of the decline in the number of Hudson Valley farms. From the 1950s to the late 1970s, the Census of Agriculture measured an average loss of 27.5 percent of farms every five years. However, this decline slowed significantly since the late 1970s, after which point the average loss of farms every five years was only 1.9 percent.¹⁰⁰ Additionally, several counties have experienced an increase in some farm sectors' activity as described later in this report.

Within the Hudson Valley, particular counties comprise a larger share of the farm economy. Together, Columbia, Ulster, and Orange County farms produce 64 percent of all regional farm sales.¹⁰¹ These counties, along with Dutchess County, also encompass much of the agricultural land in the region.

The analysis that follows is organized by each food value chain in the Hudson Valley: fruit, vegetables, dairy, meat, poultry, and grain. Each product value chain is described separately due to the complexities of each and

because their production, processing, and distribution infrastructures are distinct. It includes data gathered from state and federal sources, along with information gathered through one-on-one interviews with farmers, food processors, distributors, and buyers. For each local product value chain, we assess the region's productive capacity, processing capacity, distribution system, infrastructure resources, and market demand. From this, we are able to draw conclusions about each value chain's particular strengths, weaknesses, opportunities and challenges for food hub development. Because our interviews returned information that cut across these product-specific value chains, we included a summary of cross-cutting themes as well.

FRUIT

Overview of fruit production

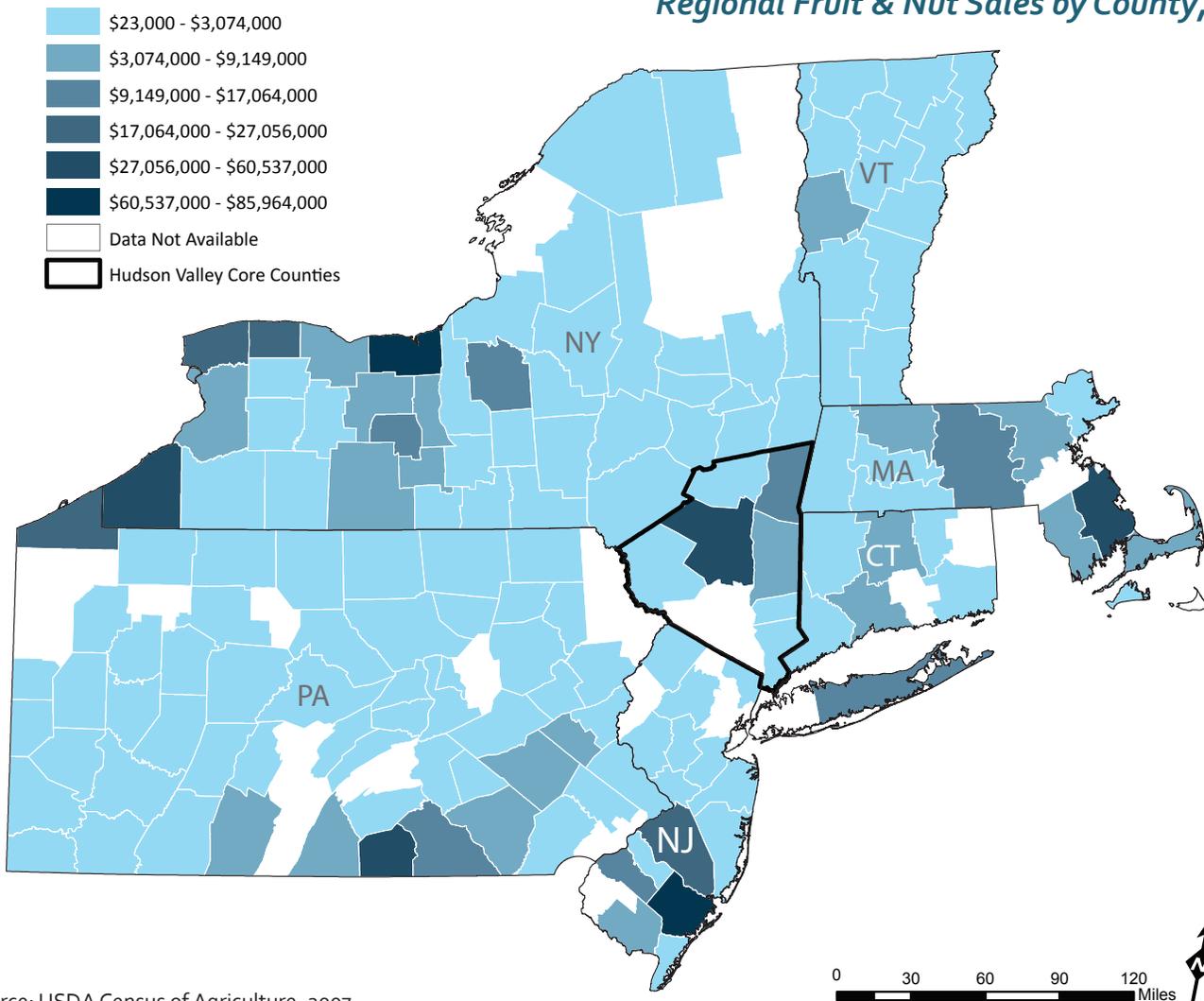
Fruit is one of the main Hudson Valley agricultural products, with 290 tree fruit farms and 154 berry farms throughout the region selling over \$60 million in fruit each year.¹⁰² Altogether, fruit production in the Hudson Valley is nearly 17 percent of the statewide fruit sales.¹⁰³ Compared to other parts of the state and northeast region, Hudson Valley boasts high fruit sales. Much of the fruit production is in orchards and is clustered along the river, particularly in Ulster, Columbia, and Orange coun-

Overview of Hudson Valley Agriculture

County	Farms	% of HV farms	Farm Acres	Average Farm Acreage	Total Sales	% HV sales	Average Farm Sales
Columbia	554	17.5%	106,574	192	\$65,770,000	20.4%	\$118,718
Dutchess	656	20.8%	102,360	156	\$44,866,000	13.9%	\$68,393
Greene	286	9.0%	44,328	155	\$16,373,000	5.1%	\$57,249
Orange	642	20.3%	80,990	126	\$73,748,000	22.9%	\$114,873
Putnam	72	2.3%	5,635	78	(D)	(D)	(D)
Rockland	21	0.7%	(D)	(D)	\$2,560,000	0.8%	\$121,890
Sullivan	323	10.2%	50,443	156	\$42,117,000	13.1%	\$130,393
Ulster	501	15.8%	75,205	150	\$65,595,000	20.4%	\$130,928
Westchester	106	3.4%	8,521	80	\$10,998,000	3.4%	\$103,754
Hudson Valley	3,161		474,056	137	\$322,027,000		\$105,775
New York State	36,352		7,174,743	197	\$4,418,634,000		\$121,551

(D): Data not disclosed. Source: USDA Census of Agriculture, 2007

Regional Fruit & Nut Sales by County, 2007



Source: USDA Census of Agriculture, 2007

ties, although there are fruit farms throughout the region. Fruit sales account for at least 18.6 percent of all farm sales, but because the USDA does not report sales figures from Orange County where there are several large farms, the amount of fruit sales is likely higher.¹⁰⁴

Orchards have declined in both number and size. In just the period from 1997 to 2007, the Hudson Valley lost 22 percent of its orchards.¹⁰⁵ Unlike other product sectors, this decline in numbers does not appear to be due to consolidation of farms as the average orchard size has also declined, by 13 percent over this period. In total, the Hudson Valley has lost over 5,700 orchard acres, with the largest losses in Ulster, Orange, and Columbia Counties.¹⁰⁶

Because orchard fruit is a historic part of the Hudson Valley's agricultural landscape, there are many long-standing orchards and a diversity of growers on them. Much of the orchard fruit production volume is concentrated among a group of larger commercial apple producers in the region who primarily target the mainstream wholesale market.¹⁰⁷ These growers' orchards tend to range in size, but are generally cultivating 200 acres or more. However, there are also many pick-your-own orchards and a few mid-sized and large orchards that also rely on direct-to-consumer sales through CSAs and farmers markets. Although apples comprise more than 83 percent of all orchard acres in the Hudson Valley, there are farms that produce other types of stone fruit, such as cherries, peaches, pears, and plums.¹⁰⁸

Examining Hudson Food Valley Value Chains

Hudson Valley Fruit Production

County	Orchards		Berries		Fruit & Nut Sales
	Farms	Acres	Farms	Acres	Sales
Columbia	64	2,679	39	92	\$12,674,000
Dutchess	44	783	25	112	\$3,688,000
Greene	11	66	10	43	\$395,000
Orange	31	1,155	18	29	(D)
Putnam	23	168	0	0	\$352,000
Rockland	3	(D)	1	(D)	(D)
Sullivan	9	25	7	11	\$108,000
Ulster	96	7,146	51	299	\$42,797,000
Westchester	9	176	3	1	\$407,000
Hudson Valley	290	12,198	154	587	\$17,217,000
New York State	2,686	99,658	1234	4314	\$363,295,000

(D): Data not disclosed. Source: USDA Census of Agriculture, 2007

Average Acres Per Orchard

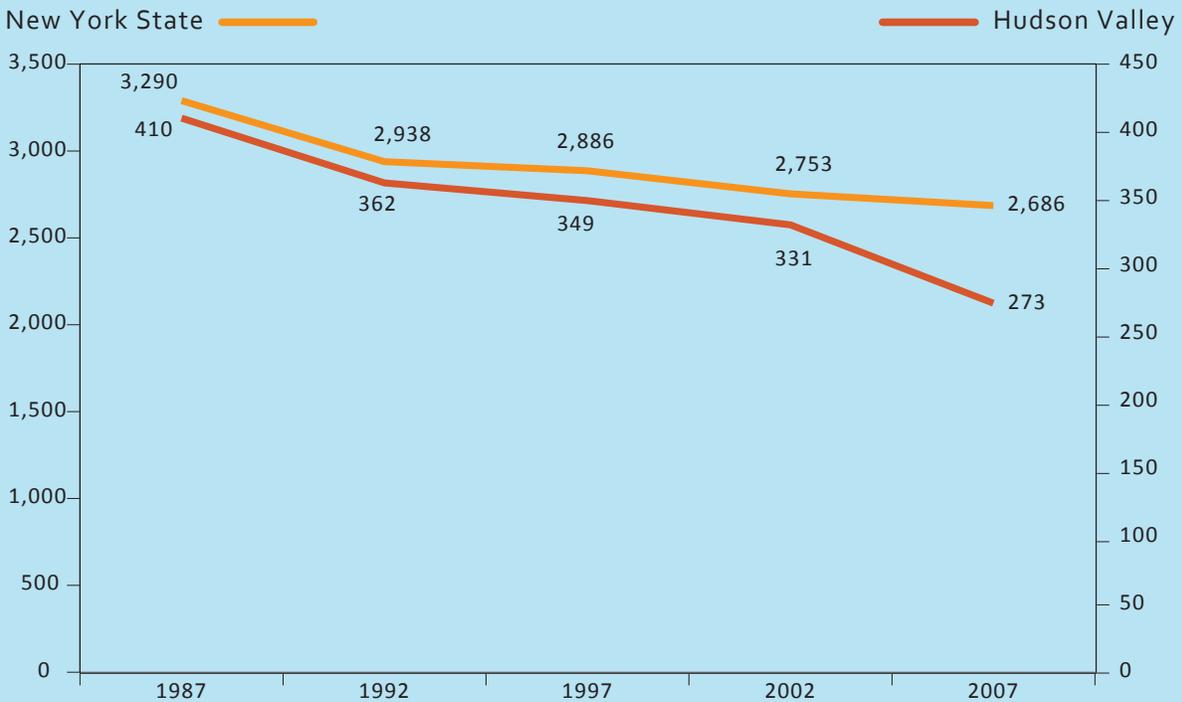
County	1987	1992	1997	2002	2007
Columbia	52	46	44	49	42
Dutchess	44	40	29	18	18
Greene	10	12	11	12	6
Orange	61	58	66	37	37
Putnam	10	17	8	(D)	28
Rockland	18	17	(D)	12	(D)
Sullivan	6	4	8	10	3
Ulster	90	94	78	71	74
Westchester	26	22	21	10	20
Hudson Valley	60	58	51	42	45
New York	38	38	39	36	37

(D): Data not disclosed. Source: USDA Census of Agriculture, 1987 - 2007

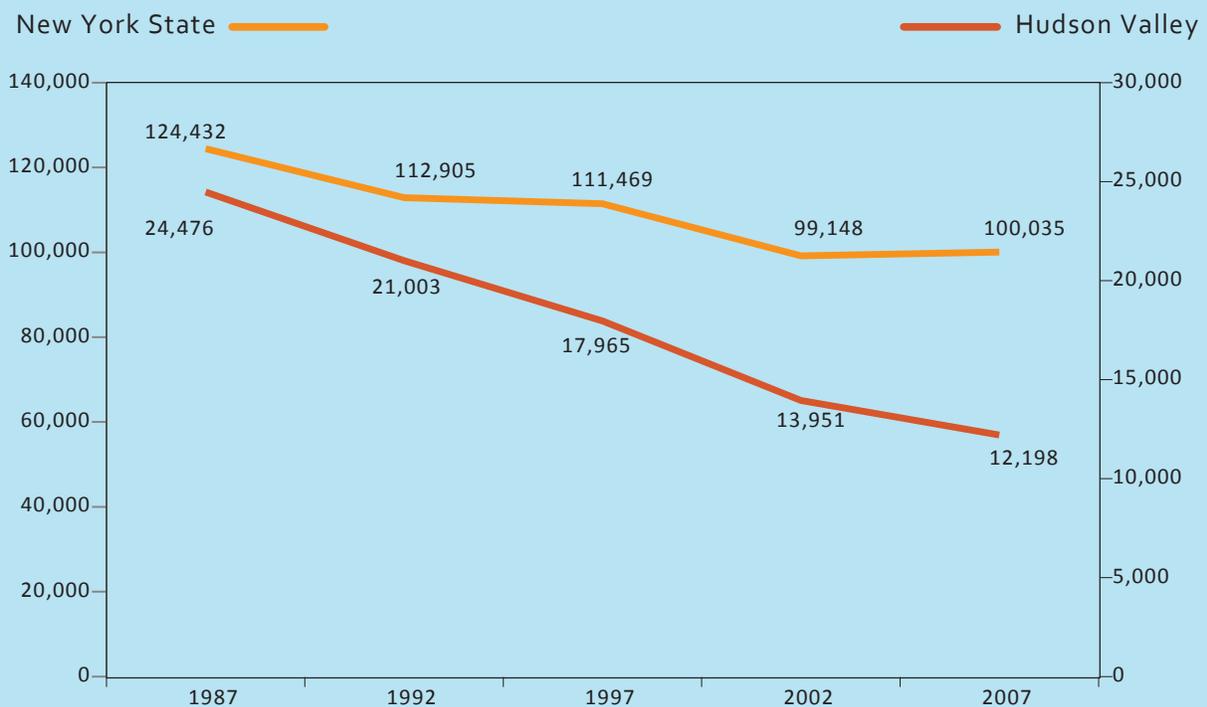
Production practices among the farms we interviewed are similarly diverse. We interviewed several larger farms that use conventional methods and who are able to adopt more expensive technologies, such as sophisticated controlled atmosphere to store apples, and new types of plantings that fruit more quickly than traditional trees. There are also several small and mid-sized growers who are trying to incorporate new environmental practices. These include participation in the Eco Apple™

program,¹⁰⁹ integrated pest management systems, and new organic plantings. However, these tend to be more recent practices, adopted and experimented with in the past few years. The orchards using these practices, that we interviewed, also tend to be smaller and mid-sized farms that primarily target direct-to-consumer markets. However, some of these farms also target intermediated sales, such as direct sales to retail and restaurants. One common theme among the orchard growers, regardless

Decline in Number of Hudson Valley and New York State Orchards, 1987- 2007



Decline in Hudson Valley and New York State Orchard Acres 1987- 2007



Source: USDA Census of Agriculture, 1987 - 2007

Examining Hudson Valley Food Value Chains

of size, is that recent weather events have negatively impacted industry yields. Additionally, organic production in the region is currently difficult, and for many growers, cost prohibitive. One grower, who had recently begun experimenting with organic pick-your-own plots, indicated the net loss from organic could be as high as 800 percent, as inputs were higher and yields lower. However, this farmer indicated the practices are still very new in the region and maintained hope for longer-term gains through direct-to-consumer sales.

While the Hudson Valley also produces other types of fruits, such as berries, these are smaller portions of the overall fruit sector. Many of these berry operations are pick-your-own and small direct-to-consumer operations. Two growers during our listening sessions and group meetings indicated their belief there is a market for local berries, however, one of them indicated they have trouble finding adequate processing infrastructure and distribution channels for smaller volumes of berries.

Demand for fruit

Consumers in the Hudson Valley purchase more than \$4.11 billion in fresh and processed fruit and consumers in New York City purchase over \$1.4 billion in fresh and processed fruit annually.¹¹⁰ Regional farmers produce the equivalent of 74 percent of Hudson Valley consumer demand for fresh fruit. However, given the size of the New York City market, Hudson Valley fruit production is roughly equivalent to 21.7 percent of consumer demand there.¹¹¹ These estimates also do not account for the portion of fruit consumption that is for citrus and tropical fruits that do not grow in the region, which, if included, would like further reduce the local farm equivalent of consumer demand. Additionally, these estimates do not include consumption of processed fruit as there are no data estimating the portion of Hudson Valley fruit production that is used in processing. Based on our interviews and analysis of state-issued processing licenses, described later in this report, a portion of fruit produced in the Hudson Valley are sold for local processing of cider, juice, jams, spirits, and other products. However,

Estimated Hudson Valley and New York City Markets for at Home Fruit Consumption

<i>County</i>	<i>2011 Consumer Units</i>	<i>Fresh Fruit Consumption</i>	<i>Processed Fruit Consumption</i>	<i>Total Fruit Consumption</i>
Columbia County	26,063	\$7,245,375	\$3,414,188	\$10,659,563
Dutchess County	124,166	\$34,518,218	\$16,265,779	\$50,783,996
Greene County	20,398	\$5,670,505	\$2,672,073	\$8,342,578
Orange County	156,197	\$43,422,673	\$20,461,763	\$63,884,437
Putnam County	41,639	\$11,575,573	\$5,454,676	\$17,030,249
Rockland County	131,316	\$36,505,802	\$17,202,374	\$53,708,176
Sullivan County	32,042	\$8,907,583	\$4,197,458	\$13,105,042
Ulster County	76,020	\$21,133,560	\$9,958,620	\$31,092,180
Westchester County	398,291	\$110,724,968	\$52,176,154	\$162,901,121
Hudson Valley	1,006,130	\$279,704,256	\$131,803,085	\$411,507,340
Bronx County	580,001	\$161,240,232	\$75,980,109	\$237,220,341
Kings County	1,055,269	\$293,364,713	\$138,240,206	\$431,604,919
New York County	667,478	\$185,558,977	\$87,439,662	\$272,998,638
Queens County	936,603	\$260,375,727	\$122,695,037	\$383,070,763
Richmond County	196,028	\$54,495,761	\$25,679,657	\$80,175,418
New York City	3,435,379	\$955,035,408	\$450,034,671	\$1,405,070,079

Source: US Census Bureau, Bureau of Labor Statistics

Hudson Valley Fruit Sales Equivalent to Consumer Demand

Hudson Valley Fresh Fruit Consumption	\$ 279,704,256
NYC Fresh Fruit Consumption	\$ 955,035,408
Hudson Valley Farm Fruit Sales	\$ 60,014,000
Farm Value of Fruit Price	29.0%
Retail Value of Hudson Valley Fruit Sales	\$ 206,944,828
Local Farm Equivalent of Hudson Valley Market	74.0%
Local Farm Equivalent of NYC Market	21.7%
Local Farm Equivalent of Combined Market	16.8%

Source: US Census Bureau, Bureau of Labor Statistics, USDA Census of Agriculture 2007, USDA Price Spreads

most fruit grown in the region likely remains in the fresh market. If the calculations above were to include fruit for the processed market, the local farm sales would represent an even smaller portion of overall consumption.

The outlook for fruit demand is promising as per capita fruit consumption, measured in pounds per capita, has risen since the 1970s.¹¹² This is especially true of non-citrus fruit, the demand for which has increased 45.6 percent since 1976.¹¹³ Processed non-citrus fruit consumption has also grown during this period, by 28.5 percent.¹¹⁴ In contrast, both fresh and processed citrus fruit demand have declined over this period, potentially highlighting an opportunity for other types of fruit.

Fruit processing and distribution infrastructure

Based on our interviews with 18 farmers who grow fruit, much of the fruit production in the Hudson Valley is for fresh, not processed, fruit. However, there is some fruit processing capacity in the region. Many of the small and mid-sized growers process cider on-farm. Our estimates, based on the New York State Agriculture and Markets licensing database, indicate 48 facilities in the Hudson Valley region produce cider, with nearly all of them processing on-farm. Most of these appear to distribute through direct-to-consumer channels, such as farm stores and farmers markets. However, seven of them also market their cider for wholesale, through retailers and other venues. None of the farms we interviewed or researched from the state license list appear to make other types of fruit juices on-farm, although one

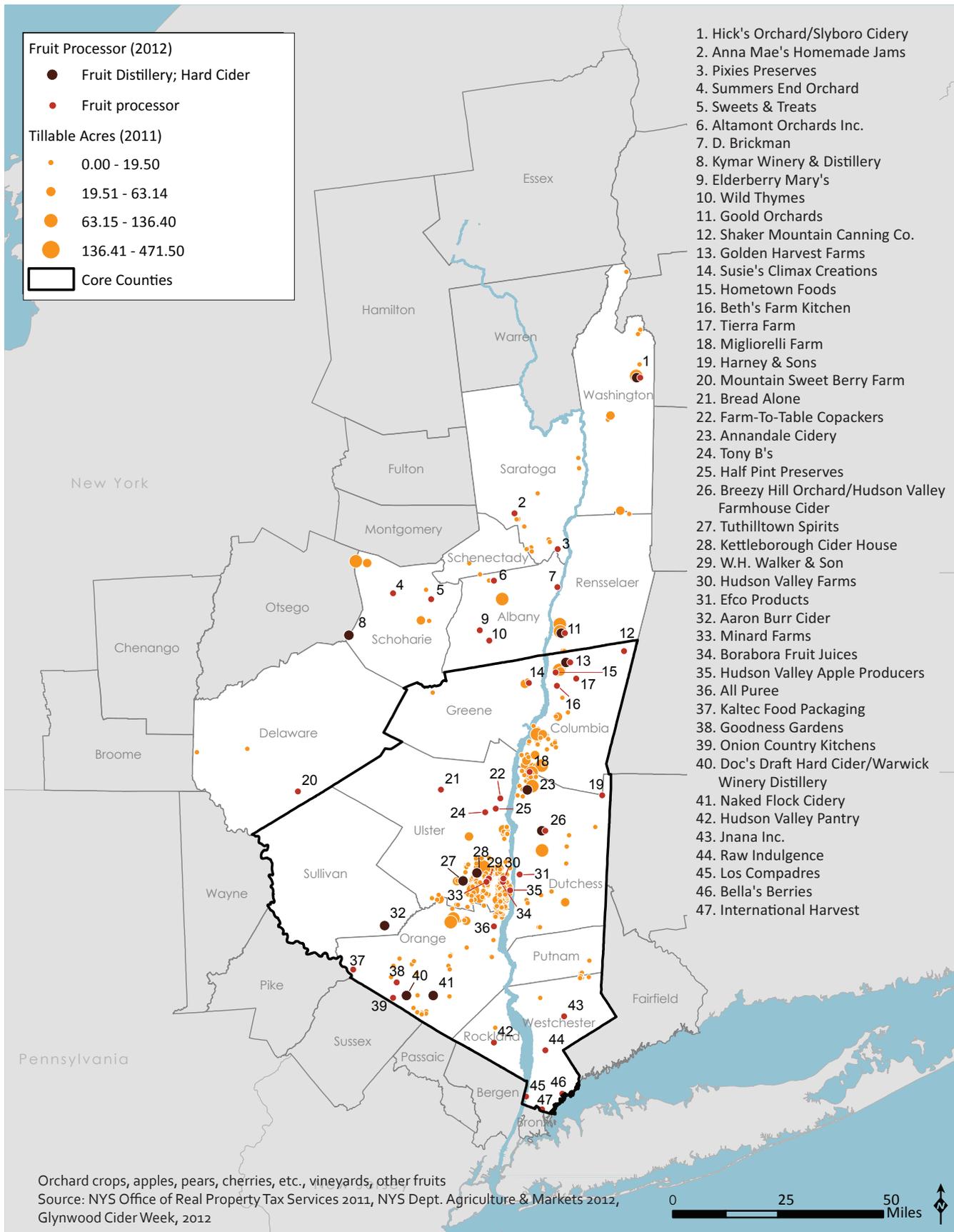
reported making a blend of apple cider and berry fruit juices primarily for sale through farmers markets and farm stands. Based on the state license list, there are five producers of other fruit juices in the Hudson Valley that distribute through wholesale channels. It is unclear what portion of the fruit they procure for manufacturing is from Hudson Valley farms.

Orchard farmers in the Hudson Valley are also seizing on a new trend toward hard cider and micro-distilling. There are currently approximately nine hard cider operations in the Hudson Valley that utilize local fruit. These operations have received widespread attention in the past several years in the press and in part due to a promotional campaign led by Glynwood, called Cider Week.¹¹⁵ This campaign works with local hard cider makers and retailers and restaurants who feature their products for one week.¹¹⁶ The project further works with hard cider producers to share information and build a cluster of producers in the region. In addition to this local effort, there has been an increase in hard cider production and sales nationally, with at least two large corporations purchasing smaller cider operations.¹¹⁷ Similarly, there are several operations in the Hudson Valley distilling fruit-based spirits for wholesale distribution. These include Dutch's Spirits in Pine Plains, Harvest Spirits in Valatie, Tuthilltown Distillery in Gardiner, and Warwick Valley Winery and Distillery, all of whom operate micro-distilling operations in the region.

Aside from beverage processing of various types, the infrastructure for processing fruit into other forms is limited in the Hudson Valley. There are a number of farms that process small volumes of specialty products on-farm, such as jams, chutneys, and fruit butters, but

Examining Hudson Valley Food Value Chains

Hudson Valley Fruit Farms & Processing Facilities



these are not typically distributed off farm or through wholesale channels.¹¹⁸ Our review of the state license database revealed 29 companies that process specialty fruit items for wholesale, such as jams, fruit fillings, frozen fruit, dried fruits, sorbet, and even one that makes “squeezy fruit” in tubes. While some of them are farms who process on-site for direct sales to retailers and restaurants, only nine appear to have larger wholesale distribution.

Two companies that can freeze local fruit in bulk are Farm to Table Copackers in Kingston and Beth’s Farm Kitchen in Dutchess County. Both of these processors offer co-packing services for various products, such as frozen fruit, purees, and preserved fruits. However, there are no processors in the Hudson Valley that our research identified that are currently processing fresh cut fruit for wholesale distribution. One larger scale apple farmer indicated such processing capacity would open new markets for their products and suggested future research into that opportunity. Specifically, the grower cited the recent decision by McDonald’s to offer sliced apples with every children’s meal.¹¹⁹ There are currently no fresh apple processors in the Hudson Valley, however, one company, Champlain Valley Specialties, is producing fresh sliced and packaged apples farther north.¹²⁰

Distribution of fruit in the Hudson Valley follows two general paths. Most of the large orchards utilize brokers and wholesalers to market their products through com-

modity channels, with their products sold at larger format retail stores and institutions. There are several sites in this supply chain throughout the Hudson Valley that have sophisticated storage and packing operations for their own use, and for other farms’ packing needs. With the exception of the one suggestion to explore fresh cut equipment, this supply chain appears fairly well served by local processing and distribution infrastructure.

The more localized value chain in the Hudson Valley has two segments, both of which operate separately from the mainstream supply chain and infrastructure. These two local segments in the localized value chain include farms that market primarily through direct-to-consumer sales and others that are more diversified in their distribution, targeting both some direct-to-consumer sales but also utilizing value-added processing (i.e. cider, hard cider, spirits) and larger volumes to market to wholesale clients. In this value chain, some farms have on-site cold storage and utilize either on-farm or off-farm processing infrastructure.

Half of the 18 fruit growers we interviewed needed additional cold storage space. Interestingly, four reported they had excess space, which may be available for part-time rental. However, these growers cautioned some of this space may not be available if there were to be an abundant growing season.



Hudson Valley Farmhouse Cider. Photo credit: Elizabeth Ryan

Strengths and weaknesses in the fruit value chain

The Hudson Valley remains a strong fruit growing region within the state and northeast region. Given the size and concentration of orchard growers in the region, there are a number of supportive resources for them and related businesses in the region. Several growers mentioned using the research and educational services of Cornell Cooperative Extension (CCE) and the Cornell Hudson Valley Laboratory. In particular, two growers mentioned incorporating their services and research into their growing practices. Another grower reported that an informal group of next generation fruit growers had formed in the Hudson Valley. The members of this group are primarily the adult children of established orchard growers in the region and gather occasionally for networking and informational purposes.

Because there are a number of large commercial orchards, there is both human capital and physical infrastructure available to them. This includes several brokers who service these farms and provide packing materials, marketing assistance, and schedule trucking for pick up and deliveries from multiple farms along the river. Many farms also belong to the New York State Apple Growers Association, which shares information, lobbies for supportive government policies, and provides marketing assistance for the apple industry.¹²¹

Despite these resources, the locally focused value chain and the mainstream value chains are not currently integrated. While growers in both the mainstream supply chain and the local value chain appear to share particular resources, such as Cornell Cooperative Extension, Hudson Valley Laboratory and the New York State Apple Growers Association, they utilize different aspects of the local physical infrastructure. One particular weakness in the localized value chain is the lack of packing, storage, and processing infrastructure and services to facilitate access to wholesale channels, such as institutions and retailers.



Opportunities and challenges for future development

Several opportunities exist to support the fruit sector in the Hudson Valley. Some promising trends include the nascent hard cider and distilling industry in the region that appears to be capitalizing on a strong consumer trend. However, given this is a new, niche, market, it is unclear as of yet whether the trend will continue in the longer term.

The markets for fresh fruit and processed fruit, especially non-citrus fruit and fresh cut fruit, have a promising outlook. In part, this may be due to growing awareness about healthful eating and the government and public health investment throughout the country in promoting fresh fruit and vegetable consumption.¹²²

The future of fruit growing in the Hudson Valley is not without its challenges. Recent weather events and the local climate increase financial risk for fruit growers and make adoption of some new environmental standards costly. Additionally, the decades-long decline in the number of orchards and orchard acres indicates the sector has been under some pressure. This may indicate new means for achieving higher value for small and mid-sized fruit growers, such as through specialty varieties, new growing practices, or value-added processing, are needed.

VEGETABLES

Overview of vegetable production

Vegetable production is a key component of the Hudson Valley's agriculture industry, helping to make New York State the fifth largest vegetable producer in the country.¹²³ There are nearly 400 vegetable farms throughout the region that generate \$45.4 million in annual vegetable sales.¹²⁴ Although the region is only 8 percent of statewide vegetable acres, the Hudson Valley produces over 13 percent of statewide vegetable sales.¹²⁵ The Hudson Valley is one of the highest sales areas for vegetable production in the northeast.

Half of the region's vegetable sales are from Orange County, known for the highly productive Black Dirt region. While this region has historically been known for its onion production, there are more diversified growers as well who grow leafy greens and other vegetables. The Rondout Valley in Ulster County also has a cluster of vegetable farms due to its high quality growing soils. Several of these farms grow large volumes of sweet corn for the wholesale market, but there are also many diversified farms and farms that focus more on direct-to-consumer sales. Ulster County, although only half the

output of Orange County, is the second highest grossing county for vegetable farm sales. While Dutchess, Greene, and Columbia Counties do not have the same degree of large scale vegetable farm clustering, there is still significant vegetable farming activity in each county. Moreover, based on our interviews with farms, it seems likely that the USDA estimates of gross farm receipts from 2007 underrepresent the sector's productivity and importance to the region.

Even though the total number of vegetable farms in the Hudson Valley has declined since 1987, six counties have seen slight growth in the number of vegetable farms; Columbia, Dutchess, Greene, Putnam, Sullivan, and Ulster Counties have all experienced a net growth in the number of vegetable farms since 1987.¹²⁶ However, only Greene and Ulster also experienced some growth in the number of acres in vegetable farming, with Greene also experiencing an increase in the average vegetable farm size.¹²⁷ The other counties experiencing recent growth in vegetable farms have seen a decline in total acres farmed and a decline in the average vegetable farm size. This would seem to indicate the growth in vegetable farming activity has therefore been among smaller vegetable farms in these counties.

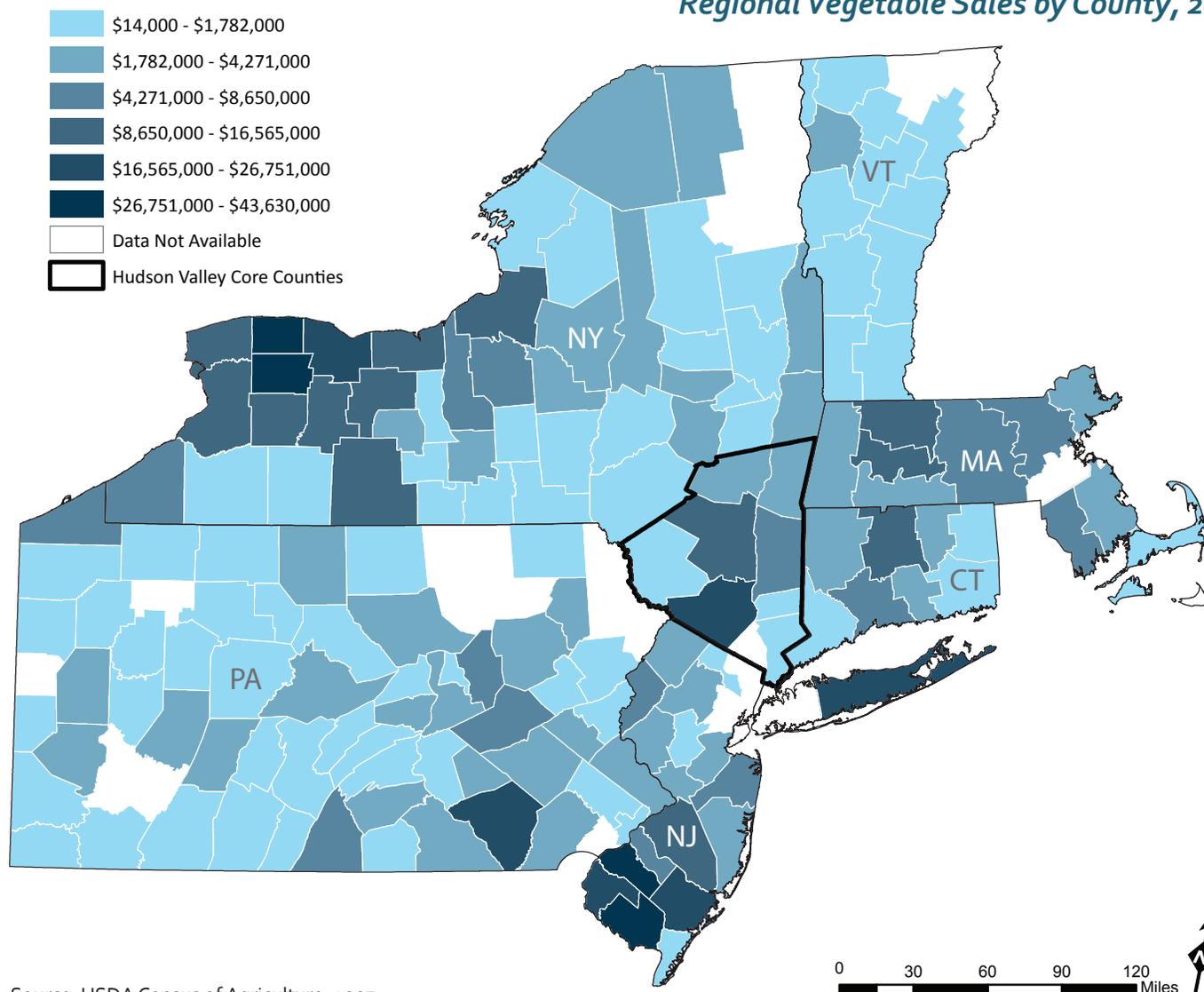
Hudson Valley Vegetable Production

County	Farms	Acres	Sales
Columbia	69	970	\$3,595,000
Dutchess	64	1,990	\$5,840,000
Greene	24	1,146	\$2,895,000
Orange	111	5,495	\$22,239,000
Putnam	10	98	\$390,000
Rockland	4	(D)	(D)
Sullivan	31	143	\$486,000
Ulster	71	3,086	\$9,353,000
Westchester	12	121	\$616,000
Hudson Valley	396	13,049	\$45,414,000
New York State	3,192	160,146	\$338,037,000

(D): Data not disclosed. Source: USDA Census of Agriculture, 2007

Examining Hudson Valley Food Value Chains

Regional Vegetable Sales by County, 2007



Source: USDA Census of Agriculture, 2007

Twenty nine of the farms interviewed for this study currently grow vegetables and range in size from four acres to well over 1,000 acres. Of these vegetable farms we interviewed, six are large farms, with over 500 acres, 18 are mid-sized farms with between 50 and 500 acres, and five are small farms, with fewer than 50 acres. Although sweet corn and onions have historically been high volume vegetable crops and continue to define a segment of the local vegetable sector, our interviews indicate most Hudson Valley vegetable farms grow a variety of vegetables.

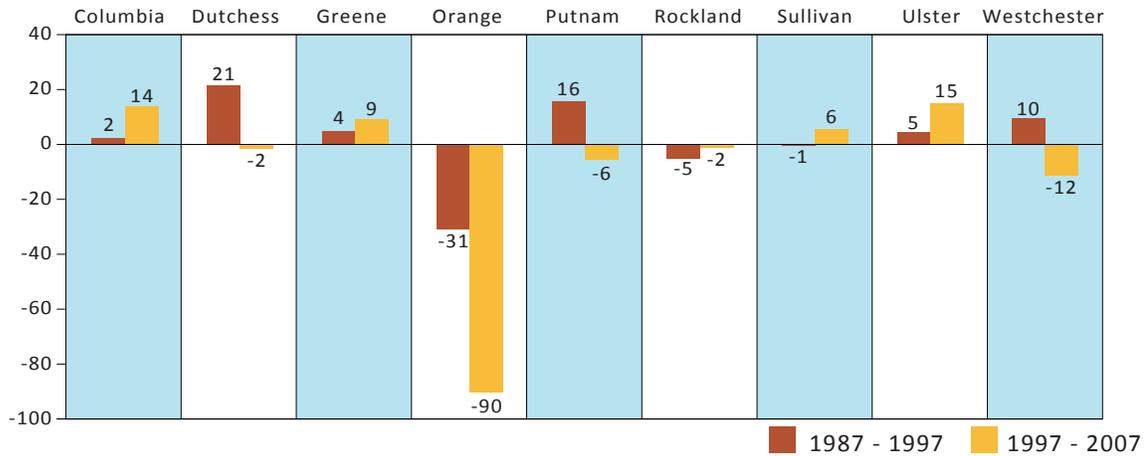
Growing practices among vegetable farms vary greatly. Just over half of the vegetable farms we interviewed re-

port using sustainable practices in their farming, such as Certified Natural or organic, although only a five appeared to have third-party certifications. Additionally, nine of the 15 farms who report using these types of sustainable practices were either small or mid-sized vegetable operations of fewer than 500 acres. The largest of these small and mid-sized farms using sustainable practices cultivated approximately 200 acres.

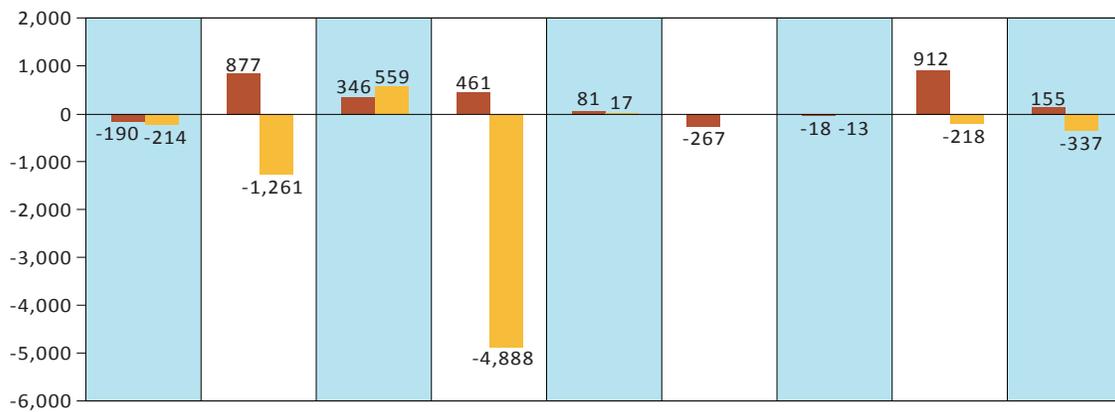
Demand for vegetables

Similar to the trend in fruit, fresh vegetable consumption in the US has increased significantly over the past 25 years. Per capita, Americans now consume an average

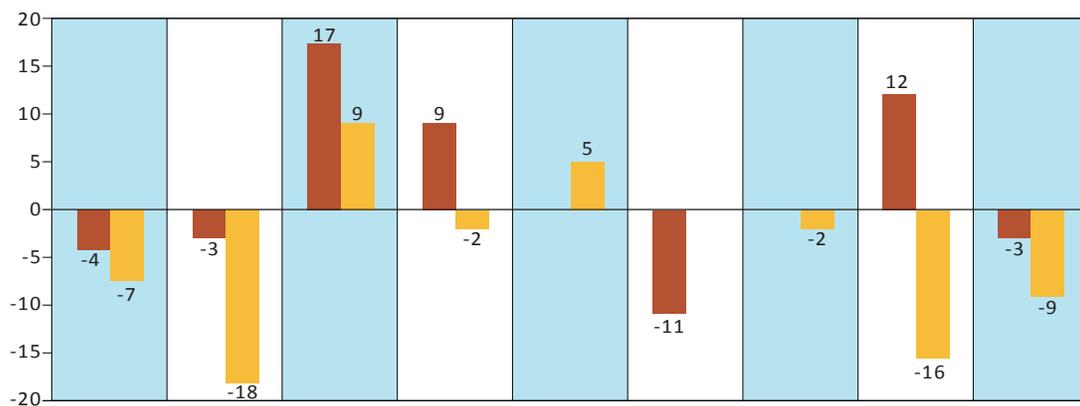
Change in Vegetable Farms, 1987-2007



Change in Total Vegetable Acres, 1987-2007



Change in Average Vegetable Acres, 1987-2007



Source: USDA Census of Agriculture, 1987 - 2007

Examining Hudson Valley Food Value Chains

Estimated Hudson Valley and New York City Markets for at Home Vegetable Consumption

County	2011 Consumer Units	Fresh Vegetable Consumption	Processed Vegetable Consumption	Total Vegetable Consumption
Columbia County	26,063	\$6,802,312.50	\$3,648,750.00	\$10,451,062.50
Dutchess County	124,166	\$32,407,391.25	\$17,383,275.00	\$49,790,666.25
Greene County	20,398	\$5,323,747.50	\$2,855,650.00	\$8,179,397.50
Orange County	156,197	\$40,767,330.00	\$21,867,533.33	\$62,634,863.33
Putnam County	41,639	\$10,867,713.75	\$5,829,425.00	\$16,697,138.75
Rockland County	131,316	\$34,273,432.50	\$18,384,216.67	\$52,657,649.17
Sullivan County	32,042	\$8,362,875.00	\$4,485,833.33	\$12,848,708.33
Ulster County	76,020	\$19,841,220.00	\$10,642,800.00	\$30,484,020.00
Westchester County	398,291	\$103,954,016.25	\$55,760,775.00	\$159,714,791.25
Hudson Valley	1,006,130	\$262,600,038.75	\$140,858,258.33	\$403,458,297.08
Bronx County	580,001	\$151,380,217.50	\$81,200,116.67	\$232,580,334.17
Kings County	1,055,269	\$275,425,143.75	\$147,737,625.00	\$423,162,768.75
New York County	667,478	\$174,211,845.00	\$93,446,966.67	\$267,658,811.67
Queens County	936,603	\$244,453,470.00	\$131,124,466.67	\$375,577,936.67
Richmond County	196,028	\$51,163,286.25	\$27,443,908.33	\$78,607,194.58
New York City	3,435,379	\$896,633,962.50	\$480,953,083.33	\$1,377,587,045.83

Source: US Census Bureau, Bureau of Labor Statistics

of 52.7 percent more fresh vegetables now than in the 1970s.¹²⁸ One exception to this trend is in fresh potato consumption, which has declined over this same period.¹²⁹ Demand for fresh cut vegetables at retail stores has increased as well, growing 35 percent since 2005.¹³⁰ Much of these fresh cut items are sold in retail grocery stores, but there are also new market venues, such as convenience stores and vending machines.¹³¹ For example, the New York City Department of Education seized on this trend and in 2011 added 14 new vending machines that offer cut and packaged fruits and vegetables, which are produced by Del Monte and Mott's.¹³² Additionally, our interviews with institutions and food processors indicate there may also be strong demand for fresh cut and minimally processed vegetables in the institutional food service sector, in schools and health care settings. However, some growers and processors questioned whether they could be competitive on price

with larger-scale commodity producers from outside of the Hudson Valley region.

Consumers in the Hudson Valley purchase over \$400 million annually in fresh and processed vegetables for at home consumption. In New York City, this market is much larger, at more than \$1.3 billion. Hudson Valley growers produce the equivalent of 54 percent of the region's demand for fresh vegetables, 15.8 percent of New York City's demand for fresh vegetables consumed at home, and 12.2 percent of these markets combined. However, this does not include the sizable market for food consumed away from home in venues such as restaurants and schools, which is also significant. We also did not calculate the equivalent for processed vegetables as our interviews and analysis of state processing licenses suggest much of the local produce is sold for fresh consumption, not processed products.

Hudson Valley Vegetable Sales Equivalent to Consumer Demand

Hudson Valley Fresh Vegetable Consumption	\$ 262,600,038
NYC Fresh Vegetable Consumption	\$ 896,633,962
Hudson Valley Farm Vegetable Sales	\$ 45,414,000
Farm Value of Vegetable Price	32.0%
Retail Value of Hudson Valley Vegetable Sales	\$ 141,918,750
Local Farm Equivalent of Hudson Valley Market	54.0%
Local Farm Equivalent of NYC Market	15.8%
Local Farm Equivalent of Combined Market	12.2%

Source: US Census Bureau, Bureau of Labor Statistics, USDA Census of Agriculture 2007, USDA Price Spreads

Vegetable processing and distribution infrastructure

The vegetable sector is segmented into two types of distribution systems. In one, there are growers who specialize in one or a few products, primarily for the mainstream, commodity market. These growers generally target wholesale markets, either through local distributors or through direct sales to large format retailers. Many of the retailers who purchase directly from farms tend to be local, within the Hudson Valley and tri-state area (NY, NJ, CT). However, larger scale commodity growers products also end up in grocery stores in other parts of the country and even internationally. In particular, sweet corn from the Hudson Valley is a known agricultural commodity and is distributed through mainstream, national and international channels. Onions from the Black Dirt region are also a known Hudson Valley commodity and are distributed nationally.

Unlike orchard fruit, the larger vegetable growers appear to rely less consistently on non-grower brokers as intermediaries for sale. Some of the largest vegetable growers, however, do function as grower-shippers, packing their own products and providing packing and distribution services to other growers as well. These grower-shippers not only purchase Hudson Valley products, but will also source from outside the region. In this supply chain, products are then either transported with farmers' trucks or through third party trucking companies. The commodity onion sector functions somewhat differently, still utilizing third party brokers and packing houses to market through mainstream wholesale channels.

Among the mid-sized growers interviewed, most of them used their own trucks to transport products to wholesale clients, such as individual retailers or, in some cases, to the Hunts Point market in New York City. As one mid-sized farmer instructed, 'if you can't truck it, don't grow it.' Similarly, both mid-sized and small-scale farms also utilized their own trucks to transport products to individual restaurants, smaller retailers, farmers markets, and CSA drop offs.

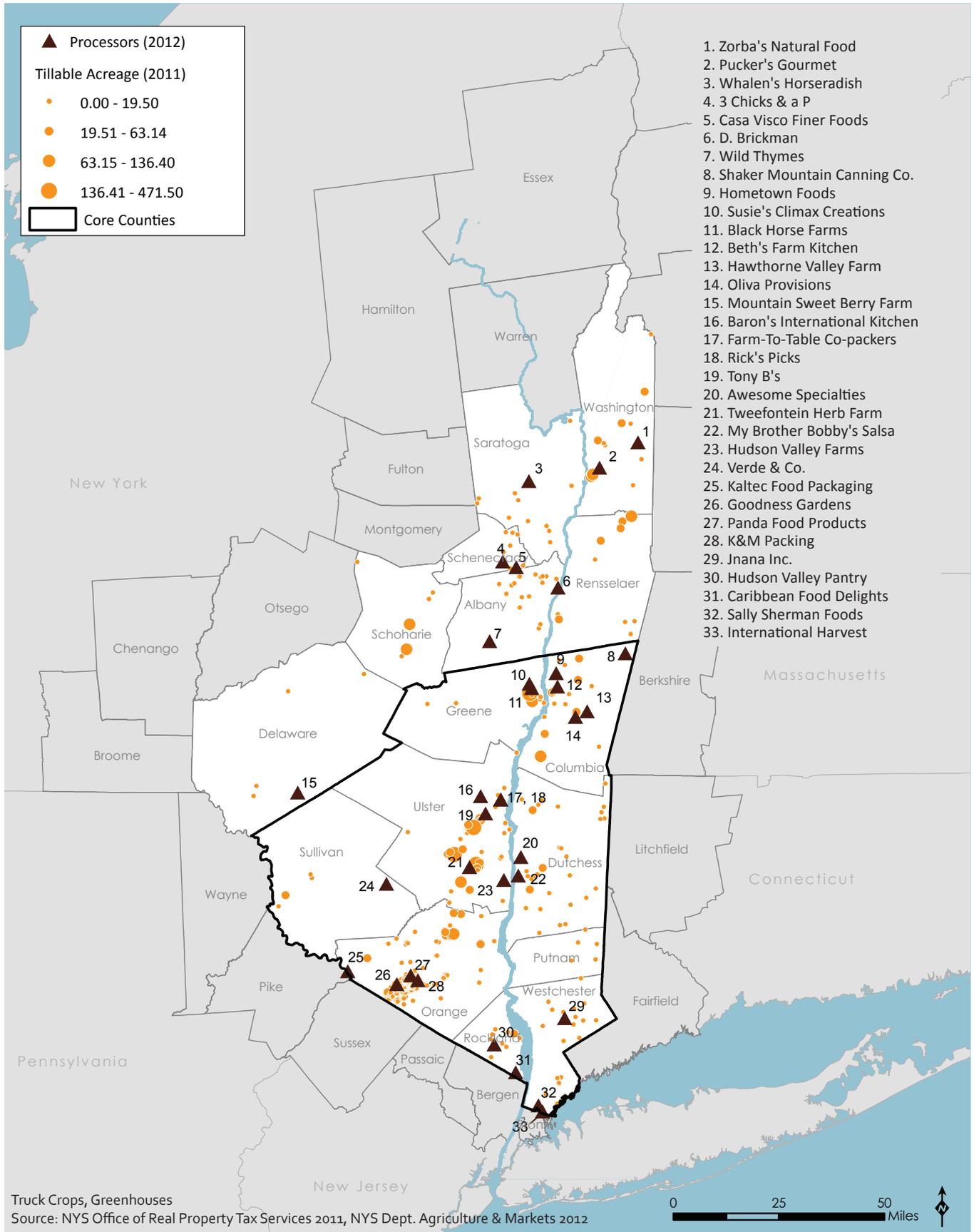
Several distributors in the region specialize in local produce that is differentiated from the commodity market. Three that we interviewed source a large portion of their produce from the Hudson Valley, which they distribute primarily to clients in the New York City and Westchester areas. There are other distributors that also focus on Hudson Valley produce, one of which targets the Hudson Valley and Connecticut markets and another, which distributes throughout the state and northeast region. However, not all of their products sourced from the



Photo credit: Farm to Table Co-packers.

Examining Hudson Valley Food Value Chains

Hudson Valley Vegetable Farms & Processing Facilities



Hudson Valley are source-identified. Rather, they may be marketed as “local” products to customers, including institutions and corporate dining. Because some of the distributors we interviewed are small, when compared to large national companies like Sysco or US Foods, they were able to be more flexible in their purchasing patterns, allowing them to source from Hudson Valley farms and incorporate source-identifying information into their marketing. On the other hand, one of the larger distributors interviewed described more difficulty in distributing smaller volume, local, fresh produce. Additionally, the larger distributors indicated packing and achieving volume from local farms were an issue in sourcing from Hudson Valley farms.

Aside from these existing wholesale marketing channels, there were 19 vegetable farmers who we interviewed

that indicated they would benefit from new or expanded wholesale marketing through a food hub. These farmers ranged in size and degree of experience in wholesale marketing, with some of the large scale growers relying largely on direct-to-consumer sales and other mid-sized farms selling primarily to wholesale clients, such as local retailers and distributors. However, both types of farmers were interested in new market opportunities.

Processing infrastructure for vegetables is limited in the Hudson Valley. Unlike in the fruit sector, there are few farms or other companies that process value-added vegetable products for wholesale. Despite the large market for fresh cut produce, there were only two companies in the Hudson Valley we found that processed fresh cut vegetables for the wholesale market. One company, K&M Packing, produces bagged salad greens for the re-



Bruce Davenport. Photo credit: Fabia Wargin

Examining Hudson Valley Food Value Chains

tail market. The other, Panda Food Products, sells pre-peeled and trimmed onions and shallots. It is unclear what portion of the produce these companies process is sourced from the Hudson Valley. The only other larger-scale value added vegetable processor in the Hudson Valley is Farm to Table Copackers in Kingston. They currently have equipment to cut, can, and freeze a variety of products and several farmers we interviewed mentioned using them or indicated they planned on using them in the future. In addition to these larger-scale processors, there are a few smaller scale companies that use clamshell packaging for herbs or process small batch specialty food items, such as pickles, salsa, chutneys or tomato sauces.

Strengths and weaknesses in the vegetable value chain

The Hudson Valley vegetable sector benefits from robust and growing market demand in both the New York City and Hudson Valley regions that far exceeds the amount of vegetable production in the area. Additionally, the food service industry and farmers markets are driving demand for higher value, source-identified produce from the Hudson Valley. This appears to have begun to affect the retail and institutional environments as well, which are now demanding local produce. Because of these trends, and the fact that the Hudson Valley production is only a small portion of overall demand, there is an opportunity for Hudson Valley farms to capture a larger market share.

Vegetable farms may be benefitting from this growing demand as most counties' decline in vegetable farms has slowed in recent years, with some counties adding both farms and farm acres. Many vegetable farms are using a variety of means for marketing their products. Given the breadth of demand, large-scale farms are able to market through direct-to-consumer channels, such as farmers markets and roadside stands. On the other hand, the smallest farms are selling to local restaurants and small retailers directly. There are also distributors who now specialize in local produce, which indicates there is some distribution infrastructure and relationships already in place to assist farmers in marketing their products locally.

Nonetheless, there are segments of the retail and institutional markets that could purchase more local produce. While institutions express a desire to purchase more local produce, there is limited purchasing in this sector thus far, potentially due to price constraints, emphasis on processed products, their reliance on distributors, and lack of time and knowledge to source locally. Despite the emergence and popularity of Farm to Table Copackers and the fresh cut operations of K&M Packing and Panda Food Products, there is not much capacity for value-added vegetable processing.

Opportunities and challenges for future development

Farmers in the region report they are still recovering economically from the damage caused by Tropical Storm Irene in 2011. Increasingly common weather events such as these potentially threaten the productivity and resilience of vegetable farms in the region.

Additionally, unlike the fruit growers, the vegetable growers we interviewed were less well networked and did not utilize shared local resources and infrastructure to the same degree. The coordination that exists among mid-sized and larger growers is for buying and selling each others products to back fill orders if they were short. The Rondout Valley Growers Association is working to further network growers in that region of Ulster County and provides networking and marketing assistance. Fostering these types of relationships among vegetable growers could present an opportunity for future value chain development and collaboration.

The market for Hudson Valley vegetables, though large, is competitive. This is true of both the mainstream, commodity supply chain and the local food value chain. Grower-shippers play a leading role in the commodity market and there are a number of distributors who focus on Hudson Valley produce for local food customers. Adding new aggregation and distribution capacity to the local food value chain would confront these competitive forces and should be considered in future planning.

DAIRY

Overview of dairy production

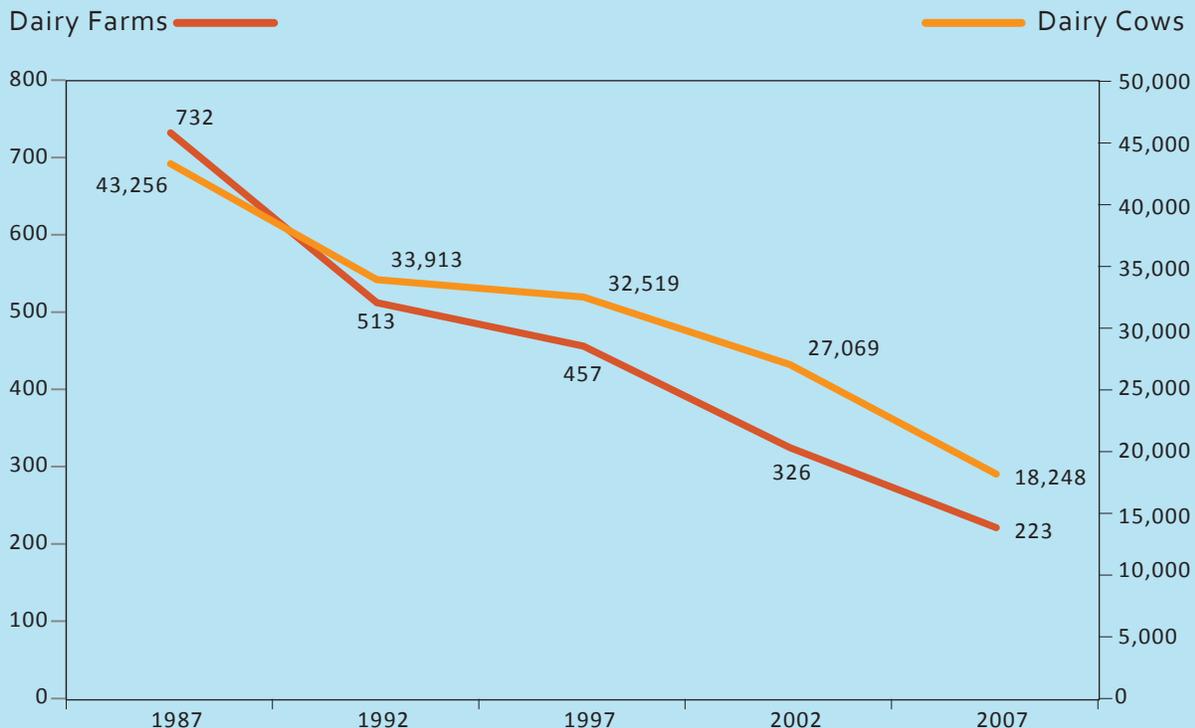
Dairy has historically been the dominant agricultural product in the Hudson Valley. However, for the past several decades, the number of dairy farms in the region has been in steep decline. Since 1987, the Hudson Valley has lost 70 percent dairy farms and 57.8 percent of dairy cows.¹³³ Compared to the rest of the northeast region, the Hudson Valley does not produce the sales volume in dairy as other areas, such as Vermont and Central New York. Despite these trends, dairy still generates the highest sales volume in the regional agriculture industry, with over \$61 million in sales annually. Dairy therefore remains a critical agriculture sector in the Hudson Valley.

Whereas fruit and vegetable production occur in more defined clusters, dairy farming occurs throughout the Hudson Valley region, in all counties. Among the core counties within the region, Columbia and Orange boast

the highest dairy sales. However, the adjacent counties of Washington, Saratoga, Rensselaer, Schoharie, and Delaware have significantly higher dairy sales than these other Hudson Valley counties.

There are two main segments of the dairy industry, conventional and specialty production. In the conventional supply chain for dairy, farmers market through one of regional several dairy cooperatives. These cooperatives purchase their member farmers' milk, arrange to have it picked up from the farm regularly, and aggregate the milk at a local processing plant. At this processing plant, the raw milk is turned into a variety of products, such as fluid milk, cheese, yogurt, powdered milk, and whey. The price farmers receive for their raw milk is dictated by federal marketing orders, a national program that regulates pricing according to different product types. For example, milk for fluid consumption receives a higher price than does milk used in manufacturing, such as for yogurt or cheese. For each of these classifications for milk, there is a minimum price farmers receive for their milk. The goal of this program is to smooth market

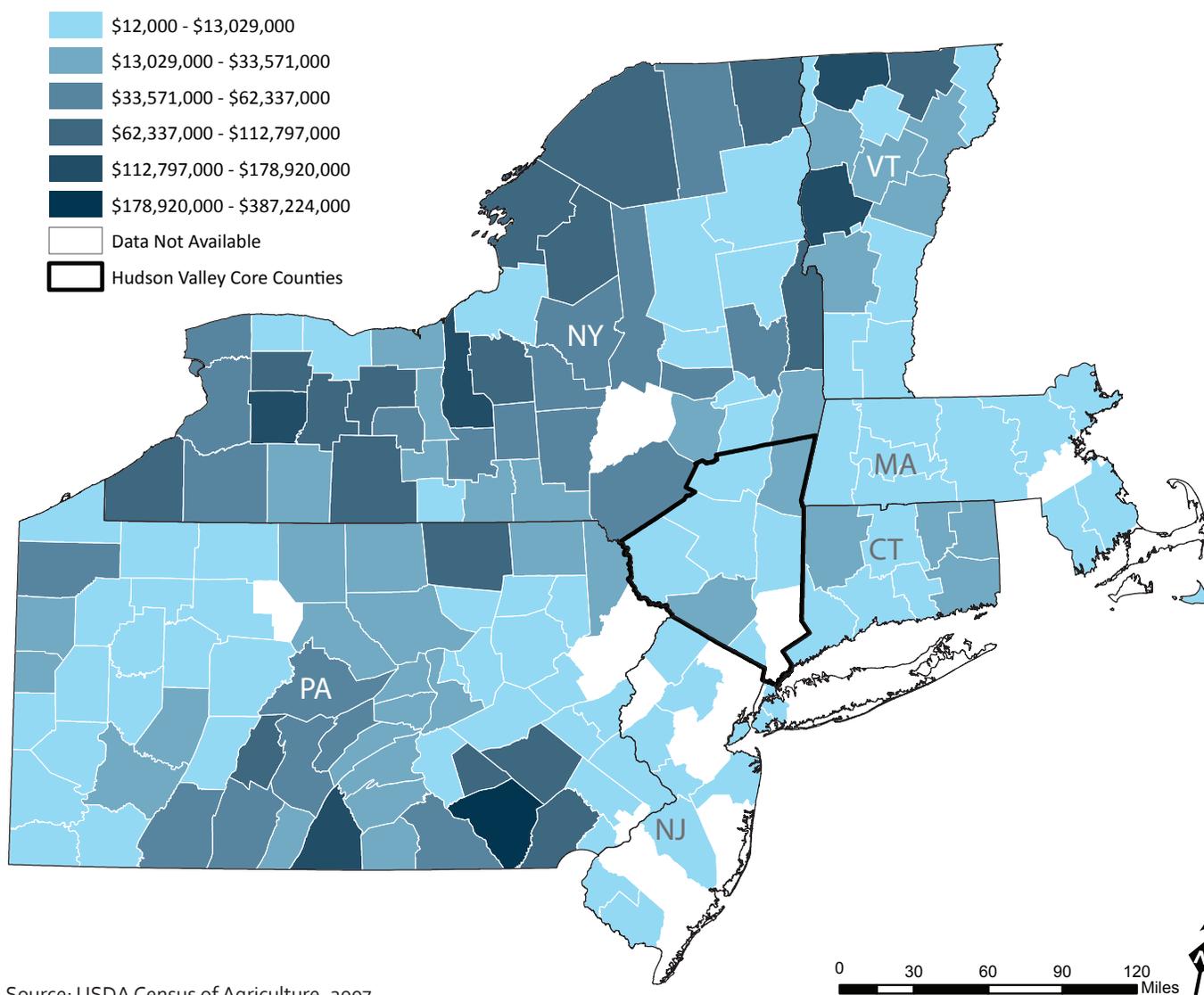
Decline in Number of Dairy Farms and Dairy Cows, 1987-2007



Source: USDA Census of Agriculture, 1987 - 2007

Examining Hudson Valley Food Value Chains

Regional Dairy Sales by County, 2007



Source: USDA Census of Agriculture, 2007

fluctuations in price due to changing productivity and to ensure farmers who produce a highly perishable product have a consistent market outlet.¹³⁴ However, among the farmers interviewed for this study, there was disagreement over the relative benefits of the program and dissatisfaction with the prices they received through this system, which some dairy producers and processors indicated were not high enough to cover some farms' operating costs.

The other segment of the dairy industry consists of farmers that sell outside of the marketing order system, either in part or entirely. These farms, although we clas-

sify them collectively as "specialty" producers, are very diverse in terms of their production practices, product focus, and marketing strategies. The one thing they have in common is their focus on added-value products. They may increase the value of their products in a variety of ways. Some focus on agricultural practices, such as grass-fed or organic. Others focus on increased quality and brand their products as local, maintaining farm identity. Many also add value through specialized packaging, such as glass bottles, and by processing higher value products such as cheese, yogurt, and ice cream.

Hudson Valley Dairy Production

County	Farms	Head	Sales
Columbia	51	7,105	\$25,561,000
Dutchess	38	2,454	\$9,004,000
Greene	23	815	\$2,175,000
Orange	54	4,831	\$14,800,000
Putnam	2	(D)	(D)
Rockland	0	0	0
Sullivan	32	2,272	\$7,468,000
Ulster	22	771	\$2,642,000
Westchester	1	(D)	(D)
Hudson Valley	223	18,248	\$61,650,000
New York State	5,683	626,455	\$2,280,218,000

(D): Data not disclosed. Source: USDA Census of Agriculture, 2007

Demand for dairy products

Fluid milk consumption has declined among both children and adults,¹³⁵ while consumption of other dairy products, such as cheese and yogurt, has steadily increased.¹³⁶ From 1975 to 2008, Americans' average annual cheese consumption increased from 14 pounds to 32 pounds, a 128 percent increase. Currently, 43 percent of milk produced in the US is used in the manufacture of cheese.¹³⁷ Another trend of note is the rapidly growing demand in the US for yogurt. In just the nine-year period from 2000 to 2009, per capita yogurt consumption doubled.¹³⁸ In 2010, Danone, the largest yogurt manufacturer and parent company of Dannon in the US, predicted the market for yogurt would double again in four years.¹³⁹ In the last several years, New York yogurt

brand, Chobani, has made headlines for its remarkable growth through marketing Greek yogurt. Agro-farma, the company that produces Chobani yogurt, has quintupled its sales since 2009, is now valued at over \$1 billion, and captures 17 percent of the US yogurt market.¹⁴⁰ However, there is some concern that the rapid growth of Chobani is causing pressure on farms to keep up with production demand at the prices paid to farmers supplying the yogurt maker.¹⁴¹

During our interviews with buyers in several categories, restaurants, retailers, and institutions, one of the most sought after local food products was dairy. Several buyers indicated an interest in high value fluid milk and cream, while other focused on artisanal cheeses as a growth area. Currently, Hudson Valley farms produce

Hudson Valley Dairy Sales Equivalent to Consumer Demand

Hudson Valley Dairy Consumption	\$ 446,721,905
NYC Dairy Consumption	\$ 1,525,308,350
Hudson Valley Dairy Sales	\$ 61,650,000
Farm Value of Dairy Price	34.0%
Retail Value of Hudson Valley Dairy Sales	\$ 181,323,529
Local Farm Equivalent of Hudson Valley Market	40.6%
Local Farm Equivalent of NYC Market	11.9%
Local Farm Equivalent of Combined Market	9.2%

Source: US Census Bureau, Bureau of Labor Statistics, USDA Census of Agriculture 2007, USDA Price Spreads

Examining Hudson Valley Food Value Chains

Estimated Hudson Valley and New York City Markets for at Home Dairy Consumption

County	2011 Consumer Units	Fresh Milk & Cream	Other dairy products	Total Dairy Consumption
Columbia County	26,063	\$3,883,313	\$7,688,438	\$11,571,750
Dutchess County	124,166	\$18,500,771	\$36,629,044	\$55,129,815
Greene County	20,398	\$3,039,228	\$6,017,263	\$9,056,490
Orange County	156,197	\$23,273,303	\$46,078,017	\$69,351,320
Putnam County	41,639	\$6,204,174	\$12,283,431	\$18,487,605
Rockland County	131,316	\$19,566,059	\$38,738,171	\$58,304,230
Sullivan County	32,042	\$4,774,208	\$9,452,292	\$14,226,500
Ulster County	76,020	\$11,326,980	\$22,425,900	\$33,752,880
Westchester County	398,291	\$59,345,396	\$117,495,919	\$176,841,315
Hudson Valley	1,006,130	\$149,913,432	\$296,808,473	\$446,721,905
Bronx County	580,001	\$86,420,124	\$171,100,246	\$257,520,370
Kings County	1,055,269	\$157,235,044	\$311,304,281	\$468,539,325
New York County	667,478	\$99,454,272	\$196,906,108	\$296,360,380
Queens County	936,603	\$139,553,897	\$276,297,983	\$415,851,880
Richmond County	196,028	\$29,208,160	\$57,828,235	\$87,036,395
New York City	3,435,379	\$511,871,496	\$1,013,436,854	\$1,525,308,350

Source: US Census Bureau, Bureau of Labor Statistics

the equivalent of 40.6 percent of Hudson Valley at home dairy product purchases or 11.9 percent of New York City at home dairy product purchases for at home consumption. Given the size of these markets, along with the increasing demand for particular products, there appears to be an ample market for dairy products in the region. However, the extent to which local farmers can access these markets is less straightforward because other factors, such as price, volume, and product types also affect farmers' success in both the conventional and specialty dairy markets.

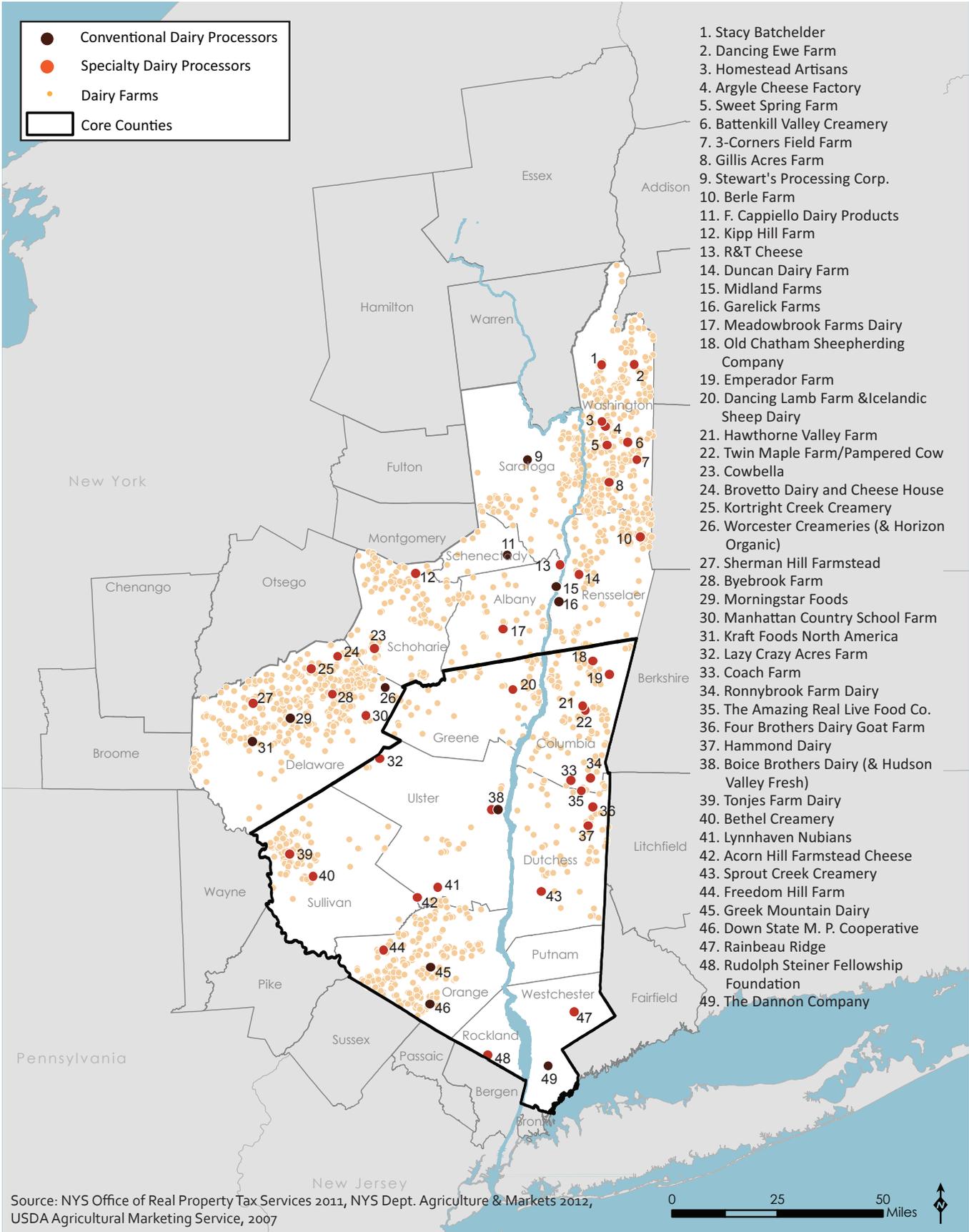
Dairy processing and distribution infrastructure

As with production, the processing and distribution infrastructure in the Hudson Valley are split between the conventional and specialty systems. The core Hudson Valley region contains one main plant, Boice Brothers in Kingston, that processes for a local dairy cooperative in the conventional supply chain. However, in recent years, this plant has also partnered with Hudson Valley Fresh to begin processing specialty, higher value dairy products for local distribution.

Processing in the specialty dairy value chain consists of dozens of small processing sites throughout the Hudson Valley. Based on interviews and publicly available lists of dairy producers, we were able to identify 39 specialty dairy processing sites throughout the region. Most of these are connected to a farm, although our interviews revealed that several also purchase milk from other farms to supplement their own. Much of the value-added production appears to concentrate on cheeses, although several companies also produce value-added milk, ice cream and yogurt products.

While Boice dairy accepts milk for the local food value chain through their partnership with Hudson Valley Fresh, there are limited examples of shared processing and distribution infrastructure in the local value chain. One farmer reported using a creamery's equipment, but anticipated he would no longer be able to use it as the creamery's demand increased. He expressed concern over losing his fluid milk production as investing in his own bottling operation could be cost prohibitive. Furthermore, seven of the eight dairy producers we interviewed indicated they had need for new or upgraded equipment.

Hudson Valley Dairy Farms & Processing Facilities



Source: NYS Office of Real Property Tax Services 2011, NYS Dept. Agriculture & Markets 2012, USDA Agricultural Marketing Service, 2007

Examining Hudson Valley Food Value Chains

Farmers and local creameries in the specialty dairy sector distribute their products by a variety of means. Many farms sell their products at farmers markets and through their own farm stores. However, several of the specialty dairy farmers and creameries also have begun selling through the wholesale market. To do this, they will either truck the products themselves or rely on distributors in the region. One distributor we interviewed, who specializes in dairy products, indicated there is room for growth in local milk and value-added dairy products.

Farmers in the conventional dairy sector rely on the cooperative to arrange for transportation, processing, and distribution of their products. These farmers are therefore much less involved in the marketing of their products and are not identified as the producers of the milk to the end consumer.

Strengths and weaknesses in the dairy value chain

Although the number of dairy farms has been declining steadily, the dairy industry remains a vital sector in Hudson Valley agriculture. Additionally, there is still a strong knowledge base for dairy production in the region. Several well-known specialty dairy producers anchor the

local market and have found ample market outlets for their products. The concentrated market in the Hudson Valley and New York City, along with a burgeoning cluster of specialty dairy producers, indicates the sector is ripe for further development.

Opportunities and challenges for future development

The strong and growing demand for yogurt and cheese present an opportunity to Hudson Valley dairy farms. However, farms that continue to market through the conventional distribution system may have difficulty seizing on this demand as they are price takers. Specialty producers may be able to better capitalize on this growing demand for value-added products, but also on demand among restaurants and retailers for local, source-identified dairy products. Their challenge will be making the investments necessary to begin or expand appropriately scaled, value-added dairy production.



Ronnybrook Farm Dairy. Photo credit: Dan Shaw / Rural Intelligence

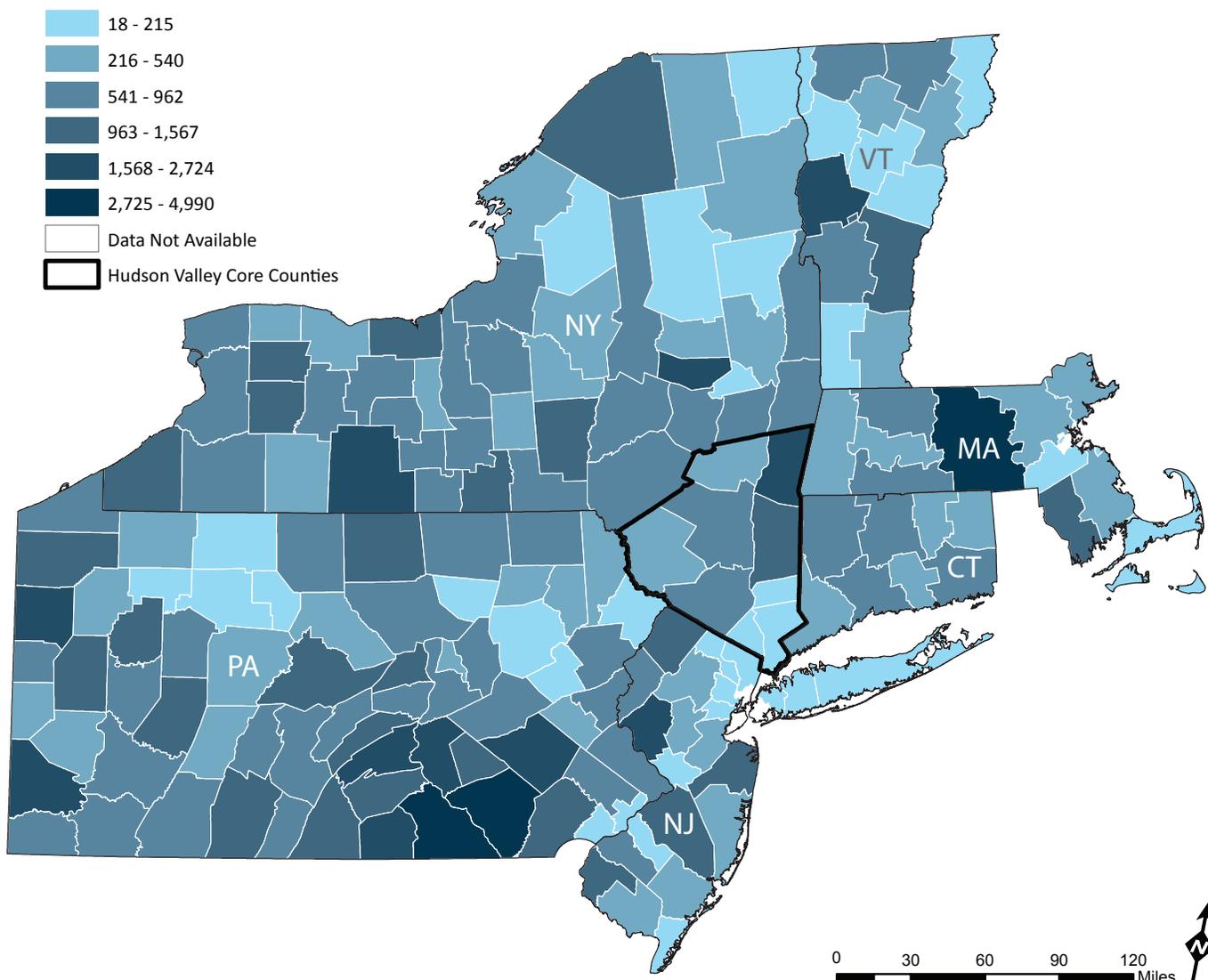
MEAT AND LIVESTOCK PRODUCTS

Overview of meat production

For the purposes of this study, we reviewed several types of meat production- sheep and lamb, goat, pork, and beef. In the Hudson Valley, small-scale livestock farmers produce all of these kinds of meat. Pork and beef production, in particular, have been increasing in recent years and small-scale livestock production is an important segment of the overall regional farm economy.

There are more than 300 farms throughout the Hudson Valley that raise sheep, lambs, and goats for meat and other products. Sheep and goat production are an important segment of the regional livestock industry. The sectors are anchored by several large-scale operations that focus on specialty items, such as cheese and yogurt. Altogether, the level of goat and sheep production is moderately competitive, measured by number of head, as compared to other parts of the state and north-east region. However, sales figures are not available for several counties and the sales figures that are available aggregate meat and other products, as well as sheep, lamb, and goat sales.

Regional Goat Head by County, 2007



Source: USDA Census of Agriculture, 2007

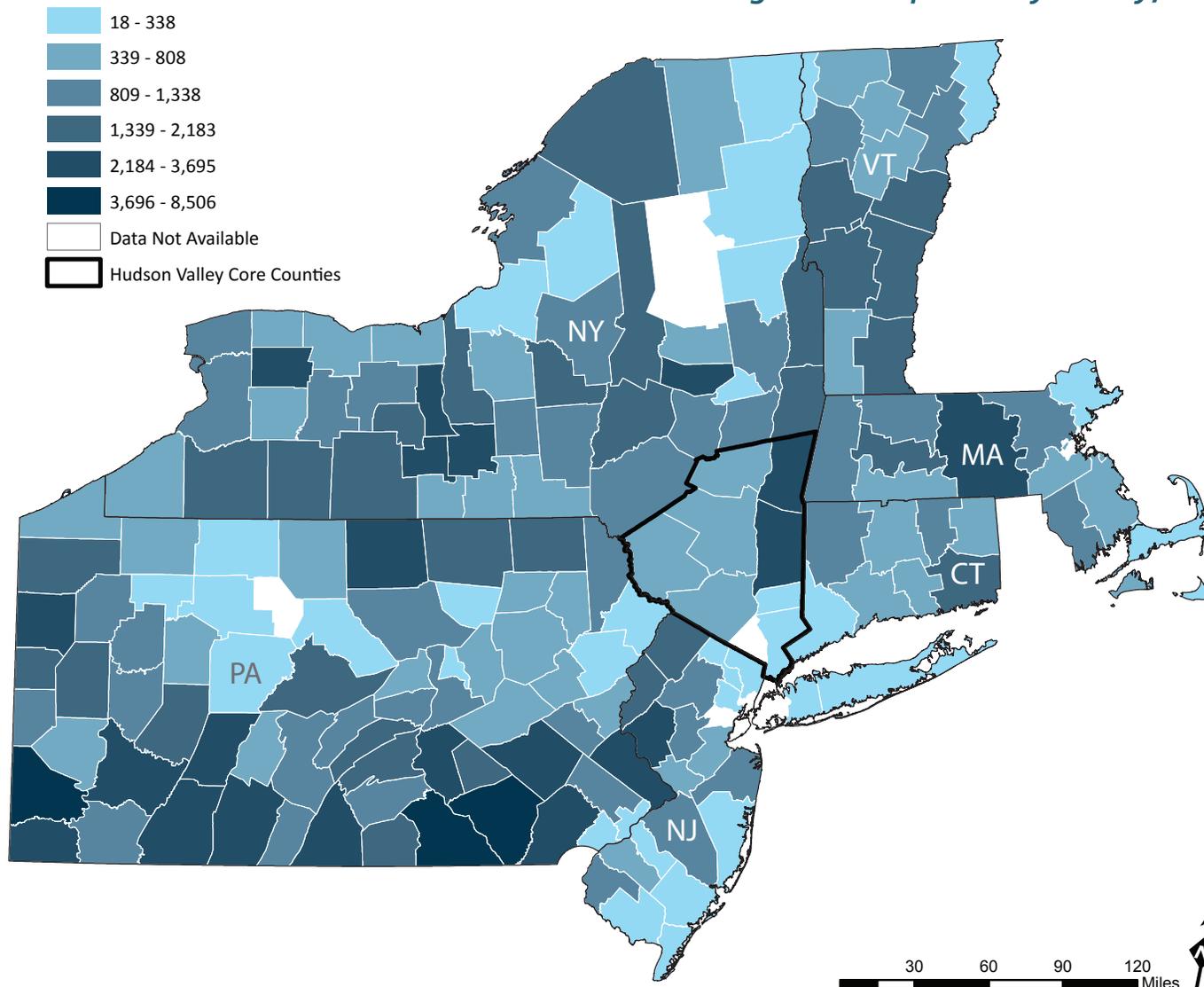
Examining Hudson Valley Food Value Chains

The Hudson Valley has 148 farms that raise hogs and pigs, however the number of head and overall sales volume are both low in the region. Much like other parts of New York State, the Hudson Valley is not a large scale hog and pig producing region. Other areas within the northeast, such as central and southern Pennsylvania, have a much larger industry. Several adjacent counties, such as Washington, Rensselaer, and Delaware, have a greater number of hog and pig head. Despite the low number of head and sales volume for hogs and pigs in the core Hudson Valley counties, there appears to be modest growth in the number of hog and pig farms in

the past 10 years, which rose 26.5 percent, from 117 to 148 farms from 1997 to 2007.¹⁴² Based on interviews with farmers who raise hogs and pigs, their hog and pig production appears to be part of more diverse farm operations, rather than a primary product for many farmers.

Beef farming in the Hudson Valley has been increasingly important in the Hudson Valley agriculture industry in recent years and may offer promise for many farmers in the region. Five of the nine Hudson Valley counties have experienced growth in the number of beef farms in recent years. Overall, the Hudson Valley experienced a

Regional Sheep Head by County, 2007



Source: USDA Census of Agriculture, 2007

Hudson Valley Sheep, Lamb, and Goat Production

County	Sheep and Goats Products	Sheep and Lambs		Meat Goats		Milk Goats		Sheep, Lambs, Goats Sales
	Farms	Farms	Inventory	Farms	Inventory	Farms	Inventory	Sales
Columbia	67	57	2,355	39	628	33	1,136	(D)
Dutchess	92	81	3,159	47	429	40	665	(D)
Greene	35	23	479	29	314	13	119	\$49,000
Orange	36	26	808	46	597	15	257	\$102,000
Putnam	4	5	(D)	7	(D)	1	(D)	\$5,000
Rockland	0	0	0	1	(D)	0	0	\$0
Sullivan	37	31	729	34	323	16	137	\$76,000
Ulster	30	26	471	36	388	23	172	\$79,000
Westchester	7	9	320	1	(D)	0	0	(D)
Hudson Valley	308	258	> 8,321	240	> 2,679	141	> 2,486	> \$311,000
New York State	2,252	1,799	63,182	1,993	27,066	1,030	11,968	\$10,246,000

Note: Sheep and Goat product farms do not equal the farm totals in each category as some farms produce multiple products.
(D): Data not disclosed. Source: USDA Census of Agriculture, 2007

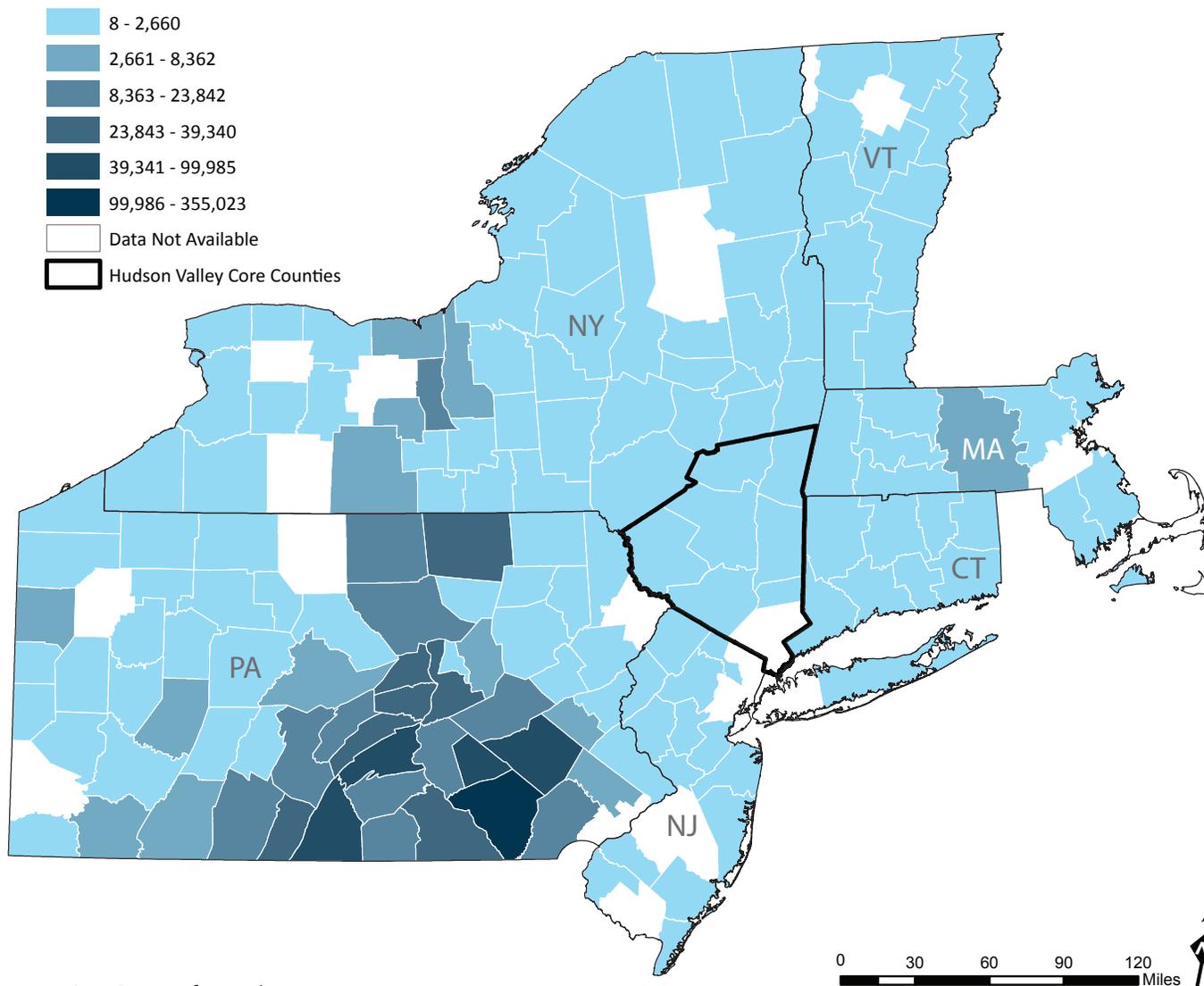
Hudson Valley Hog & Pig Production

County	Farms	Head Sold	Sales
Columbia	31	668	\$95,000
Dutchess	31	437	\$69,000
Greene	16	483	\$75,000
Orange	7	223	\$18,000
Putnam	4	(D)	(D)
Rockland	0	0	\$0
Sullivan	23	525	\$67,000
Ulster	32	468	\$59,000
Westchester	4	(D)	(D)
Hudson Valley	148	> 2,336	> \$324,000
Albany	19	549	\$68,000
Delaware	51	1,143	\$123,000
Rensselaer	35	1,079	\$102,000
Saratoga	28	373	\$33,000
Schenectady	9	63	\$4,000
Schoharie	38	702	\$136,000
Washington	52	1,157	\$508,000
Adjacent Counties	232	5,066	\$974,000
New York State	1,871	322,396	\$28,302,000

(D): Data not disclosed. Source: USDA Census of Agriculture, 2007

Examining Hudson Valley Food Value Chains

Regional Hog Head by County, 2007



Source: USDA Census of Agriculture, 2007

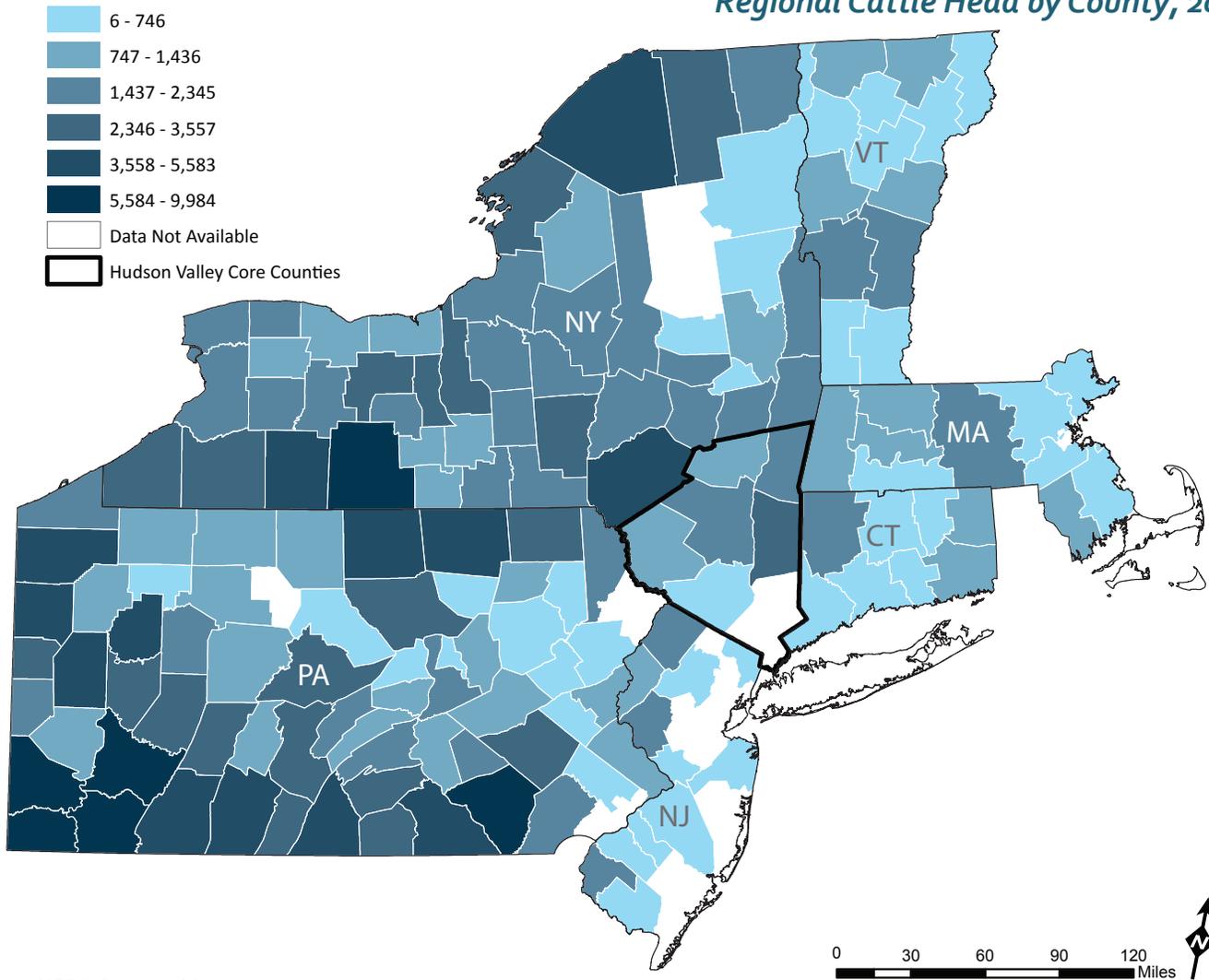
16.1 percent increase in the number of beef farms and a 33.8 percent increase in the number of beef cattle head from 1997 to 2007. The Hudson Valley is now competitive in beef production, compared to the remainder of New York State and the broader northeast region. In particular, Columbia and Dutchess counties account for 51 percent of all beef cattle and 41 percent of beef farms in the region. Ulster and Sullivan counties also contribute significantly to beef production in the region. Among the adjacent counties, Delaware County also stands out for its beef production, both by the sheer number of beef cattle raised and its recent growth from 2002 to 2007.¹⁴³

Demand for meat products

Although beef production has been increasing in the Hudson Valley, the demand for beef and other meats among US consumers, as measured in pounds per capita, has been declining. The USDA estimates per capita beef consumption will have declined 12 percent just from 2008 through 2013.¹⁴⁴ Similarly, per capita pork production declined 7 percent and per capita lamb consumption declined over 18 percent from 2000 to 2010.¹⁴⁵

One explanation for the contrasting increase in local production of beef and pork, compared to the decline

Regional Cattle Head by County, 2007



Source: USDA Census of Agriculture, 2007

Hudson Valley Beef Production

County	Farms	Head	Sales
Columbia	111	2,250	(D)
Dutchess	101	2,531	(D)
Greene	68	878	\$583,000
Orange	51	682	\$1,986,000
Putnam	3	(D)	(D)
Rockland	0	0	\$0
Sullivan	79	1,215	\$2,321,000
Ulster	96	1,753	\$1,188,000
Westchester	11	(D)	\$182,000
Hudson Valley	520	> 9,309	> \$6,26,000
New York State	6,803	103,620	\$318,080,000

(D): Data not disclosed. Source: USDA Census of Agriculture, 2007

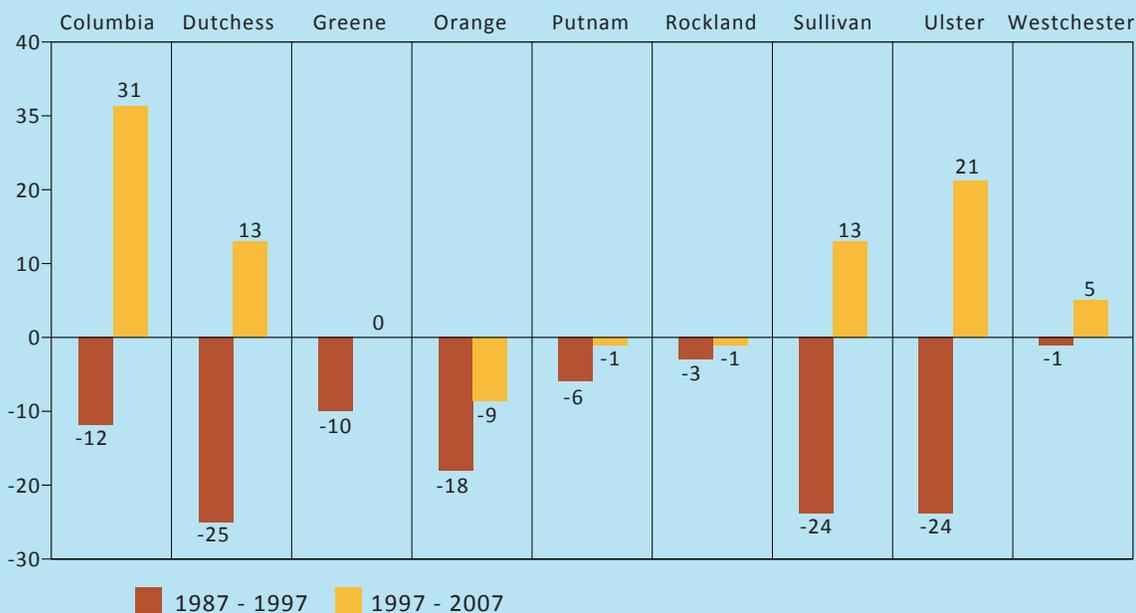
Examining Hudson Valley Food Value Chains

Increasing Regional Beef Production

County	Head of Beef Cattle		Change in Beef Cattle	
	1997	2007	1997-2007	1997-2007
Columbia	1,394	2,250	856	61.4%
Dutchess	1,665	2,531	866	52.0%
Greene	705	878	173	24.5%
Orange	1,027	682	-345	-33.6%
Putnam	86	(D)	(D)	(D)
Rockland	(D)	0	(D)	(D)
Sullivan	914	1,215	301	32.9%
Ulster	1,168	1,753	585	50.1%
Westchester	(D)	(D)	(D)	(D)
Hudson Valley	6,959	9,309	2,350	33.8%
Albany	1,652	1,601	-51	-3.1%
Delaware	2,322	3,986	1,664	71.7%
Rensselaer	1,614	1,915	301	18.6%
Saratoga	1,215	1,064	-151	-12.4%
Schenectady	307	391	84	27.4%
Schoharie	1,621	1,765	144	8.9%
Washington	2,059	1,958	-101	-4.9%
Adjacent Counties	10,790	12,680	1,890	17.5%
New York	80,157	103,620	23,463	29.3%

(D): Data not disclosed. Source: USDA Census of Agriculture, 1997, 2007

Change in Hudson Valley Beef Farms, 1987-2007



Source: USDA Census of Agriculture, 1987 - 2007

in meat consumption overall is the role of specialty meat production, such as grass-fed, organic, and other types in the Hudson Valley region. Whereas conventional meat sales increased by only 1.7 percent from 2008 to 2010 nationally, natural and organic meat sales increased by 15 percent nationally over the same short period.¹⁴⁶ Grass-fed beef sales, in particular, have grown exponentially, from \$5 million nationally in 1998 to \$350 million as of 2010.¹⁴⁷ While we cannot estimate the portion of the Hudson Valley livestock farms that utilize non-conventional practices, based on our interviews, there is a clear recognition among livestock farmers of consumers' interest in alternatives to conventional meat. Among the 12 farmers who report producing meat of various kinds, 10 of them market their products as "grass-fed" or "pastured." Additionally, eight have either the USDA Organic or Certified Natural designation. Most also utilize terms such as "antibiotic free" or "hormone free" to market their products. Further, all of them use at least one of these terms to differentiate and market their products.

Our interviews with buyers also indicate there is a growing demand for alternatives to conventional meat in the local market. When asked if there are products they would like to source from the Hudson Valley, but have difficulty sourcing, meat was the most cited product. More than 60 percent of buyers cited difficulty in sourcing meat from the Hudson Valley. Similarly, when asked to forecast the top three growth products for Hudson Valley agriculture, meat was one of the most commonly cited products. Some buyers indicated they are particularly interested in pastured, grass fed, or other kinds of alternative production methods. The National Restaurant Association's annual survey of chefs also identified locally sourced meat at the number one trend for both 2012 and 2013.¹⁴⁸

Meat production in the Hudson Valley is currently equivalent to a very small portion of overall consumer demand in the region and in New York City. Local beef sales are the equivalent to 5.8 percent of Hudson Valley beef purchasing and 1.7 percent of New York City beef purchases.¹⁴⁹ Because pork production is very small scale in the

Estimated Hudson Valley and New York City Markets for at Home Meat Consumption

<i>County</i>	<i>2011 Consumer Units</i>	<i>Beef Consumption</i>	<i>Pork Consumption</i>
Columbia County	26,063	\$5,603,438	\$3,961,500
Dutchess County	124,166	\$26,695,744	\$18,873,270
Greene County	20,398	\$4,385,463	\$3,100,420
Orange County	156,197	\$33,582,283	\$23,741,893
Putnam County	41,639	\$8,952,331	\$6,329,090
Rockland County	131,316	\$28,232,904	\$19,960,007
Sullivan County	32,042	\$6,888,958	\$4,870,333
Ulster County	76,020	\$16,344,300	\$11,555,040
Westchester County	398,291	\$85,632,619	\$60,540,270
Hudson Valley	1,006,130	\$216,318,040	\$152,931,823
Bronx County	580,001	\$124,700,179	\$88,160,127
Kings County	1,055,269	\$226,882,781	\$160,400,850
New York County	667,478	\$143,507,842	\$101,456,707
Queens County	936,603	\$201,369,717	\$142,363,707
Richmond County	196,028	\$42,146,002	\$29,796,243
New York City	3,435,379	\$738,606,521	\$522,177,633

Source: US Census Bureau, Bureau of Labor Statistics

Examining Hudson Valley Food Value Chains

Hudson Valley Meat Sales Equivalent to Consumer Demand

Hudson Valley Beef Consumption	\$ 216,318,039
NYC Beef Consumption	\$ 738,606,520
Hudson Valley Farm Beef Sales*	\$ 6,260,000
Farm Value of Beef Price	50.0%
Retail Value of Hudson Valley Beef Sales	\$ 12,520,000
Local Farm Equivalent of Hudson Valley Market	5.8%
Local Farm Equivalent of NYC Market	1.7%
Local Farm Equivalent of Combined Market	1.3%

*Reported beef sales are \$6,260,000, but do not include sales from the two largest beef producing counties, Dutchess and Columbia. Based on the median sales per head across the counties reporting sales, which is \$1,294, the sales for Dutchess and Columbia are likely at least \$1.5 to \$3 million each. The local farm production would therefore be much higher than the percentages represented in the table.

Hudson Valley Pork Consumption	\$ 152,931,823
NYC Pork Consumption	\$ 52,217,7633
Hudson Valley Farm Pork Sales**	\$ 324,000
Farm Value of Pork Price	33.0%
Retail Value of Hudson Valley Pork Sales	\$ 981,818
Local Farm Equivalent of Hudson Valley Market	0.6%
Local Farm Equivalent of NYC Market	0.2%
Local Farm Equivalent of Combined Market	0.1%

** Reported pork sales are \$324,000 but do not include sales from Putnam and Westchester. Because these counties have very few hog farms, their sales figures are not likely to significantly change the estimated local farm equivalent.

Source: US Census Bureau, Bureau of Labor Statistics, USDA Census of Agriculture 2007, USDA Price Spreads

Hudson Valley, it represents an even smaller portion of overall consumer demand. Pork production in the Hudson Valley is currently equivalent to only 0.1 percent of the combined pork consumption in the Hudson Valley and New York City. These estimates would indicate that the current production of meat in the Hudson Valley can only fill a small portion of the consumer demand and that there may be opportunity to capture more of this demand in the future with increased production.

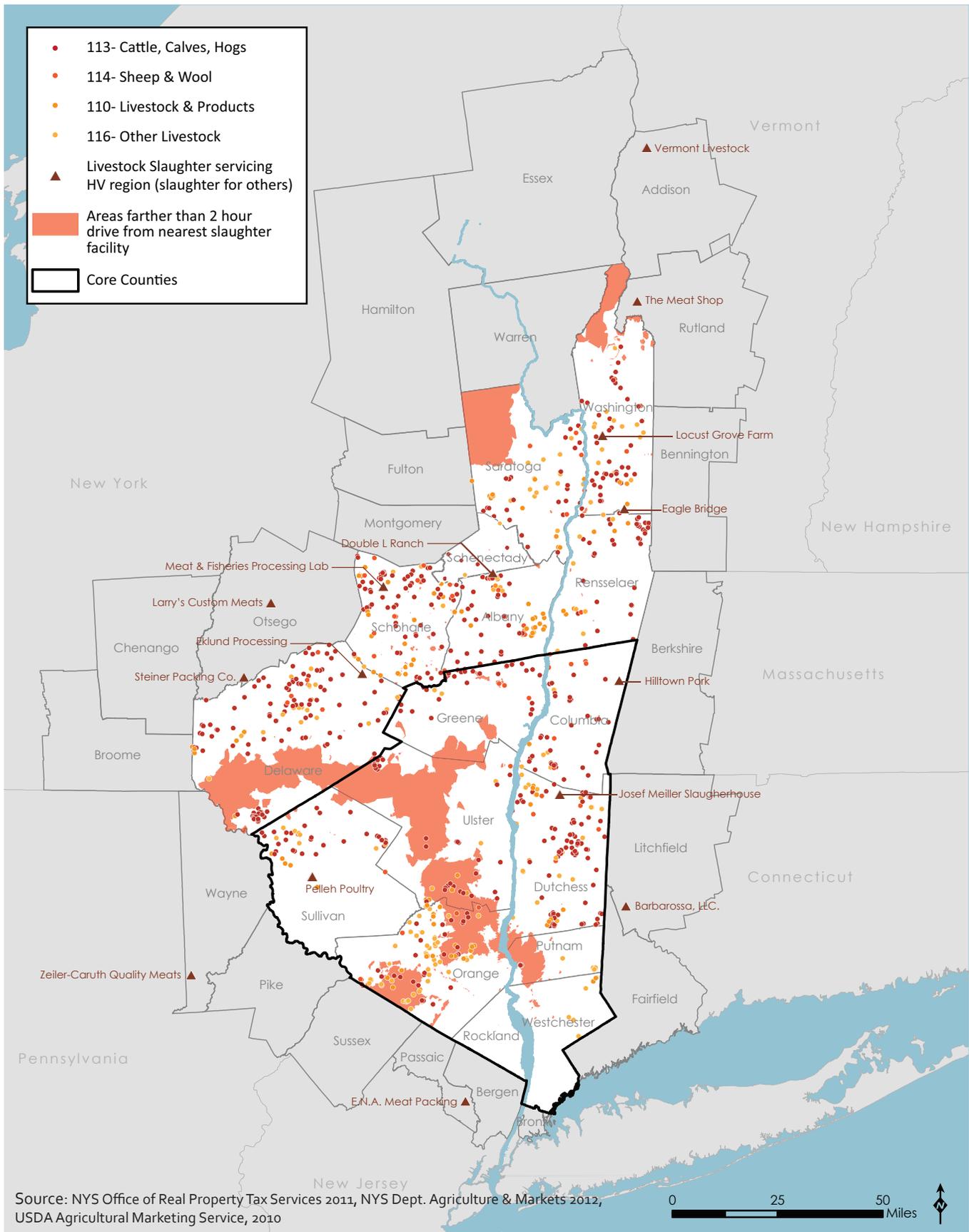
Meat processing and distribution infrastructure

Meat processing includes several activities: slaughter, cutting and packing, and potentially further processing into finished products such as sausages or smoked meats. In the Hudson Valley, there has been a shared belief among producers and others working in the food system that the region lacks adequate capacity for slaughter. This has led to several studies and projects that have attempted to fill this gap. In 2000, a group called the Hudson Valley Livestock Marketing Task Force commissioned an analysis of meat processing capacity in the region. Although the group is no longer in exist-

tence, the report provides valuable information about the local processing capacity at the time and the potential feasibility of a new processing facility. The study concluded that despite the existence of slaughter facilities in the area, a new facility would be feasible with at least 1,500 steer and 2,500 other livestock, without any government grants for operating expenses. Since the time of that report, the USDA reported an increase in the number of beef head from 2002 to 2007 of 34 percent.¹⁵⁰

In addition to the Hudson Valley Livestock Marketing Task Force report, Glynwood embarked on a project several years ago to launch a mobile slaughter unit. They concluded there were several problems in the meat processing sector, including difficulty finding fall slaughter slots, substandard quality and service among some facilities, long travel distances for animals that caused them stress during transport, inconsistent standards for the treatment of animals across all facilities, affordability for small farms, and inconvenient facility locations. Glynwood then created a mobile slaughter unit to try to address these issues. This unit is now docked in Stamford in Delaware County.

Hudson Valley Livestock Farms & Processing Facilities



Examining Hudson Valley Food Value Chains

There are now five USDA slaughterhouses that process meat throughout the core Hudson Valley counties. These include Van Wie in Columbia County, CEO Natural Angus Beef in Ulster County, Hilltown Pork in Columbia County, Meiller in Dutchess County, and Pelleh in Sullivan County. In addition, there are five USDA slaughterhouses that process meat in the counties adjacent to these—Champlain Beef Company in Washington County, Center Road Enterprises (commonly referred to as “Eagle Bridge,” after the name of the town in which it is located) in Washington County, Double L Ranch in Albany County, Eklund Processing in Delaware County, and Locust Grove Farm in Washington County. There are also several slaughterhouses in the states adjacent to New York that are near the Hudson Valley.

Despite these slaughterhouses in the region, all but one of the 12 meat livestock farmers interviewed reported they have some problem with processing capacity. These farmers reported having to drive farther with their animals than is optimal and that they have difficulty getting an appointment, especially during the peak fall season. Additionally, the issue of quality arose frequently. Farmers reported issues with the quality of the post-slaughter cutting and butchering and packing, which can affect the final weight of the cuts, their appearance, and sale price. In contrast to the farmers’ consensus that there is a bottleneck and some quality concerns in the local meat-processing sector, the processors interviewed did not identify any capacity issues. Rather, they reported being at capacity, but with no immediate plans for expansion. Further quantifying and understanding the potential bottleneck in meat processing would require obtaining throughput information from each of the local slaughterhouses. Such a further analysis could be conducted as a second phase of this research project.

While distributors carry some local meat from the Hudson Valley, it is not widely distributed through wholesale channels. Five of the eight distributors interviewed reported carrying some meat from the Hudson Valley. However, meat was also the product cited most often by distributors as one they would like to source more from the Hudson Valley but have difficulty doing so. This, along with the unmet demand expressed by buyers, indicates there is little wholesale distribution of local meat. The farmer interviews further confirm the low wholesale market penetration for local meat. Among the dozen

meat producers interviewed, only one is selling a significant portion of their products through a distributor and none of them are selling to chain retailers or institutions. Rather, most of the meat producers interviewed rely on on-farm sales and farmers markets. While they also sell directly to restaurants and specialty retailers, the farmers interviewed indicated they move a smaller portion of their sales through these channels.

Strengths and weaknesses in the meat value chain

The local value chain for meat in the Hudson Valley has several strengths. Beef production in recent years has been increasing, likely in response to consumer demand for alternatives to conventional meats. Several counties are now competitive among the rest of the northeast region for beef sales. Additionally, there are a number of farmers who have been adopting alternative to conventional methods, such as using grazing and organic feed. While pork is a small volume product in the Hudson Valley, there has been slight growth recently. It remains to be seen if this growth has been maintained since the time of the last Census of Agriculture. Other small livestock are also promising for the Hudson Valley agriculture industry as there are several anchor farms. Across all of these types of livestock farms, there exists a community, albeit not yet explicitly formed, of farmers who are knowledgeable and could be drawn on for expertise in the future.

One potential weakness that could hinder the growth in the Hudson Valley meat sector is the lack of processing capacity. Previous research and the anecdotal evidence gathered through farmer interviews for this report indicate there is a bottleneck in meat processing that impacts the ability for growth in production. However, it was beyond the scope of this report to quantify that potential gap.

Opportunities and challenges for future development

Given the strong and growing demand among buyers for local and other added-value meat, the Hudson Valley is likely well positioned to continue growth in this sector. In particular, the demand for organic and pastured livestock is experiencing considerable growth on the national scale.

Despite these promising opportunities, the Hudson Valley may confront several challenges in the attempt to grow the livestock industry. In particular, the amount of land available for livestock grazing is not yet clear. According to the state tax records, there are a multitude of parcels that receive an agriculture tax exemption but are classified as “vacant.” This could indicate there is land that could be put into production for livestock. Additionally, we heard anecdotal evidence that some dairy farms are transitioning or considering a transition to beef farming. This could provide some land for livestock production as well. Another potential challenge to livestock production in the Hudson Valley is the ability of farmers to make high quality meat products that can sustain the farm. Several of the grass-based beef farmers we interviewed report their difficulties in covering their costs, given the longer time to raise cattle before slaughter and the cost of feeding them over the winter. Additionally, we heard differing perspectives on the taste and texture of pastured livestock. While some

of those interviewed attest to its quality, others complained of a tough texture and substandard flavor. Both of these issues—the financial viability of grazed livestock and its culinary desirability—indicate a potential need for experimentation and research to develop and disseminate best practices for pastured livestock in the Hudson Valley.

POULTRY AND EGGS

Overview of poultry and egg production

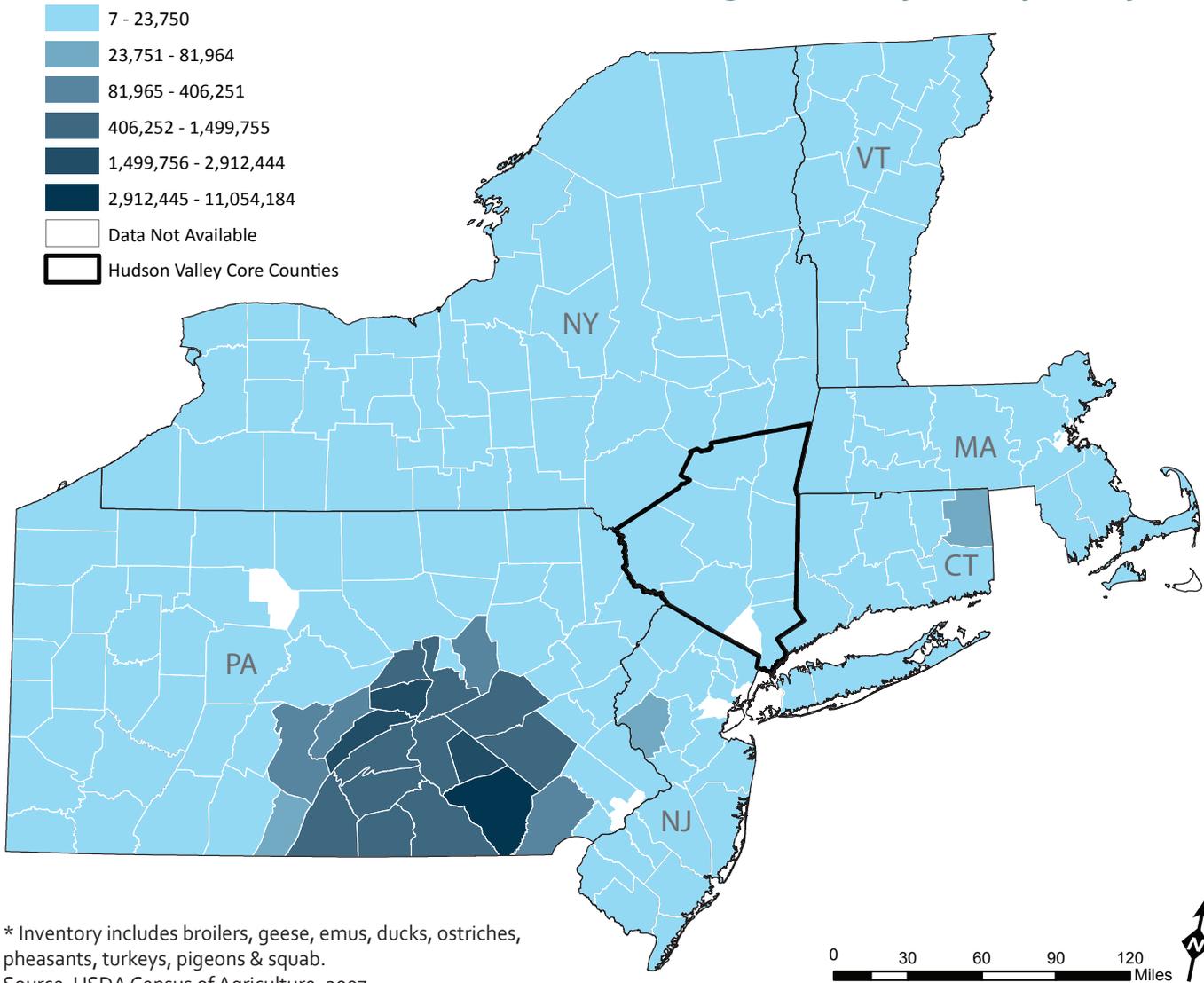
There are more than 570 farms throughout the Hudson Valley that produce poultry, such as chickens, ducks, or geese, and eggs. The poultry and egg sales were more than \$29.9 million in 2007, however, sales figures were not available for Orange, Greene, or Westchester counties. Of those reported sales, the vast majority, \$27 million, were from a cluster of producers in Sullivan County. Sullivan County is home to several large scale egg pro-



Glynnwood Farm. Photo credit: Caroline Kaye

Examining Hudson Valley Food Value Chains

Regional Poultry Head by County, 2007*



ducers, but also Hudson Valley Foie Gras & Duck Producers; La Belle Farm, also a foie gras producer; and one of the Murray's Chicken locations. Together, all of these farms in Sullivan County form a high grossing cluster of poultry and egg producers. Other than this cluster in Sullivan County, the Hudson Valley region as a whole is not competitive on volume or sales with the remainder of the northeast region, likely because much of the Hudson Valley poultry producers are smaller farms, rather than the large-scale commodity poultry farms found in other parts of the country.

Demand for poultry and egg products

As compared to per capita meat demand, per capita poultry demand has been increasing. From 1990 to 2010, the per capita consumption of poultry has increased 28 percent.¹⁵¹ Egg consumption, however, has remained relatively stable, with only a 2.7 percent increase in per capita consumption over this same period.¹⁵² Consumers in the Hudson Valley spend over \$169 million on poultry and \$52.3 million on eggs annually. In New York City, poultry purchases are more than \$577 million and egg purchases \$178 million annually. Although poultry is a high demand product, the Hudson Valley produces

Hudson Valley Poultry and Egg Production

County	Farms	Sales
Columbia	106	\$1,044,000
Greene	68	(D)
Dutchess	106	\$650,000
Ulster	101	\$218,000
Sullivan	79	\$27,679,000
Putnam	11	\$4,000
Orange	87	(D)
Westchester	18	(D)
Rockland	0	\$0
Hudson Valley	576	\$29,595,000
New York State	4,597	\$123,727,000

(D): Data not disclosed. Source: USDA Census of Agriculture, 2007

only a small volume compared to this demand. The Hudson Valley egg sales are likely higher, compared to local demand, but the county sales data available do not disaggregate egg sales from poultry sales.

Poultry processing and distribution infrastructure

There are five USDA licensed poultry slaughterhouses in the core Hudson Valley counties. These include Hudson Valley Foie Gras, La Belle Farm, and Murray's in Sullivan County, which do not process for other local farms. Additionally, Pelleh Poultry in Sullivan County and Kiryas Joel Poultry Processing service the Kosher market. There are also two plants in Washington County and Delaware County, Champlain Beef Company and Eklund Processing, that appear to process poultry. It would seem then that Hudson Valley poultry farmers are not currently well serviced by USDA slaughterhouses. However, based on our interviews with farmers, much of the local poultry processing occurs in state licensed facilities.

In New York State, local farms may obtain a 5-A exemption that allows them to slaughter poultry for sale. With a "Producer/Grower" exemption, a farmer may only process up to 1,000 bird and sell them within the state off the farm or through a farmers market. With a "Producer/ Grower or Other Person Exemption (PGOP)"

exemption, a farmer may process up to 20,000 bird either raised by the farm or purchased live. This exemption also allows farms to restaurants and hotels for use in the dining room only. However, it still does not allow for out of state sales or other wholesale sales. If a farmer intends to sell to wholesale clients, such as retailers and distributors, then he or she must obtain a "Producer/ Grower Exemption" that allows for up to 20,000 of only their own birds to be slaughtered on premises. In none of these exemptions, however, may a farmer sell out of state.¹⁵³

There are 12 5-A exempt poultry slaughter sites that we found in the Hudson Valley, most of which are on-farm. While most of the farms we interviewed did not raise an issue about processing capacity for poultry slaughter, three did indicate there might be an opportunity for a larger or shared facility in the mid-Hudson Valley. Additionally, one farmer believed the state should consider raising the number of birds allowable under the 5-A exemption.

Unlike the meat sector in the Hudson Valley, there are a handful of larger scale poultry and egg producers. These producers market their products differently than their smaller counterparts in that they have better wholesale market penetration. The smaller poultry and egg farms tend to market through direct channels, such as farm-

Examining Hudson Valley Food Value Chains

Estimated Hudson Valley and New York City Markets for at Home Poultry and Egg Consumption

County	2011 Consumer Units	Poultry Consumption	Egg Consumption
Columbia County	26,063	\$4,378,500	\$1,355,250
Dutchess County	124,166	\$20,859,930	\$6,456,645
Greene County	20,398	\$3,426,780	\$1,060,670
Orange County	156,197	\$26,241,040	\$8,122,227
Putnam County	41,639	\$6,995,310	\$2,165,215
Rockland County	131,316	\$22,061,060	\$6,828,423
Sullivan County	32,042	\$5,383,000	\$1,666,167
Ulster County	76,020	\$12,771,360	\$3,953,040
Westchester County	398,291	\$66,912,930	\$20,711,145
Hudson Valley	1,006,130	\$169,029,910	\$52,318,782
Bronx County	580,001	\$97,440,140	\$30,160,043
Kings County	1,055,269	\$177,285,150	\$54,873,975
New York County	667,478	\$112,136,360	\$34,708,873
Queens County	936,603	\$157,349,360	\$48,703,373
Richmond County	196,028	\$32,932,690	\$10,193,452
New York City	3,435,379	\$577,143,700	\$178,639,717

Source: US Census Bureau, Bureau of Labor Statistics

ers markets, CSAs, and on-farm stores. Additionally, several also sell to restaurants. Although the most permissible 5-A exemption allows for sales to retailers and distributors, it seems very few poultry farms are selling through these channels. Exploring options for new 5-A exemptions may be one option for increasing wholesale distribution, along with development or enhancement of on-farm facilities.

Strengths and weaknesses in the poultry value chain

There are many farms in the Hudson Valley that produce poultry, many of which also produce other products. Additionally, there is a cluster of larger scale poultry and egg producers that contribute significantly to the Sullivan County economy. However, whereas the larger producers have adequate processing capacity through USDA facilities, there are no options for smaller and local farmers to use USDA facilities. Instead, they are able to process on-farm or through another 5-A exempt fa-

cility. However, relying on these processors limits their ability to market out of state and, depending on the exemption, through wholesale channels.

Opportunities and challenges for future development

One opportunity for future development could be to assist farmers in obtaining more processing licenses and helping them to market their products through wholesale channels, which are currently not well served by most poultry farms. While the larger farms already have market channels, the smaller and mid-sized poultry farms could explore additional channels, such as local retailers, distributors or institutions. One challenge to future development in this sector could be matching buyers to the producers on volume and price, as smaller and local farmers have smaller volumes and may be accustomed to higher price points from their direct-to-consumer venues.

GRAIN

Overview of grain production

Grain includes a variety of crops such as wheat, soy, barley, oats, rye and corn. In the Hudson Valley, very few of these grains are grown and those that are produced are in very small volumes. However, there is considerable acreage devoted to conventional corn grown for animal feed. As of 2007, there were at least 14,000 acres of corn for silage and more than 16,000 acres for grain corn.¹⁵⁴ Together, these dwarf the number of acres for other types of products, such as the approximately 13,000 vegetable acres in the region.¹⁵⁵ Much of this corn is grown as feed for dairy production, with dairy farmers growing their own corn for silage and growing some grain corn. Based on our interviews, we learned some dairy farmers also have excess grain corn that they can sell to other producers to generate additional revenue. One theme we learned from smaller scale livestock producers, those raising livestock for meat, poultry, and eggs is that there are insufficient sources for alternatives to conventional feed. Based on the USDA statistics on corn grain, 88 percent is conventional, genetically engineered varieties.¹⁵⁶ However, data are not readily available for New York State or on the county level. It is

likely, based on this national statistic and our conversations with farmers, that most of the Hudson Valley feed is also conventionally grown. As the farmers we interviewed explained, the only readily available alternative to this conventional corn grain is organic feed, which these farmers found is not affordable. They suggested someone begin growing and selling animal feed that is not conventional, but is also not certified organic, which would provide a more affordable option to them.

In addition to grain grown for animal feed, some of these grain varieties may also be grown for human consumption for baking, cooking, or beverage production. For example, grain corn could also be cultivated for distilling. Additionally, there is some cultivation of wheat, rye, and oats in the Hudson Valley, although on a small scale. It is also not known if these crops are used for food production, such as flour or beverages, or if they are also used for animal feed. Based on our interviews with farmers, millers, and bakers, there are very few Hudson Valley farms that are growing grain varieties for food and beverage production.

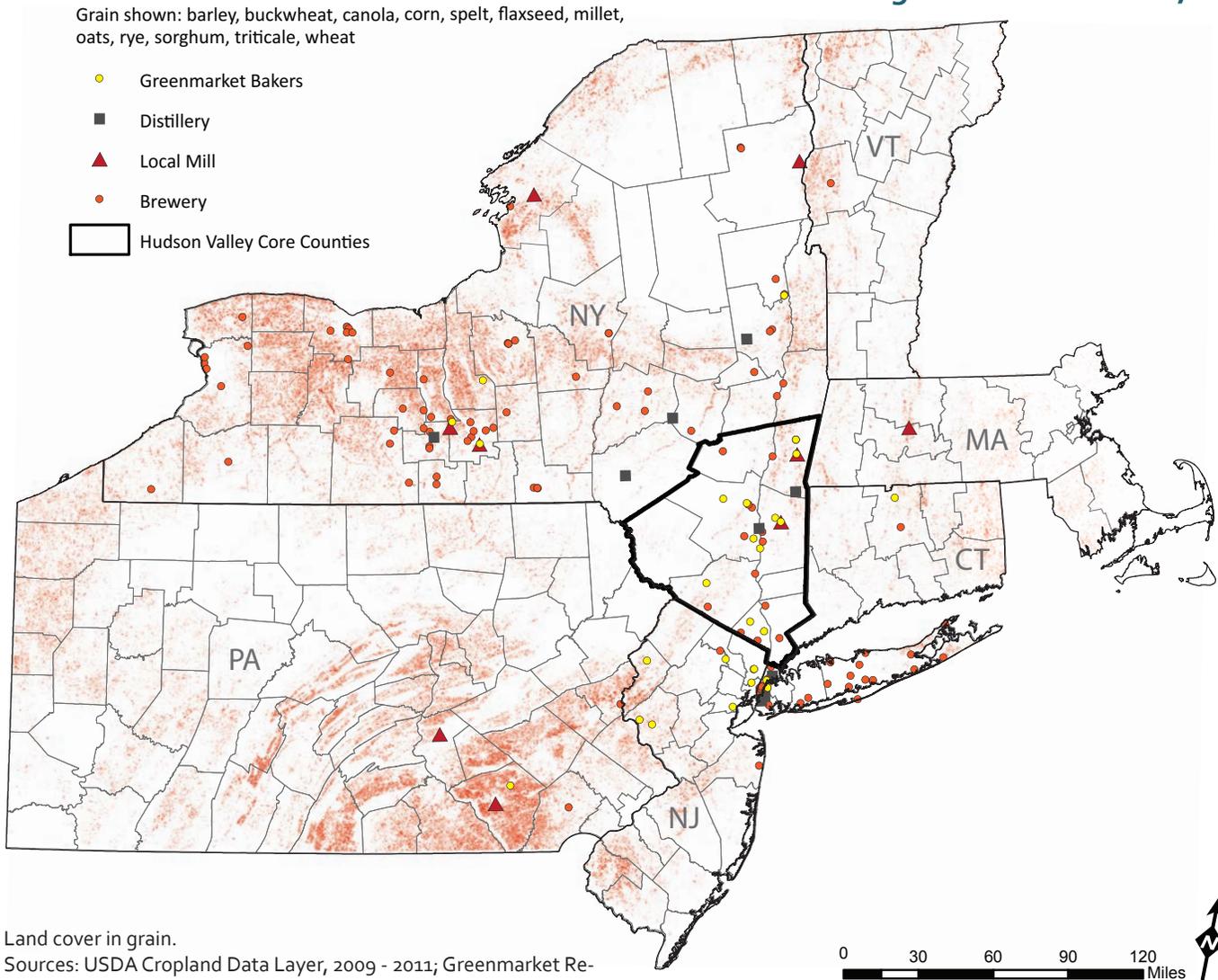
Some of those we interviewed expressed concern about the ability of the Hudson Valley to increase grain production for food. Because it is not currently a high volume

Hudson Valley Acres of Grain Production*

County	Barley	Corn as Grain	Corn as Silage	Oats	Rye	Soybeans	Wheat
Columbia	62	7,296	6,387	332	139	2,399	346
Dutchess	0	5,390	1,792	270	67	(D)	150
Greene	(D)	533	(D)	80	0	3	(D)
Orange	(D)	2,159	3,931	83	93	0	(D)
Putnam	0	0	0	0	0	0	0
Rockland	0	0	0	0	0	0	0
Sullivan	(D)	(D)	882	(D)	(D)	(D)	(D)
Ulster	0	1,316	1,144	39	(D)	0	(D)
Westchester	(D)	(D)	(D)	N/A	0	0	0
Hudson Valley	>62	>16,694	>14,136	>804	>299	>2,399	>496
New York State	10,793	551,629	507,568	60,999	6,879	199,775	84,955

* Table does not include other grain categories - amaranth, buckwheat, canola, emmer and spelt, flaxseed, millet, sorghum, and triticale-- as there was no production or undisclosed production of these types.
(D): Data not disclosed. Source: USDA Census of Agriculture, 2007

Regional Land in Grain, 2010

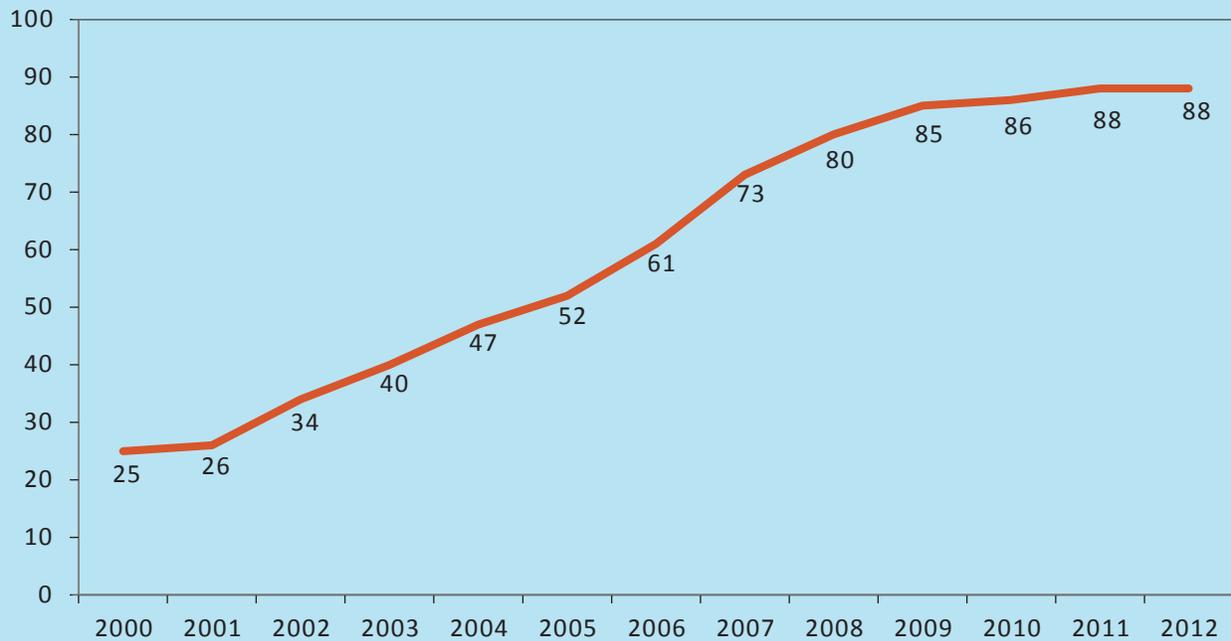


crop, there is little knowledge and experience in the region about the types of grains most suited to the region and the amount of available land that could be utilized for grain production. At least one farmer interviewed was growing grain in high enough volume that it was his primary crop. This farmer was selling his grain for both milling and animal feed, stating that there is more demand than he can meet. Additionally, another farmer who grows fruit and vegetables recently began experimenting with grain, but is not yet selling commercially. We therefore conclude there is some interest in growing grain, but that technical assistance and further analysis will likely have to be available.

Demand for grain products

Although there is very little grain production in the Hudson Valley, we include an assessment of its local value chain because there appears to be a niche market developing locally. Two forms of demand arose in our interviews—for human consumption (baking, distilling, brewing) and for alternative to conventional, affordable animal feed. Given the increasing demand for local and sustainable meat among consumers and the growth in the local beef sector, there is likely a market beyond the few livestock farmers we interviewed for alternatives to conventional feed. There are nearly 1,400 beef farms, 1,200 poultry farms, and 400 pig farms throughout the Hudson Valley and adjacent counties. Although some of

Percent of U.S. Corn Genetically Engineered



Source: USDA National Agricultural Statistics Service, 2001-2012

these farms may be using pasture to feed their livestock, many are likely using grain and could be a potential outlet for alternatives to conventional grain. Additionally, as discussed in the section on beef farming, some farms may also be using a combination of pasture and grain and there is a need for some research and technical assistance on the various outcomes associated with each method and the potential combination of feeding methods. Such an analysis could better quantify the potential market for alternative grains as well.

The Hudson Valley and New York City regions have experienced several promising trends of late that indicate there is a niche, but growing market for food and beverage grains. Greenmarket, which manages 54 farmers markets throughout New York City, recently instituted a rule requiring bakers selling at farmers markets to utilize at least 15 percent local ingredients in their products.¹⁵⁷ To assist bakers in making this transition, Greenmarket has embarked on a project to help disseminate information about growing and sourcing local grain.¹⁵⁸ The demand for local grains was confirmed by attendees to our New York City listening session and with interviews among bakers. However, commercial bakers, especially those

selling through wholesale channels, raised an issue about volume. They believed local grain is not produced in enough volume currently to supply larger scale operations and would likely remain part of a particular product line in the near term.

In addition to bakeries, local micro distilleries and micro-breweries may present another market outlet for local grain. In 2007 New York State passed the Farm Distillery Law, allowing for micro distilleries to open and requiring them to source ingredients primarily from New York State farms.¹⁵⁹ The law also allows the micro-distilleries to hold tastings and sell their products on-site, much in the way wineries have done. Just in 2012, New York State passed a law allowing these farm distilleries to sell their products at farmers markets and county fairs.¹⁶⁰ Additionally, there are many new micro-breweries that have opened in the Hudson Valley and New York City, some of which tout using New York State or local ingredients. In 2012, the state passed legislation creating a Farm Brewery license to encourage breweries' use of local ingredients and growth in the sector overall.¹⁶¹

Grain processing and distribution infrastructure

Processing grain for human consumption incorporates several steps before reaching a final product. For flour, the grain must be milled. There are only two mills in the Hudson Valley. One is a very small mill used by the bakery at Hawthorne Valley Farm to make their products. The other mill, Wild Hive, is in Dutchess County, and mills local grains from farms in the Hudson Valley and northeast region. Based on our interviews, local bakers are also purchasing flour from Farmer Ground Flour in the Finger Lakes region. For beverages, such as beer and whiskey, grains are also malted before further processing. Despite the proliferation of distilleries and breweries, there is not yet a malting facility in the Hudson Valley. The closest malt facility is in Hadley, Massachusetts.

Because the market is nascent, there is not widespread wholesale distribution of milled or processed Hudson Valley grains. The two local mills generally handle their own distribution, with only one of them selling milled grain and the other only distributing finished baked products. The milled grain that is available locally is sold through farmers markets and small retail stores and is sold to bakers. However, there is no larger scale wholesale distribution of local grains for flour. If the sector grows, distribution may become an area for future development. Additionally, because local grain is not yet produced in high enough volume to be well connected to the local brewing and distilling sectors, distribution is not an issue. If there is an increase in grain production

and better connections to these intermediary buyers, then distribution may become an area for future consideration in the beverage value chain as well.

Strengths and weaknesses in the grain value chain

The greatest strength in the local grain value chain is the burgeoning market among livestock farmers, bakers, brewers, and distillers. All of these market segments, taken together, indicate a need for future development of local grain growing. Currently, the greatest weakness in the local grain value chain is the very small volume of grain grown locally, outside of conventional feed corn, and the lack of local experience in grain growing due to the small size of the sector. Additionally, because there is little grain growing activity, the processing sector is similarly underrepresented in the region. With additional grain growing will likely come a need for investment in processing capacity.

Opportunities and challenges for future development

The Greenmarket rule, development of micro brewing and distilling, and growth in small scale livestock farming offer a very good opportunity for future development of the grain sector. One major challenge to scaling the grain sector is the lack of technical knowledge on a regional scale as to the best varieties for local grains and to meet the needs of the local market. Additionally, given the limited acreage devoted to grain growing (aside from conventional feed corn), there may also arise a tension between the demand for food grain and feed grain.



Photo credit: Turhilltown Spirits.

Examining Hudson Valley Food Value Chains

Wild Hive Farm. Photo credit: Cheryl Paff / atthefarmersmarket.com



CROSS-CUTTING THEMES

Farmers

The farmers interviewed were a diverse cross section of the Hudson Valley agriculture sector. They were in business for between 3 and 350 years, with a median tenure of 80 years. They also ranged in size, from two to 2,000 acres in production, with a median size of 200 acres and a total acreage in farming among them of 15,491 acres. Overall, seven were categorized as small (1-49 acres), 28 as medium (50-499 acres), and 10 as large farms (500+ acres). They also ranged in their product focuses, with many operating diversified farms.

Of the farms interviewed, most (73%) were at least covering their operating costs, although many could not estimate their annual gross margin when asked. Those who were not covering costs cited several reasons, including recent large capital investments in new plantings, new land and other infrastructure; a lagging recovery from Tropical Storm Irene; and being a new, start-up farm. Since the time of the last Census of Agriculture, 20 of the 45 farms we interviewed increased their production by farming an additional 3,421 acres. However, 5 farms reported they ceased farming on 440 acres, bringing the net gain in farmed acres among our sample to 2,981 acres.

When asked about their ability to increase production, 56 percent (25 farmers), indicated they would be able to expand production if they received support with pro-

cessing, distribution, or marketing. While some farms were utilizing all of their land, we found that 20 of the 45 farms interviewed had fallow acreage that could be put into production. In total, these farms estimated they have 1,800 acres that could be put into production. This may indicate future productive capacity could increase to meet new market needs if the Hudson Valley were to add processing, aggregation, and distribution infrastructure.

Because our study goal was to assess infrastructure needs and the potential for food hub development, we asked farmers a number of questions about their current distribution and infrastructure needs. Most farms use at least one direct-to-consumer distribution channel. The most common of these was farm stores, followed by farmers markets. Of the 20 farms who sold at farmers markets, 10 of them sold at New York City farmers markets and 18 of them sold at Hudson Valley Farmers markets. At least two farmers indicated the New York City farmers markets provide much higher daily sales and some expressed a 'farmers market fatigue,' that the proliferation of farmers markets throughout the region makes them difficult to staff and be profitable.

Most (20) of the farms interviewed also sell through wholesalers. Although more farms sold through direct-to-consumer channels, a higher sales volume is moved through wholesale distribution channels. Among the farmers interviewed, 55 percent of sales were moved through wholesale channels and between 30 and 34



percent were through direct-to-consumer channels (the remaining portion was sold through indiscernible channels). Most farms (80%) transport their own products at least some of the time. Additionally, approximately two-thirds of farms interviewed reported their distribution radius, the distance their farm trucks traveled for deliveries, was 200 miles or less. This did not account for the distance their product travels if it is move through a broker or wholesaler, only the farmers' travels to their buyers.

When asked about infrastructure needs, most farmers listed a number of items. Overall 82 percent of farms indicated they have various infrastructure needs. These included harvesting equipment, greenhouse construction or upgrades, packing and grading upgrades, processing equipment and cold storage. On-farm cold storage and freezer space was the most commonly cited infrastructure need, with 18 farmers reporting additional need for cold storage or freezer space. The next most commonly cited infrastructure need was access to processing equipment or facilities. Specialty dairy farms reported a need for bottling, filling, and other equipment, which can be costly. Additionally, livestock farmers reported a bottleneck in the slaughterhouse and meat packing sector. However, their concerns about livestock processing were not only about physical infrastructure; there were

also concerns about the quality of livestock processing in the region. Farmers were discontent with having to travel long distances to access a high quality slaughterhouse and meat packer.

In addition to physical infrastructure, farmers reported other challenges. Twenty-two indicated they had challenges finding qualified labor, from farmworkers to bookkeepers to retail store staff. Additionally, just under half (20) of farmers would benefit from receiving information technology assistance and 24 were interested in receiving business planning assistance.

Processing Infrastructure

The interviews with local food processors and distributors revealed several themes about the current distribution landscape and potential for new infrastructure. In total, we interviewed 22 food processors and 8 food distributors, all of whom source from or operate in the Hudson Valley.

Processors connections to local farms and the need for infrastructure varied according to their sector. Both meat livestock and dairy farms are connected to local processing infrastructure, although not without some

Examining Hudson Valley Food Value Chains

issues. Livestock and livestock processors held differing views on the capacity of the meat processing sector. Whereas livestock producers cited some challenges in finding quality processing, local slaughterhouses did not observe a bottleneck. However, these processors were operating at capacity. The recent increase in livestock production in the Hudson Valley, along with the commonly reported bottleneck by producers indicate some further exploration of this issue is needed.

Although dairy processing appears to be in greater supply than for other products, seven of the eight dairy farms interviewed indicated a need for additional or upgraded equipment. The dairy processors who source milk from other farms were generally able to source local milk, with one who uses both cow and sheep's milk having to supplement with frozen sheep's milk to backfill a lack of supply. The processors working with produce also were able to source some ingredients locally, although the one larger scale processor interviewed reported difficulty finding bulk vegetables for the institutional market. The processors working with grain and flour for milling, baking, and distilling indicated the Hudson Valley does not produce grain in sufficient quantities to supply their operations. However, they identified future promise for the grain sector for both beverage and food production, which would require additional investment in processing infrastructure. Across all of these sectors, processors sourced ingredients directly from farms. Although these relationships exist, there is clear pressure from the farmer sector for investment in infrastructure for high

quality local meat and value-added dairy and from the processing sector for local grains. While fresh cut processing for produce did not arise as much in interviews, the demand from the institutional and retail markets indicate this type of processing infrastructure should be explored further.

The vast majority of processors interviewed, 95 percent, cite a growing demand for local foods. Many of them already use the term Hudson Valley in marketing their products and more than half of them believed source-identified Hudson Valley products will earn a higher price. Their consistently positive outlook on the market for local food supports the conclusion that there is room for growth in the Hudson Valley.

Local Food Distribution Infrastructure

Farmers in the Hudson Valley local food value chain commonly rely on direct-to-consumer sales through farm stores, farmers markets, and CSAs. However, these outlets move lower volumes of food than do the wholesale channels farmers utilize. Most local farms utilize a combination of direct and wholesale channels to sell their products. Even among the 10 largest farms interviewed (farming more than 500 acres), four of them sold more than half of their products through direct-to-consumer sales and another two sold more than a third through direct-to-consumer channels. Furthermore, seven of these large farms were grossing at least \$1 million (two refused to provide income information). More than half of mid-sized farms interviewed (60 percent)



Photo credit: Ginsberg's Distributing

use direct-to-consumer channels also. All of the small farms interviewed utilized direct-to-consumer channels, but a significant portion (five of seven) also sold direct to restaurants. Additionally, every farm utilizing direct-to-consumer markets, even the smallest, had trucks for transporting their products.

The degree to which farmers were able to access wholesale channels, and the types of wholesaling they did, varied with size. Among the largest farms, 60 percent use wholesalers, while only 43 percent of medium and small farms sell through wholesalers. Interestingly, the degree to which mid-sized farms relied on wholesalers (measured by the percent of their sales volume), was greater than for large farms. The average portion of sales moved through wholesalers for mid-sized farms was 28 percent, while the average volume for larger farms was 12 percent. This finding could be due to a number of factors. First, our sample of large farms was smaller (10) and two of them refused to provide financial information, which might indicate our sample is not representative of all large farms in the region. Second, two of the larger farms utilize brokers for their wholesaling. And, last, two of the larger growers act as grower-shippers themselves.

Several small and mid-sized distributors in the Hudson Valley currently source from local farms. The greatest challenge distributors cited in sourcing from the Hudson Valley was maintaining communication and relationships with producers, rather than price, quality, transportation or other issues. This finding is supported by the farmer interviews, which indicate they are already working with some distributors in the region and thus there do not appear to be widespread infrastructural issues preventing them from transporting the product through this channel.

All of the distributors interviewed recognize a strong and growing demand for local food and consider using the term Hudson Valley a valuable marketing strategy. While the distributors expect to pay more for Hudson Valley products, they anticipated they could pass this cost difference on to customers, who are willing to pay a premium for local, source-identified products. Most of the distributors we interviewed target the food service market. Although half of the distributors interviewed also sold to institutions, these sales were a much smaller portion of their overall sales.

There are two markets with which farmers and local distributors are not closely integrated: institutions and retail chains. Only 14 percent of mid-sized farms and 30 percent of large farms we interviewed sell direct to chain retailers. Of the mid-sized and large farms we interviewed that do sell to chain retailers, on average, they sell only 8 percent and 11 percent, respectively, of their products through these channels. Among distributors interviewed, three sell through chain retail channels, although their sales volume through this channel is low, between 5 and 30 percent. Specialty retail was targeted more, with five distributors selling to these types of stores and two of them sold a high portion of their product through these channels.

None of the large or mid-sized farms we interviewed currently sell directly to institutions, such as colleges, hospitals, or corporate dining, in the area. Five of the distributors interviewed sold to institutions, with three of them selling roughly one-fifth to one-third of their products to this sector. Additionally, these sales were not solely of locally sourced foods. One distributor shared a story of working with a local hospital who sought to purchase “hyper-local” food, but after much discussion told the distributor that they could not afford the price point of the small, “hyper-local” farm. This story may exemplify one bottleneck in the institutional market for local food, that there is a need for matchmaking between price-sensitive institutions and larger and mid-sized farms who may be able to meet their needs for volume and price. There are positive indications this bottleneck is surmountable. Two colleges in the region interviewed



Rockland County Farmers Market. Photo credit: Down to Earth Farmers Markets

Examining Hudson Valley Food Value Chains

reported they were purchasing local products through a local distributor, which they found to be more manageable than direct purchases from individual farms.

Buyers

We interviewed 39 food buyers throughout the region, sampling a diversity of business types to gain a broad perspective on food distribution in the region. These included 18 food service businesses, 14 small and large retailers, and seven institutions. Additionally, we held a listening session in New York City with select buyers, seven of whom completed an abbreviated version of the interview protocol. Of these 39 buyers, many of them have numerous locations, thus broadening the reach of our research.

Because large retailers, small retailers, institutions, and food service companies relied on different means for sourcing food, we analyzed these three groups separately to identify common themes. We interviewed 10 large retailers, 7 institutions, and 22 businesses who are small retailers and food service establishments.

Among the large retailers, as would be expected, their annual food purchases are much higher than for the other businesses. They each purchase a minimum of \$2 to \$3 million in food annually. All of them currently source through farms to some extent, relying on farms to deliver or use distributors or truckers to deliver product to the retailers. The most common challenge large retailers cited in purchasing from the Hudson Valley is the lack of volume from farmers. However, quality, seasonality, and food safety certification requirements were challenges also cited by half of large retailers. In particular, the items they would most like to purchase from the Hudson Valley were vegetables and meat. While price was not a challenge most retailers mentioned, six of the ten interviewed indicated they expect Hudson Valley products to cost the same as other products. Despite the challenges mentioned, large retailers all believe using Hudson Valley as a source identifier on foods could be a valuable marketing strategy. Many of those interviewed already try to use farm names and geographic identifiers at the point of sale to market their products.

Among the institutions we interviewed, each are buying at least \$1 million in food annually, typically through

distributors. However, half of them also had established relationships with individual farms. There was no consensus about their challenges in sourcing local foods or the price of local foods, potentially due to the lack of local food purchases and their reliance on intermediaries to source local foods. Two colleges emphasized the role of distributors, with one recently transitioning from direct farm purchases to using a distributor and another indicating the only way to source local food for their institution would be through pre-approved vendors.

All of the institutions interviewed believed the term Hudson Valley could be valuable in selling local food products. One college suggested creating point of sale materials to market local foods to students and faculty. The products most in demand among institutions were produce, meat and poultry, grain and flour, and processed foods, such as frozen, cut or canned.

Restaurants, food service establishments, and small retailers in the Hudson Valley and New York City were the most integrated into the local food value chain among the different buyer types. The vast majority of those interviewed, 86 percent, believe there is a growing demand for local food. Moreover, 73 percent indicated the Hudson Valley is a valuable marketing term and all of them believe there is greater potential to develop a Hudson Valley food brand or identity to market local foods. While most (73 percent) expect to pay more for Hudson Valley ingredients, they also expect to charge a higher price for local products.

All of these smaller buyers purchase at least some of their products from farms directly and source ingredients, regardless of origin, through distributors. This finding is consistent with our farmer interviews as well. Most (71 percent) of the small farms interviewed sell directly to restaurants and specialty retailers. Additionally, many mid-sized farms sell directly to restaurants (36 percent) and specialty retail (25 percent). Forty percent of large farms we interviewed also sold through these channels. However, the portion of sales differed among these farms. The average sales volume medium and large farms moved by these farms through food service and specialty retailers was one to three percent. In contrast, small farms moved, on average, 28 percent of their sales through food service establishments.



Most food service and small retail buyers interviewed, 68 percent, reported they were able to meet the demand for local food among their customers. However, they did report some challenges in sourcing local ingredients. Most commonly, they faced issues with transportation (82 percent), price (59 percent), and lack of volume or seasonality (55 percent). Food service establishments' and small retailers' issue with transportation came up during listening sessions throughout the Hudson Valley and New York City as well. Chefs and restaurant owners reported driving to farmers markets or the farms themselves to purchase local products. While some complained about the inefficiency in this process, others indicated it was important for them to maintain relationships with farmers. New York City buyers indicated they rely heavily on the Greenmarket system to purchase local foods, with a couple also working with the Greenmarket's new wholesale program.

The items small retail and food service buyers found most difficult to source included meat (64 percent), grains or flour (50 percent), and vegetables (45 percent). When asked what products they believe are growth areas, they chose meat, dairy, and produce most often.

Response to Food Hubs Concept

To test the potential for food hub development, our interviews focused on the current state of distribution in the local food value chain and individual businesses' needs for new or expanded infrastructure. Additionally, businesses were asked more directly whether they

would sell or buy through a food hub in the Hudson Valley and, if so, what factors would most influence their decision to participate. The responses to the food hubs concept we received were positive across different business types, with the greatest degree of interest among distributors and buyers.

Just over half (60 percent) of farmers interviewed were either very interested or interested in selling through a food hub. Only 18 percent were uninterested or very uninterested in selling through a food hub. When asked about what products they would have available for sale, farmers most commonly mentioned vegetables (49 percent), fruit (30 percent), and meat (30 percent). Farmers were neutral on whether they would be interested in or needed space for selling through a hub, indicating a wholesale market may not be a suitable model for the region. When asked about the challenges they envisioned for selling through a hub, farmers expressed concern they would not have sufficient product volume (29 percent) and questioned the cost to participate versus the additional benefits they would reap (22 percent).

The features and services of a potential hub farmers were most interested in were value-added processing, access to wholesale customers, identifying new Hudson Valley customers, aggregation and distribution assistance, cold storage, and help obtaining GAP or other certifications. Farmers were fairly split on their opinion as to whether a hub should be a non-profit or private entity, but everyone was unified in their opinion that it should not be government led.

Buyers were more enthusiastic about the potential for food hubs in the Hudson Valley. All large retailers were either very interested (70 percent) or interested (30 percent) in sourcing through a hub. Their main priorities in using a hub were affordability, product quality, and being able to receive delivery of products. All institutions were also very interested (71 percent) or interested (29 percent) in buying through a hub. Their priorities were similar to those of large retailers. The institutions were concerned with food safety certifications, product quality, and delivery service. Smaller retailers and food service establishments were all very interested (59 percent) or interested (41 percent) in sourcing through a food hub. However, their priorities differed from the larger buyers. These smaller buyers were first concerned with

Examining Hudson Valley Food Value Chains

quality and then with easier access to local foods and delivery. This response regarding easier access and delivery aligns with small buyers' indication that transportation was their main challenge in sourcing local products. Many buyers (41 percent) had no preference as to the business model of a food hub, although 33 percent it should be a private entity and 25 percent believed it should be a non-profit.

Similar to buyers, the distributors' reactions to the potential for food hub development were very positive. All distributors interviewed were either very interested (87 percent) or interested (13 percent) in buying food through a hub. The factors that would most influence their participation in a hub are high quality products, traceability of foods, and food safety certifications. The emphasis on traceability and food safety certifications reflects the general trend in the food industry toward HACCP and GAP for wholesale markets. It should be noted that several of the distributors interviewed were most interested in food hub development as a potential means for increasing their own distribution functions in the local food value chain. Four of them indicated they would be interested in serving as the hub themselves or becoming a founding member of a hub. Distributors

were split in their desire to rent additional space, with three interested or very interested and three very uninterested in additional space. However, distributors were fairly unified in their opinion (63 percent) that a hub should be managed by a private entity.

Most processors were also interested (57 percent) or very interested (38 percent) in buying ingredients through a food hub. Fresh produce was the most commonly cited product of interest, although grains were cited frequently as well, likely due to the overrepresentation of processors that use grain in our sample. Far and away the most important criteria for processors in sourcing through a hub would be product quality (80 percent). Because some of the hub models we researched sell value-added products, we also gauged processors' interest in selling through a hub. Eighty percent of them were either interested or very interested in also selling through a hub. Similar to farmers, food processors were fairly neutral when asked if they would be interested in renting space at a potential facility. When asked their opinions on the type of business structure for a food hub, they most commonly cited a private entity as the appropriate structure (40 percent).



Bread Alone Bakery. Photo credit: June Russell



Pfeiffer Center, Rockland County
Photo credit: Pfeiffer Center

CONCLUSIONS & RECOMMENDATIONS

This study sought to answer three questions regarding the Hudson Valley and New York City food markets. First, are food hubs needed to strengthen the local food value chain? Second, what are the features of food hubs that would most benefit Hudson Valley farmers and communities? And, third, who would support or participate in food hubs in the Hudson Valley? Below are the answers to these questions, based on our review of the food hub literature, as well as data analysis, best practice review, and interviews with local farms and other food businesses. Additionally, for each set of conclusions, there are also recommended strategies for food hub development and other means for strengthening the local food value chain in the Hudson Valley and New York City regions.

RESEARCH QUESTION 1: ARE FOOD HUBS NEEDED IN THE HUDSON VALLEY?

Our first research question for this study was whether food hubs are needed in the Hudson Valley to help sustain agriculture and benefit local communities. To answer this question, we first sought to better understand the current state of agriculture, infrastructure and distribution in the local food value chain. Through data gathering, analysis, and our qualitative interviews, we are able to conclude that the Hudson Valley would benefit from food hub development. However, as outlined below, we recommend those interested in supporting the local food value chain adopt a nuanced definition of food hub development that focuses more on the functions hubs offer and their intended outcomes, rather than prescribe one or two centralized infrastructure investments. In other words, the form of food hub development should follow from the functions that are most needed in the Hudson Valley. Rather than invest in building new infrastructure from the ground up, we conclude that food hub development should take the form of investment in existing farms and businesses and services for them that will enable new market opportunities and their increased capacity to meet those opportunities.

Conclusions:

Our research suggests food hub development would benefit Hudson Valley farms and communities for a number of reasons. First, there are long term and short term trends in Hudson Valley agriculture that indicate a

need for support. Both the number of farms and farmland acres continue to decline in the region, particularly among mid-sized farms that fall in between the direct-to-consumer market and the commodity markets. This would indicate the farm sector requires targeted attention from policymakers, investors and supportive organizations.

Other trends in the farm industry also indicate a need for investment. Currently, a considerable portion of farms in the Hudson Valley struggle to cover costs and remain profitable. While some of these farms are not intended to be primary occupations, this issue is true of many commercial farms as well. The high cost of doing business in the Hudson Valley, the high cost of land and development pressure, and the lack of predictability inherent in farming make it difficult for operators to plan for and invest in on-farm infrastructure. This type of infrastructure could enable farms to become more efficient and more ready for the wholesale market.

There are also positive recent trends in Hudson Valley farming that could be fostered through food hub development. For example, there are more farms entering livestock production and farms trying to adopt sustainable practices. However, some farms reported difficulty making these practices financially sustainable. Given the ongoing consumer demand for local and sustainable foods, some support should be provided to farms adopting new technologies and practices to ensure their long-term viability and better capitalize on the current demand. One way in which food hub development could achieve these outcomes is by connecting farmers with new customers for these types of foods. Additionally, as we outline later in the report, services and research beyond food hub development would be beneficial as well.

In addition to these trends in agriculture, an ample market for local food supports the need for food hub development to better connect farmers to new consumers. Beyond the national consumer trend toward local and sustainable food, the Hudson Valley benefits from being in the largest food market in the country. Although farming is a significant part of the Hudson Valley economy, the volume currently produced in the region remains only a fraction of total food demand locally and in New York City. Even if local farms could capture an additional one percent of the \$18.2 billion market for

food at home, equivalent to \$34.6 million in farm sales, they would reap large benefits.¹⁶² Though this study did not estimate the size of unmet demand for local food, the sheer size of the overall market and the information obtained through our interviews suggest the market for Hudson Valley products is considerable, with room for growth. Many farms we interviewed reported they could increase production and put more land into production if they received help with marketing, business planning and other activities.

Many farms in the Hudson Valley are already taking advantage of both direct-to-consumer outlets, such as farmers markets, CSAs, and roadside stands, as well as working with intermediaries to fill the demand for local products. However, our interviews revealed that there is additional assistance required to match farms to new buyers and to better market the Hudson Valley as a food-producing region. Buyers and distributors identified the term Hudson Valley as a valuable marketing term and believed it could be better capitalized on. Further, past research on the demand for local food has indicated consumers desire more specific information about provenance. Specific matchmaking is also needed, especially to connect more large retailers and institutions to local foods. Food hubs could potentially meet these marketing needs. Additionally, all of the buyers and distributors and a majority of farmers we interviewed support the concept of food hubs in the Hudson Valley.

Recommendations:

Recommendation 1. Invest in Hudson Valley food hub development to meet the needs of regional farmers and better serve the market for local food.

For all of the reasons outlined above—the need for farming support, the need for marketing assistance, the large local food market, the opportunity to increase local production, the underserved retail and institutional sector, and the popular support for the food hubs concept—we recommend an investment in food hub development. As past research and the best practice review have revealed, there are a number of food hub models that could be adopted to meet these needs. Given the specific needs of the local market, there are several features that would be beneficial, which are described below.

RESEARCH QUESTION 2: WHAT FOOD HUB FEATURES WOULD BE MOST BENEFICIAL?

Choosing the food hub features that best suit the Hudson Valley requires an understanding of the existing food distribution landscape, market demand, and available resources in the region. Given the diversity and breadth of the region, it is unlikely one food hub model will suit all stakeholders' needs. As our discussions with the advisors to this study and the listening sessions confirmed, there can be no "one-size-fits-all" approach in the Hudson Valley. Additionally, the best practice review revealed that there is no one clear model of a successful food hub, but rather there are common challenges and factors for success that new hubs should consider. We therefore began to formulate a model for what food hub development could look like in the Hudson Valley by starting with what, specifically, our research revealed is needed of food hubs. By outlining these needs and assessing the strengths, weaknesses, opportunities and threats to food hubs in the local market, we began to envision a series of strategies that, when taken together, form a targeted, but comprehensive development plan. The following conclusions and recommendations present a more nuanced version of food hub development that focuses less on a centralized investment and more on the functions and outcomes food hubs deliver. The form of the Hudson Valley food hub development below follows directly from these functions, which our research concludes should be the greatest priority.

Conclusions:

Major strengths of the Hudson Valley local food system include the established relationships, pre-existing distribution routes, and infrastructure to help bring local farmers' products to the market. There are a few small and mid-sized distributors and many food buyers that are already well integrated into the local food value chain and source products from the Hudson Valley. Even the larger food distributors who source a smaller portion of their products from Hudson Valley farmers nonetheless recognize the market demand and would like to source more local product. These distributors have cultivated relationships with buyers in New York City, the Hudson Valley and tri-state area more generally. Many mid-sized farms also confirmed they

Conclusions and Recommendations

sell products through local distributors, indicating there are relationships and infrastructure already in place that they utilize.

Our listening sessions and interviews with food service establishments and small retailers revealed they also maintain relationships with farmers and are able to source locally. Those smaller scale buyers in the Hudson Valley either pick up food from multiple farms or have farms drop off product. Although they are receiving product and most believe they are keeping pace with customer demands, they did observe the system is inefficient and would prefer more delivery service options. Buyers in New York City also indicated they are able to source locally and that their transportation system is also inefficient, although their ability to work with Greenmarket's wholesale project may offer promise to alleviate some of these issues. Our buyer and farmer interviews indicate much of the locally produced food stays within the local market, more so than is the case among farm products nationally.

Despite these pre-existing distribution channels, there remain several weaknesses in the local food distribution system that food hub development could address. Larger scale retail and the institutional markets are not yet well integrated into the local food value chain. They are therefore a market opportunity for food hub development and should be targeted as new customers. Selling to these types of larger customers will require addressing other points of weakness in the value chain. For example, distributors indicated maintaining communication with farmers is a challenge to local sourcing. On the other hand, farmers indicated in our interviews, advisory group meetings, and listening sessions that they would be very interested in being connected to new markets. Some of the buyers, especially the institutions, are interested in purchasing more local product, but require assistance being linked to suppliers and likely would prefer or require utilizing an intermediary, rather than buying direct from multiple farmers. Whereas larger retailers also indicated they are interested in purchasing more local food, they identified a different gap. To them, the barrier to local food purchasing is the ability to get a larger volume and consistent supply of local food. In addition to a mismatch in volume, another gap in the local food value chain is the ability of an adequate number of farmers' to meet wholesale

standards, such as food safety certifications, cold chain maintenance for quality control, and industry standard packing.

Despite these weaknesses, the Hudson Valley is a term buyers and distributors believe should be better capitalized on. Past research¹⁶³ has further indicated it may not be enough to label food as simply "local," that farmer identity and traceability are critical to marketing local food products well. Any food hub development should therefore focus on making information available about farms and marketing the Hudson Valley as a food-producing region.

A number of the functions offered by food hubs could address these needs in the local food value chain and fall into two categories: distribution and logistics, and marketing services. There are several distribution and logistics services that are needed in the Hudson Valley and New York City regions. For example, to address buyers' needs for volume, food hub development should focus on aggregating product from local farms. Additionally, most of the buyers we interviewed indicated they prefer or require delivery service. Therefore, food hub development should also offer expanded delivery options to customers. Several other distribution and logistics services are required to meet the needs of wholesale customers as well—quality control, product traceability, food safety certifications, and industry standard packing.

The need for better marketing, communication and relationship-building along the value chain emerged as another common theme across sectors. Distributors named communication and relationships with farmers as their single greatest barrier to increasing local food purchases. We also heard from buyers that it is difficult to achieve the volume and consistency they require. In addition to a focus on distribution and logistics services, the Hudson Valley food value chain would benefit from marketing services, a second core function among food hubs. According to those interviewed, several of our advisors, and listening session participants, marketing is needed to match buyers to the right suppliers on price, product type, and volume. As one institution's story illustrated, they lacked the necessary information and relationships to begin buying local food and targeted a local supplier who could not meet their needs for volume

or price, leading to some frustration among the parties involved. Food hub development could focus on building these relationships and sharing helpful information between buyers and suppliers in the local value chain. Additionally, the large retail and institutional markets as a whole are not yet well integrated into the value chain and therefore need assistance finding suppliers and ensuring suppliers can meet the specific needs of these kinds of customers. Lastly, marketing assistance is required to help strengthen the identity of the Hudson Valley as a food-producing region, for high quality, local farm products and value-added products. Many of the buyers and distributors interviewed indicated the Hudson Valley is associated with higher value products and that this identity could be better capitalized on.

In addition to the two core functions of food hubs, distribution and logistics, and marketing services, there are several related needs in the Hudson Valley—on farm infrastructure, farm business and production planning, and value-added processing infrastructure. The majority of farms interviewed, 60 percent, supported the concept of food hubs in the Hudson Valley and indicated they would like to participate in one if it were developed. However, an even higher portion of farms, 80 percent, reported many basic need on-farm infrastructure needs. These include upgrades to packing lines, new farm equipment, processing equipment, cold storage, and other items. All of these types of infrastructure needs would enable farms to become “wholesale ready” and would have to accompany any food hub development.

In addition to these physical infrastructure needs, there are a host of farm-based services that would be needed to ensure wholesale readiness. Many farms reported an interest in business planning assistance and IT assistance. Additionally, many farmers we interviewed reported they could increase production if they received assistance with production planning and marketing, both of which complement the food hub functions outlined above. By making farms more efficient, profitable, and productive through these kinds of business services, the needs of local food buyers are better met and the local value chain as a whole is stronger. These types of farmer services are therefore prerequisite to food hubs functions because without them, food hubs cannot ensure an adequate and consistent supply of food to make their own operation succeed.

In keeping with previous research¹⁶⁴, our study found the Hudson Valley local food value chain would benefit from enhanced value-added processing infrastructure. During interviews, both farmers and food processors identified processing infrastructure as a gap in the local food value chain that they hoped food hubs could address. Additionally, several of the institutions interviewed reported a desire for value-added products for their food service operations.

Several products’ value chains need enhanced infrastructure, whether on-farm or at independent processor sites. The most commonly demanded products among local buyers were meat, dairy, and produce, although there is a niche market for local grain and flour as well. In the meat value chain, farmers report difficulty finding appointments and accessing high quality slaughter and meatpacking. Additionally, the emerging specialty dairy industry in the Hudson Valley shows promise and has a ready market, as indicated by our buyer interviews and the trend toward cheese and yogurt consumption more generally. While Farm to Table Copackers was mentioned consistently at listening sessions and in interviews as a valuable processor, there are limited fresh cut produce options in the Hudson Valley for the institutional market and for retailers’ convenience product lines, such as clamshell salad mixes. Lastly, there is a niche market for local grains for bakeries, breweries, and distilleries in the region. Although there is one miller in the Hudson Valley, additional processing infrastructure should be explored to increase production, and to process grains for the brewing and distilling markets, capacity that does not currently exist locally. In addition to these infrastructure needs, there may be a need for future product development assistance to ensure product quality and marketability.

Even if food hubs adequately target all of these needs in the local food system, there are several challenges they will face. First, our best practice review and past literature have demonstrated that food hubs continue to struggle financially. The hubs in our sample that are at least covering costs have a median income of \$1.5 million and were in business at least ten years. Food hub development therefore should focus on these targets. Second, staffing is the key to food hubs’ success or failure. Not only do they require leadership committed to the mission of the organization, but they require

Conclusions and Recommendations

staffs that are experienced and knowledgeable about the food industry and logistics. Third, the Hudson Valley, much like other regions, has a short growing season. Food hubs in the Hudson Valley therefore should focus on meat, dairy, value-added products in addition to produce. Our interviews indicated there is adequate demand for all of these products. Lastly, although the Hudson Valley boasts some strong value chain relationships and a robust market for local food, these strengths could threaten future food hub development as they indicate a highly competitive market already exists.

Recommendations:

Taking all of these local factors into consideration, we offer several recommendations for the food hub features that would best suit the Hudson Valley, along with other types of support that should accompany food hub development.

Recommendation 2. Focus food hub development on two core functions: distribution and logistics, and marketing services.

Future food hub development in the Hudson Valley should focus on providing two key food hub functions—distribution and logistics services and marketing assistance. These services should enable the aggregation and transportation of local food to meet buyers' needs and enable farmers to sell to larger buyers. Along with aggregation and transportation, food hubs should ensure product quality, traceability, and industry standard packing. To launch and secure long-term viability of food hubs, they should also focus heavily on marketing, matching buyers to suppliers on price, product type and volume. Although many of the food hubs we interviewed do not currently provide food safety certification, they recognize it as integral to their operations. Therefore, food hub development in the Hudson Valley should offer food safety certifications or be closely linked with programs that offer these services. All of these food hub functions serve to get farmers more "wholesale ready," link farmers to new markets, and facilitate a stronger food value chain throughout the region.

In addition to these core services, food hubs in the Hudson Valley should incorporate several related features to be successful.

Recommendation 2a. Target a variety of products i.e. meat, dairy, and value-added products in addition to produce to maintain a year-round supply of products.

Meat and dairy were the two most demanded product types among the buyers interviewed. Additionally, institutions expressed an interest in value-added products.

Focusing on a diverse set of products through food hubs distribution and marketing would not only meet the buyers' demand, but would also ensure products are available year-round, thus smoothing seasonal fluctuations in food hubs' sales.

Recommendation 2b. Provide traceability, information about product sourcing and production methods, which are demanded by buyers.

Although providing traceability and product information is a key component of the food hub functions, we recommend making them a strong focus of food hub development. Buyers seek out local foods for the added value they bring, whether a better connection to the farms, supporting the local economy, product variety, or other benefits. Adequately marketing Hudson Valley products must therefore provide ample information about producers, production methods, and the story behind them.

Recommendation 2c. Target anchor buyers in the retail and institutional markets.

This study found that the larger scale retail and institutional markets are underserved locally, but do have interest in purchasing more local food. Food hubs in the Hudson Valley should therefore emphasize marketing to these customers. Additionally, our best practice review revealed finding anchor buyers is important to launching a successful food hub. Some of these retail and institutional customers could become anchor buyers for launch due to the large volume of their food purchasing.

Recommendation 2d. Identify, train, recruit and support staff knowledgeable in the food industry and logistics.

In order for any of the previous recommendations to be implemented, qualified staffs must be identified, recruited, trained, and supported. As we learned from the best practice review of food hubs, high quality staffing is

the single greatest factor for success. These staffs must not only be committed to the mission of the hub, but must also have ample experience in the food industry and logistics. Where hubs may encounter difficulty in identifying these staffs, training might be considered to fill the staffing gap.

Recommendation 3. Invest in food hub development by working within the existing distribution network and infrastructure.

The distribution model that would most suit the local market should be integrated with existing resources and relationships. Working with existing distributors would likely produce positive outcomes for a number of reasons. First, distributors indicated a willingness to participate in a food hub and even to take a leadership role in its development. Second, institutions prefer to work with distributors rather than purchase from multiple farms directly. Lastly, the best practice review of hubs indicated having staffs knowledgeable about the food industry and logistics is critical to success. As many of the distributors in the region are already providing one means for distributing local products, they have found a means for doing so efficiently and could meet some of the need for logistics services. Moreover, they have the physical infrastructure to do so.

Based on our review of past food hubs literature and our best practice review, we learned food hubs struggle to reach efficiency and financial viability due to complicated logistics, lack of adequate staffing, and high overhead costs. Working with distributors and other businesses with resources, such as facilities, trucks, and staffs already knowledgeable in food distribution would mitigate some of these common food hub risks.

In addition to distributors, there are also several large and mid-sized farms that provide functions similar to food hubs. They serve as aggregation points for other farms, either by providing brokering services as grower-shippers or because they buy and sell product to back fill their own supplies. All of the farmers we interviewed have their own trucks and are transporting their own product throughout the region or utilize third party freight services. All of these channels crisscross the region to transport local foods to buyers. With an abundance of distribution channels and some local aggregation infrastructure, food hub development in the

Hudson Valley would have a number of resources on which to build.

Taking these local factors into account, the Hudson Valley would benefit from a decentralized model of food hub development. By this model, food hubs would capitalize on existing resources and infrastructure and strengthen the local food value chain only in areas of the greatest need, i.e. distribution and logistics support, marketing assistance, and supporting farm readiness for the wholesale market. Working within the existing infrastructure could lower overhead and offer a new food hub a greater chance of success. Additionally, given the competitive nature of the local food market in the Hudson Valley and New York City regions, a decentralized model would enable partnering with and supporting existing businesses that share the hubs' mission, rather than competing with them.

Recommendation 4: Provide farmer business and production services to improve efficiency, increase production, and get "wholesale ready."

To ensure farmers are able to participate in food hub development and take advantage of new market opportunities, there should also be a focus on farmer business and production planning services. These services would improve on-farm efficiencies, enabling farmers to be more profitable. Additionally, these services would ensure farmers are "wholesale ready" by offering assistance with production planning. Production planning would entail communicating the types and volumes of products demanded by customers to farmers to help them in making planting, harvesting, and other production decisions. Lastly, farmers themselves reported an interest in these services, with some indicating they could increase production if they were to receive them.

The farmers we interviewed highlighted several specific service needs. Specifically, many farms mentioned the need for business planning assistance and information technology support. Both of these types of services would help them achieve a greater degree of efficiency and enable them to make operational changes to begin working with new buyers. Some farmers also indicated receiving these types of services would enable them to increase their production, further improving their market position.

Conclusions and Recommendations

Farmers, distributors, and buyers all highlighted the need for food safety certification among farmers to meet the changing needs of the food industry. GAP certification is becoming industry standard for the wholesale markets, but requires time and funds from farmers. Many of the hubs interviewed indicated this was also a challenge to their development, with some of the facilitating trainings for farmers to hasten their certification.

A number of farmers interviewed are experimenting with or fully utilizing sustainable growing practices. While some of them have succeeded in incorporating these practices and achieving financial sustainability, other farms were not as far along in their adoption of these practices. Farmers utilize the services and research provided by Cornell Cooperative Extension, although there appears to be greater need for research and technical support for incorporating sustainable growing practices in a way that also allows farms to be financially viable.

Recommendation 5: Enhance production, processing, and distribution infrastructure to strengthen the local food value chain and complement food hub development.

Although our recommendations for food hub development focus on a decentralized, service-oriented model, there are infrastructure needs throughout the Hudson Valley that cut across sectors. Many farms, in order to participate in food hubs, would not only require services but also on-farm infrastructure upgrades. In particular, there should be greater investment in cold storage, farming equipment, and facility and packing enhancements to get farmers wholesale ready.

Additionally, there should be investment in the local food processing sector to support more value-added products. These investments could be either on-farm or at independent sites, such as creameries or produce processors. Priority should be given to value-added dairy, high quality meat slaughter and packing, and grain processing for the niche beverage and baking industries. While the Hudson Valley currently has some produce processing capacity and infrastructure, there should be further analysis into whether there is a market for fresh cut produce and if equipment investments could fill that demand.

Along with a focus on food hub development will likely arise the need for improved distribution infrastructure

at existing sites throughout the region. To best support farmers, these projects should focus on the aggregation of local products, ensuring industry-standard packing, maintaining product quality and meeting new food safety requirements.

RESEARCH QUESTION 3: WHO ARE THE POTENTIAL PARTNERS FOR FOOD HUB DEVELOPMENT?

Conclusions:

The concept of food hubs received strong support among different types of buyers and all local distributors. Local processors shared their interest in utilizing a hub for both sourcing ingredients and selling their products. Additionally, the majority of farmers interviewed support the food hubs concept. There would therefore be ample support on both the buyer and supplier sides. Despite this widespread support for food hubs as a concept, future development will require commitments from key participants, both anchor farmers and buyers. Given the strong demand in New York City for local foods a hub in the Hudson Valley should target individual partners in both the immediate region and in New York City.

There are also many local programs and organizations that could become valuable partners to food hub development. Several organizations, such as Hudson Valley Agribusiness Development and Cornell Cooperative Extension already provide farmers with technical and business planning assistance. Additionally, there are a number of programs targeted at the next generation of farmers and helping to network farms. One program, the New Farmer Development Project, is a partnership between GrowNYC and the Cornell Cooperative Extension.¹⁶⁵ Glynwood and Stone Barns Center for Food and Agriculture also have programs to train beginning farmers.

In addition to these types of services in the region, the New York State Department of Agriculture and Markets has provided several types of services that align with the recommendations in this report. They have provided marketing assistance and research to help link farmers to new buyers. Additionally, they offer funding to help offset the costs of GAP certification. The Governor has further indicated supporting local farms is a priority in the state and through his Regional Councils there have been a number of investments to support local food in-

frastructure, including an investment in Farm to Table Copackers and Hudson Valley Harvest, two companies in Ulster County helping to process and distribute local food.

Although there are many organizations and public offices focused on local food value chain investments and development, we found in our research and through our listening sessions that the Hudson Valley lacks one central clearinghouse of information. There is no organization or website that assists these organizations in sharing information, coordinating their work, and finding opportunities for shared value in the support network that would mirror the type of shared value we advocate in the supply chain. We held listening sessions in several counties because we realized that the region is large and diverse. Yet through these listening sessions and interviews throughout the region, it became clear that there are common themes throughout the local food system. There should be an organization that helps these different businesses and organizations find that common ground and collaborate to strengthen the regional food system.

Recommendations:

Recommendation 6. Recruit farmers and other food businesses that expressed an interest in participating in food hub development.

Launching food hubs will first require recruiting anchor buyers and sellers in the Hudson Valley and New York City. We recommend beginning recruitment with the farmers and other food businesses who already expressed a desire to participate in food hubs during their interviews. From there, those most interested in taking the next step may also be enlisted to recruit their peers to help with launching the food hub. The anchor farmers will provide a consistent, reliable supply of product. Additionally, anchor buyers will ensure a consistent stream of revenue at the onset. Like other food hubs nationally, hubs in the Hudson Valley should recruit additional participants on an ongoing basis.

Recommendation 7. Partner with existing organizations where possible to deliver services and help coordinate local food system information and resources.

Food hub development and other projects to provide

services to farmers should explore the possibility of supporting and partnering with existing organizations that provide similar services. Doing so would tap into existing resources and support the human capital already in place in the Hudson Valley. This could take the form of partnering for new service programs or enhancing the existing set of programs to meet the needs identified in this report, such as wholesale readiness, business planning assistance, and production planning.

Additionally, there should be an effort to better coordinate these various organizations and programs. There is rich information and experienced stakeholders that could be better capitalized on by creating opportunities for networking and communication among them. Such an effort should incorporate a broad geography to include the counties in this study, but also consider disseminating best practices and resources from neighboring regions as well. In particular, the New York City market is integral to the Hudson Valley farm economy and helping to bridge the urban and rural communities could also help support food hubs marketing efforts.



Slow Roots Farm, Photo credit: Bob Dandrew

OVERVIEW OF CONCLUSIONS AND RECOMMENDATIONS

RESEARCH QUESTION 1: Are food hubs needed in the Hudson Valley?	
Conclusions	Recommendations
<ul style="list-style-type: none"> • Our research suggests food hub development would benefit Hudson Valley farms and communities. 	<p>Recommendation 1: Invest in Hudson Valley food hub development to meet the needs of regional farmers and better serve the market for local food.</p>
RESEARCH QUESTION 2: What food hub features would be most beneficial?	
Conclusions	Recommendations
<ul style="list-style-type: none"> • Major strengths of the Hudson Valley local food system include the established relationships, pre-existing distribution routes, and infrastructure to help bring local farmers’ products to the market. • Despite these pre-existing distribution channels, there remain several weaknesses in the local food distribution system that food hub development could address. • A number of the functions offered by food hubs could address these needs in the local food value chain and fall into two categories: distribution and logistics, and marketing services. • In addition to the two core functions of food hubs, distribution and logistics, and marketing services, there are several related needs in the Hudson Valley—on farm infrastructure, farm business and production planning, and value-added processing infrastructure. 	<p>Recommendation 2: Focus food hub development on two core functions: distribution and logistics, and marketing services.</p> <p>Recommendation 2a. Target a variety of products i.e. meat, dairy, and value-added products in addition to produce to maintain a year-round supply of products.</p> <p>Recommendation 2b. Provide traceability, information about product sourcing and production methods, which are demanded by buyers.</p> <p>Recommendation 2c. Target anchor buyers in the retail and institutional markets.</p> <p>Recommendation 2d. Identify, train, recruit and support staff knowledgeable in the food industry and logistics.</p> <p>Recommendation 3: Invest in food hub development by working within the existing distribution network and infrastructure.</p> <p>Recommendation 4: Provide farmer business and production services to improve efficiency, increase production, and get “wholesale ready.”</p> <p>Recommendation 5: Enhance production, processing, and distribution infrastructure to strengthen the local food value chain and complement food hub development.</p>
RESEARCH QUESTION 3: Who are the potential partners for food hub development?	
Conclusions	Recommendations
<ul style="list-style-type: none"> • The concept of food hubs received strong support among most farmers, different types of buyers and all local distributors. • There are also many local programs and organizations that could become valuable partners to food hub development. 	<p>Recommendation 6: Recruit farmers and other food businesses that expressed an interest in participating in food hub development.</p> <p>Recommendation 7: Partner with existing organizations where possible to deliver services and help coordinate local food system information and resources.</p>



Stoneledge Farm, Greene County
Photo credit: jennifermay.com

NEXT STEPS FOR IMPLEMENTATION

The recommendations of this study point to several next steps for implementation. These include a local food distribution project, targeting on-farm infrastructure development, creating a new and comprehensive farmer service initiative, further analysis of and investment in value-added processing infrastructure, establishing a local food system network, and supporting additional research projects.

Launch a new local food distribution project to facilitate value chain development and provide food hub functions.

A first step to implementing the recommended food hub functions would be to launch new food distribution project with staff dedicated to providing logistics and marketing services. The distribution and logistics staffs would begin by cultivating anchor farmers to achieve a consistent supply of local, high value products. The staffs would ensure orders are filled to customer specifications, delivery service is on time, and that products are properly packed for customers' needs. Throughout the project, the staffs would troubleshoot supply disruptions and ensure farmers have the proper information and resources to participate and ensure product quality.

The distribution project would operate within the existing infrastructure to aggregate and distribute local products. For example, large and mid-sized farms, processors, or other food businesses could serve as aggregation points throughout the Hudson Valley. These points could provide cross-docking sites or enable smaller and mid-sized farms to aggregate their product to achieve a full truckload, thus bringing down the transportation cost per unit. As previous USDA research has found, these types of short, intermediated supply channels have the added benefit of increased fuel efficiency.¹⁶⁶ The staffs focused on the logistics and distribution functions of the project would help identify and coordinate the use of this infrastructure and identify potential needs for investment to help these sites serve as aggregation points.

In addition to utilizing existing infrastructure as aggregation points, the distribution project could partner with local food distributors in two ways. The distribution project could contract with distributors to provide freight services from the aggregation points to buyers. Additionally, the hub could partner with distributors to access customers who prefer not to buy from farms di-

rectly, such as larger institutions. Such a flexible design would lower overhead costs and enable the distribution project to be launched more cost effectively. It would therefore prioritize the functions most needed, namely, logistics and marketing. The staffs focused on distribution and logistics would also enlist these distributors and coordinate with them throughout the project.

Other staffs would focus on the marketing aspects of the food hub functions, such as cultivating buyers, positioning products, and maintaining lines of communication with buyers about the products. These staffs would begin by identifying anchor buyers and securing purchasing commitments.

The distribution project should also coordinate with the other recommended projects to provide food safety certification and training and ensure the other farm services are well integrated into the marketing and distribution services. Additionally, the distribution project should be well integrated with the project recommended below to provide on-farm infrastructure development. In this way, the projects can reinforce one another's impacts.

To begin, the distribution project will require some shorter term planning to identify potential partners assume a leadership role, estimate costs, and gather resources. Then the project will require careful staff recruitment and extensive outreach to potential participants.

Coordinate and target funding for on-farm infrastructure development.

An essential component of food hubs is to ensure a consistent supply of added value, high quality, local product. One of the main barriers to achieving this in the Hudson Valley is the lack of on-farm infrastructure. While there are some funding source available, through Farm Credit, federal grant programs, and other sources, there is not a comprehensive effort to link farms in the region to these sources, specifically for the purpose of getting "wholesale ready" and filling the gap for on-farm infrastructure. A new project should be developed to serve as an economic development intermediary, linking farms to various funding sources and identifying new investment opportunities for them.

This project should primarily target farms who would like to participate in the new distribution project but require on-farm investments, or focus on processing in-

infrastructure to fill system-wide gaps. Funding sources could include mission-driven financing, Farm Credit, other lending institutions, public programs, and other sources. Developing the process for reviewing potential projects and the ability of different funding sources to meet farmers' needs should incorporate additional input from both the financial and farming sectors. To maximize effectiveness, this initiative should also be well integrated with the distribution project and the initiative to provide business planning assistance to farmers.

Launch a new initiative to provide business and production planning services to farmers.

One of the most important first steps to implement the recommendations of this report will be to launch a new initiative to provide business and production planning services to farmers. While many commercial farms in the Hudson Valley, for whom farming is a primary occupation, are profitable, there is still a clear need for providing them resources to improve their operations and profitability. These services are requested by the farmers themselves and would strengthen the overall portfolio of projects recommended in this report by ensuring farmers are ready to participate in the distribution project and are taking advantage of new technologies and new markets.

The initiative should include a suite of services that specifically address the needs outlined in this study. These include food safety training and certifications (i.e. GAP, organic, IPM, etc.) to get farmers wholesale ready and provide them with practical assistance to improve growing methods, not only for environmental reasons but also because these practices add value to their products. In addition to technical assistance for the certifications, there is also a need for direct assistance with adopting new technologies and growing methods on-farm. While some of this training could likely be done with the current available knowledge base, several farms also identified a need for new research on growing methods to quantify the risks and benefits of those new methods. We recommend later in this report additional research as well.

Many farms also requested assistance with general business planning and production planning. The suite of services for this program should also include business planning assistance to help with improving efficiency, profitability, and readying the farm for investments. Production planning could be offered either as general

assistance to farms receiving other services or as a companion service offered to farms participating in the distribution project.

While many farms responded to our question about IT assistance by reporting they would benefit from assistance, we did not delve further into their specific needs. Generally, what we learned through our research and conversations is that there are several types of services that would likely help farms. First, while some farms have websites, many still do not. Getting more farms a web presence and helping those who do have a website to make basic improvements would help with marketing the region as a whole. Additionally, some farms may require assistance with computer-based recordkeeping, although this need will likely become clearer as farms receive general business planning assistance. Some farms were interested in online ordering, however, it was more common, especially in the produce industry, to take orders over the phone. This tradition has less to do with a lack of IT sophistication than it does substantive reasons—that produce sales require detailed communications about harvest schedules and produce quality on such a regular basis that updating a web platform may not be easily done. However, 25 farms (55.5 percent) did express a willingness to explore online ordering if it were to be a part of the distribution project. At this time, we recommend establishing the basic structure of these programs first and then assessing later if such a feature would be beneficial.

This new initiative would begin by targeting farmers who would like to participate in the new distribution project or are seeking several outcomes: expansion to new markets, increased efficiency, increased production methods, or improving growing methods. By carefully assessing and choosing farms for the program, the resources for the program can be better targeted at specific outcomes and those programmatic impacts can be better evaluated. The strategy of the program would therefore be to aim for deeper, rather than broader, outcomes to begin. The program should further be designed with a clear scope, deliverables and expected impact. In doing so, the program would target resources where they are needed the greatest and ensure accountability for those investments. Moreover, the program would include data collection and evaluation on impacts, such as tracking not only the number of farms served, but also the impacts to their contracts, revenues, and productivity.

Next Steps for Implementation

This initiative should be well integrated into both the on-farm infrastructure development project and the food distribution project. Coordinating this project with the on-farm infrastructure development will ensure those farms who are potential targets for investment are financially ready before the investment and have a clear sense of how it will affect their business and their liability for the investment. It will therefore ensure the maximum benefit for that investment to the farmer and mitigate risk to the investor. Similarly, coordinating this project with the food distribution project will ensure farms are wholesale ready and can make a strong commitment to the distribution project and reap the most benefits from it.

Identify funding and other resources to expand value-added processing infrastructure.

Although this study found a number of resources in the local distribution system, the capacity in the region for value-added processing is more limited and hampers growth in several key food sectors—specialty dairy, meat, produce, and grain. In each of these food sectors there are promising trends that the Hudson Valley could capitalize on to meet growing demand. Targeted investments in value-added processing could begin to accomplish this. Below are several projects within each of these food value chains that should be undertaken in the near term.

Invest in specialty dairy processing equipment and facilities and product development.

Local dairy products were one of the most highly demanded products among the buyers interviewed. They not only are demanding local, artisanal cheese, but also higher value fluid milk and cream products. This could be an opportunity to transition some dairy farms in the Hudson Valley to specialty milk production. Although there are a number of independent producers and the state Artisanal Cheese Guild, there are no local efforts to assist local dairy farmers and creameries with product development. One creamery interviewed highlighted the importance of product development given the number of farms that create very similar cheese to one another, a hindrance when marketing to retailers and food service establishments. A higher value product therefore requires a focus on quality and uniqueness in order to be successful.

In addition to product development assistance, farms and creameries attempting to begin a new product line would require access to equipment. Because this equipment is costly to purchase and maintain, one potential project for exploration would be a shared facility that could serve as an incubator for new businesses and product lines. Funded staff or consultants could provide technical assistance for product development, but also assistance with regulatory compliance and general business planning and marketing. Additionally, there are a number of existing facilities in the Hudson Valley that could also likely benefit from infrastructural investment.

In the near term, this project should conduct outreach to businesses and experts in the dairy industry to identify specific investments that could be made. The project should then also explore longer-term investments that may be necessary, such as providing some kind of business incubation and product development service or facility in the region.

Invest in high quality, local meat slaughter and processing capacity.

While the slaughterhouses and meat packers interviewed for this project did not identify a bottleneck in the meat value chain, they were all operating at full capacity and nearly all of the livestock producers expressed discontent with the current system. These livestock farmers believe they would benefit from either a new or expanded facility within the Hudson Valley that provided high quality slaughter and meatpacking. There may be increased pressure on the current system as several Hudson Valley counties experienced a significant increase in beef production from 1997 to 2007.¹⁶⁷

A number of projects have attempted to address this issue in the meat value chain. A livestock task force in Columbia County commissioned a feasibility analysis 10 years ago. Glynwood launched a mobile slaughterhouse. Sullivan County government issued a request for proposals to build a new slaughterhouse, though an operator has yet to be identified. And a brokering service, the Northeast Livestock Processing Service Company, was developed to help livestock producers gain access to slaughterhouses. Despite these efforts, farmers continue to raise the issue of high quality slaughter and processing capacity.

To build on these local projects, we recommend further exploration of expanding an existing slaughter and processing facility, developing a new facility, or providing enhanced services that may alleviate the bottleneck in the local meat value chain. This project would first begin by consulting with the current efforts mentioned above and having follow up conversations with key livestock producers in the region and with several slaughter and meatpacking businesses to identify the potential for increased capacity.

Explore fresh cut capacity for value-added produce.

Throughout the country, there has been increased demand for fresh cut produce. These include bagged or clamshell greens, pre-cut vegetables for cooking at home, pre-cut fruit for retail and vending machines, packaged snacks, and other products. Although the Hudson Valley sells more than \$44 million in vegetables each year, processing capacity for fresh cut is limited. It should be noted that this capacity did not arise in interviews with buyers or processors as a potential bottleneck. However, institutions did identify value-added produce as a need. Additionally, national trends indicate these are an important segment of the retail sector, one of the target markets for the Hudson Valley distribution project. As the distribution project is developed, attention should be paid to the need for fresh cut produce capacity in the region.

The project should explore this by having follow up consultations with the few produce processors in the region and the mid-sized and larger growers who may also be interested in expanding into a new product area. Additionally, there are models for these kinds of operations throughout the country that could be reviewed to identify potential models for the Hudson Valley. Lastly, a basic review of potential customers' needs should be conducted. This would include a brief scan of local retailers' and institutions' fresh cut product purchasing patterns and pricing.

Invest in grain production, milling and other processing.

Grain is not a key Hudson Valley product in terms of volume. However, the new Greenmarket rule requiring bakery vendors to source local flour is creating a niche market for local grain. Additionally, Wild Hive Farm in Dutchess County has found recent success in marketing their local flour products to the New York City market

and local bakeries.¹⁶⁸ Several of the processors we interviewed that use flour and other milled grains indicated they would be interested in sourcing more local grain. Food service buyers who attended the New York City listening session also expressed demand for local grain. This anecdotal information, along with the clear proliferation of micro-breweries and micro-distilleries and state farm distillery and farm brewery licenses indicate there would be a niche market for local grain.

Despite this demand, two main challenges hinder future growth in the grain value chain—the lack of productive capacity and processing infrastructure. Future development of the grain value chain therefore would have to work with farmers in the region to begin planting grain and link them with resources on varieties, growing methods, and post harvest handling. Additionally, to link this new productive capacity to buyers, the Hudson Valley would have to develop a facility—either new or an expansion of existing infrastructure—to mill more flour and prepare grains for the brewing and distilling markets. Other types of processing, such as malting and bottling could also be explored.

As a first step, this project would require consulting with the businesses currently processing grain with milling and for brewing and distilling. This would provide information about the estimated demand for grain. Once a clearer sense of the processing demand is known, the project could reach out to farmers to identify those interested in growing grain. Once these farmers are identified, the requisite resources, whether informational or financial, for increasing grain growing can be estimated and pursued. Linking these different sectors may also become a service provided by the distribution project or assumed by another organization.

Establish a new network for information sharing, collaboration, and B2B networking in the Hudson Valley and New York City regions.

To facilitate information sharing and coordination across counties, between the Hudson Valley and New York City, and across different segments of the local food chain, we recommend establishing a new network. This network would focus on sharing best practices among local stakeholders through an online presence or listserv and through other venues, such as events. The network would also hold occasional events, such as informational workshops and networking events. These events would

aim to support new business relationships between farmers and buyers, but also to facilitate communication and collaboration between business and public offices and not-for-profit and academic organizations.

There are several organizations that provide some of these functions, however no organization yet incorporates all of these functions and focuses specifically on the Hudson Valley. This proposed network should partner with these other organizations to develop a more specific model that would best support the current work and fill gaps that exist. To start, we recommend hosting meetings among these other organizations and reviewing successful network models, either locally or in other parts of the country. This project could begin in the near term and would complement the other recommended projects by providing a venue for recruiting partners and sharing information about the other projects' progress with the broader Hudson Valley community.

Support additional analysis.

Throughout the course of this study, many gaps in the available data arose, as well as additional questions that were outside the scope of our work but are nonetheless important. Many of these questions related to the strength and resilience of the agriculture industry in the Hudson Valley. The productive capacity of the region, while significant, is limited by the availability of contiguous and affordable farmland. Additionally, the trend toward grazed livestock may exacerbate the need for land. Two related analyses could provide greater insight into these issues: a review of vacant and available land and research into the capacity for increasing low density livestock grazing.

Approximately half of the farmers interviewed reported having issues finding adequate and quality labor. As one farmer put it, there may not be farms to supply a food hub in five years if the labor issues are not addressed. While a dramatic statement, it underscores the pressure that many farmers are under. A report of the nature and extent of the labor issues in the region would therefore be helpful in identifying policy options for addressing them.

As outlined earlier in this report, many farms are interested in adopting more sustainable practices but lack the expertise and financial ability to test new methods. Cornell has conducted and disseminated research that

farmers utilize. However, the need for scientific and practical research on crop conversion and sustainable farming methods exceeds available information. Further supporting sustainable farming will therefore have to support the research and technical assistance farmers require.

Related to the need for research on sustainable farming is the potential opportunity for farms to increase their revenues and enhance their farming output through high quality composting. At least one farm we interviewed was obtaining half of its revenue from the sale of compost. Another farm was also making high quality compost, but for its own farm operations to improve soil quality. Another analysis could explore the options for expanding composting capacity on commercial farms and the projected financial impact of added composting.

Lastly, one common belief shared by the buyers and distributors interviewed is the marketability of the Hudson Valley, which many believe is underutilized. As they reported, local products can fetch a higher price when marketed as local and with the term Hudson Valley attached. Several companies, such as Hudson Valley Fresh, Hudson Valley Harvest, and Hudson Valley Cattle Company, are seizing on the value of this name to help market their products. Given the importance of provenance in local food value chains, a new project should further explore how best to advance the identity of the Hudson Valley as a food growing region and culinary destination.

Altogether, six additional analyses are recommended:

- 1) Conduct a review of vacant and available land.
- 2) Research the capacity for increasing low density livestock grazing.
- 3) Commission a report on farm labor issues in the region.
- 4) Support scientific and practical research on crop conversion and farming methods.
- 5) Explore opportunities for food waste and composting.
- 6) Research and develop a marketing effort for Hudson Valley food.

ENDNOTES

1. Barham, James, Debra Tropp, and Carolyn Dimitri. "Regional Food Hubs and Value Chains: Improving Market Access for Local Producers Through Innovative Distribution." PowerPoint presentation at the National Small Farms Conference, September 20, 2012.
2. Cantrell et al, "Regional Food System Infrastructure: Michigan Good Food Work Group Report" April 2012; "Regional Food Hub Resource Guide" USDA AMS report, April 2012.
"Regional Food Hubs: Linking Producers to New Markets," USDA presentation, May 2011 "Food Hubs: Viable Regional Distribution Systems," USDA Presentation to Sustainable Agriculture & Food Funders Forum, June 22, 2011 "Food Hubs: The 'Missing Middle' of the Local Food Infrastructure?" Adrian Morley, Cardiff University, 2008 "A California Network of Regional Food Hubs: A Vision Statement and Food Hub Advisory Council," September 2010 "An Investigation Into the Workings of Small Scale Food Hubs," Sustain (UK) & Making Local Food Work "A Practitioner's Guide to Resources and Publications on Food Hubs and Values-Based Supply Chains," UC Davis, April 15, 2012.
3. *Ibid.*
4. United States Department of Agriculture, Census of Agriculture 1950 and 2007.
5. New York City Department of City Planning, accessed February 15, 2013.
<http://www.nyc.gov/html/dcp/html/landusefacts/landusefactshome.shtml>.
6. United States Department of Agriculture, Census of Agriculture 1950 and 2007.
7. *Ibid.*
8. Hoppe, Robert A. and David E Banker. "Structure and Finances of US Family Farms: 2010 Edition," United States Department of Agriculture, Economic Research Service Economic Information Bulletin Number 66, July 2010.
9. *Ibid.*
10. Perrett, Allison S. "The Infrastructure of Food Procurement and Distribution: Implications for Farmers in Western North Carolina," Appalachian Sustainable Agriculture Project, April 2007.
11. *Ibid.*
12. Perrett 2007 and The Reinvestment Fund. "Understanding the Grocery Industry," September 30, 2011.
13. USDA ERS Food Dollar Series, estimates presented in real dollars, adjusted to 2000.
<http://www.ers.usda.gov/data-products/food-dollar-series/quick-facts.aspx> and
<http://www.ers.usda.gov/media/131100/err114.pdf>.
14. Structure and Finances of US Family Farms: 2010 Edition, Number 66 July 2010.
15. *Ibid.*
16. Adam Diamond, James Barham. Moving Food Along the Value Chain: Innovations in Regional Food Distribution. U.S. Dept. of Agriculture, Agricultural Marketing Service. Washington, DC. March 2012. <<http://dx.doi.org/10.9752/MS045.03>> 2012.
17. King, R., Hand, M., DiGiacomo, G., Clancy, K., Gomez, M., Hardesty, S., Lev, L., & McLaughlin, E. (2010). Comparing the Structure, Size and Performance of Local and Mainstream Food Supply Chains. ERR-99, U.S. Department of Agriculture: Economic Research Service.
18. King et al, 2010.
19. King et al, 2010.
20. Cantrell, Patty. Sysco's Journey from Supply Chain to Value Chain, W.K. Kellogg Foundation, August, 2009.
21. Porter, M.E. (1990, 1998) "The Competitive Advantage of Nations", Free Press, New York, 1990 cited in "Why Worry about Ag in the Middle?" A white paper of the Ag of the Middle Project.
<http://www.agofthemiddle.org/papers/whitepaper2.pdf>.

22. USDA Census of Agriculture, 2007 and King et al, 2010.
23. Hoppe and Banker, 2010.
24. Diamond and Barham, 2012 and "Why Worry About the Ag of the Middle?"
25. "Why Worry About the Ag of the Middle?"
26. "Why Worry About the Ag of the Middle?"
27. "Why Worry About the Ag of the Middle?"
28. Structure and Finances of US Family Farms: 2010 Edition, Number 66 July 2010.
29. USDA Census of Agriculture, 2007.
30. "Why Worry About the Ag of the Middle?"
31. USDA Census of Agriculture, 1997 and 2007.
32. USDA Census of Agriculture, 2007.
33. USDA Census of Agriculture, 2007.
34. USDA Census of Agriculture, 2007.
35. USDA Census of Agriculture, 2007.
36. USDA Census of Agriculture, 2007.
37. USDA Census of Agriculture, 2007. Definitions of small, medium, and large taken from Hoppe and Banker, 2010.
38. Perrett, 2007.
39. Perrett, 2007.
40. Nothstine, Kathy. "Regional Food Systems Infrastructure" National Association of Development Organizations Research Foundation. December 2010.
<http://www.ruraltransportation.org/uploads/regionalfood.pdf>.
41. Johnson, Rachel J., Daniel L. Marti, and Lauren Gwin. "Slaughter and Processing Options and Issues for Locally Sourced Meat" United States Department of Agriculture Economic Research Service. June, 2012. <http://www.ers.usda.gov/media/820188/ldpm216-01.pdf>.
42. Perrett, 2007.
43. "Food Hubs: The 'Missing Middle' of the Local Food Infrastructure?" Adrian Morley, Cardiff University, 2008 "A California Network of Regional Food Hubs: A Vision Statement and Food Hub Advisory Council," September 2010 "An Investigation Into the Workings of Small Scale Food Hubs," Sustain (UK) & Making Local Food Work "A Practitioner's Guide to Resources and Publications on Food Hubs and Values-Based Supply Chains," UC Davis, April 15, 2012.
44. United States Department of Commerce, Census Bureau. 2011 Population Estimates.
45. Calculations derived from United States Department of Labor, Bureau of Labor Statistics, 2011 Consumer Expenditure Survey.
46. *Ibid.*
47. Market information provided by GrowNYC and population estimates for 2011 from United States Department of Commerce, Census Bureau.
48. Farmers' Market Federation of New York, Market Locator.
<http://www.nyfarmersmarket.com/farmers-market-profiles/markets/markets.html>
49. USDA Census of Agriculture, 1978 and 2007.
50. USDA Census of Agriculture, 2007.
51. USDA Census of Agriculture, 2007.

52. Calculation derived from the sum of direct sales for each county reported in USDA Census of Agriculture, 2007, which is \$19 million for the Hudson Valley. Further, the estimated value of at home food purchases, reported in the Consumer Expenditure Survey for 2011 by the Bureau of Labor Statistics, is \$18 billion. The total calculation for at home purchases is the total number of residents, divided by 2.4 (average people per consumer unit, from BLS), and multiplied by the average at home food purchases annually. The direct sales are then divided by total food purchases.
53. Calculated by the United States Department of Agriculture Economic Research Service from various data sets from the U.S. Census Bureau and the Bureau of Labor Statistics. Economic Research Service Food Expenditure Series <http://www.ers.usda.gov/data-products/foodexpenditures.aspx>.
54. United States Department of Agriculture Economic Research Service, Food Expenditure Series, <http://www.ers.usda.gov/data-products/food-expenditures.aspx>.
55. Martinez, Steve, et al. Local Food Systems: Concepts, Impacts, and Issues. Economic Research Report Number 97, Washington DC: USDA Economic Research Service, May 2010, 87. Cited in Slama, Jim, Kathy Nyquist and Megan Bucknum. "Local Food Assessment for Northern Virginia" August 2010. <http://www.ams.usda.gov/AMSV1.o/getfile?dDocName=STELPRDC5097195>
56. National Restaurant Association, "What's hot in 2013" <http://www.restaurant.org/News-Research/Research/What-s-Hot>
57. Barham, James, Debra Tropp, and Carolyn Dimitri. "Regional Food Hubs and Value Chains: Improving Market Access for Local Producers Through Innovative Distribution." PowerPoint presentation at the National Small Farms Conference, September 20, 2012.
58. *Ibid.*
59. Low, Sarah A., and Stephen Vogel. "Direct and Intermediated Marketing of Local Foods in the United States," ERR-128, U.S. Department of Agriculture, Economic Research Service, November 2011.
60. *Ibid.*
61. *Ibid.*
62. *Ibid.*
63. *Ibid.* Low and Vogel, 2011, estimate national direct sales and all local food sales in the US. Taking these estimates, direct food sales are 18.4% of all local food sales. Direct sales among Hudson Valley farms, as reported by the USDA 2007 Census of Agriculture, are \$19 million. $\$19\text{m}/18.4\% = \103m in total local food sales for the Hudson Valley.
64. There are some caveats to these estimates. The Low and Vogel 2011 report bases its calculations of direct and intermediated sales of local foods on a national sampling, which may not be generalizable to the Hudson Valley, especially considering direct to consumer sales are a higher portion of total farm sales in our region than they are nationally.
65. See calculation in note 52.
66. $\$30\text{ billion food market total} \times 14.1\%$ (average farm value from USDA ERS Food Marketing Series) = \$4.25 billion farm value of the total market for food. $\$103\text{ million total local food sales} / \$4.25\text{ billion} = 2.4\%$.
67. USDA Farm to School Grant Program, http://www.fns.usda.gov/cnd/f2s/f2_2013_grant_program.htm
68. South East Food Group Partnership. "GSE Food Hub Feasibility Study" November 2009; Slama et al 2010; Community Alliance for Family Farmers. "Establishing an Aggregation & Marketing Center for California's North Coast" July 2011; Clark, Jill K., Shoshanna Inwood, Jeff Sharp. "Scaling-up Connections between Regional Ohio Specialty Crop Producers and Local Markets: Distribution as the Missing Link" August, 2011.
69. Sysco. "The Sysco Story" <http://www.sysco.com/about-sysco.html>.

70. Cantrell, 2009.
71. *Ibid.*
72. Barham et al, 2012.
73. *Ibid.*
74. Morley, Adrian, Selyf Morgan and Kevin Morgan. "Food Hubs: The 'Missing Middle' of the Local Food Infrastructure?" BRASS Centre, Cardiff University, 2008.
75. Sustain UK. "An Investigation into the Workings of Small Scale Food Hubs" <http://www.ams.usda.gov/AMSV1.0/getfile?dDocName=STELPRDC5091493>.
76. The ensuing discussion is based on Michael Porter and Mark Kramer, "Creating Shared Value," Harvard Business Review, January 2011.
77. Martinez et al, 2010.
78. Morley, Adrian, Selyf Morgan and Kevin Morgan. "Food Hubs: The 'Missing Middle' of the Local Food Infrastructure?" BRASS Centre, Cardiff University, 2008.
79. Barham, James. "Further Findings from USDA and the National Food Hub Collaboration" presentation. February, 2012. <http://www.ams.usda.gov/AMSV1.0/getfile?dDocName=STELPRDC5097241>.
80. *Ibid.*
81. Diamond, A., & Barham, J. (2011). Money and mission: Moving food with value and values. *Journal of Agriculture, Food Systems, and Community Development*. <http://dx.doi.org/10.5304/jaf-scd.2011.014.013>; Adam Diamond, James Barham. Moving Food Along the Value Chain: Innovations in Regional Food Distribution. U.S. Dept. of Agriculture, Agricultural Marketing Service. Washington, DC. March, 2012. <http://dx.doi.org/10.9752/MS045.03-2012>; Barham, James, Debra Tropp, Kathleen Enterline, Jeff Farbman, John Fisk, and Stacia Kiraly. Regional Food Hub Resource Guide. U.S. Dept. of Agriculture, Agricultural Marketing Service. Washington, DC. April, 2012. <<http://dx.doi.org/10.9752/MS046.04-2012>>.
82. United States Department of Agriculture, Agricultural Marketing Service, "Farmers Markets and Local Food Marketing" available at <http://www.ams.usda.gov/AMSV1.0/ams.fetchTemplateData.do?template=TemplateA&navID=WholesaleandFarmersMarkets&leftNav=WholesaleandFarmersMarkets&page=FoodHubResearchReleasesBlogs&description=Food%20Hub%20Research,%20Releases,%20Blog%20Posts,%20and%20Articles>.
83. Wallace Center at Winrock International. <http://www.wallacecenter.org/our-work/currentinitiatives/food-hub-collaboration>.
84. *Supra* notes 1, 2, 16, 43.
85. South East Food Group Partnership. "GSE Food Hub Feasibility Study" November 2009; Slama et al 2010; Community Alliance for Family Farmers. "Establishing an Aggregation & Marketing Center for California's North Coast" July 2011; Clark, Jill K., Shoshanna Inwood, Jeff Sharp. "Scaling-up Connections between Regional Ohio Specialty Crop Producers and Local Markets: Distribution as the Missing Link" August 2011.
86. Barham, James, Debra Tropp, Kathleen Enterline, Jeff Farbman, John Fisk, and Stacia Kiraly. Regional Food Hub Resource Guide. U.S. Dept. of Agriculture, Agricultural Marketing Service. Washington, DC. April 2012. <<http://dx.doi.org/10.9752/MS046.04-2012>>.
87. Lerman, Tracy, Gail Feenstra, and David Visher. "A Practitioner's Guide to Resources and Publications on Food Hubs and Values-Based Supply Chains." April 15, 2012. Available at http://asi.ucdavis.edu/resources/publications/KYF%20grey%20literature%20review%20GF%204-15%20FINAL_wcover.pdf.

-
88. Barham, James, Debra Tropp, and Carolyn Dimitri. "Regional Food Hubs and Value Chains: Improving Market Access for Local Producers Through Innovative Distribution." PowerPoint presentation at the National Small Farms Conference, September 20, 2012.
89. *Ibid.*
90. *Ibid.*
91. Jablonski, Becca B.R. and Yuri Mansury (June 2012). Local Food Intermediaries—Do They Matter in the NYS Economy?. Smart Marketing. Dyson School of Applied Economics and Management, Cornell University.
92. *Ibid.*
93. *Ibid.*
94. Generally, these hubs began in the 1970s and early 1980s as the demand for organic food and food cooperatives as alternative retail options grew.
95. For more information on HACCP, see: <http://www.fda.gov/food/foodsafety/hazardanalysiscriticalcontrolpointshaccp/default.htm>.
96. King, Robert P., Michael S. Hand, Gigi DiGiacomo, Kate Clancy, Miguel I. Gomez, Shermain D. Hardesty, Larry Lev, and Edward W. McLaughlin. Comparing the Structure, Size, and Performance of Local and Mainstream Food Supply Chains, ERR-99, U.S. Dept. of Agr., Econ. Res. Serv. June 2010.
97. *Ibid.*
98. USDA Census of Agriculture, 2007.
99. USDA Census of Agriculture, 2007.
100. USDA Census of Agriculture, 1950-2007.
101. USDA Census of Agriculture, 2007.
102. USDA Census of Agriculture, 2007.
103. USDA Census of Agriculture, 2007.
104. USDA Census of Agriculture, 2007 & New York State Office of Real Property Tax Services, 2011.
105. USDA Census of Agriculture, 1997 and 2007.
106. USDA Census of Agriculture, 1997 and 2007.
107. New York State Office of Real Property Tax Services, 2011.
108. USDA Census of Agriculture, 2007.
109. Red Tomato, Eco Apple Program. <http://redtomato.org/ecoapple.php>.
110. U.S. Bureau of Labor Statistics, Consumer Expenditure Survey.
111. Consumer demand estimates from BLS Consumer Expenditure Survey. Farm equivalents calculated using USDA farm to retail price spread data.
112. Cook, Roberta. Tracking Demographics and U.S. Fruit and Vegetable Consumption Patterns. University of California, Davis, Department of Agricultural and Resource Economics, October, 2011. <http://agecon.ucdavis.edu/people/faculty/robertacook/docs/Articles/BlueprintsEoEConsumption-CookFinalJan2012Figures.pdf>.
113. *Ibid.*
114. *Ibid.*
115. Hollander, Sophia. "Apple Growers Turn to Cider." Wall Street Journal, October 14, 2012. <http://online.wsj.com/article/SB10000872396390443854204578056891495514774.html>.
116. Cider Week NYC & Hudson Valley, Glynwood. <http://ciderweekny.com/>

117. Hollander, Sophia, 2012. Flaherty, David. '10 Things You Didn't Know About Hard Apple Cider." New York Cork Report, July 11, 2012. Newberry, Kerry. Cider renaissance: Artisanal hard ciders are making a comeback." Culinate, November 28, 2011.
118. New York State Department of Agriculture & Markets, Food Establishment Licenses, 20-C list.
119. New York Apple Association. New York apple variety honored with postcard stamp, January 18, 2013. <http://www.nyapplecountry.com/pressreleases.php>.
120. Champlain Valley Specialty of NY, Keesville, NY. <http://www.grabapples.com/>.
121. New York State Apple Growers Association, Fishers, NY. <http://www.nyapplecountry.com/>.
122. USDA, My Plate. <http://www.choosemyplate.gov/> USDA, Food and Nutrition Service, Federal School Meals Regulation. <http://www.fns.usda.gov/cnd/governance/regulations.htm>.
123. Cook, Roberta. The Dynamic US Fresh Produce Industry: An Industry in Transition. University of California, Davis, Department of Agricultural and Resource Economics, June, 2008. http://agecon.ucdavis.edu/extension/presentations/files/cook/the_dynamic_us_fresh_produce_industry_-_an_industry_in_transition.pdf.
124. USDA Census of Agriculture, 2007.
125. USDA Census of Agriculture, 2007.
126. USDA Census of Agriculture, 1997 & 2007.
127. Vegetable farm acreage data were not available for Putnam County for 1987.
128. Cook, Roberta, October, 2011.
129. *Ibid.*
130. Padera, Beth. Fresh Cut Produce in the U.S.A. Perishables Group, October 8, 2010. <http://www.perishablesgroup.com/dnn/LinkClick.aspx?fileticket=mFzBgBJhRow%3D&tabid=41>
131. *Ibid.*
132. Hu, Winnie. "At 14 Schools, the Vending Machines Crunch Comes from Carrots." WNYC: School Books, October 3, 2011. <http://www.schoolbook.org/2011/10/03/at-14-schools-thevending-machines-crunch-is-from-carrots/>.
133. USDA Census of Agriculture, 1997 & 2007.
134. USDA, Agricultural Marketing Service, Dairy Federal Milk Marketing Order. <http://www.ams.usda.gov/AMSV1.0/ams.fetchTemplateData.do?template=TemplateO&navID=IndustryMarketingandPromotion&leftNav=IndustryMarketingandPromotion&page=FMMOProgramObjectives>.
135. USDA, Agricultural Research Service. Fluid Milk Consumption in the United States, September, 2010. http://www.ars.usda.gov/SP2UserFiles/Place/12355000/pdf/DBrief/3_milk_consumption_0506.pdf.
136. USDA, Economic Research Service, Long-Term Growth in U.S. Cheese Consumption May Slow, August, 2010. http://www.ers.usda.gov/media/146945/ldpm19301_1_.pdf.
137. U.S. Census Bureau, Statistical Abstract of the United States, 2012. http://www.ers.usda.gov/media/146945/ldpm19301_1_.pdf.
138. <http://www.census.gov/prod/2011pubs/12statab/health.pdf>.
139. Jones, David and Brad Dorfman. "Danone: U.S. yogurt consumption to double. Reuters, March 16, 2010. <http://www.reuters.com/article/2010/03/16/us-food-summit-danoneidUSTRE62E5LX20100316>.
140. Pendelton, Devon. "Hidden Chobani Billionaire Emerges as Greek Yogurt Soars." Bloomberg, September 14, 2012. <http://www.bloomberg.com/news/2012-09-14/hidden-chobanibillionaire-emerges-as-greek-yogurt-soars.html>.

141. Booker, Ted. "Greek yogurt boom drives up milk demand in north country." Watertown Daily Times, July 10, 2012. <http://www.watertowndailytimes.com/article/20120710/NEWS03/707109854/-1/news0303>.
142. USDA Census of Agriculture, 2007.
143. USDA Census of Agriculture, 2007.
144. USDA, Office of the Chief Economist, World Agricultural Supply and Demand Estimates, February 8, 2013.
145. USDA, Economic Research Service, Food Availability (Per Capita) Data System. August 20, 2012. [http://www.ers.usda.gov/data-products/food-availability-\(per-capita\)-data-system/lossadjusted-food-availability-documentation.aspx](http://www.ers.usda.gov/data-products/food-availability-(per-capita)-data-system/lossadjusted-food-availability-documentation.aspx).
146. Wallace Center at Winrock International. <http://www.wallacecenter.org/our-work/currentinitiatives/food-hub-collaboration>.
147. *Ibid.*
148. National Restaurant Association, "What's hot in 2013" <http://www.restaurant.org/NewsResearch/Research/What-s-Hot>.
149. Calculation used BLS consumer expenditure estimates for beef, USDA price spreads, and USDA Ag Census farm sales figures.
150. USDA Census of Agriculture, 2007.
151. USDA, Economic Research Service, Food Consumption and Nutrient Intakes, June 15, 2011. <http://www.ers.usda.gov/data-products/food-consumption-and-nutrient-intakes.aspx>.
152. USDA, Economic Research Service, Food Availability (Per Capita) Data System. August 20, 2012. [http://www.ers.usda.gov/data-products/food-availability-\(per-capita\)-data-system/lossadjusted-food-availability-documentation.aspx](http://www.ers.usda.gov/data-products/food-availability-(per-capita)-data-system/lossadjusted-food-availability-documentation.aspx).
153. Cornell University Small Farms Program. "Resource Guide to Direct Marketing Livestock and Poultry. <http://smallfarms.cornell.edu/2012/07/07/slaughtering-cutting-and-processing/>.
154. USDA Census of Agriculture, 2007.
155. USDA Census of Agriculture, 2007.
156. USDA, Economic Research Service, Adoption of Genetically Engineered Crops in the U.S. July 12, 2012. <http://www.ers.usda.gov/data-products/adoption-of-genetically-engineered-cropsin-the-us.aspx>
157. GrowNYC, Regional Grain Initiative, Greenmarket Grains Week, November, 2010. <http://www.grownyc.org/greenmarket/topics/grainsweek>
158. GrowNYC, Regional Grain Initiative <http://www.grownyc.org/wholesale/grains>
159. In New York State, Online Permit Assistance and Licensing, Distiller License Class D, SLA-0159. <http://www.opal.ny.gov/gorr/pas/paslib.nsf/d74e34081d647438852569ae0050fd9c/gbe86c13f746ca05852573be006e242b?OpenDocument&ExpandSection=1k> to law or press release
160. New York State, Office of Governor Andrew M. Cuomo. Governor Cuomo Signs Bill to Expand Opportunities for Farm Distilleries to Sell Liquor at State Fair, County Fairs and Farmers' Markets. <http://www.governor.ny.gov/press/10022012-liquoratfairs>
161. New York State, Office of Governor Andrew M. Cuomo. Governor Cuomo Signs Legislation to Strengthen and Support New York's Craft Breweries, July 18, 2012. <http://www.governor.ny.gov/press/07182012-craft-breweries>.
162. BLS consumer expenditure survey indicates the market for grocery sales is \$18.2 billion. One percent of this market is \$182 million. The average farm share of the food dollar is 19%. Therefore, 19% of \$182 million = \$34.6 million.
163. King et al, 2010.

164. Meat Processing Facility Feasibility Study, Hudson Valley Livestock Marketing Taskforce, Shepstone Management Company, 2010. Sparks, Leonard. "Sullivan Oks funds for slaughterhouse." Times Herald-Record, October 26, 2010. The Modular Harvest System: A Case Study. Local Infrastructure for Local Agriculture, Inc., 2010. http://www.lila77northeast.org/CASE_STUDY_V8.pdf Farm to Factory: Linking New York State Producers and New York City Food Processors, New York State Department of Agriculture & Markets, August, 2011. http://www.lila-northeast.org/CASE_STUDY_V8.pdf.
165. GrowNYC, New Farmer Development Project <http://www.grownyc.org/greenmarket/nfdp>.
166. King et al, 2010.
167. USDA Census of Agriculture, 1997 and 2007.
168. Gabriel, Alice. "Between the Farm and the Table." New York Times, June 4, 2010. http://www.nytimes.com/2010/06/06/nyregion/06dinewe.html?pagewanted=all&_r=0.



BETH'S FARM KITCHEN
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Liz Davis
Beth's Farm Kitchen
Beauty Board

Beth's Farm Kitchen, Columbia County
Photo credit: Beth's Farm Kitchen

APPENDICES

Appendix 1: Methodology

Research Questions and Scope

This study is a needs assessment for the Hudson Valley that seeks to answer three research questions. First, would food hub development strengthen regional food value chains in the Hudson Valley? Second, if food hub development is an identified need, what are the features that would most suit the needs of local businesses in the Hudson Valley? Third, who would be the potential supporters or partners of a food hub? To answer these research questions, we engaged in a variety of research activities, employing qualitative methods and descriptive analysis based on the best available data.

Our analysis focuses on a core group of counties in the Hudson Valley region between New York City and the Capital region: Westchester, Putnam, Dutchess, Columbia, Greene, Ulster, Sullivan, Orange, and Rockland counties. However, given that food production and distribution crosses these political boundaries, the descriptive data analysis expands upon this core group of counties to two additional sets of counties. The first additional set is the counties immediately adjacent to the core set of counties and extends further into the Catskill and Capital regions. As many of the maps in this report demonstrate, specific foods' production areas cross into this adjacent set of counties. Additionally, we included as our third, broadest geographic focus, all of the states in the northeast that border New York State. In doing so, the descriptive data analysis includes findings about the Hudson Valley's agricultural productivity relative to the rest of the region.

Descriptive Data Analysis

This study relied on numerous sources of data, which, prior to this project, had not been combined for an analysis of the Hudson Valley region. The county level production data are from multiple years of the United States Department of Agriculture (USDA) Census of Agriculture. To better identify concentrations of production activity within the counties, we also requested a database from the New York State Office of Real Property Tax Service of each parcel that has been classified as agricultural for property tax purposes. To meet this definition, a parcel must have at least 7 acres in production and must sell at least \$10,000 worth of products annually. While this database does not include very small farms, it includes most of the commercial agricultural land in the region.

Unlike these state and federal sources for agriculture data, there is no one comprehensive database of food processors. To identify produce processing locations, we requested the list of companies with a 20-C license from the New York State Department of Agriculture and Markets. We then filtered out only those in our geography of interest and manually re-categorized each to ensure they met our definition of a food processor, rather than a retail location requiring the license for deli counters or other retail-related food preparation. We further filtered the list by focusing on food processors that appear, based on Internet searches and our local knowledge, to market through some intermediated channels, such as restaurants, retailers, and distributors.

The list of meat processors, those that slaughter, cut, and further process meat into finished products (e.g. sausage, smoked meats, etc.) came from the USDA Food Safety and Inspection Service (FSIS) publicly available list of inspected facilities. We believe this list to be comprehensive.

For dairy processors, we gathered information on pool and non-pool handler facilities from the USDA National Agriculture Statistics Service 2007 Federal Milk Marketing Order. Additionally, we gathered the NYS Dept. of Agriculture and Markets Small Dairy Processors License List and a list of dairy processors from the New York State Farmstead and Artisan Cheese Makers Guild website. These two lists were then combined and reviewed to re-categorize businesses as either "specialty" or "conventional." For the purposes of this study, specialty businesses are those that market products as source-identified and differentiated from the cooperative system. "Conventional" businesses are those that source milk through the cooperative and its marketing system. A further refinement of these categories would include other measures, such as the prices paid to the farmers and whether there are other methods for adding value to the product, such as through special packaging or farming methods. However, this information was not consistently available among the businesses.

To identify food distributors, we combined the New York State Farm Dealers licensees and the food warehouse license list from New York State Department of Agriculture and markets, along with the research team's knowledge of the region and specific companies. Additionally, if during the course of interviews additional companies

were identified, they were then also added to our list. We then contacted several distributors for interviews based on this list.

We also gathered data from the Bureau of Labor Statistics (BLS) on consumer food expenditure patterns. Because these data are only available by broad region, we utilized the average consumer expenditures for the northeast region to estimate local food demand. Our calculations are only rough approximations of consumer demand because we did not weight our calculations to account for differences based on income. For instance, higher income households might tend to purchase more of one particular type of food or might tend to spend more on food away from home, which could change the estimates for particular regions that have more or less higher income households. Additionally, we did not weight our calculations based on urban versus rural consumers, which may have also changed our calculations. And, we calculated the consumer units in each county based on the national average provided by the Bureau of Labor Statistics of 2.4 persons per consumer unit. This may have further biased our estimates if our region has more or less average persons per consumer unit.

We chose to compare the Hudson Valley's agricultural production for each general food type (e.g. fruit, vegetable, dairy, etc.) to the consumer demand for each of those food types in the Hudson Valley and New York City. In doing so, we intended to demonstrate that the Hudson Valley's current level of production is very small, compared to the consumer demand, which would suggest there is room for the Hudson Valley to meet more of this demand if the resources to increase production are available. Because there are no data available on where all of the Hudson Valley farm products are sold, we could not determine with certainty how much of those products remain in the Hudson Valley. Therefore, we provide estimates of Hudson Valley production as "equivalents" to consumer demand. These estimates are based on the demand estimates described above, along with adjustments of those estimates using the USDA Economic Research Service (ERS) farm values. These USDA ERS farm values estimate the portion of the retail price that goes to the farmer for each type of food. We used these farm values, along with the consumer demand and the USDA Census of Agriculture farm sales to derive our final equivalents.

Aside from these descriptive data analyses that appear in the tables, charts, and text of this report, the study also employed spatial analysis to present a clearer picture of several Hudson Valley food value chains. The Urban Design Lab at the Earth Institute of Columbia University employed ArcGIS for the spatial analysis. This enabled a more detailed understanding of agricultural concentrations throughout the region, as well as the availability and proximity to processing infrastructure. In particular, we were able to calculate areas in the Hudson Valley that are farther than a two-hour drive by using the network analysis function in the ArcGIS software.

Qualitative Methods

Literature review:

The study began with a review of current literature on food hubs and food value chain development, much of which has been published in only the past several years. These reports provided a solid basis for understanding the motivations for food hub development, their functions, their challenges and their successes. From this review of literature, we were better able to frame our interview questions and select our target hubs for the best practice review.

We began our literature review by visiting the USDA website for food hubs and then reviewed the appendices of reports we gathered to reach a fuller list of articles. These articles informed the report section on food hubs' motivations, mission, models, and past research, and the set of questions we asked for the best practice review.

Best practice review:

This study included a best practice review food hubs based on detailed telephone interviews with 12 hubs across the country. We began the best practice review by developing a database of food hubs from around the country, which included 191 examples. We refined this list by selecting only those hubs that are focused, at least in part, on the wholesale market, which left 124 hubs. We chose to focus on the wholesale market because our review of literature indicated one of the primary functions of food hubs are to open new, higher volume markets to farmers in the value chain for local food. Additionally, our analysis and knowledge of local agri-

cultural production suggest that the Hudson Valley and New York City have robust direct-to-consumer sales and market channels already. Once we selected only those hubs that incorporated some wholesale marketing, we further selected 12 to be interviewed according to several criteria: 1) they were close to an urban market, much like the Hudson Valley borders New York City; 2) there was an equal number of business types, non-profit, private enterprise, cooperative, or public, represented; and 3) there was anecdotal evidence of they were experiencing some measure of success.

The interviews of these 12 hubs followed a questionnaire in a semi-structured format, with some discussion during the conversation (See Appendix 2). In this way, we were able to gather comparable information across the hubs to draw conclusions but also enabled some flexibility to gather unanticipated feedback and information to deepen our understanding of each food hub. The best practice review provided insight into several features of food hubs, such as their business structures, distribution models, and product focus. We then tested the need for and desirability of these features by asking several questions during our interviews with farmers, food processors, distributors, and buyers in the Hudson Valley and New York City.

Semi-structured Interviews:

This study included semi-structured interviews with Hudson Valley farmers, food processors, distributors, and buyers. Additionally, we interviewed food processors, distributors, and buyers in New York City. The purpose of these interviews was to understand how food produced in the Hudson Valley is currently marketed, what infrastructure needs exist, whether there are other needs related to scaling up local food distribution, and the degree of support for a food hub for the Hudson Valley.

To develop a list of farmers in the Hudson Valley, we combined several existing lists of farmers from Hudson Valley Bounty, the Rondout Valley Growers Association, the Pure Catskills Guide, the Hudson Valley Food Network, Greenmarket, and Good Agricultural Practices (GAP) certifications. Additionally, we conferred with the Cornell Cooperative Extension offices in Orange, Ulster, and Dutchess counties; the Hudson Valley Agribusiness Development Corporation; Glynwood; and our advi-

sory group members. We also identified farmers from their attendance at our listening sessions. We further gathered information on each farm through Internet research and then categorized each farm by county and food type. We chose our sample of farms from this list to represent each major product type and county in the region. It was also our goal to represent mid-sized farms in particular, as they are a main focus of food hubs. Below is a summary of the final sample.

Farmer Interviews

Total Interviews	45
<i>Product Types Represented</i>	
Vegetables	29
Fruit	18
Dairy	8
Livestock	18
Feed grain	6
Food grain	4
Poultry	10
Eggs	15
<i>Size in Acres</i>	
Small (1-49)	7
Medium (50-499)	28
Large (500+)	10

The processors chosen for interviews were identified through the New York State license databases described above, and based on the researchers' knowledge of companies operating in the study region. Additionally, we asked for recommendations from the Cornell Cooperative Extension staffs throughout the Hudson Valley, from HVADC, and our advisors. For processors, our sample included businesses from each of several food types—produce, meat, grain, and dairy. Additionally, we over-sampled processors who we knew were interesting in or already buying from local farms because these businesses would be a likely target audience for marketing or buying through a food hub.

The distributors chosen for interviews were identified through the New York State Farm Dealer's License database, along with consultations with advisors. The

sample included distributors that primarily operate in the Hudson Valley and New York City regions. They also were chosen to represent a variety of products.

Lastly, the buyers interviewed included restaurants, specialty retailers, chain retailers, and institutions because each of these types has different procurement processes and needs. We identified these buyers based on our knowledge of the region and through recommendations of others interviewed. Although many of the buyers were chosen because we knew they purchased local food, just as many were chosen because they are large or well-known buyers in the Hudson Valley and New York City regions.

Below is a summary of the final interview sample, organized by county and type. The interview protocols for each type can be found in Appendices 3-6.

Interviews by County

County	Total
Columbia	14
Delaware	1
Dutchess	21
Greene	2
Orange	14
Putnam	2
Rockland	1
Sullivan	5
Ulster	31
Westchester	8
Multiple	5
NYC*	6
Capital Dist.	2
Berkshires	1
Total	113

* Additional surveys of 7 NYC buyers were collected during the listening session there.

Interviews by Type

Farmers	Processors	Distributors	Restaurants/Food Service	Retail	Institutions
45	22	8	17	14	7

Advisory group:

To guide the project, we engaged a group of representatives from each phase of the food chain. These advisors gathered for several meetings and provided feedback on the study’s methodology, findings, and recommendations. Their helpful input contextualized and grounded our work to ensure this final report offers actionable strategies for local food businesses and organizations.

Listening Sessions:

Given the diversity and size of the Hudson Valley region, we recognized our interviews could not reach every stakeholder. To broaden our reach and gather input from as many farmers, food businesses, and consumers as possible, we held six listening sessions throughout the Hudson Valley and one in New York City. These listening sessions were open to the public and were organized and advertised in collaboration with a number of partners, including Hudson Valley Agribusiness Development Corporation, Rondout Valley Growers Association, Glynwood, Orange County Cornell Cooperative Extension, Dutchess County Cornell Cooperative Extension, Ulster County Cornell Cooperative Extension, the Watershed Agriculture Council, and the Gerry Foundation.

Caveats to Methodology

There are caveats to this study’s methodology. The data utilized in descriptive analyses and maps have several limitations. The federal data from the USDA Census of Agriculture is inconsistent from census to census as collection methods differ. The Census of Agriculture also does not provide data in instances when doing so would reveal private information of businesses. And, lastly, the Census of Agriculture relies on self-reported information about farms’ incomes. Where these limitations may affect our analysis, we have made notations in the graphics and end notes in the report.

The data collected from the state also suffers from several limitations. The parcel data from the Office of Real Property Tax Service relies on individual tax assessors' reports throughout the counties, without any uniform, detailed standards or criteria for how to categorize different types of farming. Also, wherein a farm grows multiple crops at different times of year, which would not be reflected in the data as the parcel is only counted and categorized by one crop. This may cause some food types, such as vegetables, to be over or undercounted. Additionally, the tax database only includes parcels for property owners who elect to file for a tax exemption. It therefore might omit some farms. Based on our conversations with the staff at the Office of Real Property Tax Service, the vast majority of farms who meet the minimum acres and sales requirements do file for the tax exemption.

The New York State Department of Agriculture and Markets 20-C license database of food processors presented a challenge as many of the businesses included are retailers. The database required manual filtering, based on Internet searches, to select only those businesses that manufacture food products, rather than minor processing for retail sale, such as at retail deli counters or salad bars. Because not all businesses had identifiable websites and, even among some those that did, there was limited information available, the final list of food processors may omit food businesses.

The list of dairy processors presented similar challenges. Although there is a list of pool and non-pool handlers, this list was not categorized to demonstrate which processors add value in the form of better farm prices, environmental standards, or other benefits. Our categorization, described above, is therefore not a complete analysis of these features, but rather a first pass. It is possible that we also omitted some on-farm dairy processors in this final list.

In addition to all of these limitations with the available data, there are caveats to the qualitative information gathered through the best practice interviews with hubs and businesses from the Hudson Valley and New York City. In both of these instances, the selection of interview candidates was non-random. It is therefore possible that our study and results suffer from selection bias, that those who we selected and those who agreed to be interviewed, are not representative of the full population of hubs, farmers, restaurants, etc. Because our primary research question for this study was to assess if there is a need for a food hub, and then as a secondary question, who would support a food hub, our method for selecting local food businesses was sufficient to answer these questions. Our methodology is not scientific, but our results are grounded in a thoughtful process with specific information gathered to test the concept of a food hub with stakeholders on the ground. As the preceding report indicates, there is interest at least among the population of those we interviewed and ample need for the recommended interventions.

**Hudson Valley Food Hubs Initiative
Food Hub Interview Protocol**

Introduction:

Thank you for taking time to speak to me today. As I mentioned in my email to you, Pattern for Progress is studying the potential need for new or expanded food hubs in the Hudson Valley. We would like to understand how your food hub operates, what makes it successful and what challenges you face.

The interview will take about 30-45 minutes. Your responses will be seen only by our research team and any information we include in our report will not identify you or your organization without express, written consent from you. If you have questions at any point during the interview, please feel free to ask them.

Do you have any questions before we begin?

Background Information	
Date	
Interviewer	
Interviewee	
Business	
Address	
Phone	
Email	
Website	
Business start date	
Ownership model/business entity	Non-profit For-profit- LLC, Sole proprietorship, LLP, other _____ Co-operative- farmer or other type _____ Government owned and/or operated
Annual Revenue	\$5,000,000+ \$3,000,000 - 4,999,999 \$1,000,000 - 2,999,999 \$500,000 - 999,999 \$300,000 - 499,999 \$100,000 - 299,999 \$50,000 - \$99,999 \$20,000 - 49,999 \$10,000 - 19,999 Refused
Number of staff	Full-time: Part-time: Seasonal: Volunteers: Unionized?
Season	<input type="checkbox"/> Year round <input type="checkbox"/> Seasonal; Months:

Appendix 2: Best Practice Review

BUSINESS OVERVIEW

1. How did you launch your organization?
 Why did it start/ what need were you trying to fill?
 Who/what organizations initiated the hub formation?
 Who were your initial customers and were there any anchor customers (e.g. one large school district)?

2. What were your start-up costs?
 How much funding did you need - amount & sources?
 What infrastructure and equipment did you need to start or do you need for your current operations? (Name specific types & cost)

3. What is your core mission?
 Producer viability
 Healthy access to food
 Community development
 Local economic development
 Other

4. Did you have a business plan when you began? Do you have one now? Has it since changed?

Revenues:

5. What are your various revenue streams?

Revenue Source	% of Revenue
Food product sales	
Facility rental income (e.g. for farmers, vendors, community kitchen, etc.)	
Transaction fees	
Fees for other services (e.g. marketing, transportation logistics, packaging, etc.)	
Membership fees	
Donations	
Government funding	
Charitable grants	
Loans	
Private investment	
Other (Specify _____)	

What is your year over year growth rate? What were your first year sales and now?

6. What, if any, products do you directly sell or are sold at/through your hub? Which categories are growing? Contracting?

Product	% of Product Sales	Growth
Fresh produce		
Dairy		
Eggs		
Meat & poultry		
Grains		
Baked goods/bread		
Frozen foods		
Canned foods		
Honey/preserves		
Beverages		
Other value-added products		
Other (Specify)		

7. How do you position your products in the market place? Do you do any of the following?
- a. Identity Branding: such as private label, co-branding, farmer label
 - b. Quality: such as having products of with superior freshness, flavor, condition
 - c. Availability of local foods: such as having a wide variety of products grown in the region
 - d. Growing method: such as products grown using organic, sustainable, integrated pest management, conventional methods
 - e. Farmer Viability: such as selling at a price point that ensures farmers earn a fair price
 - f. Variety/Specialty products: such as offering a wide variety or difficult to obtain products
 - g. Services: such as personalized service, ease of ordering, special deliveries, etc
 - h. Packing sizes: such as bag, box, crate, pallet, buyer dictated, etc.
 - i. Third Party Certifications: such as USDA Organic, Certified Natural, GAP, other
 - j. Price: such as having prices that are consistently lower than other sources
 - k. Other

Appendix 2: Best Practice Review

8. Who buys from your food hub?

Buyer Type	% of sales
Retail stores	
Wholesale distributors	
Restaurants	
Public institutions, such as schools, hospitals, etc.	
Individual consumers	
Other (Specify)	

Geography: What is the geographic radius of your distribution?
 Number of accounts/customers _____?
 Do you have enough demand for your products?

9. How are orders placed? (Circle all that apply)

- Phone
- Via online ordering form
- Email
- Fax
- Onsite/In person

10. How is pricing determined? How often are prices set?

Production/Sourcing:

11. How far are your farms from your hub?

Approximately, what portion of the food you sell is produced:

- a. Locally or regionally _____
 Define locally or regionally—within:

- b. Not locally or regionally _____

12. How many farmers do you buy from or who otherwise participates in your hub?

13. What percentage of your farmers would you classify as small? Medium-sized?
 What do you consider small/medium?

14. What is the average length your of relationship with farmers?
15. Do you have enough supply to meet your demand?
16. What, if any, services does your hub provide to farmers or buyers? If you don't provide services, would you like to? What do you think would be helpful to farmers, buyers, or others?

Service Type	Y/N	Customer	Charge? (Amount)
Preseason planning with farmers			
Technical and business assistance to farmers			
Branding, advertising, and marketing			
Logistics support, such as scheduling deliveries			
Acting as a broker			
Do you offer any environmental services? Recycling Composting Energy saving Other			
Other (Specify)			

17. How do you deal with the seasonality of products?
18. Does your hub do any co-packing or processing on site? (Circle all those that apply)
- Sorting
 - Washing
 - Grading
 - Packaging
 - Value added processing: trimming, cutting, freezing, canning, etc
 - Labeling
 - Other
19. What, if any, challenges do you have in getting products in the right form, i.e. packed for sale?
20. Discuss your quality control and food safety procedures.
21. How do you track inventory?

Appendix 2: Best Practice Review

22. What information technology do you use?

Inventory tracking software

Online or database for customer orders

Supply chain management software

UPC or RFID

Other _____

Are these products off-the-shelf or customized?

How much do they cost?

Do you find them useful?

23. Who provides the transportation for your food distribution?

Do you have a fleet of trucks?

If so, how many are owned? How many leased?

Are any trucks refrigerated?

Do the farmers provide trucking?

Do distributors or other buyers pick up?

How often do you deliver?

What is your delivery range?

What is your minimum order for delivery?

24. Is this working well? Explain.

25. What is your approximate cost to transport a box or pallet?

26. What are the payment terms for farmers? Do you offer financing?

27. What are the invoice terms for buyers? Do you offer financing?

28. What are your main expenses each year and how much do you spend on them?

Cost	Amount & %
Food product purchases	
Rent or mortgage	
Staff wages & benefits	
Equipment (vehicles, processing equipment, warehouse equipment, refrigeration, etc.)	
Marketing	
Debt service (loan repayment & interest)	
Insurance	
Utilities	
Licensing or other fees	
Other (Specify _____)	

29. Are you covering costs? What are your gross margins? If not, do you plan to be - when and how?

CHALLENGES & ADVICE

30. What are the biggest challenges to your business?

CLOSURE

Is there anything else you would like to share that we haven't covered?

Thank you for taking time to talk with me today. I really appreciate your input. If we have any follow up questions to ensure we have accurately recorded your answers, would you mind if we called you again?

Our research will continue through the remainder of this year and we hope to release a report at the end of this year. We would be happy to share our final results with you if you would like.

Appendix 3: Buyer Questionnaire

Hudson Valley Food Hubs Initiative Buyer Questionnaire

Introduction:

Thank you for taking time to speak to me today. As I mentioned, Pattern for Progress is studying local food system infrastructure in the Hudson Valley. We are hoping to determine the need for infrastructure development and related services that help farmers aggregate, market, and distribute food.

To better understand what needs there might be in the Hudson Valley, we would like to understand how your business operates, what makes it successful and what challenges you face in buying local foods.

The interview will take about 45 minutes. Your responses will be seen only by our research team and any information we include in our report will not identify you or your organization without express, written consent from you. If you have questions at any point during the interview, please feel free to ask them. Do you have any questions before we begin?

Background Information	
Date	
Interviewer	
Interviewee name & position	
Buyer Name	
Address	
Phone	
Email	
Website	

Appendix 3: Buyer Questionnaire

4. Are you able to meet your customers' demand for local food?

Y/N

5. How much do you spend on food purchases annually (in dollars?)

\$20,000,000 +
\$15,000,000-19,999,999
\$10,000,000-14,999,999
\$7,500,000-9,999,999
\$5,000,000-7,499,999
\$2,500,000 – 4,999,999
\$1,000,000 – 2,499,999
\$500,000 – 999,999
\$250,000 – 499,999
\$100,000 – 249,999
\$50,000 - \$99,999
\$20,000 – 49,999
\$10,000 – 19,999
Less than \$10,000
Refused

6. How much of your total annual food purchases are local?

\$ _____

% _____

7. How much of your total annual food purchases are from the Hudson Valley?

\$ _____

% _____

8. Where do you source your products from throughout the year? (Check all that apply, e.g. if they source cheese from the Hudson Valley and across the country throughout the year, check both “Local, Hudson Valley” and “Not Local” on the row for cheese.)

Product	Local, Hudson Valley	Local, not Hudson Valley	Not Local
Fresh vegetables & melons			
Fresh fruit			
Fresh cut produce			
Fluid milk			
Cheese			
Yogurt			
Other dairy			
Eggs			
Poultry			
Meat			
Grains & Hops			
Flour or other milled grain			
Baked goods/bread			
Frozen foods			
Canned or preserved foods, incl. honey			
Wine			
Spirits			
Beer			
Hard cider			
Cider/Juice			
Other (specify)			

9. Do you expect to pay more, the same, or less for Hudson Valley food products than comparable food products from other parts of New York State or the country?

More	Same	Less	Depends on product	Don't know

10. If more, how much more?

1-5%	5-10%	10-20%	20%+	Depends on product	Don't know

Appendix 3: Buyer Questionnaire

11. If less, how much less?

1-5%	5-10%	10-20%	20%+	Depends on product	Don't know

12. Is the term Hudson Valley a marketing term that your customers currently recognize as valuable?

Y/N (Explain)

13. Do you believe there is potential for a Hudson Valley food brand or identity?

Y/N (Explain)

14. Would you be interested in participating in a Hudson Valley food branding or marketing initiative?

Y/N

15. Are there fresh or value added products you would like to source from the Hudson Valley (or locally) but have difficulty doing so? Explain. (Check all that apply)

Product	Difficulty sourcing
Fresh vegetables & melons	
Fresh fruit	
Fresh cut produce	
Frozen foods	
Canned or preserved foods	
Fluid milk	
Cheese	
Yogurt	
Other dairy	
Poultry	
Eggs	
Meat	
Grains or flour	
Baked goods/bread	
Honey	
Wine/spirits/beer/hard cider	
Juice/cider	
Other (Specify)	

16. What, if any, are your biggest challenges to working with Hudson Valley farmers? (Check all that apply)

Overall lack of supply	Lack of volume from individual producers	Inconsistent or lack of quality	Seasonality	Producer communication & relationships	Don't know where to source from
Transportation	Lack of food safety certifications	Packing issues	Price	Other (specify)	N/A

17. Do you require farmers to be GAP (good agricultural practices) certified?
Y/N

Appendix 3: Buyer Questionnaire

18. How do you get your food products from Hudson Valley farmers? (Check all that apply)

They deliver to us	We pick up from farmer	The farmer delivers to aggregation point	Other distributors	Other	N/A

19. Do you use any of the following terms or labels to help market your products? (Check all that apply.)

- Farm names/ brands
- Pride of New York
- USDA Organic
- Certified Natural
- GAP (good agricultural practices)
- Greenmarket
- Hudson Valley
- New York
- Animal Welfare Approved
- Hormone Free/rGBH free
- Antibiotic free/no antibiotics
- Grass fed
- Pasture raised/free range
- Other (specify)
- None of the above

20. Do you expect to sell Hudson Valley products for a higher price than comparable products from other parts of New York State or the country?

More	Same	Less	Depends on product	Don't know

21. If more, how much more?

1-5%	5-10%	10-20%	20%+	Depends on product	Don't know

22. If less, how much less?

1-5%	5-10%	10-20%	20%+	Depends on product	Don't know

23. Can you name the top three local food products for which you expect the greatest increase in demand over the next five years?

- 1)
- 2)
- 3)

24. What are your barriers to growth?

25. What is your annual revenue?

- \$20,000,000 +
- \$15,000,000-19,999,999
- \$10,000,000-14,999,999
- \$7,500,000-9,999,999
- \$5,000,000-7,499,999
- \$2,500,000 – 4,999,999
- \$1,000,000 – 2,499,999
- \$500,000 – 999,999
- \$250,000 – 499,999
- \$100,000 – 249,999
- \$50,000 - \$99,999
- \$20,000 – 49,999
- \$10,000 – 19,999
- Less than \$10,000
- Refused

FOOD HUB MODEL

As I mentioned, we are researching the potential need for local food infrastructure in the Hudson Valley to complement existing businesses and infrastructure. We would like to ask you some questions about potential facilities and services that could be developed to help farmers aggregate, distribute, and market local foods.

26. Are there any current efforts in the Hudson Valley that you know of to coordinate farmers and help with shared aggregation, processing, marketing and distribution? If so, explain.

27. How interested would you be in buying through a facility in the Hudson Valley?

1- very uninterested	2- uninterested	3- neutral	4-interested	5- very interested

28. What are the most important factors that would influence whether you would buy through a new facility in the Hudson Valley? (Check off top three.)

Lower prices/ affordability	High quality products	Access to local foods	Convenient location	Reliable delivery service	Ease of ordering products
Traceability of foods	Food safety and facility conditions	Diversity of products available	Other (specify)		

29. If you were to buy through a Hudson Valley aggregation facility or shared market, what products do you think you'd like to buy through that facility? (Check all that apply)

Fresh vegetables & melons	Fresh fruit	Fluid Milk	Dairy products (e.g. cheese, yogurt, ice cream)	Grains & Hops	Baked Goods
Eggs	Meat	Poultry	Frozen foods	Canned or preserved foods	Wine
Spirits	Beer	Hard cider	Juice/ Cider	Fresh cut produce	

Other? _____

30. If there was a retail component to the proposed Hudson Valley facility, how interested would you be in selling through the facility?

1- very uninterested	2- uninterested	3- neutral	4-interested	5- very interested

Appendix 3: Buyer Questionnaire

31. Would you be interested only in seasonal use or year-round use of a potential Hudson Valley facility? (Check one)

Seasonal

Year-round

32. How interested would you be in renting space at a potential facility?

1- very uninterested	2- uninterested	3- neutral	4-interested	5- very interested

33. What are the features or services of a potential facility that you would be most interested in?

Cold/freezer storage	Aggregation/consolidation of local products	Grading/packing Copacking/ Palletizing products	Value added processing	Market for wholesale transactions	Market for retail transactions	Access to Hudson Valley customers
Marketing and branding	Transportation and logistics support	Networking with other businesses	Business planning assistance	Certifications & Training (GAP, Organic, food safety, Other)	Easier access to local food products	Farm Auction

Other _____

34. If the proposed facility had an online ordering platform for customers, how interested would you be in using it for your business to make and fill orders?

1- very uninterested	2- uninterested	3- neutral	4-interested	5- very interested

35. What location would be most convenient for your business, if you were to use a local food aggregation and distribution facility? (Check one)

- Anywhere east of the river
- Anywhere west of the river
- Specific County (name) _____
- In NYC
- Within _____ Miles of my business
- Other (name) _____
- No preference

36. If a potential Hudson Valley aggregation and marketing facility was developed, would you recommend it be managed by:

Local, state, federal government	Farmers cooperative	Buyers cooperative	A not-for-profit	A private entity	No preference

CLOSURE

37. Is there anything else you would like to share that we haven't covered?

38. Is there anyone else you think we should be speaking with?

Thank you for taking time to talk with me today. I really appreciate your input. If we have any follow up questions to ensure we have accurately recorded your answers, would you mind if we called you again?

Our research will continue through the remainder of this year and we hope to release a report at the end of this year. We would be happy to share our final results with you if you would like. *(Note if interviewee requests a copy of the report.)*

Appendix 4: Distributor Questionnaire

Hudson Valley Food Hubs Initiative Distributor Questionnaire

Introduction:

Thank you for taking time to speak to me today. As I mentioned, Pattern for Progress is studying local food system infrastructure in the Hudson Valley. We are hoping to determine the need for infrastructure development and related services that help your organization more effectively source and market Hudson Valley farm products.

To better understand what needs there might be in the Hudson Valley, we would like to understand how your business operates, what makes it successful and what challenges you face in buying local foods.

The interview will take about 45 minutes. Your responses will be seen only by our research team and any information we include in our report will not identify you or your organization without express, written consent from you. If you have questions at any point during the interview, please feel free to ask them. Do you have any questions before we begin?

Background Information	
Date	
Interviewer	
Interviewee name & position	
Distributor Name	
Address	
Phone	
Email	
Website	

BUSINESS OVERVIEW

Age of Business	
Number of staff	Full-time: Part-time: Seasonal: Volunteers:
Reason for location (pick one)	Proximity to market Proximity to growers Proximity to transportation From/raised at location Other (specify)

PRODUCTS & SERVICES

1. How would you classify the following activities as a portion of your overall business?

Activity	Percent of gross revenue
Processing	
Packing/co-packing	
Distribution	
Contract Hauling/Trucking	
Brokering	
Other (Specify)	
TOTAL	100%

2. Do you do any of your own processing?

Y/N

If yes, what value-added food products do you process?

3. What, if any, processing equipment do you rent and/or own?

None

Owned:

Leased:

If own and/or lease equipment, is the equipment fully utilized or under-utilized?

Appendix 4: Distributor Questionnaire

4. Are you HACCP (Hazard Analysis and Critical Control Points) certified?

Yes

No

In Process (explain)

5. Do you use other processors **offsite**?

Yes/No

If yes, who? (Name)

6. How many buildings or warehouses do you own and/or lease?

Own _____ Location(s):

Lease _____ Location(s):

7. Is your current building or warehouse space fully utilized or underutilized?

N/A- Don't have building or warehouse space

Fully utilized

If fully utilized, are you looking for additional space?

Y/N

If yes, approximately how much space do you need?

0-1,000 square feet

1,000- 5,000 square feet

5,000-10,000 square feet

10,000- 50,000 square feet

50,000-100,000 square feet

Over 100,000 square feet

Underutilized

If underutilized, are you looking to share space?

Y/N

If yes, approximately how much space do you have available?

0-1,000 square feet

1,000- 5,000 square feet

5,000-10,000 square feet

10,000- 50,000 square feet

50,000-100,000 square feet

Over 100,000 square feet

8. Do you own and/or lease cold storage or freezer space?

Yes, Own

Yes, Lease

Yes, Own & Lease

If yes (own, lease, both), is it fully utilized or underutilized?

Fully utilized

If fully utilized, do you have need for additional cold storage or freezer space?

Y/N

If yes, approximately how much space do you need?

0-1,000 square feet

1,000- 5,000 square feet

5,000-10,000 square feet

10,000- 50,000 square feet

50,000-100,000 square feet

Over 100,000 square feet

Underutilized

If underutilized, are you looking to share space?

Y/N

If yes, approximately how much space do you have available?

0-1,000 square feet

1,000- 5,000 square feet

5,000-10,000 square feet

10,000- 50,000 square feet

50,000-100,000 square feet

Over 100,000 square feet

No

If no, do you use cold storage or freezer space elsewhere?

Where?

9. Do you have need for additional cold storage or freezer space?

Y/N

If yes, approximately how much space do you need?

0-1,000 square feet

1,000- 5,000 square feet

5,000-10,000 square feet

10,000- 50,000 square feet

50,000-100,000 square feet

Over 100,000 square feet

Appendix 4: Distributor Questionnaire

10. We'd like to understand who you source your food products from. Could you tell us the types of suppliers you use (Check all that apply)?

Farmers	
Processors	
Wholesale distributors	
Farm auctions	
Brokers	

Other: _____

Comments (name suppliers):

11. What percentage of your purchases do you get from each channel?

	Percentage of Product Purchases
Farmers	
Processors	
Wholesale distributors	
Farm auctions	
Brokers	
Other (specify)	

12. When purchasing food products, what do you consider "local"?

13. Do you believe there is a growing demand for local products among your customers? (Explain)

Y/N

14. What is the year-over-year growth rate for your sales of local food?

15. Are you able to meet your customer's demand for local food? (Explain)

Y/N

16. How much of your total annual food purchases are local? (Indicate percentage and dollar amount)

Percent: _____

Dollar: _____

17. How much in food products do you source annually from Hudson Valley? (Indicate percentage and dollar amount)

Percent: _____

Dollar: _____

18. What, if any, types of foods do you buy locally, outside of the Hudson Valley and from non local sources? (Check all that apply)

Product	Local, Hudson Valley	Locally, not Hudson Valley	Not local
Fresh vegetables & melons			
Fresh fruit			
Fresh cut produce			
Fluid milk			
Cheese			
Yogurt			
Other dairy			
Eggs			
Poultry			
Meat			
Grains & Hops			
Flour or other milled grain			
Baked goods/bread			
Frozen foods			
Canned or preserved foods, incl. honey			
Wine			
Spirits			
Beer			
Hard cider			
Cider/Juice			
Other (specify)			

Appendix 4: Distributor Questionnaire

19. Of these “local” products, what percentage is differentiated from the regular commodity market?

Less than 1%	1-5%	5-25%	25-50%	50-75%	75-99%	100%

20. Do you expect to pay more, the same, or less for Hudson Valley products than comparable products from other parts of New York State or the country?

More	Same	Less	Depends on product	Don't know

21. If more, how much more?

1-5%	5-10%	10-20%	20%+	Depends on Product	Don't know

22. If less, how much less?

1-5%	5-10%	10-20%	20%+	Depends on Product	Don't know

23. Are there fresh or value added products you would like to source from the Hudson Valley but have difficulty doing so? Explain. (Check all that apply)

Product	Difficulty sourcing
Fresh vegetables & melons	
Fresh fruit	
Fresh cut produce	
Frozen foods	
Canned or preserved foods	
Fluid Milk	
Cheese	
Yogurt	
Other dairy	
Poultry	
Eggs	
Meat	
Grains or flour	
Baked goods/bread	
Honey	
Wine/spirits/beer/hard cider	
Juice/cider	
Other (Specify)	

24. What, if any, are your biggest challenges to working with Hudson Valley farmers? (Check all that apply)

Overall lack of supply	Lack of volume from individual producers	Inconsistent or lack of quality	Seasonality	Producer communication & relationships	Don't know where to source from
Transportation	Lack of food safety certifications	Packing issues	Price	Other (specify)	N/A

25. Do you require farmers to be GAP (Good Agricultural Practices) certified?

Yes

No

Comments:

Appendix 4: Distributor Questionnaire

26. How do you get food products from Hudson Valley farmers? (Check all that apply)

They deliver to warehouse	We pick up from producer	The producer delivers to aggregation point	Other distributors	Other	N/A

27. What percentage of your sales is moved through the following channels? Within each channel, what percentage of these outlets are in the Hudson Valley, NYC, and other locations?

Channel	% of sales	% in Hudson Valley	% in NYC	Other
Distributors/wholesalers				
Restaurants, food service (e.g. caterers, hotels)				
Food retailers (specialty)				
Food retailers (chain)				
Institutions (e.g. K-12, Hospitals, Secondary Schools, Correctional Facilities)				
Individual Households				
Other Processors/Packers				

28. Do you use any of the following terms or labels to help market your products? (Check all that apply.)

- Farm names/ brands
- Pride of New York
- Hudson Valley
- New York
- USDA Organic
- Certified Natural
- GAP (good agricultural practices)
- Greenmarket
- Animal Welfare Approved
- Hormone Free/ rBGH free
- Antibiotic free/no antibiotics
- Grass fed
- Pasture raised/free range
- Other (specify)
- None of the above

29. Is the term Hudson Valley a marketing term that your customers currently recognize as valuable?

Yes/No Comments:

30. Do you believe there is potential for a Hudson Valley food brand or identity? (Explain)

Yes/No

31. Would you be interested in participating in a Hudson Valley branding or marketing initiative?

Yes/No Comments:

32. Do you expect to sell Hudson Valley products for a higher price than comparable products from other parts of New York State or the country?

More	Same	Less	Depends on product	Don't know

Appendix 4: Distributor Questionnaire

33. If more, how much more?

1-5%	5-10%	10-20%	20%+	Depends on Product	Don't know

34. If less, how much less?

1-5%	5-10%	10-20%	20%+	Depends on Product	Don't know

35. What determines the prices for your products? (Rank top three)

- Quality of my product
- Volume
- Locally sourced
- Type of customer (E.g. Farm stand, Farmers' market, wholesaler, etc)
- Geographic location of customer (E.g. Hudson Valley, NYC, etc)
- Growing/production practices (E.g. Organic, Sustainable, etc)
- Price Taker
- Use commodity price sheets as benchmark
- Price after sale/consignment
- Cost plus
- Use competitor's price as benchmark
- Other (explain)

36. Can you name the top three local food products for which you expect the greatest increase in demand over the next five years?

- 1)
- 2)
- 3)

Comments:

37. How much do you spend on food purchases annually (in dollars?)

- \$20,000,000 +
- \$15,000,000-19,999,999
- \$10,000,000-14,999,999
- \$7,500,000-9,999,999
- \$5,000,000-7,499,999
- \$2,500,000 – 4,999,999
- \$1,000,000 – 2,499,999
- \$500,000 – 999,999
- \$250,000 – 499,999
- \$100,000 – 249,999
- \$50,000 - \$99,999
- \$20,000 – 49,999
- \$10,000 – 19,999
- Less than \$10,000
- Refused

38. Do you plan to shift your business toward any of the following in the next five years? (Check all that apply)

- More delivery service
- Expand food service (e.g. restaurants, catering) customer base
- Expand retail customer base
- Expand institutional (e.g. K-12, Secondary Schools, Hospitals, Correctional Facilities) customer base
- New or additional value added products
- Increased product range
- More product specialization
- More “local” products
- Expand geographic range of distribution
- Vertical integration
- Online ordering

39. What are your barriers to growth?

Appendix 4: Distributor Questionnaire

40. What are your annual gross sales?

- \$20,000,000 +
- \$15,000,000-19,999,999
- \$10,000,000-14,999,999
- \$7,500,000-9,999,999
- \$5,000,000-7,499,999
- \$2,500,000 – 4,999,999
- \$1,000,000 – 2,499,999
- \$500,000 – 999,999
- \$250,000 – 499,999
- \$100,000 – 249,999
- \$50,000 - \$99,999
- \$20,000 – 49,999
- \$10,000 – 19,999
- Less than \$10,000
- Refused

FOOD HUB MODEL

As I mentioned, we are researching the potential need for local food infrastructure in the Hudson Valley to complement existing businesses and infrastructure. We would like to ask you some questions about potential facilities and services that could be developed to help your organization more effectively source and market Hudson Valley farm products.

41. Are there any current efforts in the Hudson Valley that you know of to coordinate farmers and help with shared aggregation, processing, marketing and distribution? If so, explain.

42. How interested would you be in selling through a facility in the Hudson Valley?

1- very uninterested	2- uninterested	3- neutral	4-interested	5- very interested

43. If you were to **sell through** an aggregation facility or shared market in the Hudson Valley, what products do you think you'd like to **sell** through that facility?

Fresh vegetables & melons	Fresh fruit	Fluid Milk	Dairy products (e.g. cheese, yogurt, ice cream)	Grains & Hops	Baked Goods
Eggs	Meat	Poultry	Frozen foods	Canned or preserved foods	Wine
Spirits	Beer	Hard Cider	Juice/Cider	Fresh cut produce	Other (specify)

44. What could be your obstacles in participating? (check all that apply)

- Insufficient volume/product
- Transportation
- Packaging
- Doesn't fit my business model
- Other _____

45. How interested would you be in **buying through** a facility in the Hudson Valley?

1- very uninterested	2- uninterested	3- neutral	4-interested	5- very interested

Appendix 4: Distributor Questionnaire

46. If you were to **buy through** an aggregation facility or shared market in the Hudson Valley, what products do you think you'd like to **buy through** that facility? (Check all that apply)

Fresh vegetables & melons	Fresh fruit	Fluid Milk	Dairy products (e.g. cheese, yogurt, ice cream)	Grains & Hops	Baked Goods
Eggs	Meat	Poultry	Frozen foods	Canned or preserved foods	Wine
Spirits	Beer	Hard Cider	Juice/Cider	Fresh Cut Produce	Other (specify)

47. What are the most important factors that would influence whether you would **buy through** a new facility in the Hudson Valley? Check off top three factors.

Lower prices/affordability	High quality products	Access to local foods	Convenient location	Reliable delivery service	Ease of ordering products
Traceability of foods	Food safety and facility conditions	Diversity of products available	Other (specify)		

48. Would you be interested only in seasonal use or year-round use of a potential Hudson Valley aggregation and wholesale market facility? (Check one)

Seasonal

Year-round

49. How interested would you be in renting space at a potential facility?

1- very uninterested	2- uninterested	3- neutral	4-interested	5- very interested

50. What are the features or services of a potential facility that you would be most interested in?
(Check all that apply.)

Cold/freezer storage space	Aggregation/consolidation of local products	Grading/packin g Copacking/ Palletizing products	Value added processing	Market for wholesale transactions	Market for retail transactions	Access to Hudson Valley customers
Marketing and Branding Assistance	Transportation and logistics support	Networking with other businesses	Business planning assistance	Certifications & Training (GAP, Organic, food safety, Other)	Easier access to local food products	Farm auction

Other _____

51. If the proposed facility had an online ordering platform for customers, how interested would you be in using it for your business to make and fill orders?

1- very uninterested	2- uninterested	3- neutral	4-interested	5- very interested

Appendix 4: Distributor Questionnaire

52. What location would be most convenient for your business, if you were to use this type of facility? (Check one)

- Anywhere east of the river
- Anywhere west of the river
- Specific county (name) _____
- In NYC
- Within _____ miles of my business
- Other (name) _____
- No preference (explain)

53. If a potential aggregation and marketing facility is developed in the Hudson Valley, would you recommend it be managed by:

Local, state, federal government	Farmers cooperative	Buyers cooperative	A not-for- profit	A private entity	No preference

CLOSURE

54. Is there anything else you would like to share that we haven't covered?

55. Is there anyone else you think we should be speaking with?

Thank you for taking time to talk with me today. I really appreciate your input. If we have any follow up questions to ensure we have accurately recorded your answers, would you mind if we called you again?

Our research will continue through the remainder of this year and we hope to release a report at the end of this year. We would be happy to share our final results with you if you would like. *(Note if interviewee requests a copy of the report.)*

Hudson Valley Food Hubs Initiative Farmer Questionnaire

Introduction:

Thank you for taking time to speak to me today. As I mentioned, Pattern for Progress is studying local food system infrastructure in the Hudson Valley. We are hoping to determine the need for infrastructure development and related services that help farmers aggregate, market, and distribute food.

To better understand what needs there might be in the Hudson Valley, we would like to understand how your business operates, what makes it successful and what challenges you face in buying local foods.

The interview will take about 45 minutes. Your responses will be seen only by our research team and any information we include in our report will not identify you or your organization without express, written consent from you. If you have questions at any point during the interview, please feel free to ask them. Do you have any questions before we begin?

Background Information	
Date	
Interviewer	
Interviewee name & position	
Farm Name	
Address	
Phone	
Email	
Website	

Appendix 5: Farmer Questionnaire

BUSINESS OVERVIEW

Age of Farm	
Total acres owned	
Total acres leased	
Acres in production	
Fallow acreage that could be put into production	
Acres in production in 2007	
Number of staff	Full-time: Part-time: Seasonal: Volunteers:

PRODUCTS & SERVICES

1. What agricultural products do you sell?

Product	Yes/No	% of Product Sales
Fresh vegetables & melons, e.g.		
Sweet corn		
Onions		
Cabbage		
Lettuces		
Herbs		
Tomatoes		
Melons		
Squash		
Peppers		
Fresh fruit, e.g.		
Apples		
Peaches		
Plums		
Cherries		
Pears		
Strawberries		
Other berries		
Grapes		
Fluid Milk		
Eggs		
Poultry, e.g.		

Chicken Ducks Turkey Quail Pheasant		
Meat, e.g. Beef cattle Hogs & Pigs Sheep/lamb Goat		
Grain for animal feed		
Grains & Hops (for human consumption), e.g. Soybean Wheat Barley Rye Hops Other		
Maple Syrup		
Beekeeping/Honey		
Other (specify)		

2. Does your farm do any of the following post harvest activities? (Check all that apply.)

- Washing
- Cooling
- Sorting
- Grading
- Packing
- Co-packing
- Labeling
- Value-added processing, such as trimming, cutting, freezing, canning, etc.
- Slaughter
- Other (specify)

3. (If Y to #2) What, if any, processing equipment do you rent and/or own for these activities?

None

Owned:

Leased:

If own and/or lease equipment, is the equipment fully utilized or under-utilized?

Appendix 5: Farmer Questionnaire

4. Do you use other processors **offsite**?

Yes/No

If yes, who? (Name)

5. If livestock producer:

Do you have sufficient access to:

Slaughterhouses

Y/N

Cutting facilities

Y/N

Packaging facilities

Y/N

Who processes your livestock?

Is finding **quality** processing of livestock an issue for you?

If organic or kosher livestock producer, what, if any, challenges do you have in processing meat?

6. Do you own and/or lease cold storage or freezer space?

Yes, Own

Yes, Lease

Yes, Own & Lease

If yes (own, lease, both), is it fully utilized or underutilized?

Fully utilized

Underutilized

If underutilized, are you looking to share space?

Y/N

If yes, approximately how much space do you have available?

0-1,000 square feet

1,000- 5,000 square feet

5,000-10,000 square feet

10,000- 50,000 square feet

50,000-100,000 square feet

Over 100,000 square feet

No

If no, do you use cold storage or freezer space elsewhere?

Where?

7. Do you have need for additional cold storage or freezer space?

Y/N

If yes, approximately how much space do you need?

- 0-1,000 square feet
- 1,000- 5,000 square feet
- 5,000-10,000 square feet
- 10,000- 50,000 square feet
- 50,000-100,000 square feet
- Over 100,000 square feet

8. What, if any, value-added products do you produce/sell/ distribute yourself? Are any value-added products areas of growth?

Product	Yes/No	% of Product Sales	Growth Area (check off)
Cheese			
Yogurt			
Other dairy			
Meat, meat products			
Flour or other milled grain			
Baked goods/bread			
Fresh cut produce			
Frozen foods			
Canned or preserved foods			
Honey			
Wine			
Spirits			
Beer			
Hard cider			
Cider/Juice			
Other (specify)			

Appendix 5: Farmer Questionnaire

MARKETING & DISTRIBUTION

9. What distribution channels do you sell your product through (note percent of gross sales)?
 Within each channel, what percent of outlets are in Hudson Valley, NYC and other locations?
 Which channel is your highest margin? Which is the lowest?

	% of overall sales	% in Hudson Valley	% in NYC	Other locations	Highest Margin (check one)	Lowest Margin (check one)
Retail sales on farm or roadside stand						
Retail farmers market						
Community Supported Agriculture program (CSA)						
Direct sales to restaurants & other food service (e.g. hotels, caterers)						
Direct sales to food retail (specialty)						
Direct Sales to food retail (chain)						
Direct sales to institutions (e.g. K-12 schools, hospitals, colleges, etc)						
Processors/packers						
Wholesalers/ Distributors						
Auctions						
Brokers						
Farmer co-operative						
Other (specify)						
Total				100%		

10. Do you use any of the following terms or labels to help market your products? (Check all that apply.)

- Farm name/ brand
- Pride of New York
- Hudson Valley
- New York
- USDA Organic
- Certified Natural
- GAP (good agricultural practices)
- Greenmarket
- Animal Welfare Approved
- Hormone Free/rBGH free
- Antibiotic free/no antibiotics
- Grass fed
- Pasture raised/free range
- Other (specify)
- None of the above

11. Is the term Hudson Valley a marketing term that your customers currently recognize as valuable?

Y/N (Explain.)

If no, do you believe there is potential for a Hudson Valley food identity or brand?
Explain.

12. Would you be interested in participating in a Hudson Valley branding or marketing initiative?

Y/N

13. If you received help with processing, distribution and/or marketing, could you expand production?

Yes/ No

If yes, by how much?

Appendix 5: Farmer Questionnaire

14. What are your annual gross sales?

- \$5,000,000+
- \$3,000,000 - 4,999,999
- \$1,000,000 - 2,999,999
- \$500,000 - 999,999
- \$300,000 - 499,999
- \$100,000 - 299,999
- \$50,000 - \$99,999
- \$20,000 - 49,999
- \$10,000 - 19,999
- Less than \$10,000
- Refused

15. Are you covering costs?

If you are not covering costs, do you plan to be? When and how?

16. What is your annual gross margin (in percentage)?

17. What determines the prices for your products? (Rank top three)

- Quality of my product
- Volume
- Locally sourced
- Type of customer (E.g. Farm stand, Farmers' market, wholesaler, etc)
- Geographic location of customer (E.g. Hudson Valley, NYC, etc)
- Growing/production practices (E.g. Organic, Sustainable, etc)
- Price Taker
- Use commodity price sheets as benchmark
- Price after sale/consignment
- Cost plus
- Use competitor's price as benchmark
- Other (explain)

18. Who provides the transportation for your products? (Check all that apply.)

- Transport myself
- Buyer pick-up
- Another farmer transports
- Contract hauler/trucking Company (name)
- Distributor (name)
- Other

19. How many delivery trucks do you rent and/or own?

Own: _____

Rent: _____

How many of these are refrigerated? _____

20. Do you assist other farmers or businesses with distributing their products?

Y/N

21. If yes, do you have excess trucking capacity?

Y/N

22. What is the geographic radius of your distribution? (in miles) _____

23. Do you have a GAP (Good Agricultural Practices) certification or another food safety plan?

Yes, we have GAP

Yes, we have another food safety plan. (Specify) _____

No, we don't have any third party determined food safety plan.

24. Do you have challenges finding labor?

Yes/No

25. What, if any, information technology do you use (check all that apply)?

Inventory tracking software

Online or database for customer orders

Supply chain management software

Accounting software (e.g. QuickBooks, etc)

Other _____

26. Would you find IT technical assistance helpful to your business?

Y/N

27. What, if any, infrastructure investments do you need or are planning in the next three years?

28. Do you have a business plan?

Y/N

Appendix 5: Farmer Questionnaire

29. Would you find business planning assistance useful?

Y/N

30. What are your biggest challenges/barriers to growth?

FOOD HUB MODEL

As I mentioned, we are researching the potential need for local food infrastructure in the Hudson Valley to complement existing businesses and infrastructure. We would like to ask you some questions about potential facilities and services that could be developed to help farmers aggregate, distribute, and market local foods.

31. Are there any current efforts in the Hudson Valley that you know of to coordinate farmers and help with shared aggregation, processing, marketing and distribution? If so, explain.

32. How interested would you be in selling through a facility in the Hudson Valley?

1- very uninterested	2- uninterested	3- neutral	4-interested	5- very interested

33. If you were to sell through an aggregation facility or shared market in the Hudson Valley, what products do you think you'd like to sell through that facility?

Fresh vegetables & melons	Fresh fruit	Fluid Milk	Dairy products (e.g. cheese, yogurt, ice cream)	Grains & Hops	Baked Goods
Eggs	Meat	Poultry	Frozen foods	Canned or preserved foods	Fresh cut produce
Wine	Spirits	Beer	Hard Cider	Cider/Juice	

Other? _____

34. What could be your obstacles in participating? (check all that apply)

- Insufficient volume/product
- Transportation
- Packaging
- Doesn't fit my business model
- Other _____

35. Would you be interested only in seasonal use or year-round use of a potential Hudson Valley aggregation and wholesale market facility? (Check one)

- Seasonal
- Year-round

Appendix 5: Farmer Questionnaire

36. How interested would you be in renting space at a potential facility?

1- very uninterested	2- uninterested	3- neutral	4-interested	5- very interested

37. What are the features or services of a potential facility that you would be most interested in?
(Check all that apply)

Cold/freezer storage	Aggregation/consolidation of local products	Grading/packing Co packing/ Palletizing products	Value added processing	Market for wholesale transactions	Market for retail transactions	Access to Hudson Valley customers
Marketing and branding assistance	Transportation and logistics support	Networking with other businesses	Business planning assistance	Certifications & Training (GAP, Organic, food safety, Other)	Farm auction	Production Planning Assistance

Other _____

38. If the proposed facility had an online ordering platform for customers, how interested would you be in using it for your business to take and fill orders?

1- very uninterested	2- uninterested	3- neutral	4-interested	5- very interested

39. What location would be most convenient for your business, if you were to use this type of facility? (Choose one)

Anywhere east of the river

Anywhere west of the river

Specific county (name) _____

In NYC

Within _____ miles of my business

Other (name) _____

No preference

40. If a potential aggregation and marketing facility is developed in the Hudson Valley, would you recommend it be managed by:

Local, state, federal government	Farmers cooperative	Buyers cooperative	A not-for-profit	A private entity	No preference

CLOSURE

41. Is there anything else you would like to share that we haven't covered?

42. Is there anyone else you think we should be speaking with?

Thank you for taking time to talk with me today. I really appreciate your input. If we have any follow up questions to ensure we have accurately recorded your answers, would you mind if we called you again?

Our research will continue through the remainder of this year and we hope to release a report at the end of this year. We would be happy to share our final results with you if you would like. *(Note if interviewee requests a copy of the report.)*

Appendix 6: Processor Questionnaire

Hudson Valley Food Hubs Initiative Processor Questionnaire

Introduction:

Thank you for taking time to speak to me today. As I mentioned, Pattern for Progress is studying local food system infrastructure in the Hudson Valley. We are hoping to determine the need for infrastructure development and related services that help farmers aggregate, market, and distribute food.

To better understand what needs there might be in the Hudson Valley, we would like to understand how your business operates, what makes it successful and what challenges you face in buying local foods.

The interview will take about 45 minutes. Your responses will be seen only by our research team and any information we include in our report will not identify you or your organization without express, written consent from you. If you have questions at any point during the interview, please feel free to ask them. Do you have any questions before we begin?

Background Information	
Date	
Interviewer	
Interviewee name & position	
Business Name	
Address	
Phone	
Email	
Website	

BUSINESS OVERVIEW

Age of Business	
Number of staff	Full-time: Part-time: Seasonal: Volunteers:

PRODUCTS & SERVICES

1. What products do you sell? (Check all that apply)

Product	Yes/No	% of Product Sales
Milk		
Cheese		
Yogurt		
Other dairy		
Meats		
Flour or other milled grain		
Baked goods/bread		
Fresh cut produce		
Frozen foods		
Canned or preserved foods		
Honey		
Wine		
Spirits		
Beer		
Hard cider		
Cider/Juice		
Other (specify)		

2. Do you process these products yourself?
Yes, process myself
No, use another processor
Both, myself and another processor

Name processors:

3. What, if any, processing equipment do you rent and/or own?
None

Owned:

Appendix 6: Processor Questionnaire

Leased:

If own and/or lease equipment, is the equipment fully utilized or under-utilized?

4. Would you like to process for others?

Y/N

Maybe

Comments:

5. How many buildings or warehouses do you own and/or lease?

Own _____ Location(s):

Lease _____ Location(s):

6. Is your current building or warehouse space fully utilized or underutilized?

N/A- Don't have building or warehouse space

Fully utilized

Underutilized

If underutilized, are you looking to share space?

Y/N

If yes, approximately how much space do you have available?

0-1,000 square feet

1,000- 5,000 square feet

5,000-10,000 square feet

10,000- 50,000 square feet

50,000-100,000 square feet

Over 100,000 square feet

7. Do you have need for additional processing space?

Y/N

If yes, approximately how much space do you need?

0-1,000 square feet

1,000- 5,000 square feet

5,000-10,000 square feet

10,000- 50,000 square feet

50,000-100,000 square feet

Over 100,000 square feet

8. Do you own and/or lease cold storage or freezer space?

Yes, Own

Yes, Lease

Yes, Own & Lease

If yes (own, lease, both), is it fully utilized or underutilized?

Fully utilized

If fully utilized, are you looking for additional space?

Y/N

If yes, approximately how much space do you need?

0-1,000 square feet

1,000- 5,000 square feet

5,000-10,000 square feet

10,000- 50,000 square feet

50,000-100,000 square feet

Over 100,000 square feet

Underutilized

If underutilized, are you looking to share space?

Y/N

If yes, approximately how much space do you have available?

0-1,000 square feet

1,000- 5,000 square feet

5,000-10,000 square feet

10,000- 50,000 square feet

50,000-100,000 square feet

Over 100,000 square feet

No

If no, do you use cold storage or freezer space elsewhere?

Where?

9. Are you HACCP (Hazard Analysis and Critical Control Points) certified?

Y/N

10. What, if any, other food safety certifications do you have?

11. Do you require farmers to be GAP (good agricultural practices) certified?

Y/N

I don't purchase ingredients from farmers.

12. We'd like to understand who you source your food products from. Could you tell us the types of suppliers you use (Check all that apply)?

Farmers	
Processors	

Appendix 6: Processor Questionnaire

Wholesale distributors	
Farm auctions	
Brokers	
Other: _____	

Comments (name suppliers):

13. What percentage of your purchases do you get from each channel?

	Percentage of Product Sales
Farmers	
Processors	
Wholesale distributors	
Farm auctions	
Brokers	
Other (specify)	

14. When purchasing food products, what do you consider “local”?

15. Do you believe there is a growing demand for local products among your customers? (Explain)

Y/N

16. Are you able to meet your customer’s demand for local food? (Explain)

Y/N

17. What are your annual gross sales?

- \$20,000,000 +
- \$15,000,000-19,999,999
- \$10,000,000-14,999,999
- \$7,500,000-9,999,999
- \$5,000,000-7,499,999
- \$2,500,000 – 4,999,999
- \$1,000,000 – 2,499,999
- \$500,000 – 999,999

- \$250,000 – 499,999
- \$100,000 – 249,999
- \$50,000 - \$99,999
- \$20,000 – 49,999
- \$10,000 – 19,999
- Less than \$10,000
- Refused

18. How much of your total annual food purchases are local? (Indicate percentage and dollar amount)

Percent: _____

Dollar: _____

19. How much in food products do you source annually from Hudson Valley? (Indicate percentage and dollar amount)

Percent: _____

Dollar: _____

20. What, if any, types of foods do you buy locally, outside of the Hudson Valley, and how much do you spend on them annually? (Check all that apply)

Product	Local, Hudson Valley	Locally, not Hudson Valley	Not local
Fresh vegetables & melons			
Fresh fruit			
Fresh cut produce			
Fluid milk			
Cheese			
Yogurt			
Other dairy			
Eggs			
Poultry			
Meat			
Grains & Hops			
Flour or other milled grain			
Baked goods/bread			
Frozen foods			
Canned or preserved foods, incl. honey			
Wine			
Spirits			
Beer			
Hard cider			
Cider/Juice			

Appendix 6: Processor Questionnaire

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21. Do you expect to pay more, the same, or less for Hudson Valley products than comparable products from other parts of New York State or the country?

More	Same	Less	Depends on product	Don't know

22. If more, how much more?

1-5%	5-10%	10-20%	20%+	Depends on product	Don't know

23. If less, how much less?

1-5%	5-10%	10-20%	20%+	Depends on product	Don't know

24. Are there fresh or value added products you would like to source from the Hudson Valley but have difficulty doing so? Explain. (Check all that apply)

Product	Difficulty sourcing
Fresh vegetables & melons	
Fresh fruit	
Fresh cut produce	
Frozen foods	
Canned or preserved foods	
Fluid Milk	
Cheese	
Yogurt	
Other dairy	
Poultry	

Eggs	
Meat	
Grains or flour	
Baked goods/bread	
Honey	
Wine/spirits/beer/hard cider	
Juice/cider	
Other (Specify)	

25. What, if any, are your biggest challenges to working with Hudson Valley farmers? (Check all that apply)

Overall lack of supply	Lack of volume from individual producers	Inconsistent or lack of quality	Seasonality	Producer communication & relationships	Don't know where to source from
Transportation	Lack of food safety certifications	Packing issues	Price	Other (specify)	N/A

Comments:

26. How do you get your ingredients from Hudson Valley farmers? (Check all that apply)

They deliver to us	We pick up from producer	The producer delivers to aggregation point	Other distributors	Other	N/A

27. What percentage of your sales is moved through the following channels? Within each channel, what percentage of these outlets are in the Hudson Valley, NYC, and other locations?

Channel	% of sales	% in Hudson Valley	% in NYC	Other
Distributors/wholesalers				

Appendix 6: Processor Questionnaire

Restaurants, food service (e.g. caterers, hotels)				
Food retailers (specialty)				
Food retailers (chain)				
Institutions (e.g. schools, hospitals, colleges)				
Individual households				
Other processors/packers				

28. Do you use any of the following terms or labels to help market your products? (Check all that apply.)

- Farm names/ brands
- Pride of New York
- Hudson Valley
- New York
- USDA Organic
- Certified Natural
- GAP (good agricultural practices)
- Greenmarket
- Animal Welfare Approved
- Hormone Free/ rBGH free
- Antibiotic free/no antibiotics
- Grass fed
- Pasture raised/free range
- Other (specify)
- None of the above

29. Is the term Hudson Valley a marketing term that your customers currently recognize as valuable?

Y/N (Explain.)

30. Do you believe there is potential for a Hudson Valley food identity or brand?

Y/N (Explain.)

31. Would you be interested in participating in a Hudson Valley branding or marketing initiative?

Y/N

Comments:

32. Do you expect to sell Hudson Valley products for a higher price than comparable products from other parts of New York State or the country?

More	Same	Less	Depends on product	Don't know

33. If more, how much more?

1-5%	5-10%	10-20%	20%+	Depends on product	Don't know

34. If less, how much less?

1-5%	5-10%	10-20%	20%+	Depends on product	Don't know

35. What are your barriers to growth?

36. How much do you spend on food purchases annually (in dollars)?

- \$20,000,000 +
- \$15,000,000-19,999,999
- \$10,000,000-14,999,999
- \$7,500,000-9,999,999
- \$5,000,000-7,499,999
- \$2,500,000 – 4,999,999
- \$1,000,000 – 2,499,999
- \$500,000 – 999,999
- \$250,000 – 499,999
- \$100,000 – 249,999
- \$50,000 - \$99,999
- \$20,000 – 49,999

Appendix 6: Processor Questionnaire

\$10,000 – 19,999
 Less than \$10,000
 Refused

FOOD HUB MODEL

As I mentioned, we are researching the potential need for local food infrastructure in the Hudson Valley to complement existing businesses and infrastructure. We would like to ask you some questions about potential facilities and services that could be developed to help farmers aggregate, process, distribute, and market local foods.

37. Are there any current efforts in the Hudson Valley that you know of to coordinate farmers and help with shared aggregation, processing, marketing and distribution? If so, explain.

38. How interested would you be in **buying through** a facility in the Hudson Valley?

1- very uninterested	2- uninterested	3- neutral	4-interested	5- very interested

39. If you were to **buy through** an aggregation facility or shared market in the Hudson Valley, what products do you think you'd like to **buy through** that facility? (Check all that apply)

Fresh vegetables & melons	Fresh fruit	Fluid Milk	Dairy products (e.g. cheese, yogurt, ice cream)	Grains & Hops	Baked Goods
Eggs	Meat	Poultry	Frozen foods	Canned or preserved foods	Wine
Spirits	Beer	Hard Cider	Juice/cider	Fresh cut produce	

Other? _____

40. What are the most important factors that would influence whether you would buy through a new facility in the Hudson Valley? Check off top three factors.

Lower prices/ affordability	High quality products	Access to local foods	Convenient location	Reliable delivery service	Ease of ordering products
Traceability of foods	Food safety and facility conditions	Diversity of products available	Other (specify)		

41. How interested would you be in selling through a facility in the Hudson Valley?

1- very uninterested	2- uninterested	3- neutral	4-interested	5- very interested

42. If you were to sell through an aggregation facility or shared market in the Hudson Valley, what products do you think you'd like to sell through that facility?

Fresh vegetables & melons	Fresh fruit	Fluid Milk	Dairy products (e.g. cheese, yogurt, ice cream)	Grains & Hops	Baked Goods
Eggs	Meat	Poultry	Frozen foods	Canned or preserved foods	Wine
Spirits	Beer	Hard Cider	Juice/Cider	Fresh cut produce	

Other? _____

Appendix 6: Processor Questionnaire

43. What could be your obstacles in participating? (check all that apply)

- Insufficient volume/product
- Transportation
- Packaging
- Doesn't fit my business model
- Other _____

44. Would you be interested only in seasonal use or year-round use of a potential Hudson Valley aggregation and wholesale market facility? (Check one)

- Seasonal
- Year-round

45. How interested would you be in renting space at a potential facility?

1- very uninterested	2- uninterested	3- neutral	4-interested	5- very interested

46. What are the features or services of a potential facility that you would be most interested in?

Cold/freezer storage space	Grading/packing Copacking/ Palletizing products	Space for processing	Access to processing equipment	Certifications & Training (GAP, Organic, food safety, Other)	Product development assistance	Market for wholesale transactions
Market for retail transactions	Access to Hudson Valley customers	Marketing and branding assistance	Transportation and logistics support	Networking with other businesses	Business planning assistance	Easier access to local food ingredients

Other _____

47. If the proposed facility had an online ordering platform for customers, how interested would you be in using it for your business to take and fill orders?

1- very uninterested	2- uninterested	3- neutral	4-interested	5- very interested

48. What location would be most convenient for your business, if you were to use this type of facility? (Check one)

- Anywhere east of the river
- Anywhere west of the river
- Specific county (name) _____
- In NYC
- Within _____ miles of my business
- Other (name) _____
- No preference

49. If a potential aggregation and marketing facility were to be developed in the Hudson Valley, would you recommend it be managed by:

Local, state, federal government	Farmers cooperative	Buyers cooperative	A not-for-profit	A private entity	No preference

CLOSURE

50. Is there anything else you would like to share that we haven't covered?

51. Is there anyone else you think we should be speaking with?

Thank you for taking time to talk with me today. I really appreciate your input. If we have any follow up questions to ensure we have accurately recorded your answers, would you mind if we called you again?

Our research will continue through the remainder of this year and we hope to release a report at the end of this year. We would be happy to share our final results with you if you would like. *(Note if interviewee requests a copy of the report.)*



