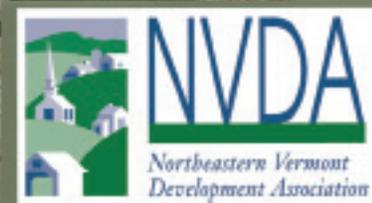


REGIONAL FOOD SYSTEM PLAN FOR VERMONT'S NORTHEAST KINGDOM



EXECUTIVE SUMMARY - JUNE 2011

ACKNOWLEDGEMENTS

The development of the Regional Food System Plan for Vermont's Northeast Kingdom was a truly collaborative effort by many individuals and organizations. The project was funded by a Regional Innovation Grant from the United States Department of Labor via the Vermont Department of Labor, and sub-granted to the Northeastern VT Development Association (NVDA), Steve Patterson, Executive Director. NVDA made a contract award to the Center for an Agricultural Economy.

Project Manager and Author: Erica Campbell, Regional Food Systems Planner at the Center for an Agricultural Economy

Principal Investor: Monty Fischer, Executive Director at the Center for an Agricultural Economy

Grant Manager: Dave Snedeker, Northeastern Vermont Development Association

Design and Layout: Emily Nicolosi www.emilynicolosi.com

Maps: Gail Aloisio, Northeastern Vermont Development Association and Dan Erikson, University of Vermont

Cover Photo Credits:

Chicken, Photo courtesy of Green Mountain Farm-to-School

Marielle Bonin makes strawberry pies for sale at Peak View farm stand in Orleans, Photo: Bethany M. Dunbar
Craftsbury Academy students at the VT Junior Iron Chef competition, Photo: Anna Schultz

Cows and Sky at Jasper Hill Farm. Photo: Vince Razionale

Vegetables, Photo Courtesy of Pete's Greens
Fresh-picked cherry tomatoes held by a student participating in a farm-to-school program, Photo courtesy of Green Mountain Farm-to-School

Cheesemaker Mateo Kehler at Jasper Hill Farm, Photo: Lark Smotherton

Greenhouse at Pete's Greens, Photo: Elena Gustavson
Louis Pulver of Surfing Veggies in Walden sells his wares at the monthly winter farmers' market in Craftsbury, Photo: Bethany M. Dunbar

NEK Food System Advisory Committee:

Dave Snedeker, Northeastern Vermont Development Association, Grant Manager

Monty Fischer, Center for an Agricultural Economy, Hardwick

Andy Kehler, Jasper Hill Farm, Greensboro

Katherine Sims, Green Mountain Farm to School, Newport
Bill McMaster, University of Vermont Extension, Newport
Mike Welch, Northern Community Investment Corporation, St. Johnsbury
Eric Paris, Tamarlane Farms and the Freighthouse Restaurant, Lyndonville
Ted Hartman, St. Johnsbury Area Local Food Alliance and Sky Island Farm, Peacham
Gail Aloisio, Northeastern Vermont Development Association, St. Johnsbury
Anna Schultz, Sterling College, Craftsbury

Center for an Agricultural Economy Board of Directors:

Tom Gilbert, Highfields Center for Composting

Andy Kehler, Jasper Hill Farm

Tom Sterns, High Mowing Seeds

Andrew Meyer, Vermont Soy

Annie Gaillard, Buffalo Mt. Coop and Surfing Veggie Farm

Joanna Laggis, Laggis Brothers Dairy

Neil Urie, Bonnieview Farm

Pete Johnson, Pete's Greens

Linda Ramsdell, Galaxy Bookshop and Claire's Restaurant (board member through March 2011)

Center for an Agricultural Economy Staff:

Monty Fischer, Executive Director

Elena Gustavson, Program Director

Heidi Krantz, Business Advisor

Heather Davis, Graduate Research Fellow

Louise Calderwood, Interim Director, Vermont Food Venture Center

Thank you to the following individuals who were interviewed or provided information:

NEK-based Contacts:

Val Simmons, Hardwick Elementary; Angus Monroe, former long-time Buffalo Mt Coop Staff; Robin

Cappuccino, Wheelock Mt Farm and Hardwick

Community Dinner; Jon Ramsay, Vermont Land Trust

and Greensboro Farmer; Eileen Illuzzi, North Country

Career Center; Richard Hoffman, North Country

Career Center; Tim Gustafson-Byrne, North Country

Career Center; Mel Hastings, Vermont Green Jobs;

Frances Woodard, North Country Career Center; Bill

Half, Harvest Hill Farm; Will Wooten, Sterling College;

Tim Patterson, Sterling College; Anne Obelnicki,

Sterling College; Greg Garner, Karme Choling; Jenny

Nelson, Senator Sanders' staff; Jon Freeman, Northern

Community Investment Corporation; Dennis Kauppila,

UVM Extension, St. Johnsbury; Heather Burt, St. Johnsbury ALFA; Melissa Bridges, St. Johnsbury ALFA/ St. Johnsbury Coop; Steven Campbell, USDA-RD, St. Johnsbury Area Director; Lisa Viles, Area Agency on Aging for Northeast VT; Lallie Mambourg, Area Agency on Aging for Northeast VT; Jenny Patoine, Area Agency on Aging for Northeast VT; Curtis Sjolander, Mountain Foot Farm; Michelle Devost, ST J ALFA; Laura Ruggles, Northeastern Vermont Regional Hospital; Kerry Gemmett O'Brien, Natural Resource Conservation District; Gloria Bruce, Northeast Kingdom Travel and Tourism Association; Ann Nygard, Lyndon State College; Adam Vignue, Lyndon State College Food Service Director; Craig Locarno, Chef / Manager, Lyndon Institute; Trish Sears, Newport City Renaissance Corporation; Jennifer Black, Northeast Kingdom Community Action; Paul Dreher, Newport City Zoning Administrator; Kenn Stransky, Norton Planning Commission; Joel Cope, Brighton Administrative Assistant; Cathy Conway, NCIC, Lancaster, NH; Marjorie Tyroler, Centre Local de Development, Quebec; Christopher Flack, Green Mountain Farm-to-School; Brian Titus, Woods Edge Farm; Mary Grant, Rural Community Transportation; Doug Morton, Northeastern Vermont Development Association.

Contacts outside NEK:

Ellen Kahler, Vermont Sustainable Jobs Fund; Kit Perkins, Vermont Sustainable Jobs Fund; Allen Freund, Upper Valley Produce; John Fischer, Vermont Department of Education; Tao Sun, University of Vermont; Chris Koliba, University of Vermont; Jess Hyman, Center for Rural Studies; Erin Roche, Center for Rural Studies; Rachael Schattman, Center for Sustainable Agriculture; Ben Waterman, Center for Sustainable Agriculture; Brian Nordor, Former Director of the Vermont Food Venture Center; Cheryl King Fischer, New England Environmental Grassroots Fund; Joseph Kiefer, Food Works; Jed Davis, Cabot Cheese; and Ela Chapin, Vermont Farm Viability Enhancement Program.

Thank you to University of Vermont professors Chris Koliba and Tao Sun, and the following graduate students in the Master of Public Administration program who conducted a governance network analysis of the NEK food system: Rachel Hanish, Greg Hanson, Brian Kelly, Nick Meltzer, Alex Ross, and Maureen Reilly.

A special thanks to Bethany M. Dunbar, co-editor of the Chronicle in Barton, for providing photos. Her book about farmers and food in the Northeast Kingdom, Kingdom's Bounty, is due to be published this summer. For more of her work, please take a look at www.vermontfeature.wordpress.com and www.bartonchronicle.com.

EXECUTIVE SUMMARY

INTRODUCTION

While many people may regard local food as a modern development, it is not a new trend in the Northeast Kingdom. People have been growing or hunting their own food for centuries, and sharing this bounty with neighbors. Before the proliferation of cheap modes of transportation and industrial farming and processing, all food systems were regionally based. From the Abenaki Indians who taught the settlers about gathering wild food sources and making maple syrup to the sheep farmers in the 18th and 19th century, farming and food production have been an integral part of life in the area. In the late 19th Century and early 20th Century, French Canadian dairy farmers settled in the region, and ever since, the primary agricultural production has been largely fluid milk. Unfortunately, with wildly unstable milk prices and rising production costs, dairy farmers struggle to stay in business.

Fortunately, the Northeast Kingdom (NEK), like all of Vermont, has seen an “agricultural renaissance,” spurred by the desire for people to reconnect with the food they eat, and a desire for farmers to diversify and seek to add value to their production. The traditional emphasis on local food has once again returned in a contemporary sense, called the local food movement. Whether consumers are concerned with how far their food travels or just want to know who grows their food, or farmers want to have relationships with their customers or seek to be stewards of the land, more people are realizing the benefits of local food. The movement may be in part spawned by urbanites, but it is also evident in the rural NEK, where it is intertwined with a deeper sense of history and connection to the land.

The NEK, with its 2,000 square miles of land (1.3 million acres) is the least densely populated and most undeveloped region of Vermont. Almost 20% of the land in the NEK is conserved. Agricultural and food processing are strong components of the economy. The NEK is also the poorest area of the state, and has the highest unemployment rates.

As evident in the Hardwick area, there has been substantial growth in the last few years in value-added businesses and the overall agricultural economy. The *Regional Food System Plan for Vermont’s Northeast Kingdom* (herein referred to as “the NEK Plan”) is an attempt to develop a vibrant agricultural economy and food system in the entire NEK region through a regional planning process that builds on the strengths of both regional planning and local, decentralized planning. In recognition of the importance of the growing agricultural economy, Northeastern Vermont Development Association (NVDA), the regional planning commission as well as the regional economic development corporation, sought to undertake a plan to further develop the food system in its three-county planning region.

The Center for an Agriculture Economy in Hardwick was hired to lead the development of the NEK Plan. For twelve months, CAE staff inventoried the food system assets of the NEK and reached out to over 100 individuals to help develop goals for the food system and the strategies needed to accomplish these goals. The full printed plan is available from NVDA on a limited basis and is available to the public to download online at www.nvda.net. The plan is also available for download at www.hardwickagriculture.org.

FOOD SYSTEMS MODEL

The CAE developed a conceptual model of the food system based on its own working model and on other local food systems models in the country, including the Vermont Farm to Plate food system model. This “soil to soil” model of the NEK food system has seven distinct elements: *Production Inputs, Production, Processing, Wholesale Distribution, Retail Distribution, Consumption and Consumer Demand, and Waste Management*. Cross-cutting issues impact each component of the food system and many of them, such as food security, energy, education, workforce development, and financing, provide critical external support. The NEK plan is built upon this conceptual soil-to-soil model. The loop is “closed” between waste management (composting) and production inputs (soil). This model guided the NEK planning process.



GOALS AND RECOMMENDATIONS FOR THE NORTHEAST KINGDOM

Through extensive stakeholder participation, 10 broad goals were developed for the NEK food system. Over 45 individuals were interviewed from all aspects of the food system, and over 75 participants attended public planning sessions to provide feedback on draft goals and recommendations. Each broad goal has a set of recommended strategies and action items aimed at reaching that goal. The full plan includes specific targets and measures for each goal, as well as a discussion and prioritization of recommended strategies and action items.

GOAL 1.

The Northeast Kingdom will have increasingly localized, affordable, and sustainable farming and production inputs including energy, fertilizer, seeds, forage, and feed.

1.1. Invest in renewable energy for food production and energy efficiency programs to enable a steady supply of energy for food producers. Regional, local, or on-site energy-production facilities, such as biomass, solar, and wind, can be used by farmers to help keep costs of production down and reduce dependency on fossil fuels. Farms should be provided technical support in energy efficiency.

1.2. Efforts should be made to increase the amount of on-farm power generation and the use of renewable energy for farming and food production. On-farm or community-based power generation should be promoted, such as anaerobic digesters, solar, wind, and biomass.

1.3. Develop a regional soil monitoring index that includes information from farmers, national soil surveys, and data from relevant organizations. Funding should be considered for monitoring soil as well as best practices that encourage healthy soils.

GOAL 2.

More food will be produced in the Northeast Kingdom for local and regional markets; production will continue to diversify; and farmers and food producers will be able to be profitable.

2.1. Better understand the needs of diversified, multi-functional farming to ensure these farms are supported. A study of the challenges (e.g., safety, etc.), activities, and profitability of diversified farms could help identify programs to better serve the overall needs of these farms.

2.2. Seek opportunities to promote the production of niche markets that are not being widely produced in the NEK if there is evidence of market demand: aquaculture, honey, beans, poultry, hogs, sheep and goats. If there is not a known market demand, conduct feasibility studies on these products. This can be accomplished through: secondary career and technical education, adult educational training programs and workshops, financing opportunities, marketing and feasibility studies, matchmaking events, and by having adequate processing and distribution facilities to meet the needs of production.

2.3. Develop a comprehensive list of Vermont-produced raw ingredients for value-added producers that include appropriate contacts and information on sourcing items such as honey, maple sugar, flour, beans, vegetables, fruits, beef, pork, poultry, lamb, and cheese.

GOAL 3.

The NEK food processing and manufacturing sector will grow, increasing value-added food production and providing farmers and producers with additional local and regional markets.

3.1. Process NEK-grown fruits and vegetables at community kitchens and processing facilities (e.g., the Vermont Food Venture Center) for various markets including institutions. A concerted matchmaking effort is needed to 1.) find local food producers to grow and sell specific quantities of items to be processed and 2.) broker relationships between these processed foods and institutions. Further, processing facilities can serve as training sites for workforce development and as a facility to hold canning, cooking, and food processing classes for the public.

3.2. Address the bottleneck in meat slaughter by increasing meat processing capacity and by helping farmers to stagger their slaughter dates throughout the year rather than only reserving dates in the fall. This may require technical assistance, education, and financial incentives to over-winter animals so more spring and summer slaughter can occur. The Northeast Kingdom also needs additional commercial meat processing capacity and more trained meat cutters to alleviate the seasonal bottleneck at slaughterhouses.

3.3. Explore opportunities in the NEK to support additional food processing endeavors; for example, mills along the Connecticut River and other abandoned or underutilized facilities may be good sites to promote food system businesses, such as hydroponics, aquaculture, or specialty food businesses.

3.4. Gauge the demand for local milk, and if there is adequate demand, explore the development of a milk-bottling facility in the NEK that could bottle milk from farms to produce enough milk to be served in all NEK schools and institutions. The NEK could serve as a pilot community for examining the demand for local milk, for local milk bottling, and for on-farm micro-processing in Vermont.

3.5. Expand the practice of sending dairy beef (culled cows) to an NEK slaughterhouse to be processed into ground beef to sell to public schools and institutions. A full feasibility study of this practice is needed as well as a program to improve the perception and educate consumers, wholesale, and retail markets about dairy beef.

GOAL 4.

There will be a sufficient supply of storage, aggregation, distribution, telecommunications, and other forms of on-farm and commercial infrastructure to meet increasing year-round consumer demand.

4.1. Create more distribution opportunities, including transportation, aggregation, and storage, for internal freight movement (e.g., Greensboro to Newport) and inbound/outbound movement of food systems/agricultural products. Coordinate the transportation system to achieve maximum transportation efficiency (e.g., aggregation centers, full loads, etc.), which may require a freight plan for NEK agricultural products (e.g., food, fiber, forest products, etc.).

4.2. Expand and develop food hub models of distribution in the NEK, including third party brokerage systems, producer cooperatives, and aggregation and storage infrastructure.

4.3. Build a food distribution warehouse in either a newly built or renovated building with easy access to Interstate 91 to aggregate local food from the area. This facility should include cold and freezer storage.

GOAL 5.

The demand for local food will increase, local food consumption will rise, and appropriate marketing channels will help drive up the demand for local food, including agritourism, regional marketing, buy local campaigns, matchmaking and brokerage services, and education and awareness.

5.1. Support farmers seeking to sell to wholesalers and restaurants by assisting with either scaling up production and/or encouraging aggregation by food hubs or producer coops. Because grocery stores typically cannot deal with many small producers and acquire the majority of food through large wholesale distributors, food systems support groups can assist food producers interested in selling to these markets, such as addressing GAP certification, distribution requirements, etc.

5.2. Serve more local food at institutions. This will require consumer demand (e.g., from college students) as well institutional administrative support.

5.3. Form multi-farm CSA or multi-farm buying club cooperative, which may allow household and workplace CSA members more options and could provide increased consumer interest to become CSA members.

5.4. Determine the necessary actions to make the current winter farmers' markets more economically viable, such as marketing and education. Also assess whether there is a demand for more winter farmers markets in the NEK. To help make these markets more viable, farmers' market boards could consider marketing to seasonal tourist markets (e.g., ski resorts), sourcing more variety of products, and developing a website to highlight vendors and products.

5.5. Market local foods and educate the public (individuals, tourists, businesses, and institutions) about the benefits of using local food to increase demand for locally-grown products.

GOAL 6.

Farm and food wastes will be recycled to produce compost and energy that will be used as production inputs.

6.1. Support existing programs and facilities that support food and farm waste recycling (also called nutrient management), and develop new programs and infrastructure. A major education campaign is needed to recycle nutrients into compost for soil, energy, or for animal feed. Actions include: increased training opportunities for on-farm and on-site composting, composting education and marketing, sustainable farming methods to reduce wastes/reuse wastes (closed-loop nutrient systems), policies that promote/require a percentage of composting by institutions, schools, and waste management companies, and shared facilities and infrastructure to transfer and store compost.

6.2. All waste management districts should have adequate infrastructure to facilitate food waste and organic matter recycling, including transportation.

GOAL 7.

NEK residents will increasingly become more food secure; will have economic access to fresh, healthy, and local foods; and food-related health outcomes will be improved.

7.1. Develop a comprehensive gleaning program in the NEK that includes the integration and coordination of new and existing community-based efforts, agricultural gleaning, retail and food service recapture, and aggregation/distribution facilities.

7.2. Expand electronic benefit transfer (EBT) machine usage for SNAP (Supplemental Nutrition Assistance Program) recipients and Farm to Family Coupons to every farmers' market in the NEK. The region could also consider an incentive program for using these payments, such as an additional percentage off.

7.3. Form a diverse region-wide NEK Food Security Task Force to address hunger and food insecurity, particularly as it relates to the regional food system. Duties could include: communicating food security needs to broader audiences and developing projects and programs to improve food access, affordability, availability, and utilization of fresh, healthy, and local foods.

GOAL 8.

Agricultural land will remain open and available to future generations of farmers and the food system will have increasingly positive impacts on environmental quality.

8.1. Develop new and support existing programs to increase access to farm land, including new localized/regional efforts to help place new and existing farmers on underutilized land, both through land sales and leases. The NEK could develop a farm land inventory and GIS database of potential land owners willing to lease land for agricultural use to farmers that is easily accessible to new and existing farmers. Also, develop an NEK-based land trust farm fund to raise more funds for farmland conservation.

8.2. Encourage sustainable production and waste management methods that reduce negative environmental impacts, including the use of grass-fed livestock/rotational grazing methods. Efforts to study farm viability of grass-fed farming and other sustainable farming could further help promote these practices.

GOAL 9.

Food systems and agriculture education, training, and workforce development will continue to be developed and offered in primary, middle, secondary, and post secondary schools and training programs, and the labor force will meet the needs of the food system sector.

9.1. Expand and coordinate food systems and agricultural education programs in secondary and post secondary schools. Each technical and career center in the NEK should have a sustainable food systems program offered as both a secondary educational program and as an adult training program, with the career pathways including: diversified agriculture; meat and dairy processing; value-added entrepreneurs; and culinary arts with a local food/culinary tourism emphasis. Develop articulated agreements between secondary schools and colleges to earn college credits and provide a continuum for food systems education.

9.2. Expand farm-to-school programs and school gardens to every public elementary, middle, and high school in the Northeast Kingdom. Currently, there are several farm-to-school efforts, and these should also be coordinated to maximize effectiveness and to encourage community buy-in.

9.3. Coordinate existing and develop new internship and apprenticeship programs for farms and food systems businesses in the NEK.

GOAL 10.

Support and leadership for food systems (e.g., economic development, workforce development, financing, research, marketing, business planning, technical support, etc.) in the Northeast Kingdom will be adequately coordinated to provide maximum support and these support organizations will work to meet the needs of producers and to provide healthy, fresh, and affordable local food for all residents.

10.1. Economic development organizations continue to support and fund farming and other food systems business endeavors as a viable economic development tool. Private investment must also be encouraged for food production and for the marketing of local foods. Identifying fruitful opportunities for investors will be essential.

10.2. NEK food system organizations work together to leverage more funds from philanthropic organizations and state and federal government sources. An NEK food systems collaborative, similar to the current NEK Collaborative, could help foster relationships to leverage additional financial resources.

10.3. State-wide commercial lenders, as well as regional and municipal revolving loan funds, should increasingly consider funding agricultural and food system enterprises. Communities can also partake in “slow money” lending to help with smaller-scale projects.

10.4. Towns and organizations coordinate to promote agritourism in the NEK, including: on-farm tours; local foods in restaurants, inns, and bread and breakfasts; and tasting centers and other local food business tourist destinations. Develop an NEK-brand of products and agritourism offerings.

10.5. Ensure the continuation of free or affordable business assistance that is critical for businesses to start and to expand. Funds must be continually pursued to keep programs staffed, and better coordination is needed to ensure effective coverage and communication.

10.6. Develop a “how-to” food systems planning guidebook to support the inclusion of food systems and agricultural considerations in local town plans and zoning ordinances that includes accessible data sources, methodology, mapping resources, and sample recommendations such as land use polices that could support agriculture and food production at the local level.

10.7. Collaborate with Vermont Farm to Plate Network to coordinate implementation of the NEK Plan and the F2P Strategic Plan.

FOOD SYSTEMS ASSETS IN THE NORTHEAST KINGDOM

To determine the current state of the regional food system, assets were inventoried. We used many primary and secondary data sources. The U.S. Census of Agriculture provided the majority of production data at the county level. We also developed a NEK Asset Inventory of farms, food production businesses, processors, farmers markets, retail stores, consumption locations, and support system groups. NVDA staff developed maps from data collected for the NEK Asset Inventory. More detailed analysis of the NEK food system can be found in Chapters Three and Four of the full plan.

Production Inputs

Production inputs are critical in order to achieve a vibrant and sustainable food system. These inputs include: land (including land use; land conservation and soil conservation), seeds/feed/forage; labor; energy; soil; water; and infrastructure.



Beautiful cows and the blue sky at Jasper Hill Farm.

LAND USE: The NEK remains largely undeveloped and 80% of the land is forested (USDA Forest Service, 1997). Yet 95% is undeveloped, indicating there is potential to support more farming, food production, and forest products (NVDA, 2010). Land in the region is comparatively more affordable than other areas of Vermont and New England – a notable advantage in the NEK for future agriculture and food system development.

LAND CONSERVATION: A substantial portion of the land in the NEK is protected. Of the 1.3 million acres of land in the region, at least 250,000 acres are conserved publicly or privately, almost 20% of the total land (U.S. Census of Agriculture 2007). There are many groups working to conserve more farm land, including The Vermont Land Trust.

SOILS AND NATURAL RESOURCE CONSERVATION: Healthy soil is a critical input for farming. There are several groups in the NEK working to help farmers limit soil loss and maintain soil quality. The NEK contains designated Prime Agriculture Soils, as well as soils designated by Vermont as Soils of Statewide Importance. Lands with prime agricultural soils should be protected for future agricultural uses, and steps must be taken to reduce the degradation of topsoil on farms.

ENERGY: Energy is a significant component of agricultural inputs: gasoline, fuel, oil, and utilities account for 22% of all farm input costs in the NEK (U.S. Census of Agriculture 2007). As petroleum-based energy costs continue to rise, farmers and food systems businesses are seeking other means of fuel inputs, including energy efficiency, solar, biomass, micro-hydro, and wind. Some farms produce energy: 2.65% of Vermont farms and 1.83% of farms in the NEK produce some amount of their own energy.

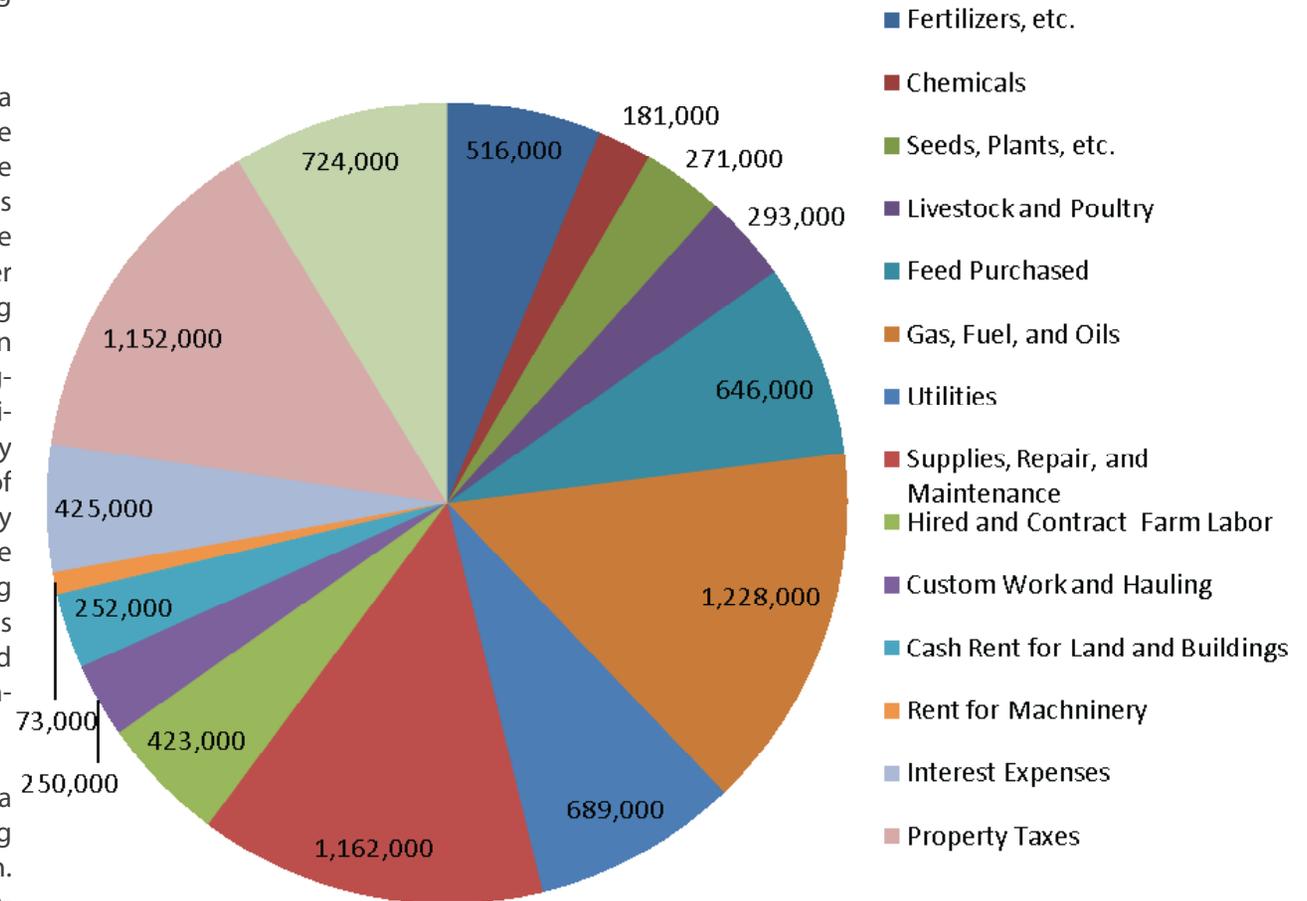
SEEDS, FEED, AND FORAGE: Farmers need a steady, affordable supply of high quality seeds, feed, and/or forage. Many farms grow their own forage, especially hay. There are several companies in the region that provide these farming inputs. While much of the hay is grown in the NEK, most seeds and feed are sourced from national and multi-national corporations. Increasingly, farmers and the general pub-

lic are concerned about genetically modified (GM) seeds. High Mowing Seeds is the region's only seed company, providing organic seeds, many grown in the area.

LABOR: Labor is an essential input for a vibrant agricultural economy. There are 340 farms in the NEK that hire over one thousand laborers per year (U.S. Census 2007). Roughly half of these workers are seasonal and work less than 150 days per year. Immigrant labor has been increasing in recent years in Vermont, especially on dairy farms. The 2007 U.S. Census of Agriculture reports 18 farms that hired immigrant labor force. Women are increasingly accounting for a greater percentage of principal farm operators. Orleans County had a sizable increase in principal female operators from 2002 to 2007, increasing from approximately 10% to 17%. Labor is also a critical input for non-farming food systems businesses, including food manufacturing.

WATER: While water availability is not a current issue nor will likely be in upcoming years, water quality is a major concern. Livestock generate many tons of manure each year that contain high amounts of phosphorus that, through erosion of soil, gets washed into rivers and streams. The phosphorus makes its way to lakes creating algae blooms. Fortunately, there are best management practices that help mitigate phosphorus run-off, including stream bank stabilization, riparian buffers, nutrient management, and waste management technology.

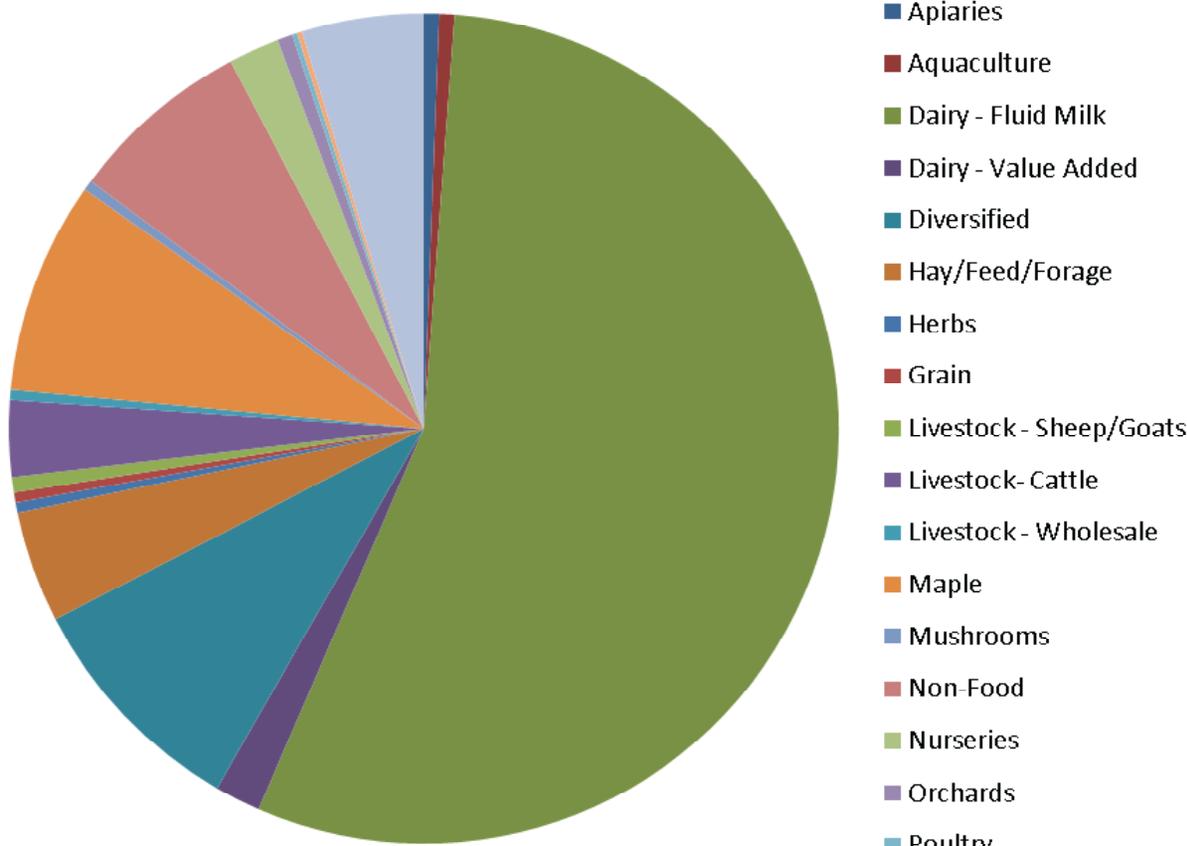
Figure 1. Production Costs for Farms in NEK (\$)



Source: 2007 U.S. Census of Agriculture

INFRASTRUCTURE: There are many kinds of farming infrastructure needed for food production, from simple hand tools to complex machinery. Farming equipment includes tractors, planting equipment and tools, and vegetable washers. Other farm infrastructure includes grain storage, hoop houses, and barns. Farmers often face high production costs, as needed inputs such as fuel, feed, and labor can be both expensive and variable. Figure 1 illustrates the various production costs for farming.

Figure 2. Types of Farms in the Northeast Kingdom



Source: NEK Asset Inventory, 2011

(only a few non-food producing farms are included in the inventory). Figure 2 illustrates the types of farms in the NEK.

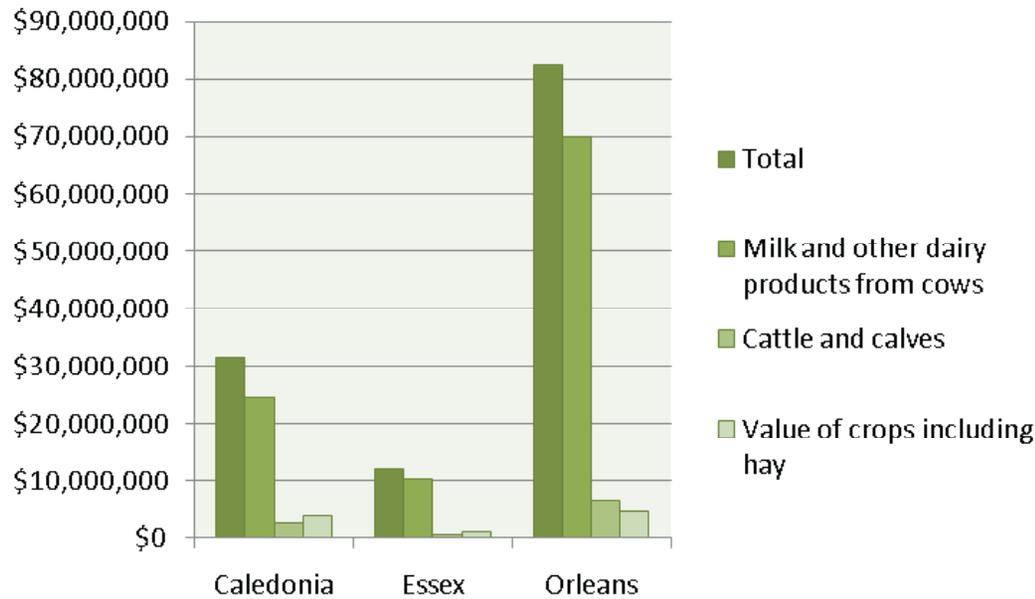
Agriculture production is a significant contributor to the regional economy. There was a total of \$157,579,000 worth of agricultural products sold in the NEK in 2007 (U.S. Census 2007). Orleans County produces fifty-two percent (52%) of the NEK farm products, while Essex County produced only eight percent (8%). By far, the largest agriculture product in the NEK is milk and other dairy products from cows, which totaled \$104,953,000 in sales in 2007 and makes up two-thirds of all agriculture products in the NEK. The next largest agriculture product in the NEK is cattle, with a 2007 value of \$10 million. Figure 3 illustrates agricultural sales from top grossing products in the NEK.

DAIRY: Dairy farms are the backbone of the agricultural economy in the region and are the prevailing agricultural land use. Dairy accounts for approximately 67% of all agricultural sales in the NEK and 73% of agriculture sales in Vermont. The NEK Asset Inventory shows 262 dairy farms producing fluid milk and dairy in the NEK (and immediate bordering areas), and the 2007 Census lists 249 farms in the NEK. Vermont is the largest dairy producer in New England, providing 60% of the regional total. Most dairy farmers in Vermont and in the NEK belong to farmer cooperatives that aggregate milk supply, manage trucking and processing, and find markets for the milk. The number of dairy farms has steadily declined over the last few decades. The volatile milk market has caused severe challenges for Vermont's dairy farmers and its entire agricultural system. However, there are a few potential opportunities at the regional and local level

Production

The NEK has 1,260 farms according to the 2007 U.S. Census of Agriculture. The NEK Asset Inventory contains over 500 farms, yet about 10% of these are just over the border in New Hampshire, Southern Quebec, and Lamoille, Franklin, Washington counties of Vermont. For the NEK Asset Inventory, we focused on collecting working farms, or farms that are actively producing food and crops, and selling these products. The large discrepancy in the total number of farms in the U.S. Census and the NEK Assets inventory is mainly due to the fact that many farms listed in the Census of Agriculture are classified as farms but are not active working farms, or they do not produce food

Figure 3. Agriculture Sales from Top Grossing Products



Source: 2007 U.S. Census of Agriculture

that may help some conventional farmers stay afloat. These options include transitioning to organic (providing a higher and more stable price), producing value-added dairy products, selling raw milk directly to consumers, and processing culled cows into dairy beef.

LIVESTOCK AND POULTRY: The demand for Vermont grown meat and eggs is on the rise. The NEK has a variety of livestock and poultry production with room to potentially increase supply. In 2007, there were 211 farms with beef cows, but only 13 of these farms had more than 20 cows, and almost 80% have less than nine cows. Cattle and calves are the second highest agricultural sales in the NEK next to dairy, with almost \$10 million in sales in 2007. In 2007, 168 farms in the NEK sold poultry products. The vast majority (over 90%) of the poultry inventory were layers for egg production. Only 33 farms had meat birds (broilers, meat-type chickens, and turkeys), and of these only nine farms reported selling products with all but one farm selling under 2,000 birds. Twenty-four (24) farms also reported having ducks (for eggs and/or meat) and 15 had geese. There are a few farms with

goats, sheep, and lambs in the NEK. Seventy-three (73) farms have 1,019 goats, and 70 farms have 1,877 sheep and lambs. Lazy Lady Farm in Westfield has been making award-winning goat cheese for 24 years. Bonnieview farm also raises sheep and makes sheep milk cheese. Hope Farm also makes sheep cheese. There are several farms that raise sheep and goats for their fleece, and a few farms that sell lamb, mutton, or goat meat.

VEGETABLES AND FRUITS: There are 162 areas of vegetables harvested in the NEK (2007 Census of Agriculture), an average of almost 3 acres per 1,000 people. Vegetables are grown at 79 farms, berries on 42 farms on 61 acres, and fruit at 29 farms on 84 acres. Caledonia County has the most farms harvesting vegetables for sale. The NEK Asset Inventory contains 24 farms primarily selling vegetables and fruits. Almost all of the “diversified” farms (46) also sell vegetables and/or fruits.

The NEK is home to several successful vegetable farms producing a wide variety of vegetable and fruit crops, including Riverside Farm in East Hardwick, Harvest Hill in Walden, Pete’s Greens in Craftsbury, and Berry Creek Farm in Westfield. Vegetable and fruit producers face a variety of challenges. One of the greatest challenges is the region’s growing season. Farmers are increasingly using greenhouses, hoop houses, and other season extension technologies to lengthen growing time. Farmers are also growing more storage crops, including potatoes, carrots, beets, turnips, rutabagas, garlic, and winter squashes.

MAPLE: Maple production still remains a strong agricultural product in the region, with 237 farms listed in the 2007 Census of Agriculture as maple producers. There was 76,000 gallons of maple syrup



The sugarhouse at Osborne Family Maple.

produced in 2007, down from 80,000 gallons in 2002. In that time, the NEK lost 86 maple syrup producers from 2002 to 2007. Fortunately, technology has improved and the production levels have only decreased slightly. The NEK Asset Inventory lists only 46 farms as sole maple producers in the region (no other products except maple). Maple continues to be an important product in agriculture.

HONEY: According to the 2007 Census of Agriculture, 28 farms in the NEK keep bees and collect honey, with a total of 348 hives and 11,681 pounds of honey collected annually. This is only 3% of Vermont's honey production. There is seemingly a larger market for honey and honey products. The NEK Asset Inventory lists only three apiaries, so it is likely that many farms that keep bees do so as a part of diversified farming.

FISH AND AQUACULTURE: The 2007 Census of Agriculture reports two farms in the NEK with aquaculture. There have been some farmers that have expressed potential interest in learning about aquaculture, and it appears to be a possible future new market, particularly for restaurants. Mountain Foot Farm in Wheelock has raised spring-fed trout for over two decades. Its owner suggests there is more demand for locally raised farmed fish.

MUSHROOMS: The NEK Asset Inventory lists two mushroom farms. No mushroom farms were reported in the 2007 Census of Agriculture. Wild Branch Farm grows a variety of culinary and medical mushrooms. Vermont-grown mushrooms can be found at most Vermont Coops and several restaurants buy mushrooms, both wild and cultivated. There would likely be enough demand if more NEK farmers grew mushrooms.

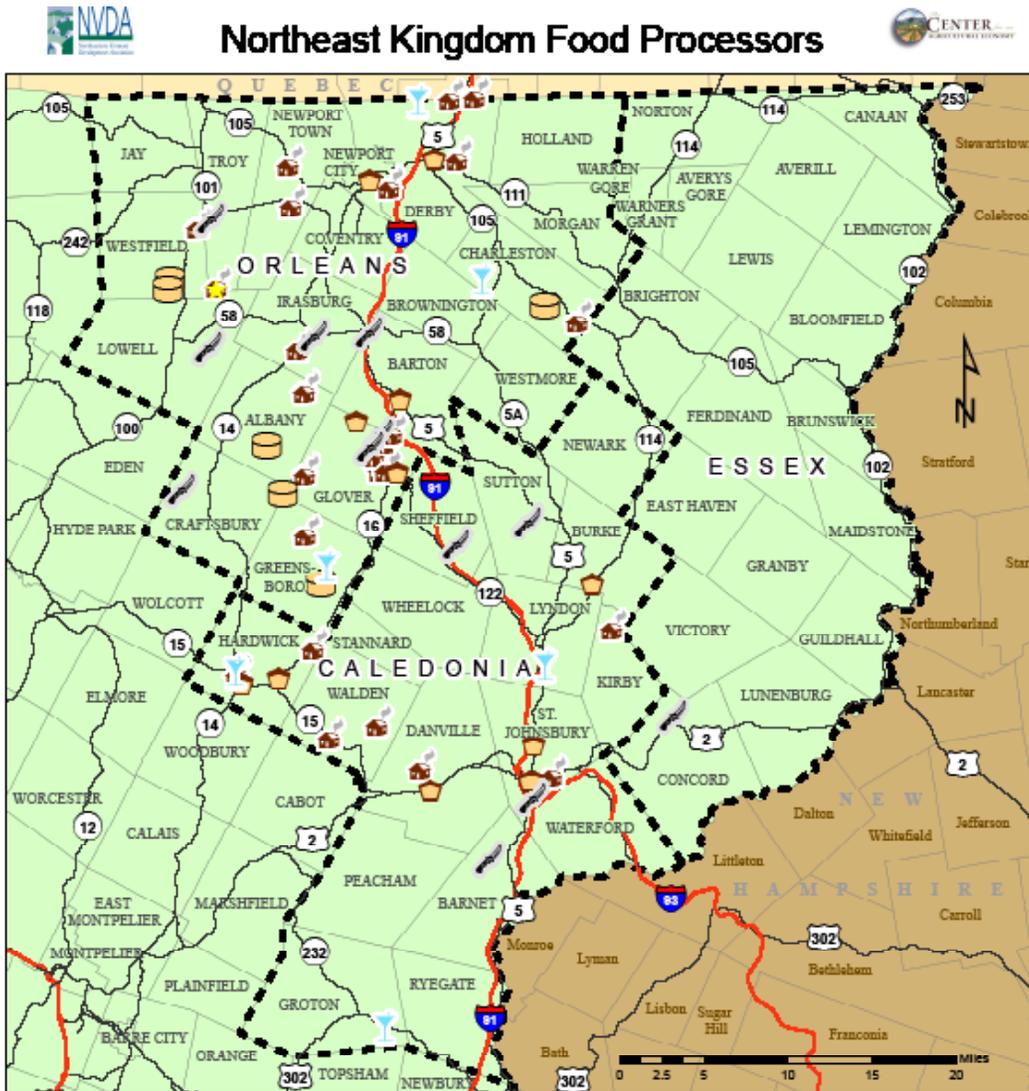


Trout for Sale from Mountain Foot Farm.

GRAINS, BEANS, AND OIL SEEDS: Grains have not been grown in Vermont on a large scale since the mid 19th century, when wheat was a large part of the agricultural market. There are only 23 farms in the NEK growing grain according to the U.S. Census of Agriculture, including wheat, soy beans, oats, barley, and rye. The Census does not list sunflower seeds as a farm product in the NEK; however, Butterworks Farm in Westfield grows sunflower seeds and produces its seeds into sunflower oils. Over the border in Southern Quebec there are considerably more grains grown.

NON-FOOD AGRICULTURAL PRODUCTION: While this food systems plan does not focus on non-food production, all agricultural production is important to create a vibrant agricultural economy. The NEK Asset Inventory includes many farms such as horse farms, fiber farms (sheep, lama, alpaca, etc.), tree farms, and ornamental nurseries. In 2007, the NEK had 305 horse farms with a total of 1,666 horses. That same year, there were 64 Christmas tree farms on 1,653 acres. Just horse and Christmas tree farms account for 31% of all farms in the NEK according to the 2007 U.S. Census of Agriculture.

DIVERSIFIED FARMING: While farmers in Vermont and the U.S. historically grew a wide variety of products, the trend in recent years has moved toward larger, single-product farms. However, there is a shift happening once again to diversify, or produce a variety of crops and/or animals. Diversified farming information is currently not captured in U.S. Census data. For example, we do not know if a single farm is selling multiple products or one product. The NEK Asset Inventory lists farms by products sold, and many farms were found to sell a variety of products. Common combinations of products include vegetables/fruit and poultry, vegetables/fruit and eggs, dairy and maple, and dairy and cattle. Diversified farmers were interviewed throughout the planning process to better understand the needs of these farmers as well as unveil potential opportunities. There is less understanding about how diversified farms are profitable and succeed, and we know less about what support-systems they need. It will be very important to learn how to support diversified farming in the coming years.



Processing

People have been processing and preserving food since ancient times. As fresh food cannot be stored for long, humans learned how to preserve foods to be eaten throughout the year. However, most of the food Americans eat today is highly processed in an unhealthy way and heavily refined. A major component of the local food movement is having access to fresh food rather than having food shipped hundreds or even thousands of miles. Using fresh ingredients, local food producers and entrepreneurs are looking for ways to add value to what they grown and raise and to provide healthy processed foods. There is an increasing demand for products made using locally or regionally grown ingredients: cheese, wine, bread, soy products, preserved meats, sauces, pesto, pickles, crackers, etc. According to the U.S. Census of Agriculture, about 7% of farms in the NEK are producing and selling value-added commodities. The NEK Asset Inventory lists 44 businesses that process value-added foods (excluding maple).

There are a variety of food manufacturers and processing businesses in the NEK. There are two commercial slaughterhouses and two commercial meat processors, as well as nine non-commercial meat processing facilities. The NEK has several successful beverage manufacturers, such as Eden Ice Cider, Caledonia Spirits, Hill Farmstead Brewery, and Trout River Brewery. Vermont Soy produces tofu and soy milk. There are also several bakeries and small food specialty businesses. Many of these businesses are new, and some located in the area due to the increasing food systems activity and support for food systems businesses.

Wholesale Distribution

Without infrastructure to transport, store, aggregate, and distribute locally-produced food, consumers would not have easy access to it. Participants throughout the NEK planning process continually cited distribution as one of major barriers to developing a vibrant food system and agricultural economy.

The NEK is rural and remote. However, the region has Route 91, a major federal highway, running north/south by several of its largest towns and cities, St. Johnsbury, Lyndonville, Barton, and Newport. However, farmers and food producers do not have adequate and affordable transport and freight options in the region. Fluid milk is the one exception, which has a built infrastructure and transport system to haul milk to distributors.

There are only a few Vermont-based distribution companies (e.g., Upper Valley Produce and Black River Produce) that transport produce and other goods needing refrigeration. These companies pick up products from some of the larger farms and value-added businesses, and deliver to several markets, restaurants, and institutions. There are also smaller distribution services that transport food in the NEK, including Green Mountain Farm Direct (GMFD) in Newport. These distribution systems need to be expanded to meet the needs of all types of food producers.

The NEK has extremely limited food storage and aggregation facilities. The region does not contain a commercial warehouse with refrigerated and freezer storage that can be leased by food producers. Farmers with these needs must use other facilities in the state. The NEK needs adequate food storage facilities in order for many of our food producers to be viable.

Around the country, food hubs are recognizing this critical need and planning for distribution systems, storage, and aggregation infrastructure. The Vermont Food Venture Center will help meet some of these storage and aggregation gaps but will not be enough to serve the entire NEK. GMFD is also exploring storage and aggregation facilities as it expands its brokerage service. St. J ALFA is also recognizing the need for shared infrastructure.

Community Supported Agriculture (CSA) is a newer form of direct farm distribution. There are 11 CSA models of distribution in the NEK. Most CSA farms deliver shares to a designated location for customer pick up. The CSA model works through individuals who purchase member shares upfront to support a farm's production, and in turn receive a

share of the harvest.

Root cellars and home storage units are also critical pieces of food systems infrastructure. Home-based root cellars allow people to grow and store crops, as well as purchase local crops in the fall to store throughout the winter. Communities and neighborhoods in the NEK could also consider investing in shared, community root cellars that could be used by farmers and households.

Retail Distribution

There are 44 retail food and beverage stores and 110 food service and drinking establishments (e.g., restaurants) in the NEK (BLS, 2010). However, there is no accurate way to estimate the amount of local food sold from these establishments. There are also several places to acquire local food directly from farmers. The NEK has 14 farmers' markets, 11 CSAs, and 19 farm stands. There are also institutions that sell or serve local food, including 1 correctional facility, 2 hospitals, and 45 public schools.

In 2007, 86% of all Vermont retail food sales occurred in supermarkets, including Costco and Walmart (VSJF, 2011). Very few supermarkets in the NEK sell locally produced food. Many farmers we heard from during interviews or planning sessions indicated there are many challenges to accessing larger markets. Larger retailers also face challenges when buying from smaller producers, including distribution methods and supply consistency and quality. These challenges include: the need for sufficient packaging to maintain produce quality, early morn-



Buffalo Mountain Coop.

ing delivery times, and the need for suppliers to carry liability insurance.

The NEK has two cooperative food markets, the Buffalo Mountain and the St. Johnsbury Food Coop; and one natural food market, Newport Natural Foods. These markets sell many kinds of local products, including fresh produce, meats, cheese, and eggs. There are smaller markets in the NEK (convenient stores and country stores) that also sell some amount of local food, primarily beverages, specialty products, and baked goods.

Institutions like hospitals, schools, and senior centers in the NEK are increasingly purchasing locally produced food. While it is unknown exactly how much they purchase, we know that Green Mountain Farm Direct serves 28 schools and institutions, which spent over \$10,000 on local food through the GMFD program in 2010. There are also schools and institutions in the NEK that purchase locally produced food from other sources than GMFD. Hardwick Elementary and the St. Johnsbury School are two examples, as well as Northeastern Vermont Regional Hospital in St. Johnsbury, which buys directly from farmers and from Upper Valley Produce.

Many farmers sell directly to consumers in the NEK. There are 19 farm stands and 14 summer farmers' markets. There are 225 farms that report selling directly to consumers, approximately 18% of all NEK farms. However, this accounts for only 2% of all agricultural sales in the NEK. Farmers' markets in the NEK grossed almost a half a million dollars in 2009, up from just over \$200,000 in 2008. Over half of farmer's markets sales are from agricultural products, and a substantial portion is grossed from food vendors (Vermont Farmer's Market Association, 2010). Eleven farmer's markets reported data for the survey, and the markets



Winter Farmer's Market.

Photo by Bethany M. Dunbar

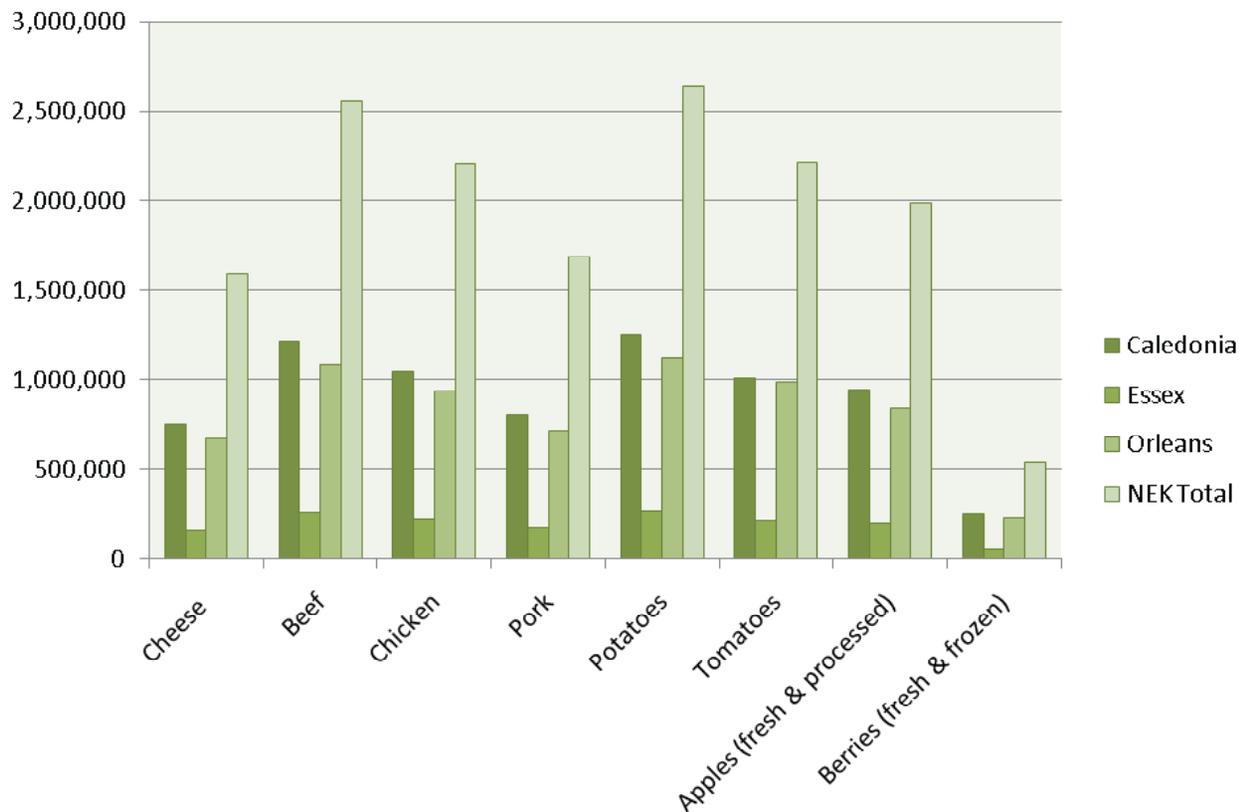
averaged about 100 vendors. At least three markets did not include their sales data, including a market that is at least 20 years old, so the overall sales are likely much higher.

Table 1. Direct Farm Sales in the NEK

Variable Name	Caledonia	Essex	Orleans
Number of farms with direct sales	107	16	102
Percentage of farms with direct sales	20.2%	17%	16.1%
Percentage of farm sales direct to consumer	2.8%	1.4%	1.9%
Direct farm sales	\$893,000	\$172,000	\$1,572,000
Direct farm sales per capita (\$)	\$29.22	\$26.49	\$57.68
Number of farmers' markets	7	1	4
Farmers' markets per 1,000 pop	0.23	0.154	0.147
Farm Stands	7	3	9

Sources: Food Environment Atlas, 2007 Census of Agriculture, NEK Asset Inventory

Figure 4. NEK Consumption of Select Products per Year (Pounds)



Source: Leopold Center for Sustainable Agriculture Consumption Calculator

sales data, Vermont Fresh Network data, Vermont farm-to-school and farm-to-institution sales estimates, and Vermont food manufacturing data from sole proprietors, which are likely to sell products locally.

While direct farm sales and other proxy data indicate increasing consumption of local food, there are barriers to purchasing local food, partially, price. The perceived or actual higher price of local food was repeatedly stated as a key barrier to purchasing local food in interviews and public planning sessions. However, there are many reasons people cite for wanting to eat local food. Local food tends to be fresher, as it is not shipped hundreds or even thousands of miles. There is a sense of comfort knowing where one's food comes from, and that the food may even be safer if produced locally at smaller farms.

On average, people in the NEK consume over 2.5 million pounds of beef and potatoes each. There is also almost 1.4 million gallons of milk consumed, as well as over three quarter of a million servings of

Consumption and Consumer Demand for Local Food

Supply and demand are the drivers of the food system. The demand for local food drives how much can ultimately be produced for sale. Just how much local food is consumed is still unknown, as no method has been developed to track local food sales and consumption. Further, we do not know how much food is grown at home or acquired through hunting and foraging.

The Vermont Farm to Plate Strategic Plan estimates that locally produced food accounts for at least 5% of the total food purchases in Vermont, or \$50 million of the total \$2 billion estimated to be spent annually on food (VSN, 2011). This is estimated through direct agriculture

cheese and other products from the dairy case. Figure 4 illustrates the consumption of select foods. Over 2.2 million pounds of chicken were consumed, 1.6 million pounds of cheese, 2.2 million pounds of tomatoes (fresh and processed), and almost 2 million pounds of apples (fresh, juiced, and processed). About 1.7 million pounds of pork are consumed in the NEK every year.

With millions of pounds of food consumed just from these top products, compared with the much smaller amount we produce, there appears to be a large potential market for local products, particularly beef, potatoes, chicken, tomatoes, pork, apples and cheese.

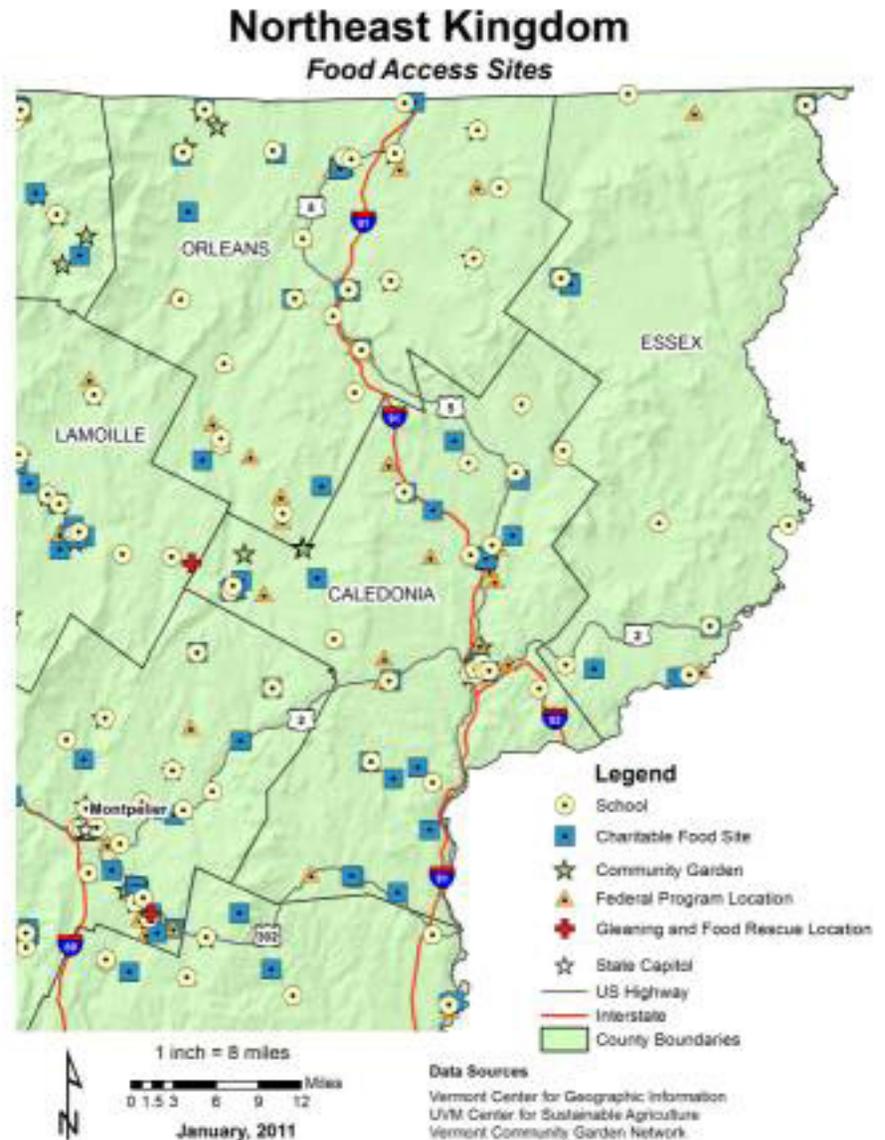
NEK consumers eat the majority of their food in the household, and purchase the bulk of this food from the supermarket or grocery stores to be eaten at home (ERS 2008). Food is also consumed on-the-go these days at various food establishments (e.g., restaurants) and at markets (e.g., convenience stores and at vending machines). People also consume food at inns, bed & breakfasts, and resorts. In 2010, there were 110 establishments in the NEK classified as food service and drinking places, 44 food and beverage stores (including grocery stores, liquor stores, and convenience stores), and 141 accommodations and food service establishments (BLS, 2010). The NEK Asset Inventory lists 154 establishments where food can be purchased or consumed, which includes institutions, resorts, and accommodations that serve food.

Increasingly, schools and institutions are serving more local food. The NEK has 45 public schools, two hospitals, one correctional facility, and several nursing homes, community meal sites, and senior meals sites. Several of these schools and institutions are serving local food. However, there are challenges to using local foods at these institutions, including seasonal availability, additional time needed to processes and prepare fresh foods, and, at times, higher costs.

Waste and Nutrient Management

Recapturing our food and farm waste stream is the critical element of the food systems that “closes the loop,” transforming a linear system into a circular system. The Agency of Natural Resources oversees regulating waste in the state, including nutrient management. While any farm or home can compost their own organic wastes, facilities must be certified by the state to accept waste from others.

About 30% or more of Vermont’s Solid Waste is food scraps, resulting in approximately 120,000-130,000 tons per year heading to our landfills (Highfields Center for Composting, 2010). Landfilled food scraps create methane, a green house gas that is 72 times more damaging than carbon dioxide over a 20 year period (Highfields Center for Composting, 2010).





Rich Compost at Highfields Center for Composting.

There are eight categorical composting facilities in the NEK that accept various combinations of materials including food waste, paper, leaf and yard waste, wood waste, manure, and animal offal or carcasses. The Northeast Kingdom Waste Management District (NEKWMD) services 39,000 residents and 44 member towns. Each member town is entitled to representation by at least one supervisor at NEKWMD. There are several member towns with compost programs. Danville, Greensboro, Holland, Jay, Lyndon, Newark, Peacham, Sheffield, Westfield, and Wheelock all have active food scrap recycling programs in place, and additional towns have expressed interest to begin programs.

There are several ways to reduce the amount of organic materials in our landfills and to increase the amount that is recycled. It is necessary to provide technical assistance to farms for on-site composting and for farming methods that improve soil quality. There are also several local and statewide policy measures that would be beneficial. For example, local communities can pass local zoning laws that allow for farms to be able to compost as farms rather than commercial composters if they are keeping at least 50% of the compost on site. Solid

waste districts can limit or ban organic materials in landfill. Policies should also be passed that require highest and best use policies, such as banning the incineration of organic materials.

CROSS-CUTTING ISSUES AND SUPPORT SYSTEMS

There are certain issues that impact every element of the food system. There are at least seven cross-cutting issues that affect food systems in the Northeast Kingdom, and these are supported by many kinds of support systems organizations. The CAE researched and inventoried organizations and programs that impact and support the food system. Core cross cutting issues include:

- Food Security and Health
- Energy and the Environment
- Education and Workforce Development
- Business and Technical Support
- Consumer Education and Marketing
- Financing
- Leadership, Communication, and Policy

Food Security and Health

Food security is a part of any food system. To be a truly sustainable, equitable food system, communities, organizations, and individuals must address food insecurity, and proactively work towards a food secure system, where all individuals have access to fresh, healthy, and affordable foods.

The United States Department of Agriculture (USDA) defines food insecurity as the lack of access, at times, to enough food for an active, healthy lifestyle for all household members; or the limited or uncertain availability of nutritiously adequate foods. Almost 10,000 people in the Northeast Kingdom are food insecure – 15% of the total population (Gunderson et al. 2011). Hunger Free Vermont estimates that about 25% of children in the NEK are food insecure. The poverty rate in the NEK is 13.16%, higher than the Vermont rate of 10.4% (2000 U.S.

Census). As the cost of food continues to rise, families increasingly struggle with the ability to buy healthy food, and may not have enough food to eat.

There are a variety of organizations addressing food insecurity and promoting food security and healthy eating in the region through a local food systems approach. Farm-to-school groups and programs increase access to fresh, healthy food for school age children. Food shelves and other charitable food sites provide emergency food, and some provide local produce. There are gleaning programs that salvage thousands of pounds of produce each year from NEK farms for redistribution to individuals and institutions. Community gardens help increase food security by providing the opportunity for people to grow their own food. Some communities offer classes on how to utilize fresh foods, for example, cooking and preserving foods.

Energy and the Environment

All food systems are affected by energy and the natural environment, and in turn impact environmental and energy use outcomes. Just by eating local food alone, despite the way it is produced, reduces environmental impact and energy use, since the average food travels approximately 1,500 miles (Pirog, 2001).

Energy is a significant component of agricultural inputs: gasoline, fuel, oil, and utilities account for 22% of all farm input costs in the NEK (U.S. Census of Agriculture 2007). As petroleum-based energy costs continue to rise, farmers and food systems businesses are seeking other means of fuel inputs, including conservation.

The food system impacts the natural environment. Although we'd like to think of farming as a green industry, the fact is that farms, even organic farms, have some level of adverse impacts on the environment. Fortunately there are advances in organic and sustainable farming methods that can reduce these negative impacts on natural systems. Organic farming techniques include crop rotation, compost, and biological pest control to maintain soil productivity and control pests. The use of manufactured fertilizers, pesticides, hormones, livestock antibiotics, food additives, and genetically modified organisms is restricted.

Photo by Tim Gustafson-Byrne.

Education and Workforce Development

A vibrant sustainable food system depends on both education and workforce development to ensure not only properly trained and educated workers, but also informed consumers. Along the continuum from elementary school to college education and adult education, there are many organizations in the NEK working to develop our food systems.

Children can greatly benefit from learning about where their food comes from. Farm-to-school programs are one way to teach children healthy eating habits, as well as provide farm-based education. Green Mountain Farm to School (GMFTS) currently supports 21 farm-to-school programs, and there are several more, including Hardwick Elementary and The St. Johnsbury School, that are not connected with GMFTS. 4-H programs also serve as important youth agricultural education. There are 26 4-H clubs in the NEK, including Burke View Dairy, Mountain Side Milksters, Rambling Rascals Riverbends, and Border Livestock Plus, which focus on farming, gardening, fishing, and veterinary science.

High School Career and Technical Education (CTE) centers also play a critical role in food systems education. These schools teach agricultural education, horticulture, and culinary arts. There are three CTE centers in the NEK: North Country Career Center in Newport, Lyndon Institute, and St. Johnsbury Academy. Some NEK students in the Hardwick area also attend Green Mountain Career and Technical Center in Lamoille County. These schools offer programs in agriculture mechanics, horticulture and greenhouse management, forestry and



Students in North Country Career Center's Greenhouse Management class.

natural resource management, culinary arts, as well as pre-tech programs in agriculture, food, and natural resources.

Colleges also provide important education and skill training for food systems. There are three colleges in the region: Sterling College, Lyndon State College, and the Community College of Vermont. Sterling College is one of the nation's leading colleges in sustainable agriculture, offering agricultural degrees, continuing education courses in food systems, and a comprehensive internship program. Lyndon State College does not offer agricultural degree programs, but the school is developing a Center for Rural Entrepreneurship with a focus on value-added food manufacturing. The Community College of Vermont does not offer agricultural or food system programs, but provides a variety of business and marketing classes.

There is growth in the NEK food system cluster, and therefore it is important to consider if and how our workforce is properly educated and trained to meet the needs of new and existing food systems businesses and farms. The overall food cluster in the NEK includes the following industries and occupations: farming, food and beverage

manufacturing, agriculture and forest support activities, food and beverage stores, and food services and drinking places. This food systems cluster focuses on the production and consumption of local foods and the exportation of locally produced food to regional markets. Second Quarter 2010 U.S. Bureau of Labor Statistics (BLS) data show that food manufacturing, food and beverages stores, and food services total 160 businesses with 2,278 employees. The BLS location quotient calculator indicates the NEK food system cluster is stronger than the U.S. average and continues to grow each year.



Craftsbury Academy students at the VT Junior Iron Chef competition.

There are several workforce development needs to support the food system cluster: diversified farming, meat processing, value-added production, business planning and marketing, as well as the need for interns and apprentices. The NEK food system has at least three core food systems career paths: diversified agriculture; food entrepreneurship and value-added production; and culinary, hospitality and local food markets. Diversified agriculture includes sustainable agriculture and the production of a wide variety of food. Food entrepreneurship and value-added production includes an array of value-added production including cheese, maple, meat, and beverages. In the culinary, hospitality, and local food markets career pathway, jobs are typically in food service and retail.

Besides education providers, there are several key organizations that play an integral role in workforce development, particularly for the food systems cluster. These include Northeastern Vermont Development Association, Northern Communities Investment Corporation, Northeast Kingdom Community Action, the Vermont Green Jobs program, and the Center for an Agricultural Economy. These groups provide essential workforce development funding and training.

While some training programs and apprenticeships exist, the current workforce does not have enough trained workers to develop this expanding food systems cluster. During the planning process, some food system businesses—particularly value-added processors—noted it can be difficult to find properly trained workers. Numerous farms and businesses individually hire interns and apprentices. Farmers and food producers in interviews and planning sessions noted a mixed reaction to internships and apprenticeships; while many appreciated the assistance and labor, others felt that the internships were timely to manage and that the internees were not always reliable. The coordination of an internships and apprenticeship system in the NEK would likely benefit food system businesses as well as provide a better experience for the workers in training.

Business and Technical Support

Farmers and food system entrepreneurs must know how to run successful businesses, as well as be up-to-date on appropriate technolo-

gy. Several organizations offer business support and technical training for NEK food system organizations. These services are designed for farmers and food producers as well as value-added businesses and food manufacturers.

University of Vermont Extension provides business and technical support to farms and food system businesses. There are two Extension offices in the NEK, in Newport and St. Johnsbury. The Vermont Farm Viability Program provides business planning and technical assistance services to farmers, and has served 43 farmers in the NEK. After spending a year working with a consultant on business plans, farmers are provided with additional technical assistance and help updating their plans. The Northeast Organic Farming Association of Vermont offers a variety of technical training and business services in several production areas, including dairy, livestock, and vegetables. The Intervale Center in Burlington leases land, equipment, and other infrastructure to new farmers. The Intervale's Success on Farms is a two-year business planning program that helps Vermont farm operations improve their viability. There are currently seven farms from the NEK enrolled in the Success on Farms program. There are many other statewide groups that offer specific technical support and advice.



The Vermont Food Venture Center, May 2011.

A small sample of these groups include: Northern Grain Growers Association, Vermont Grass Farmers Association, Vermont Poultry Association, the Vermont Jersey Breeders Association and the Vermont Vegetable and Berry Growers Association.

There are specific technical and business support programs for value-added processors and food manufactures, primarily for business planning and marketing. There are not as many training programs for technical skills, such as meat cutting and cheesemaking. The Center for an Agricultural Economy and the Vermont Small Business Development Center jointly provide business advisory services to assist existing and start-up value-added businesses, and through the Vermont Food Venture Center, offer technical support to value-added processors, including processing, packaging, and shipping. Incubator without Walls (IWOW) at Lyndon State College provides a wide array of programs and services to assist businesses with needs assessment and business planning. Other technical and business support organizations for value-added processors include the Vermont Cheese Council, the Vermont Wine Council, and the Vermont Brewers Association.

Consumer Education and Marketing

The need for consumer education and marketing was cited by dozens of people during interviews or planning sessions. In order to increase the demand of local food, there simply must be more effort to educate the public about its benefits, and to market these products to both residents and visitors. Fortunately there are several groups in the NEK working to educate consumers and market local foods. There are also many local food companies that, by marketing their own products, increase the overall awareness of local food.

St. Johnsbury Area Local Food Alliance (ALFA) promotes local food through workshops, community forums, and through its website that lists dozens of places to buy local food. Green Mountain Farm-to-School educates consumers by offering nutrition and farm based education in public schools. The Center for an Agricultural Economy also provides information on how to access local foods and provides workshops and tours.

Marketing to travelers is an important way to consider increasing the consumption of local food. The Northeast Kingdom Travel and Tourism Association (NEKTTA) assists local businesses, including farms and food manufacturers, to market to tourists. As part of the trend toward locally grown food, consumers are becoming more interested in visiting the farms where their food is grown and the facilities where value-added food is produced. NEK organizations, including NEKTTA, NVDA, CAE and NCIC, are working to develop agritourism opportunities to increase travel to these destinations and to the overall region. Agritourism is becoming an important component of economic development planning, including maps and specialty product “trails” (e.g., cheese trail, wine trail, etc.). Agritourism also extends to restaurants, where it is often called culinary tourism.

Financing

Access to capital and financing are critical for food systems businesses to start up and expand. Besides traditional banks and lending institutions, there are a variety of financing options for farms and food system businesses that need funds to start up or expand. Capital needs include machinery and equipment, livestock, buildings, and



Tamarlane Farms, Lyndonville.

land, as well as initial operating expenses. Many start up or expanding businesses develop a loan proposal or business plan for a lender that demonstrates an understanding of finances. Lenders consider factors such as capacity to repay the loan, capital previously invested in the business, collateral, risk, and market trends.

Governmental lending institutions, such as the USDA Farm Service Agency and the Vermont Agricultural Credit Corporation, offer entry loans at subsidized rates to encourage new and expanding businesses. Other government lenders include: the Vermont Community Development Program, Vermont Agriculture Innovation Center, Vermont Farm Viability Enhancement Program, and USDA Rural Development.

There are also community-based organizations that offer loans and grants. It is very important for any community trying to develop its food system to assess the availability of community-based and local funds. The NEK is fortunate to have economic development corporations (NVDA and NCIC) that provide loans and grants to food systems businesses. Businesses are also beginning to seek slow money financing. One example of slow money financing is Claire’s Restaurant in Hardwick, a community-supported restaurant with local investors. Private foundations, such as Castanea and the John Merck Fund, also provide essential financial support to food systems businesses and food systems support organizations.

The NEK is fortunate to have helpful communities who support farmers that have experienced disasters, such as barn fires or crop disaster. There are also established funds and lenders for emergencies. While many farmers have various kinds of insurance, not all disasters are adequately covered. There are federal and statewide programs to assist farmers in emergencies, including USDA and NOFA-VT. In the NEK, some municipal revolving loan funds can be used for emergency assistance. The Vermont Farm Fund is a new emergency fund for farmers. The fund emerged after a fire at Pete’s Greens destroyed much of the farm’s infrastructure, only partially covered by insurance. Many community based fundraising events were held throughout the state that contributed over \$130,000 to the farm. This outpouring of community support influenced Pete’s Greens, in collaboration with the



Sterling College work crew constructing a hoophouse with the Lovinsky family at their farm in East Hardwick.

Center for an Agricultural Economy, to establish the fund as a way to pay back the community. The fund will be used for emergency farm relief, as well as for innovative and progressive agricultural efforts by Vermont farms.

Leadership and Communication

With the recently published Farm to Plate Strategic (F2P) Plan, Vermont is on a path towards a coordinated approach to food systems development. Currently, a Farm to Plate implementation network is being developed that will likely include a steering committee and working groups to help implement the F2P high priority strategies. These working groups will include stakeholders from across the food system, including major government agencies, non-profits, and other groups. The F2P network will also represent all regions of Vermont. With the publication of this NEK Plan, the region is well positioned to implement regionally applicable strategies. There are many key leaders in the NEK that provide essential leadership in the food system. These groups are discussed in Chapter Four and Chapter Six of the NEK Plan.

Photo by Sterling College

NEK PLAN IMPLEMENTATION

A successful strategic plan presents a pathway for implementation that includes an understanding of where, who, and how the plan will be implemented. Chapter Six discusses the food systems clusters within the Northeast Kingdom where these strategies will ultimately be enacted. It also proposes a network approach to plan implementation, and lays out a series of data and performance measures to track the progress of the food system and the plan goals over time. The NEK Plan can only be successful if the recommendations are implemented in a coordinated, participatory manner with a high level of transparency and accountability.

Throughout the planning process, it was apparent there are at least four food systems clusters in the NEK: Hardwick, Newport, St. Johnsbury/Lyndon, and Essex County. Each cluster is at a different level of development; for example, Hardwick is well-developed and Essex is underdeveloped. Each cluster has unique challenges and opportunities to best develop their local food systems, and to contribute to a coordinated regional NEK food system. These clusters can best be described as a hub of food systems activity revolving around a population center. Food system clusters are networks of inter-related businesses and organizations working together to strengthen the food system industry (e.g., agriculture and value-added production). Each cluster will play an important role in implementing the NEK Plan strategies.

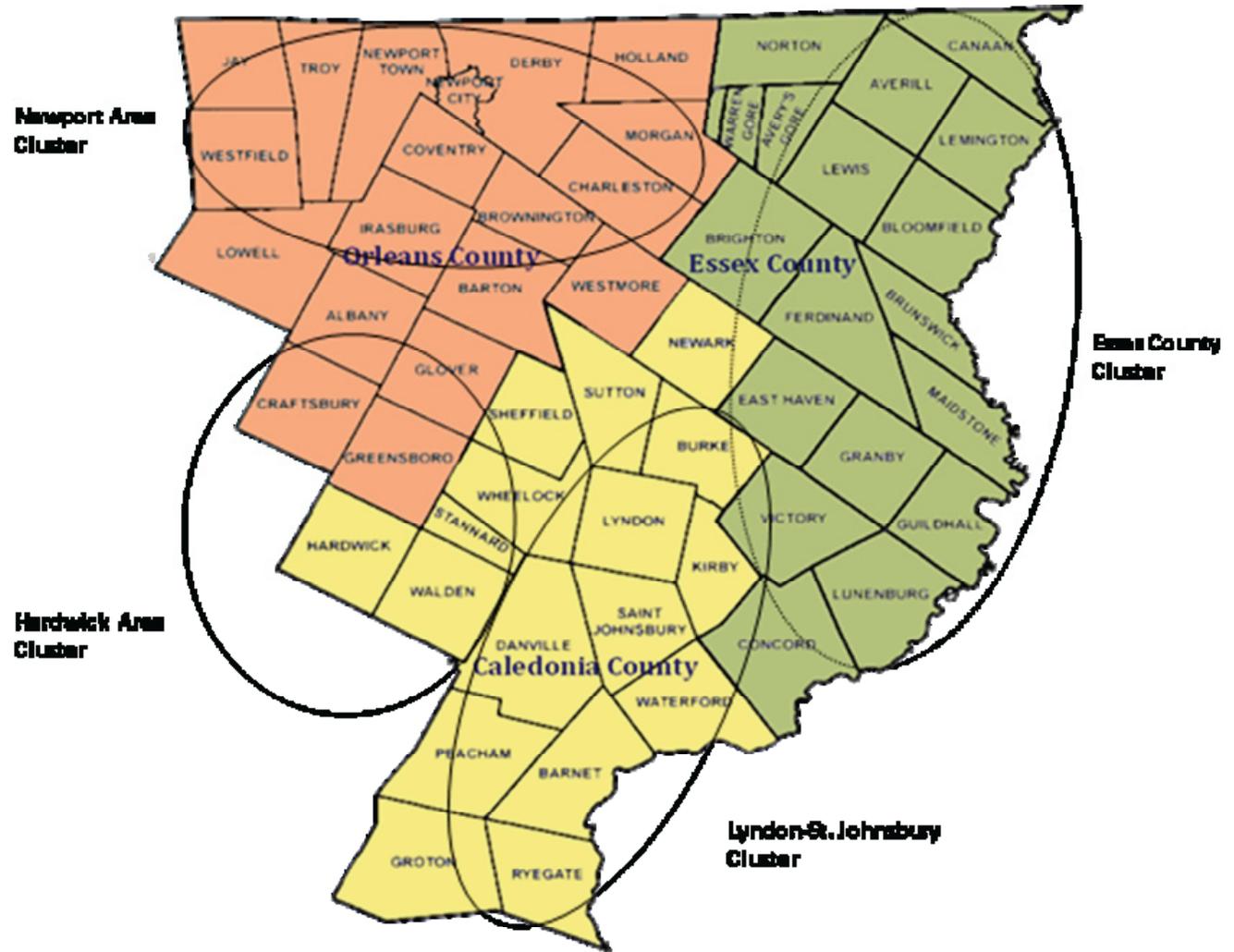
Hardwick is a relatively advanced cluster, characterized by increasingly diversified production, food processing and value added businesses, several retail establishments to purchase and consume local food, and waste management systems that “close the loop” in the soil-to-soil food system cycle. In contrast, Essex County is a largely undeveloped cluster with few farms and food producers, virtually no processing and distribution, has a very small demand for local food, and is classified as a “food desert” with limited access of some residents to fresh food or grocery stores. However, unique opportunities to expand the food system in Essex County lie in abandoned and underutilized manufacturing infrastructure along the Connecticut River. The Orleans and Lyndon-St. Johnsbury Cluster are emerging as strong food systems

clusters, and will be important areas to carry out many of the needed actions to further develop the food system in the NEK.

While we know there are strong and emerging clusters to implement strategies, these clusters cannot work in isolation. To develop a true regional food system, each cluster will need to work with the others. Furthermore, groups and individuals across the food system—from farmers to food shelves staff to farm-to-school groups—must collaborate and see themselves as part of the larger regional NEK food system.

To successfully implement the plan, there needs to be a strong understanding of which actors (organizations and individuals) can work together to carry out the recommendations and provide governance for regional food systems development. A governance network consists of organizations and individuals joined together in the pursuit of common goals. A food systems governance network in the NEK will need to be diverse and consist of many groups and individuals: farmers, food producers, value-added processors, wholesale distributors, retail establishments, nutrient management organizations, land conversation groups, food security groups, local leaders, town planners, farm-to-school organizations, economic development organizations, and others.

Figure 5. Developed and Emerging Food Systems Clusters in the NEK



The NEK Plan was developed in accordance with the Vermont Farm to Plate (F2P) Strategic Plan, which should prove to be an advantage for the region. Staff members developing the NEK Plan met regularly with the Farm to Plate staff to share similarities and differences in the process and findings. As Vermont's overarching food systems plan, F2P does much of the heavy lifting in evaluating present and future food system components, and identifying high priority strategies. This

plan will help regions and communities within Vermont to further develop their food systems. The NEK is in a unique position to work with the developing Farm to Plate implementation network because of its advanced food system clusters and because the NEK now has its own specialized regional plan, which could ultimately serve as a model for other communities.

The NEK Plan proposes a governance structure to help guide the implementation of the plan. It consists of a steering committee encompassing a wide array of groups and individuals and several decentralized working groups to carry out actions that will help further develop the food system and move the NEK towards accomplishing the goals of the NEK Plan.

To provide a framework for accountability, and to help track the food system trends over time, the plan also presents a framework of measures to reach the proposed targets. For each of the 10 broad goals there are a number of specific quantitative targets. These targets are primarily based on existing data, although for some targets there is no available data. Therefore, it will be important to seek data through surveys and other methods to develop measures for these targets. For example, there has not been a method developed to accurately estimate local food consumption as a percentage of total food consumption.

The *Regional Food System Plan for Vermont's Northeast Kingdom* serves as a guide to develop a food system that will reap multiple benefits for the region. The work in itself is only a plan, and it will be up to the people of the NEK working in concert to make the vision of a vibrant food system a reality.



The bounty of a school garden.

The Regional Food Systems Plan for Vermont's Northeast Kingdom can be downloaded online at www.nvda.net or www.hardwickagriculture.org. For more information, please contact:

Dave Snedeker, Planning Director
 Northeastern Vermont Development Association
 36 Eastern Avenue
 St. Johnsbury, VT 05819
 (802) 748-5181 ext. 15
dsnedeker@nvda.net