



Vermont Agriculture and Food System Plan: 2020

Part One | January 15, 2020

An Agriculture Strategic Plan Report to the Vermont Legislature and Governor Phil Scott
As requested in Act 83 (2019), § 1.



Available online at agriculture.vermont.gov/administration/annual-report.

About the Vermont Agency of Agriculture, Food and Markets



The [Vermont Agency of Agriculture, Food and Markets](#) (VAAFAM) facilitates, supports and encourages the growth and viability of agriculture in Vermont while protecting the working landscape, human health, animal health, plant health, consumers and the environment. Currently with 139 staff across six Divisions, VAAFAM helps to develop a

safe, secure, ecologically responsive, profitable, and fair local foods system for Vermont and Vermont customers. VAAFAM's staff maintain a leadership position important to the evolving local, regional, and global food system, through regulatory compliance and enforcement, access to and the application of resources (human, financial, social, and environmental), policy development, and by supporting the creation of new markets and innovation opportunities.

Administration Division - 13 staff

Food Safety and Consumer Protection Division - 38 staff

Public Health and Agricultural Resource Management Division - 23 staff

Vermont Agriculture and Environmental Laboratory - 14 staff

Water Quality Division - 29 staff

The Agriculture Development Division (19 staff) provides technical assistance, business and financial planning, contacts, funding opportunities, and resources to help local agriculture and food businesses meet their goals. We strive to meet the needs of Vermont's agricultural community by improving agricultural business capacity, consumer awareness and access, and farmland stewardship through technical assistance, grant funding, promotional opportunities, and collaborative efforts.

About the Vermont Sustainable Jobs Fund:



Vermont Sustainable Jobs Fund
Accelerating Sustainable Economic Development

The [Vermont Sustainable Jobs Fund](#) (VSJF) was designated by the Vermont Legislature in 2009 to serve as the administrator of the [Farm to Plate Investment Program](#) with the aim of strengthening Vermont's food system over ten years. In 2019,

the legislature reauthorized the Farm to Plate Investment Program for another ten years to:

- (1) Increase sustainable economic development and create jobs in Vermont's food and farm sector.
- (2) Improve soils, water, and resiliency of the working landscape in the face of climate change.
- (3) Improve access to healthy local foods for all Vermonters.

About the Farm to Plate Network:



The [Farm to Plate Network](#) is comprised of farms, food production businesses, specialty food producers, educational institutions, nonprofit organizations, funders, capital providers, and government personnel. Our network approach creates the space for strategic conversations and action across multiple stakeholders and perspectives to make systematic food system change that no one organization can accomplish alone.

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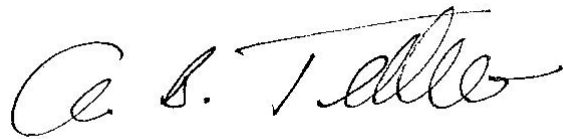
December 2019

Any discussion about improving the rural economy in Vermont should include agriculture. We know the administration and the legislature are focused on making Vermont more affordable, improving the economy, and protecting the vulnerable. As the 2019 Legislative session concluded, Vermont legislators asked the Agency of Agriculture, Food and Markets for a comprehensive plan of recommendations to stabilize, diversify, revitalize, and support a vibrant agricultural industry in Vermont as we move into the next decade. This request came at a time when significant challenges are facing our dairy industry regarding farm viability and diversification, as well as issues around water quality and market access.

Our Agency saw Section 1 of Act 83 as an opportunity to collaborate with subject matter experts across various products, markets, and related issues to develop suggestions and the most critical policy, program, and staffing recommendations to help sustain and stimulate our agricultural economy. This comprehensive plan was only possible with the leadership and guidance from the Vermont Sustainable Jobs Fund staff and the partnership and knowledge from many food system stakeholders and industry experts.

The resultant briefs (including those to come on January 15, 2021) demonstrate the immense opportunity to propel Vermont's agricultural industry into a viable and sustainable future. I encourage policy makers, private and public sector partners, and industry representatives to read this report and give feedback. Collectively we can stabilize and revitalize agriculture in Vermont as we move further into the 21st century, but only if we band together under the same vision for our communities and reach for the same goals for maintaining our working agricultural landscape.

Sincerely,



Anson Tebbetts
Secretary
Agency of Agriculture, Food and Markets



Act 83 Legislative Intent

In response to the ongoing dairy crisis and other significant changes happening within Vermont's agricultural and food sector, and a desire to stimulate more rural economic development as well as regional market access for Vermont products, the Legislature passed and Governor Scott signed Act 83 (S.160), an act relating to agricultural development, in May 2019. Section 1 of this Act calls for the development of a report with recommendations to stabilize and revitalize Vermont's agricultural industry. Specifically, Section 1 of Act 83 calls for the following:

*Act 83 §1 * * * Report on Agricultural Industry * * **

Sec. 1. REPORT ON STABILIZATION AND REVITALIZATION OF THE VERMONT AGRICULTURAL INDUSTRY

*(a) On or before **January 15, 2020**, the Secretary of Agriculture, Food and Markets, in consultation with the Vermont Farm-to-Plate Investment Program and industry stakeholders, shall submit to the Senate Committee on Agriculture and the House Committee on Agriculture and Forestry a report with recommendations for the stabilization, diversification, and revitalization of the agricultural industry in Vermont.*

(b) The report required under subsection (a) of this section shall:

- (1) summarize the current conditions within particular subsectors, product categories, and market channels that comprise the Vermont food system, including the most recent data synthesis, research, reports, and expert documentation of challenges and opportunities for diversification and growth;*
- (2) recommend methods for improving the marketing of Vermont agricultural products;*
- (3) compile technical assistance and capital resources available to farmers to assist in the diversification of agricultural products produced on a farm; and*
- (4) after consultation with the Northeast Organic Farming Association and Vermont FEED, provide an assessment of the potential to increase the amount of Vermont agricultural products that are purchased by school nutrition programs in the State, including an inventory of agricultural products, such as beef, eggs, or cheese, where demand from schools would create a viable market for Vermont farmers.*



Foreword

Overview of Vermont Agriculture: How the Past Influences the Future

By Roger Allbee, Former Secretary of the Vermont Agency of Agriculture, Food and Markets (2007-2010)

The land now known as Vermont has been settled for over 10,000 years and has a rich agricultural history. For over 1,000 years Abenaki communities have grown traditional crops such as corn, beans, squash, sunflowers, ground cherries, Jerusalem artichokes, plums, grapes, and nut trees. These crops are successfully nurtured using complex agro-engineering systems such as fish-fertilized mound and ridged-field agriculture and agroforestry, and then brought to long-established Indigenous ceremonies such as the Green Corn Ceremony and the Harvest Celebration, which take place in late summer and early fall.

With occupation of Abenaki territory, then colonization, and statehood, new types of agriculture and land practices were introduced in Vermont. Sheep farms dominated the landscape up until the mid-1800s, giving way in the 1850s to a dairy industry that still has considerable influence on Vermont's culture, economy, and landscape today. Vermont's current commercial agriculture also includes apple orchards, maple sugaring, pastured beef, pig, and poultry, and diversified vegetable farms.

Some common themes from state agricultural history provide valuable insights for the future.

It is important to understand that agricultural production in Vermont has never been insulated from regional, national, and international economic forces. Vermont became known as the sheep capital of the world in the 1830s when William Jarvis, the U.S. consul to Portugal, purchased prized merino sheep from the Spanish royal flock and brought them to Weathersfield, Vermont. Vermont farmers excelled in raising these sheep, aided by a tariff on wool imports and a climate and topography conducive to growing grass and other forage crops. By 1840, over 1.5 million sheep occupied the state. With U.S. settlement of western North America, improvements in transportation, and the reduction in tariffs on wool imports, however, Vermont's sheep industry lost its economic advantage and was replaced in economic importance after 1850 by an emerging dairy industry.



As Vermont's wool industry declined, our farmers took advantage of access to the large emerging markets on the eastern seaboard. Boston became the main market for Vermont's well-known butter, and the first butter train left St. Albans on its once-per-week journey in 1854. Vermont butter became known regionally, nationally, and internationally for its quality.

By the late 1890s, St. Albans had become the butter capital of the world with 60 separators, 1,000 farms, and 15,000 cows. Local creameries and cheese factories, and related support industries, sprang up quickly, and by 1900, Vermont had 186 creameries and 66 cheese facilities. However, again due to competition from western states, Vermont butter lost its competitive edge and butter production was replaced by fluid milk production.



Today, Vermont remains a major supplier of fluid milk to the New England markets and is still well known for award-winning cheddar and other specialty cheeses. Dairying accounts for about 65% of the gross farm income in Vermont and is the predominant agricultural land use (80% of all open land is managed by dairy farmers). However, as in the past, western states have gained competitive advantage with huge 8,000 and 10,000 cow dairies that have created an oversupply and sent conventional milk prices below the cost of production for Vermont farms five years in

a row. Recurring low milk prices and other factors have led to the loss of over 357 dairy operations in the past 10 years (from 1,015 in 2010 to 658 at the end of 2019; a 35.2% reduction), mainly among small and medium-sized operations. Even organic milk producers have not been immune to changing market and economy-of-scale forces which favor ever larger operations and do not reward high-quality producers with premiums for their components at a price that is sustainable.

Although Vermont has always had one or two predominant agricultural industries (i.e., wool, butter and cheese, maple, and fluid milk) other enterprises have existed as well. In the mid-1800s, Vermont was the breadbasket of New England. Farmers in the Champlain Valley grew wheat, barley, and oats. Potatoes, hemp, hops, apples, other fruits and vegetables, and tobacco were significant crops in various regions of the state. Farmers recognized early on that diversity of enterprise was important for economic survival. In 1885, almost every Vermont town had market days during which local products such as eggs and honey were sold, according to the Vermont Yearbook of Agriculture.

Over the years, many Vermont farmers have recognized that they would never be able to compete with farmers in the western U.S. on a commodity basis. For instance, in 1872, in a paper written to the Vermont Board of Agriculture titled "Vermont Farmers' Future," the Rev. Wright of Bakersfield wrote:

It is useless for the Vermont farmer to compete with those of the West in raising those few staples of product that can be naturally raised in the West. The great increase of population and of wealth at the East indicates a growing market for milk, for the first quality butter, veal, mutton, and for products of the garden, the bee hive, the poultry yard, and the fish pond. Only those will prosper who use their minds in studying how to cater to the demands of this growing market and this changing state of things.

In 1913, Commissioner of Agriculture E. S. Brigham again asserted that "farm products that belong in the East are those that are adapted to our soil and climate and are needed in large market centers." History has demonstrated that Vermont farmers prosper when they take advantage of their location, brand, and environment, as well as local and regional markets, to develop their farms and enterprises and distribute products that appeal to consumers. Joint marketing and distribution through farmer-owned cooperatives have helped products such as milk, cheese, and vegetables reach a variety of consumer markets in and outside of Vermont.

Over the past 150 years, it has been the ingenuity of Vermont farmers and their ability to recognize market niches that has allowed them to adapt to economic forces and market changes. It is again time for substantive change and adaptation within Vermont's agriculture industry. This time, climate change, water quality, land-use patterns, and changing consumer preferences and markets are informing and accelerating the need for adaptation.

Farmers, food system businesses, and support organizations continue to be industry leaders in maple production and processing, organic farming, culinary and agritourism, specialty food production, and related endeavors. Consumers increasingly want to know where their food is coming from and want to connect with the farmers who produce that food. All we have to do to find evidence of this trend is look at the growth in farmers' markets, farm stands, and community supported agriculture within the state, as well as the award-winning artisan cheese industry, breweries and distilleries, and other specialty agricultural operations that are generating consumer interest within regional and national markets.

Challenges, as well as opportunities, exist for Vermont and its agricultural landscape going forward, just as in the past. Outside economic forces will continue to influence this change. Vermont businesses must compete on quality and value, not volume, and lead innovative production with a focus on consumer preferences and opening new market opportunities. The state is not an island. Nevertheless, as history has demonstrated time and again, we have advantages in serving local and regional markets with products that consumers want.

As in the past, Vermont will need new policies; greater collaboration among the educational, public, private, and not-for-profit sectors; patient sources of financing and capital; and new, invigorated approaches to product development, storage and processing, marketing, and distribution.

The briefs contained in this report have thoughtfully evaluated the issues and offer the recommendations necessary for Vermont to have a more economically vibrant and sustainable agriculture sector for generations to come, as land management, production, and market changes continue to take place. Now is the time to take some bold actions!





Introduction

Vermont's food system is critical to our economy, identity, and quality of life. From 2007 to 2017 (the last year this data was available) Vermont food system economic output expanded 48%, from \$7.5 billion to \$11.3 billion. Food manufacturing, the second-largest manufacturing industry in Vermont, accounts for \$3 billion (26.5%) of this economic output. Over 64,000 Vermonters are directly employed by over 11,500 farms and food-related businesses. From 2009 to 2018, net new food system employment increased by 6,529 jobs (11.2%).

Dairy farming has had significant economic, ecological, and cultural impact in Vermont for over 100 years. Milk from cow dairy farms accounts for upwards of 65% of the state's agricultural product sales, even given the five-year dairy pricing crisis and a significant loss of active dairy farms (195 farms, or 22.8%, between 2015-2019). A recent analysis found that **Vermont's dairy industry generates \$2.2 billion in economic activity annually.**¹ Vermont's 658 cow dairy farms (470 conventional and 188 organic) produce about two thirds of all milk in New England, with the bulk of it processed at 151 plants into fluid milk, cheese, butter, ice cream, yogurt, and powder.

A wide range of non-dairy farms of all sizes also produce conventional and organic fruits and vegetables, livestock, hay, maple products, and more for local, regional, and national markets. Vermont's dynamic and evolving food system also includes value-added products (e.g., cured meats, baked goods, beer, spirits, chocolate), thousands of market outlets, sophisticated distribution networks, and dozens of organizations and programs that provide business planning, technical assistance, education, and outreach.



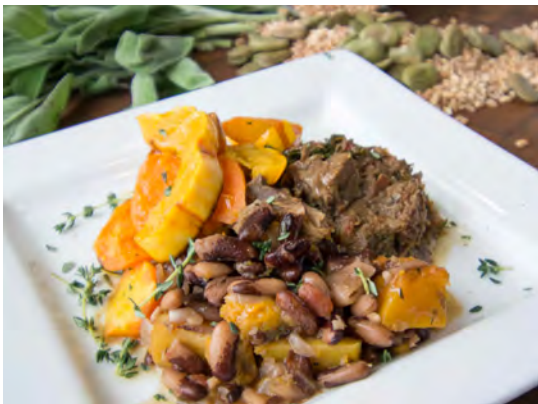
Despite Vermont’s long history of agricultural production and the recognized strength of our food enterprises, a number of recurring issues, gaps, barriers, and structural problems impact our food system. Vermont’s agricultural sector is at a critically important inflection point.

There are both historic and recent threats to the future of agriculture in the state, including the loss of dairy farms, rising energy and feed costs, the volatility of commodity markets, global trade wars and fierce competition, water quality concerns, and climate change.



The crisis is most visible in the state’s conventional dairy industry, though vegetable and livestock farmers and organic dairy producers are also facing significant market-based challenges. In fact, nearly all farming sectors are confronted with downward price pressure on producers, increasing production expenses, an increasingly competitive and complex marketplace, challenges in transitioning assets to a new generation of owners, and an ongoing shift in Vermont’s economy away from agriculture.²

At the same time, there are emerging opportunities that could stabilize and revitalize farming in Vermont, especially for diversified and/or organic farm operations able to adjust their production and marketing practices to take advantage of changing consumer trends. Highly strategic and expanded effort will be necessary to help our farms and food enterprises survive and to provide access to healthy local food for all Vermonters in the decades ahead.



Without taking decisive action and making certain strategic investments over the next ten years, we anticipate that a combination of unfortunate market forces and a generational transfer of assets will transform our agricultural sector, perhaps in ways that drastically reduce the economic viability of farms and food businesses, and in turn alter our working landscape beyond recognition. Vermont’s agricultural economy and land base may rapidly shrink. If the pace of dairy farm loss continues, the state is at risk of losing millions of dollars in economic activity, which would then create ripple effects impacting all farm production systems as well as the tourism economy, food security, and more.

A key goal of this report is to identify investments and public policy recommendations that will support new and existing agricultural enterprises, protect our agricultural resources, and increase local resilience given today’s political and climate instability.



We hope the Vermont Legislature and the Scott Administration will use the recommendations outlined in this report as a foundation from which to enact policies and make additional strategic investments that accelerate the movement toward a strong and resilient Vermont food system.

Critical Needs

The 23 product, market, and issue briefs included in this report each present a set of actionable priority recommendations. Strong themes occur across the briefs, illustrating the critical areas of investment necessary to support our agricultural and food producers as they face various challenges and take advantage of emerging opportunities. Based on this initial set of recommendations, there is a clear need for greater investments in **marketing, market development, business and technical assistance service** (in the form of additional personnel) and **product research and development**.

Initial estimates across these first 23 briefs indicate that as many as an additional 21 full-time personnel are needed to assist Vermont farmers through this time of transition and crisis. Expertise is needed primarily in the area of farm and business succession assistance and production-specific technical assistance (e.g., livestock, hemp, apples, climate preparedness, food safety), but also in marketing, local food brokerage, and facilitation for farmer peer-learning programs.

Product research and development is also noted as a need across several briefs. With the exception of the Proctor Maple Research Center, Vermont currently has no publicly funded research facility where products can be developed and tested. While large private sector businesses such as Ben & Jerry's and Cabot Creamery Cooperative do their own product development, Vermont would benefit from having researchers available to explore the world of fermentation, microbiology, and food science in search of new value-added products, which entrepreneurs could then commercialize. Farm businesses seeking to diversify or add enterprises (e.g., grass-fed beef, goats, grains, hemp) will also need research, shared processing facilities, good genetic stock, etc., in order to succeed in the marketplace.

Brief authors and contributors also identified over \$10.2 million in financial investments that could stimulate additional business expansion. The briefs suggest greater public and philanthropic support via grant programs, such as the [Working Lands Enterprise Fund](#).

In total, based on quantified estimates, an investment of approximately \$22.7 million per year is needed to ensure sufficient high-quality business assistance, marketing support, product research and development, grant programs, farmer-to-farmer educational opportunities, infrastructure investments, regional market development, and workforce development to meet the growing needs of the sector. This level of public (federal and state) and philanthropic support will stimulate even greater levels of private sector investment. Most importantly, these investments will increase sales, profitability, farm and food business survival, and food security in the face of climate change, ensuring a vibrant agricultural industry and working landscape, and healthy local food for all Vermonters both now and into the future.



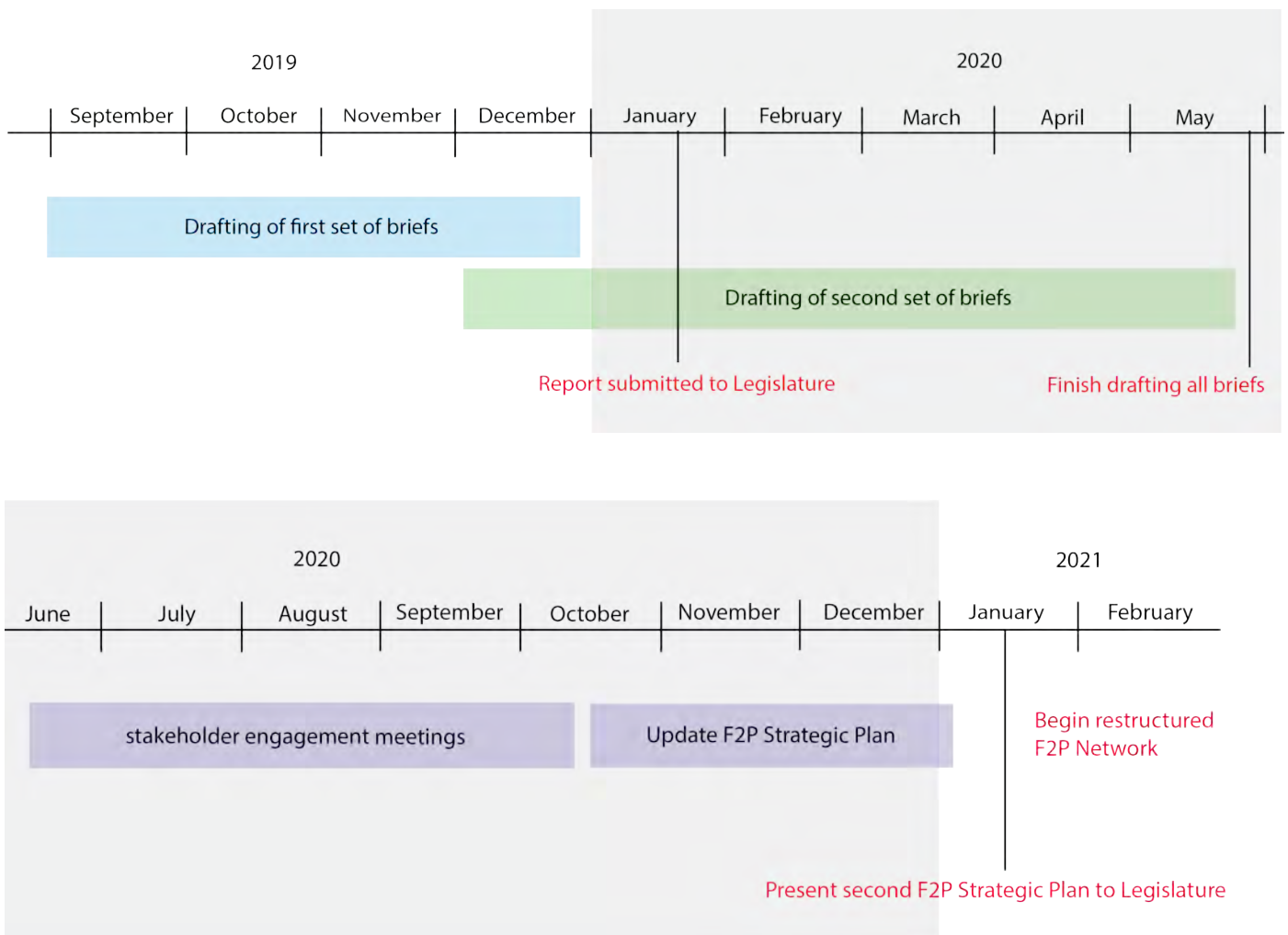
Next Steps

A sub-set of recommendations from these initial 23 briefs have been delivered to the House Committee on Agriculture and Forestry and the Senate Committee on Agriculture for consideration during the 2020 Legislative session.

A second set of 32 Product, Market, and Issue briefs are currently under development, using the same methodology as this first set and engaging a wide range of lead authors and contributors. After all 55 briefs have been finalized in late spring 2020, a statewide stakeholder engagement process will be conducted to collect additional input on the entire set of briefs and prioritized recommendations. The goal will be to assemble a list of the highest priority recommendations to advance and implement over the next five years. The second Farm to Plate Strategic Plan will be finalized and prepared for legislative review and action by January 15, 2021.

The completed planning process will also inform the restructuring of the Farm to Plate Network. Network groups and member organizations will then take action and implement relevant recommendations from the final plan, starting in January 2021.

Timeline



Methodology

The Brief Writing Process

As soon as Act 83 was signed by Governor Scott, the Vermont Agency of Agriculture, Food and Markets conducted an RFP process, seeking a contractor to complete the project. VAAFM chose the Vermont Sustainable Jobs Fund (VSJF) as the contractor, given their expertise and the fact that the Legislature had just reauthorized the [Vermont Farm to Plate Investment Program](#), which VSJF administers and which includes a provision to update the Farm to Plate Strategic Plan.

VSJF added a part-time, temporary staff position to serve as the project coordinator and editor. Over the course of the project, VSJF and VAAFM held weekly check-in meetings in order to stay on track with such an abbreviated timeline. The project team developed the list of critical agricultural products, markets, and issues to be covered by the briefs in collaboration with Vermont Farm to Plate Network leadership, and determined that, given the short timeline, the briefs would necessarily be written in two phases. The 23 briefs presented in this first phase cover products, markets, and issues which we thought would be of greatest interest to Vermont Legislators in January, 2020. The second phase of briefs will cover 32 additional products, markets, and issues important to rounding out the full picture of the Vermont food system.

VSJF invited 23 subject matter experts (SMEs) to serve as lead authors for these initial briefs. Each subject matter expert then solicited input from up to eight expert contributors and/or reviewers to ensure that each brief reflects a broad view of the topic, and does not simply represent the view of the lead authors. In total, over 130 Vermont private and public sector experts contributed their time and knowledge to these 23 briefs. Two webinars were conducted for SMEs in addition to one-on-one guidance to assist them in their task. Each brief went through a first and second round of editing with the authors and project team, followed by the development of data visualizations, before finally being laid out in this report format.

Structure of the Briefs

Each brief follows the same format.

In the **What's At Stake** section, the authors state why this product, market or issue matters to Vermont agriculture, what is at stake if we do not address emerging challenges, and why action is needed.

Current Conditions provide a summary of the current state and future trajectory of the product, market, or issue. Data points give the reader visual context regarding the subject topic.

Bottlenecks and Gaps provide additional information about identified challenges, while the **Opportunities** section suggests positive circumstances that can be explored.

Finally, each brief concludes with a set of **Recommendations** developed by the lead author and their contributors. Recommendations are specific whenever possible, indicating a specific policy, area for investment (full-time personnel, funding), and/or program that should be further explored and acted upon. In some cases, consensus exists on the best approach, but the conversation among key stakeholders has not yet progressed far enough to identify specific legislative solutions or quantifiable investments.

What You Won't Find In These Briefs

These briefs do not aim to be all-encompassing in their depth or breadth, they are intentionally brief. The authors and contributors, as well as many other industry stakeholders, are available to provide more detail on a topic, as requested.

Across the state, Vermont Farm to Plate Network members and others are engaged in myriad positive efforts designed to strengthen Vermont's food system. We have intentionally chosen not to provide an exhaustive list of organizations doing the work associated with a given product, market, or issue. Detailed information can be provided upon request.

Finally, we do encourage the reader to explore the resources requested in Act 83 that are contained in the [Supplemental Materials](#), including an updated inventory of capital providers who assist with the financing needs of farm and food businesses, a business assistance continuum that provides information about the types of services available to strengthen the viability of farm and food businesses in the state, and further resources regarding Vermont school and local food procurement.

Product Briefs

In this report, we developed briefs covering ten products ranging from our largest commodity sector (dairy) to nascent but highly desired specialty crops (grains, hemp) to emerging livestock opportunities (grass-fed beef, goats). A consistent theme evident in each brief is the need for additional business and technical assistance for producers, farmer-to-farmer peer educational opportunities, improved product marketing (especially to out-of-state markets), and further development of production standards.

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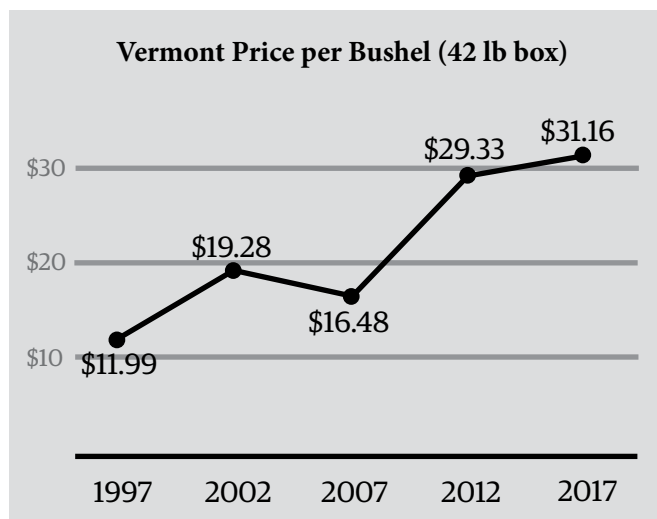
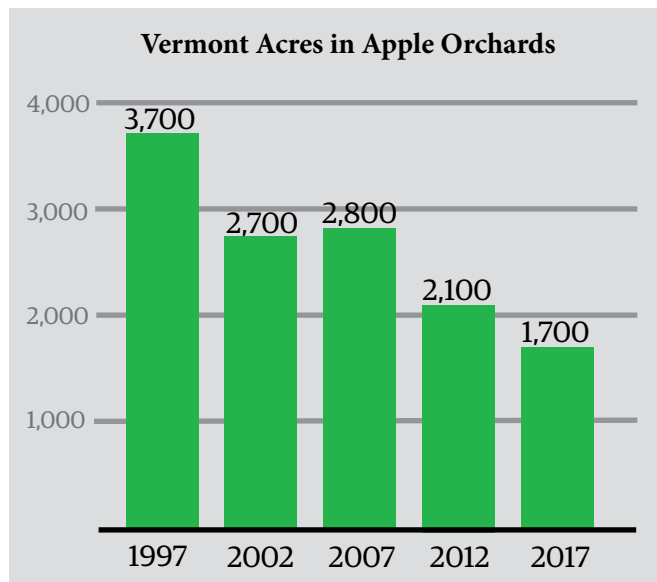
What's At Stake?

Apples in Vermont are behind only dairy and maple in total annual crop value. Since the 1990s, Vermont's share of all apples sold to eastern U.S. wholesale markets has decreased. Apple acreage fell from approximately 3,500 acres in 2001 to 1,700 acres in 2017. Local sales at pick-your-own and farm stand sales have increased, and cider markets have grown, but have not replaced lost volume nor revenue from wholesale sales. Some Vermont orcharding communities are seeing a loss of economic activity from crop sales and farm employment and the disenfranchisement of growers. Without supportive policies and more investment in marketing, technical assistance, and supply chain coordination, Vermont growers will continue to lose out to growers in regions where larger concentrations of orchards have the advantage in efficiency, modernization, and infrastructure.

Current Conditions

Wholesale apple producers are presently experiencing very difficult economic circumstances. Apples have historically been one of Vermont's primary regional wholesale crops, and thus provide significant revenue from out of state. Vermont orchards are planted primarily to McIntosh and similar varieties, but consumer tastes are shifting to newer varieties that require replanting of orchards. Recent shifts in marketing to in-state buyers has increased per-bushel prices paid to growers who are selling fewer fruit into commodity markets, but the increased value has not offset reduced sales volume that previously supported about twice the orchard acreage that Vermont now has. This shift has led to contraction in the wholesale market, facilitated by loss of in-state packing and distribution facilities. Some growers have adopted direct store delivery models by assuming their own packing and distribution systems, but limited outlets and local population limits potential growth.

Licensed hard cider manufacturers have increased to 24 in 2019 from less than ten in 2010, but the prices paid for cider apples are typically one half to one sixth the price for packed fresh fruit. Higher-value cider apples require growing unique varieties with no secondary market and sometimes unknown production needs. Orchards take three to ten years to reach full production, and installation costs up to \$30,000 per acre. This causes barriers to entry as time between investment and return requires saved or borrowed capital. Apples also have substantial, unique, and annual pest management needs relative to most annual crops. Despite recent losses in technical support at UVM Extension, private-sector technical assistance has been provided by a consultant with the primary agrichemical product dealer who works closely with UVM personnel to expand technical assistance services to growers.



Bottlenecks & Gaps

- Limited in-state growth in population and fruit consumption limits the potential for increased local apple sales.
- Lack of independent storage, packing, and distribution facilities limits individual growers' entry into many markets.
- Technical assistance for growers through UVM Extension is limited to grant-funded personnel with multiple other duties.
- Coordinated marketing support through the Vermont Apple Marketing Order was withdrawn by the Vermont Secretary of Agriculture in 2009 and cancelled by the Vermont Legislature in 2014.
- Orchards are highly reliant on seasonal labor, including migrant labor through the federal [H-2A program](#), which makes them vulnerable to labor shortages at critical times and to onerous regulations and inspections.

Opportunities

- Older orchard systems include deep-rooted, healthy trees that are resilient to climate and pest pressures. Well-managed orchards are a long-term asset, although prices for fruit from older varieties are low and many older trees may be past their commercial prime.
- Increased production of high-value specialty ciders creates markets for unique specialty cider varieties and for growers to establish on-farm cideries that add value to their crop.
- Institutional purchasers such as schools, colleges and hospitals may be an important area for increased local sales.
- Retail or pick-your-own apple markets are not saturated in many areas of the state and provide customers with a valuable agritourism experience.

Recommendations

- Collaborate across the distribution chain to increase in-state and regional institutional purchases of Vermont apples. Local food coordinators and other market specialists should assist with USDA purchases for school lunches, contracts at key institutions including higher education food service and hospitals, and aggregation through food hubs that prioritize fruit from local orchards.
- Support increased purchases of apples and production of high-value ciders through farm cidery legislation that would allow growers to more easily enter the cider market themselves and increase farm gate value for the fruit they produce.
- The Vermont Agency of Agriculture, Food and Markets (VAAFAM) should conduct and expand marketing programs for all Vermont horticultural crops, including apples. Marketing programs should be two-tiered to support both in-state and out-of-state promotions. Quality standards should be established for Vermont products that are exclusive and meaningful and thus may indicate provenance and quality of Vermont products sold outside the state.
- Increase and permanently fund technical assistance services through UVM Extension, VAAFAM, or other stakeholder organizations. Include pest management, horticultural, food safety, and economics expertise in technical assistance programming.
- VAAFAM should work with Vermont's federal delegation to urge sensible reform to immigration and labor rules that affect fruit and vegetable growers (e.g. [H-2A](#), [Title 29, Part 780 of CFR Agricultural Labor Exemption Rules](#)).

Farm to Plate is Vermont's food system plan being implemented statewide to increase economic development and jobs in the farm and food sector and improve access to healthy local food for all Vermonters.

The Vermont Agency of Agriculture, Food & Markets (VAAFAM) facilitates, supports, and encourages the growth and viability of agriculture in Vermont while protecting the working landscape, human health, animal health, plant health, consumers, and the environment.

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What's At Stake?

Vermont boasts more state-inspected cheese producers per capita than any other state in the nation — close to one cheese maker for 13,000 people — generating more than \$657 million in annual revenue. Vermont cheese makers create superior quality cheeses, winning national and international awards in numbers disproportionate to the size of our state. It takes ten pounds of milk to make one pound of cheese, making cheese a more consistently profitable option than fluid milk for dairy farmers. Vermont’s small dairy farms, challenging terrain, and short growing seasons create a disadvantage for Vermont dairy farmers relative to other national dairy producers in the commodity market but can be used as an advantage for value-added producers. Environmental concerns and low milk prices continue to be a struggle for many dairy farmers; however, dairy farms and related processing are central to Vermont’s landscape and identity (see [Dairy brief](#), [Goats brief](#)). A viable future for Vermont dairy needs to be premised on a strategy that compensates for these challenges and leverages Vermont strengths.

Current Conditions

Vermont has been a cheese making state since the early days of the industry. Cabot Creamery Cooperative celebrated 100 years in 2019, and another large producer, Grafton Village Cheese, celebrated 127 years. Over the past three decades, the specialty cheese sector has developed rapidly, building on the success of Cabot and other well-known brands. In 1997, 19 people founded the Vermont Cheese Council as a response to market demand for specialty cheeses and built on Vermont farmers’ eagerness to adapt when opportunity presents itself.

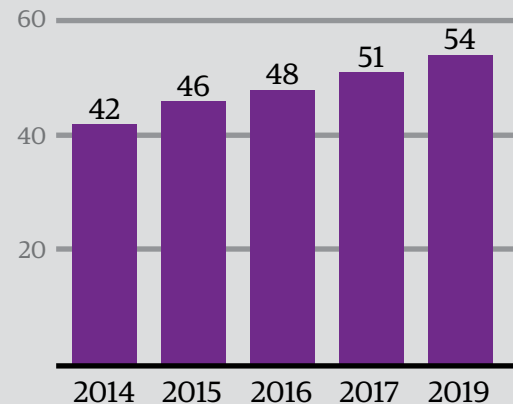
Today, Vermont has over 60 cheese makers, with large-scale and smaller on-farm artisanal producers together making more than 225 varieties of cheese. From value-added on-farm dairy operations to purely cheese-making facilities, cheese making operations have tripled while family farm milk operations have steadily consolidated or disappeared.

For the most part, the Vermont commodity milk industry and the far smaller artisanal cheese-making industry do not operate in concert with one another, though they could and do in some cases. Due to dairy co-op policies and economies of scale, it is difficult for small cheese makers to source cheese-quality milk from the co-op system. This makes it very difficult for small cheese makers to establish themselves unless they are also prepared to be dairy farmers, and difficult for established farmstead cheese makers to grow because they are limited by their herd size and often cannot source additional off-farm milk to produce a larger volume of cheese.

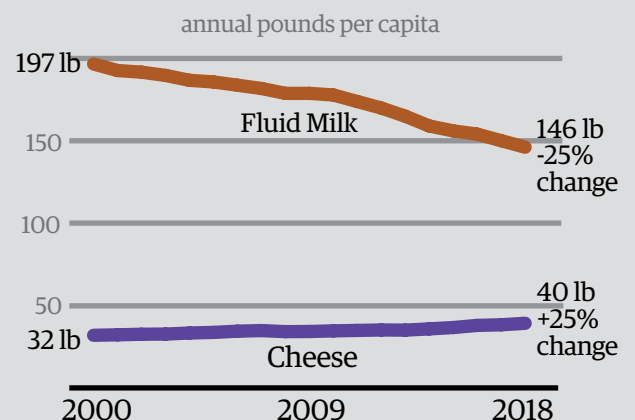
Artisanal cheese makers require milk of exceptional quality. Much of this cheese is made with raw milk, which requires particular care in production and handling. A marketplace effectively optimized to make the highest-quality milk available to cheese makers would support much higher growth in Vermont premium cheese production.

Membership of the Vermont Cheese Council

The Vermont Cheese Council has seen steady growth since its founding, including 12 new members in 2014-2019 alone.



While national consumption of dairy fluid milk has been declining, consumption of cheese has been increasing.



Bottlenecks & Gaps

- There are structural limitations in the dairy co-op system and farmer agreements that restrict cheese-quality milk from being sold directly or distributed directly to cheese makers.
- There is a lack of incentives for producing milk that is pathogenically and compositionally produced specifically for best-quality cheese making.
- There is confusion amongst consumers regarding dairy and value-added product labels such as “raw,” “grass-fed,” “organic,” “farmstead,” “artisanal,” and “natural.”
- Most small cheese producers have limited marketing budgets and are unable to participate in group marketing or group media buys.
- There are structural limitations in storage and distribution of cheese-quality milk and in post-production aging facilities. Cheese makers search for storage facilities to age their cheeses, pushing them to produce more fresh or pasteurized cheeses and fewer aged, high-value raw milk cheeses.
- Farmers, cheese makers, and new farmers/employees in the industry lack educational and safety resources.

Opportunities

- Cheese makers are open to developing and using shared infrastructure for aggregation, storage, and distribution.
- Focused investments in dairy agricultural and cheese-making education in Vermont’s vocational education programs and potentially, prison-based training programs, could provide a trained workforce.
- Strong quality standards and the reputation of Vermont cheeses make it a well-positioned industry for increased marketing support and initiatives.
- Cheese makers are open to group marketing and see marketing the Vermont cheese brand as a smart investment for their products.
- There is a new opportunity to build a strong raw milk research component into the Regional Dairy Innovation Center.
- Existing goat cheese processor demand could support at least ten new goat dairy farms of 400+ goats (the viable threshold for farm size) (see [Goats brief](#)).

Recommendations

- Align the dairy cooperative system with in-state cheese making in order to embrace more types of milk storage, including cheese-quality milk and raw milk for cheese production.
- Vermont’s congressional delegation and the Vermont Agency of Agriculture, Food and Markets should support overhauling the milk classification system to better embrace Vermont’s current needs and future growth trends.
- Clarify and codify cheese labeling nomenclature.
- New business models for support and logistics businesses should be developed, such as haulers, cooperatives, and lab staff specifically for cheese and soft dairy production. Utilize grant programs to assist these businesses with equipment purchases, business planning, and workforce development.
- Increasing annual investments in the Vermont Cheese Council’s marketing initiatives to \$150,000 would provide immediate returns for smaller cheese makers.
- Develop a comprehensive dairy products marketing program focused on quality that would assist producers with limited marketing budgets.

Farm to Plate is Vermont’s food system plan being implemented statewide to increase economic development and jobs in the farm and food sector and improve access to healthy local food for all Vermonters.

The Vermont Agency of Agriculture, Food & Markets (VAAFMM) facilitates, supports, and encourages the growth and viability of agriculture in Vermont while protecting the working landscape, human health, animal health, plant health, consumers, and the environment.

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What's At Stake?

For generations, Vermont has been defined by dairy, an industry that has an economic impact of \$2.2 billion annually and adds nearly \$3 million in circulating cash daily. Wherever you are in the state, and whomever you meet, you are not far removed from the dairy sector, and the socio-economic impacts stretch well beyond the farm gate. Many farm families have been on the same piece of land for over 100 years and hold deep-seated knowledge and a connection to a specific place across time. As the current dairy crisis roils the industry, Vermont is rapidly losing the highest-value use of the working landscape, putting the agricultural land base at risk of permanent loss.

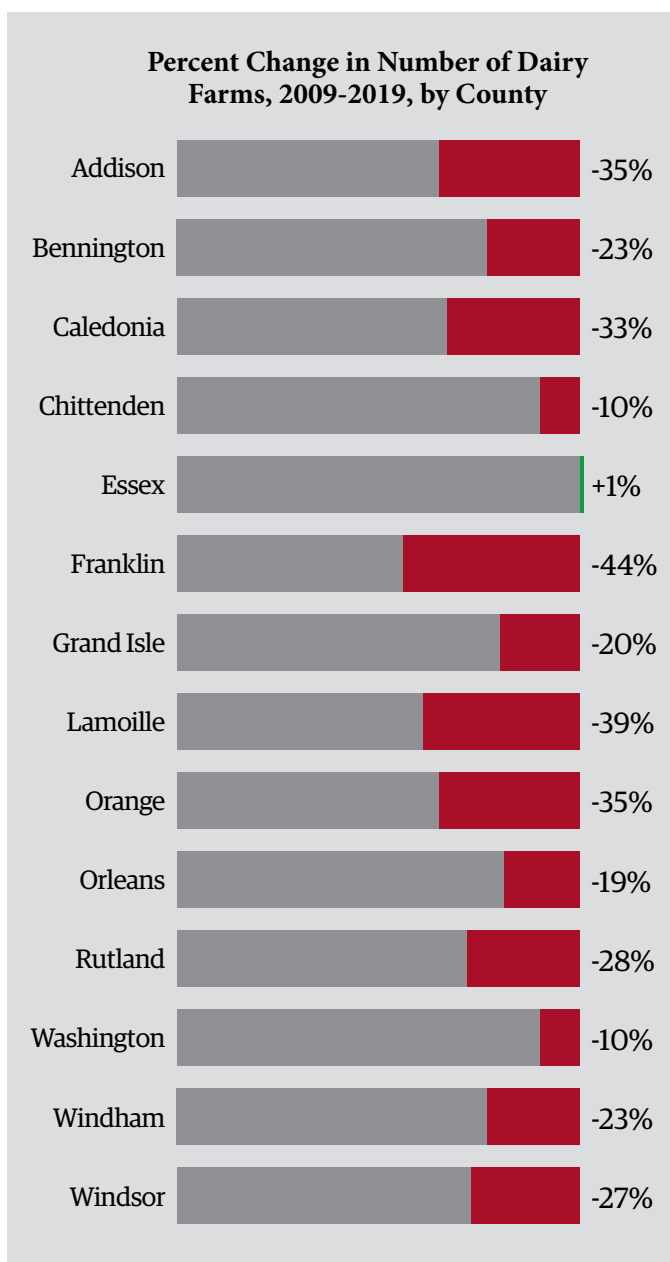
Current Conditions

Vermont's 664 dairy farms¹ (470 conventional and 188 organic) produce about two thirds of all milk in New England, with the bulk of it being processed by one of the 151 plants into fluid milk, cheese, butter, ice cream, yogurt, and powder. In 2010, for contrast, there were 1,015 dairy farms and just 66 processors in Vermont, which is illustrative of the rapidly evolving nature of the state's dairy sector and the success of value-added processing as a viable option.

Vermont's dairy farms encompass a variety of scales, production practices, and geographic locations. From 1,200-cow freestall facilities to 30-cow tie stall farms to 60-cow grass-based operations, Vermont's farms run the gamut of possibilities. Unlike the rest of the nation, and making Vermont and New England unique and well-positioned to be the leader in dairy innovation, over 80% of all dairy farms milk fewer than 200 cows. The small, localized nature of the dairy sector gives it greater capacity to evolve in concert with the ever-changing dairy market.

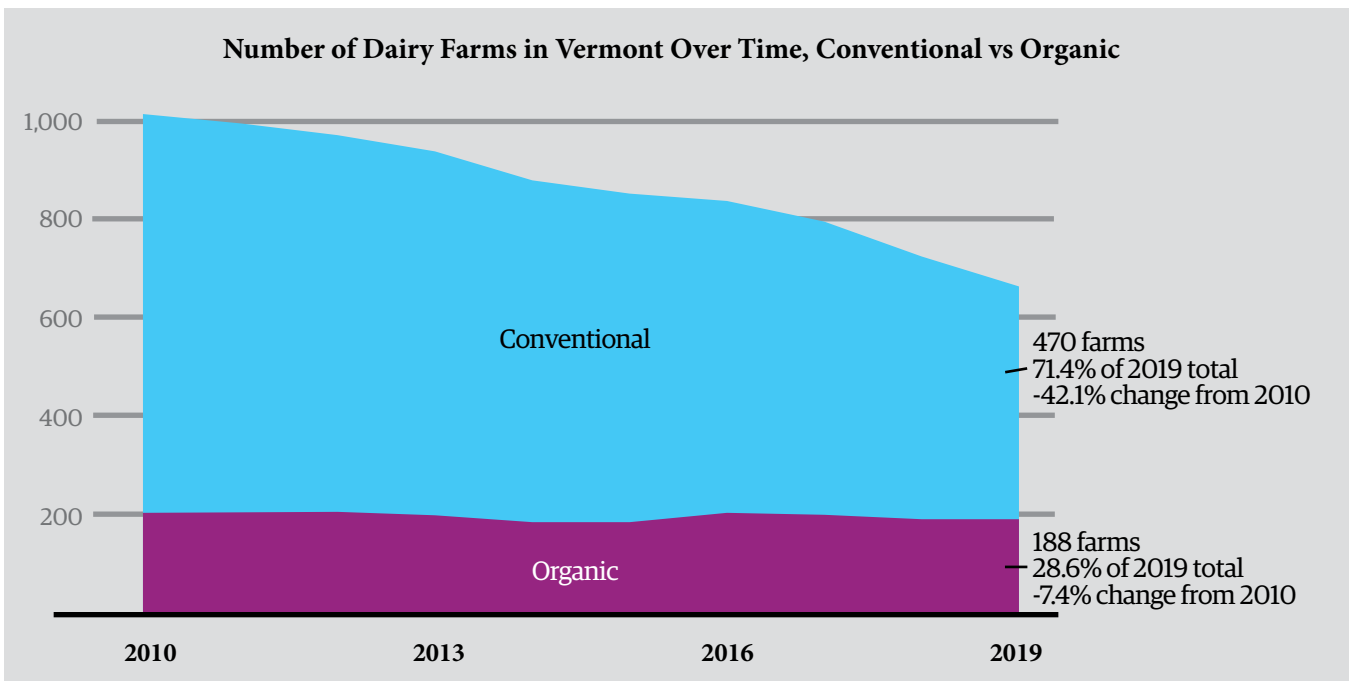
Vermont's dairy sector, across all scales and production methods, has been impacted by the extended downturn in pricing over the past five years, which has been exacerbated by decreased exports and a changing global political landscape. While conventional milk prices have always fluctuated, typically in a three-year pattern from high to low, and organic milk had consistently higher prices over conventional, this long-term decline in both markets is having a significant impact on farms across the country as the cost of production remains at or above the price paid for milk. With the continued overabundance of milk production and record levels of processed products in storage, conventional milk price forecasts do not show a meaningful increase for potentially years to come. Organic milk is buffered to some degree from such drastic market swings, though organic producers have had production quotas and received lower prices over the past couple of years.

(continued)



Dairy farmers are also faced with several other concurrent, high-stakes issues. At the forefront for Vermont are water quality and other environmental concerns, both of which are being addressed by regulations at the state and federal levels. The resulting changes to regulation have increased the financial and reporting burden for farmers. The extended downturn in pricing has led to a loss of equity for many farms and the inability to maintain equipment or infrastructure. For some farms, this has meant putting off critical water quality projects, which could exacerbate compliance issues. Finally, changing consumer preferences and a general negative public perception of dairy farming have created a perfect storm to make the current situation one of the most challenging the sector has ever experienced.

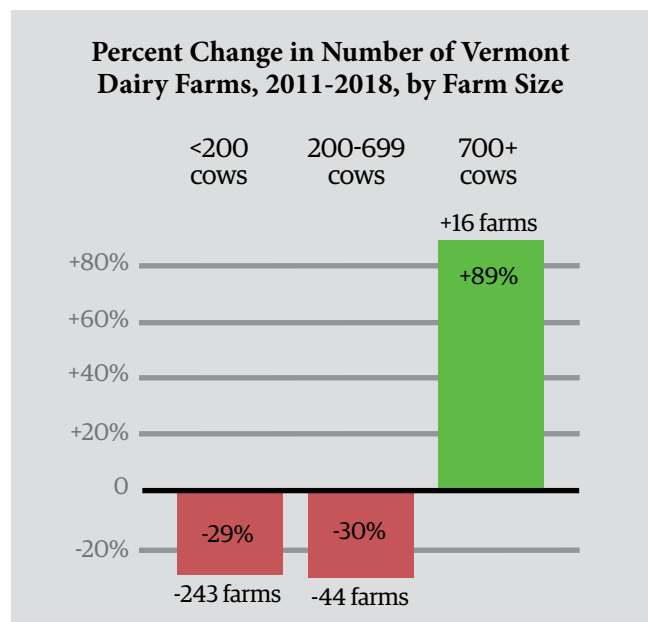
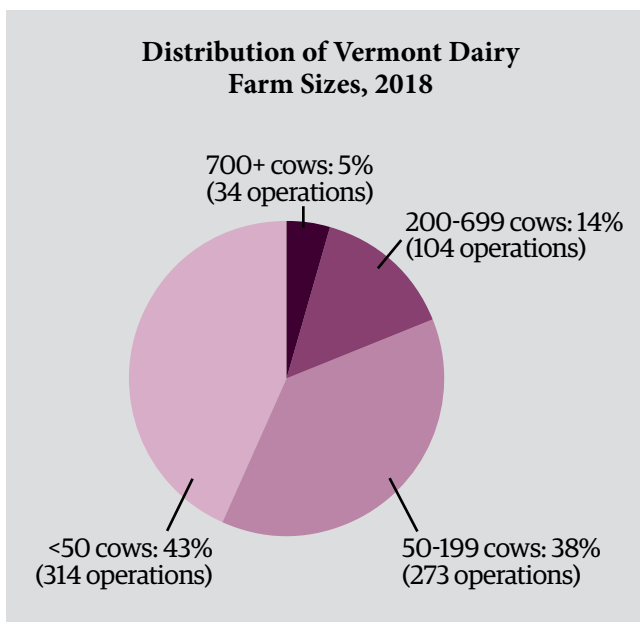
In response to the current dairy crisis, the amount of interest and work focused on the dairy industry has continued to increase and is originating from many different perspectives. Over the past two years, this work has included: [Northern Tier Dairy Summit](#); [Dairy and Water Quality Collaborative](#); [Future of Agriculture working group](#); [Working Lands Enterprise Initiative dairy focused funds](#); [Vermont Milk Commission](#); [legislative dairy farm tours](#); Secretary's Dairy Advisory Committee; USDA Dairy Innovation Initiative; [Payment for Ecosystem Services working group](#); positive dairy messaging campaign; and a dairy market assessment.



Scale Bifurcation

Current Conditions

The dairy industry, much like other commodity production systems, is a least-cost production model, in which farms must get bigger and produce more for less per-unit cost in order to remain viable. As medium-sized farms increase in size, and smaller farms tend to stay small, there is a loss of farms considered “ag of the middle.” This “scale bifurcation” is leading to two opposite production systems in a commodity market which does not value differentiation of production scales. Industry information, from animal housing to nutrition to genetics, is focused on larger-scale farms and production systems, creating a gap in research and services for small farms. Essentially, large and small farms have very different needs and the national dairy industry is mostly focused on providing resources appropriate for larger farms. As Vermont’s dairy sector is primarily made up of small farms (314 farms, or 43%, had fewer than 50 cows in 2018), it is critically important that these smaller farms are positioned for success and have the opportunity to compete differently than their larger counterparts.



Bottlenecks & Gaps

- Small farms are more likely to be family run, rely on off-farm income, have multiple diversification strategies for additional income, and have fewer hired workers, which can mean that issues such as poor health and loss of income from other sources have a greater impact on these farms than on larger farms.
- Smaller farms are disproportionately impacted by the cost of regulatory projects as their milk checks and value of assets are generally lower than larger farms.
- Commodity systems do not have the capability of differentiating between milk from large and small farms, yet this milk is perceived very differently by value-added processors and consumers.

Opportunities

- Small farms are exiting the commodity system by adding value to their own milk or producing milk for a specialty processor, such as milk produced without fermented feeds.
- Both farm scales have value for Vermont and the associated processing that occurs here, and their value should be clearly understood and delineated to ensure that regulations are appropriate for all scales.
- As Vermont has a critical mass of small farms and high-quality technical and business assistance providers, there is a clear opportunity to position the state as the leader of small farm systems.

Consumer Trends

Current Conditions

The dairy marketplace is rapidly evolving as new consumer groups shape the kinds of products desired and how they are purchased. The Gen X, millennial, and Gen Z generations are pushing companies for increased transparency, relationships with producers, and values-oriented production methods, and are stepping outside of the traditional grocery store format for purchases. These generational groups are also more interested in purchasing from small to mid-scale businesses, a key area in which nearly all of Vermont dairy products squarely fit. There is a clear market opportunity for products that meet specific production criteria, including environmental standards, animal welfare conditions, and social benefits. While Vermont's farm scale is small compared to other areas in the country, and thus is better positioned to meet consumer demands, there is a significant concern about dairy farm practices which could impact the entire supply chain as consumers move away from products that do not meet their values. Further, milk alternatives in refrigerated, shelf-stable, and frozen forms have impacted product sales and market share, a trend that does not appear to be easing in the near future.

- Sales of non-dairy milk alternatives are projected to **increase 108%** from 2013 to 2023, compared to a **27% decrease** in dairy milk.
- Since 2000, pounds of fluid milk consumed annually per person in the U.S. has decreased from **197** to **146**, but pounds of other dairy products (yogurt, butter, cheese, ice cream, and other frozen products) has increased from **71** to **81**. When factoring in the pounds of fluid milk required to make each pound of other dairy product, the total annual per capita milk consumption through all products has increased from **595** to **646**.

Bottlenecks & Gaps

- Dairy production strategies, value chains, and processing equipment are well-entrenched and difficult to change quickly in response to consumer trends, and much of the industry is still focused on increasing fluid milk consumption instead of capitalizing on other value-added products that have increasing consumption rates.
- Vermont producers must market to a wide variety of consumers (in-state and across the larger population centers in New England, in addition to customers across the country), and consumer trends can vary widely from coast to coast, so there is no one-size-fits-all strategy.
- Conventional dairy processors have been slow to change marketing strategies, particularly on fluid milk, making it difficult for consumers to differentiate between brands and attributes.
- Access to reliable and timely market research and implementation of findings can be a limiting factor as consumer trends can change rapidly.

Opportunities

- Small-scale farms and processors can be more agile in responding to consumer trends, changing production strategies or product offerings, and are capable of obtaining premium prices for their products.
- Nearly all of Vermont's dairy processors fit into the size category that consumers are seeking out, therefore providing them with the knowledge and skills on how to attract new consumers while meeting production criteria is an opportunity that has strong potential for market gains.
- In order to make Vermont fluid milk stand out more distinctly in the grocery cooler and catch consumer interest, processors could develop new labeling strategies for the stereotypical plastic milk jug, where there is currently a noticeable under-utilization of space that could be used to tell consumers the story and value of the product.



Forage-based Production Systems

Current Conditions

Grass-fed dairy products, specifically those that are also organic, are the fastest growing portion of the dairy case, showing annual sales growth over 30%. Vermont is well-positioned to take advantage of this market due to the abundance of high-quality forages (plants eaten by livestock), expert technical assistance, and availability of processors who seek to enter or expand their reach into the grass-fed market. With the development of standards in labeling across industries using the grass-fed claim, consumers will be able to have confidence in their purchases. A grass and pasture-focused production strategy has additional environmental benefits, including decreased water quality concerns and improved soil health.

- Sales of grass-fed organic dairy products grew **56%** in 2018 alone.
- The total farmland grazed in Vermont decreased from **281,554 acres** in 1997 (**22%** of all farmland) to **158,304 acres** in 2017 (**13.2%** of all farmland).

Bottlenecks & Gaps

- Many Vermont farms, both small and large, do not have adequate land base close enough to their farm to switch to 100% grass production, which requires frequent rotations through nutrient-dense, diverse, and well-managed pastures.
- Switching to grass-fed production can lead to lower milk production, and for farms who rely on certain levels of milk production to meet debt requirements, this can be an inhibiting factor.
- The learning curve can be steep and cause frustration for farmers who are new to the kind of grazing management strategies required for grass production, including the best genetics for grass-based dairy, animal health concerns in switching to a forage-only diet, and training animals to be effective grazers.
- Processors may not be in a position to take, and keep segregated, new grass-based milk production due to limited storage capacity for the differentiated milk, and established milk hauling routes may not easily reach all farms in a single truck load.

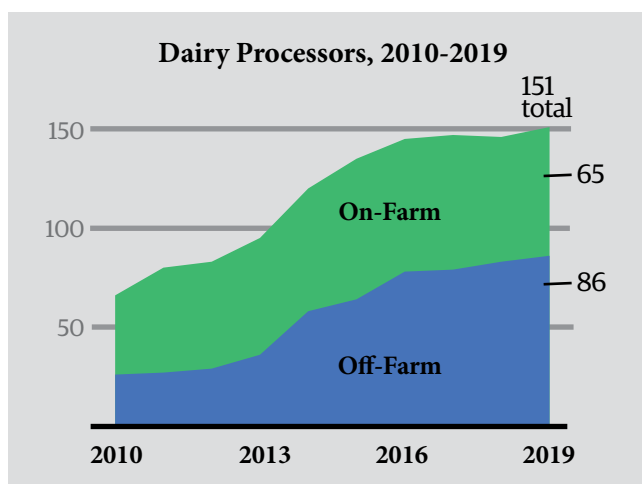
Opportunities

- Regionally, both Maple Hill Dairy and Organic Valley are processors experiencing growth and will need additional supply. There are several other brands nationally whose success and business model could be examples for Vermont.
- Converting more farms to grass-fed production may improve consumer perception of dairy, help alleviate water and environmental quality concerns, and maintain the working landscape in a way that supports both economic and tourism purposes.
- The land base affiliated with dairy farms that are going out of business, or no longer milking cows, can be utilized to graze animals from other farms or produce hay, keeping farmland in use to its highest potential and maintaining the dairy economy.

Value-Added Processing

Current Conditions

Since 2010, Vermont has seen a 130% increase in the number of dairy processing plants, which includes the addition of both large (e.g., Commonwealth Dairy) and small facilities (e.g., on-farm cheese makers), producing a wide variety of products that are consumed locally and exported around the world. Several of the larger facilities that are responsible for processing higher proportions of Vermont milk are owned by out-of-state companies and may also need costly upgrades to remain functional or add capacity to meet changing consumer preferences. Small processing facilities and the high-quality, award-winning products they create have pushed Vermont to the forefront of the artisanal, specialty dairy marketplace both nationally and internationally. The combination of scales of processing and the successful marketing of these products is one reason why Vermont's dairy sector will remain relevant into the future.



Bottlenecks & Gaps

- Maintaining adequate and licensed staff is a common challenge for larger scale processors and milk handlers, particularly in finding enough Commercial Drivers License (CDL) drivers to haul milk.
- Larger facilities often co-pack for other brands and may not have the storage capacity to maintain raw product separation, particularly as the co-packed brands gain additional market share (e.g., Booth Brothers bottling for Organic Valley).
- Small facilities are often a diversification strategy for farms, meaning that farm operators have to also become marketing and manufacturing experts in order to sell a competitive product.
- Small processors who rely on an external milk supply are struggling to source consistent, high-quality milk that meets their production needs as farms continue to close.

Opportunities

- New market research shows that cheese remains an economically viable option, particularly in the specialty marketplace into which most of Vermont's small scale processors fit.² (See [Cheese brief](#))
- Goat milk and non-traditional dairy products such as kefir (a fermented milk drink) also show potential for market growth and these processing facilities are underdeveloped compared to traditional cow dairy products. Additional emphasis on building capacity for these products may help ensure continued market viability and relevance. (See [Goats brief](#))
- Cooperatives and larger processors are in a strong position to create distinct product lines that could help add value to their brand and return more money to their farmers. This could also help their brand strategy, as public backlash against the continued loss of small farms may have a negative impact on processors.
- Develop alternative milk trucking and handling facilities to segregate high-quality, specialty milk for cheese makers outside of the commodity milk stream.

Alternative Milk-Pricing Strategies

Current Conditions

Milk pricing is a complex, federally run system that is impacted by a multitude of external forces such as commodities futures trading, product disappearance rates, and location differentials. Vermont exists in the Federal Milk Market Order (FMMO) system as part of Region 1, which also includes most of New England (excepting Maine), some of New York, Pennsylvania, New Jersey, Delaware, and some of Maryland. The FMMO system was put in place to help ensure that milk moves around the region and country in an orderly fashion, and that prices reflect distance to major milk consumption markets. Federal milk pricing sets the minimum farmers can be paid and impacts all farmers who sell into the conventional commodity stream. All processors have the ability to pay additional money for qualities they deem important (e.g., butterfat levels, milk quality) and this is the reason that organic prices are much higher, yet variable across organic processors. The [Caring Dairy](#) and [Milk with Dignity](#) programs are also examples of how processors can add money to milk checks based on farmers' production practices meeting specific criteria.

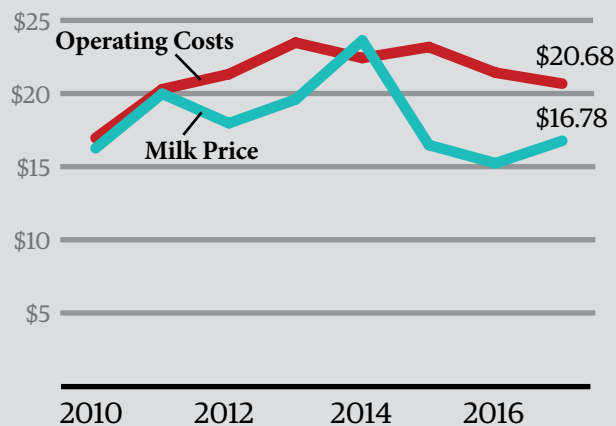
Bottlenecks & Gaps

- Because prices are impacted by national milk production deficits or surpluses, any type of supply management system will need mandatory national buy-in in order to be effective at raising and steadying milk prices.
- Federal milk pricing formulas are based on a limited number of products and do not reflect the actual market or consumption trends in the dairy sector.
- As one of the FMMO states, Vermont's ability to enact pricing changes is limited and must be an add-on to the base milk price.



Operating Costs and Milk Price per 100 lbs Milk Sold, 2010-2017

Milk price displayed is the Federal conventional price for Vermont farmers. Operating costs are Vermont-specific USDA estimates and exclude some expenses such as labor.



Opportunities

- The State of Vermont has the opportunity to add money to a farmer's milk check above the federally set price and there are several different models for how this could work — payments for ecosystem services, being a farmer in compliance with regulations, or additional funds for maintaining farm appearance, for example — which could have additional benefits of making Vermont dairy products more attractive to consumers.
- Components pricing is an opportunity that could move the pricing of milk away from primarily a fluid market and into a fat/protein market to follow consumption trends, with New Zealand being a model of success for this system. Components pricing pays the farm for the weight of solids (protein and fat) versus liquid volume.
- Seasonal production can be seen as an alternative payment model as farmers could get paid more by their processors for producing milk when they need it most and drying off their whole herd when the processing plants are over-supplied.
- Supporting additional programs or growing existing programs such as [Caring Dairy](#) and [Milk with Dignity](#) helps both the processors sell more products and return more money to dairy farmers who choose to meet the criteria.

Summary

Vermont's dairy farmers are actors in a system that does not account for geographic, social, environmental, or consumer considerations of farming, and thus must compete with least-cost producers in other states where mega-dairies and lax environmental regulations are the norm. Vermont has an opportunity to be the national leader for innovative and responsive solutions to the current dairy crisis and future downturns, and new policies should clearly place the state out front in addressing climate and environmental concerns while sustaining small farms. The above subtopics address some of the most pressing challenges and opportunities in the dairy sector and, while not all-inclusive of the issues facing the industry (e.g., workforce, U.S. immigration policy), lay out areas that have substantial interest and potential to change the Vermont dairy industry along a positive trajectory. The recommendations that follow build on the subtopics by providing overarching ideas for how to address the dairy sector's most pressing needs.

Recommendations

- Reinvigorate farmer cohort learning groups by funding a position that can coordinate meetings between farmers of different scales and in varying regions to share their specialized knowledge and allow farmers to connect with each other to broaden skill sets while providing social outlets. This could also be a coordination role between the many dairy support organizations who are already conducting on-farm events so as not to be duplicative and to make events welcoming to all. NOFA-VT hosted this cohort model several years ago with great success and it is an example of why New Zealand's dairy industry is so successful and adaptable. Cost: \$100,000 annually for a position and associated costs for successful meetings.
- Establish a formal mentorship program that will pay successful, retiring dairy farmers to work one-on-one with young farmers and help them navigate the challenges of being a new or beginning farmer, including animal health, farm management, and financial and personal challenges. This relationship keeps the inherent knowledge of land, cows, and dairy production going strong and does not de-value the worth of years in the industry. The [Dairy Grazing Apprenticeship program](#) could be a model for this system. Cost: \$12,000 per farmer/mentee relationship.
- Incentivize new farmers and farm transitions by starting a program similar to the [Agency of Commerce and Community Development's Remote Worker Grant Program](#), that will help defray costs of starting a new dairy farm or taking over the operation of an existing farm through a family or business transition. For example, the program could seek out graduates of the Dairy Grazing Apprenticeship program to increase the amount of grass-based dairy farming, and target successful young farmers looking for an opportunity to start their own farm business. Cost: The program costs would be highly variable based on what would be covered. For example, defray closing costs on a farm purchase, provide a living stipend for a year, and provide a mentor to assist during the first two years of operation.
- Ensure that the current processing capacity is maintained or increased as this is critical to long-term farm sustainability. Incentivizing or funding plant maintenance and energy efficiency upgrades will keep this critical and expensive piece of the supply chain in operation and will attract additional types of milk production in the state as companies expand product lines.
- Expand opportunities to differentiate the milk supply by supporting farm and processor transitions to, or increasing production capacity for, higher-attribute milk (grass-fed, organic, GMO-free) that responds to consumer trends and positions Vermont as the leader of innovative dairy production.
- Provide incentives and ensure current funding opportunities benefit dairy farms to move towards energy efficiency, including equipment upgrades, renewable energy generation systems, and work in concert with the needs of milk hauling and processing companies.

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VERMONT FOOD SYSTEM PLAN PRODUCT BRIEF



PRODUCT: Food-Grade Grains

What's At Stake?

Consumers are concerned about where their food comes from, yet may not realize that the majority of local grain-based products (e.g., flour, bread, baked goods, beer, and spirits) are not made with locally grown grains. Local grains market opportunities are beyond direct-to-consumer, as brewers, maltsters, bakers, restaurant owners, food distributors, and others have all demonstrated interest in greater local product availability. For Vermont dairy farmers looking to diversify, growing grains is a feasible option because grains can be grown at scale, would benefit the forage rotation, are suitable for our soils and climate, and offer a diversified income stream. For farms to continue to, or transition to, growing edible grain, there needs to be additional equipment and infrastructure in Vermont for growing and processing, strong regional markets, access to capital, and research-based technical assistance.

Current Conditions

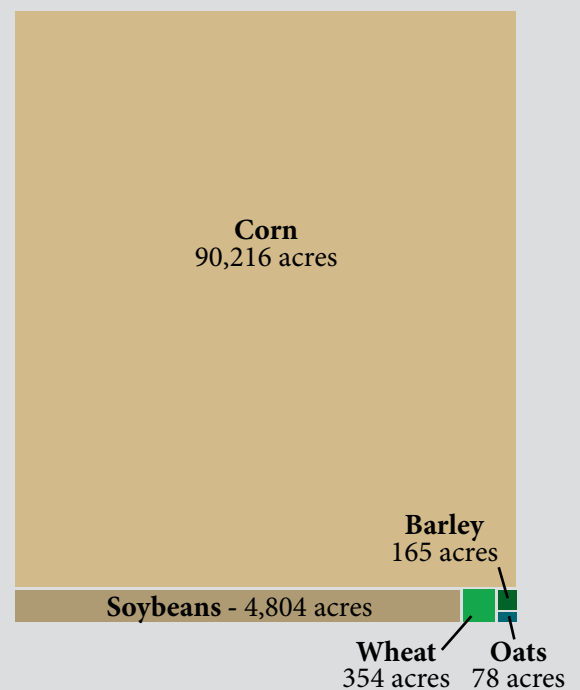
Vermont was a national hub for grain production in the 1800s, but today, much of the grain and foods containing grains are imported into our state. This represents a missed opportunity for Vermont farmers and the numerous related businesses that could benefit from a local grains economy. Consumers are demanding goods that are grown or produced locally. Beer, bread, and spirits are all rapidly expanding Vermont products and markets requiring grain for production. Vermont brewers and distillers use an estimated 31 million pounds of grains each year with less than 5% of that grain coming from local or regional growers. Peterson's Quality Malt in Charlotte is providing brewers with a new malt made from local and regionally sourced grains, and estimates the demand will increase to 8,000 acres by 2023.

Similarly, the number of bakeries in Vermont and surrounding states presents a significant opportunity for local flour production. However, Vermont lacks processing infrastructure to turn raw product into a flour, severely limiting opportunities for farmers and end users.

In order for the Vermont grain economy to grow, infrastructure is required for growers to harvest, dry, store, aggregate, mill, and process their harvested grains. At this time, such infrastructure does not exist in our state on a scale that is necessary to meet in-state demand, let alone sell into out-of-state markets.

In 2017, Vermont had an estimated 147 bakeries, 35 breweries, and 12 distilleries. These numbers only include establishments captured by either the Bureau of Labor Statistics or the US Census Bureau Nonemployer Statistics and may be an undercount.

Conservative estimates show additional wheat demand requiring approximately 8,000 acres, and additional barley demand requiring 2,855 additional acres. The amount of existing corn and soy acreage shows Vermont has the land capacity to grow enough grain to meet estimated current food-grade demand.



Bottlenecks & Gaps

- There is limited information on local and regional market demand and opportunities for grain.
- There are limited Vermont processing facilities and those that exist have infrastructure needs (e.g., threshers, seed cleaners, mills, industrial dryers, grain bins, storage, etc.).
- The system for distributing and marketing Vermont-grown grains, both in state and out-of-state, needs improvement.
- Farmers new to growing grain need individual technical assistance, both agronomic and financial.
- More research and testing services are needed to evaluate seed quality and assist growers with producing an exceptional product for value-added sales.

Opportunities

- Grain centers, established in other regions, are facilities which allow grain growers to properly and efficiently grow, harvest, clean, dry, test, sort, market, and handle grains going to the local markets. Grain centers can create and support new jobs such as farmers, millers, process facility labor, skilled labor, engineers, scientists, economists, market analysts, researchers, etc.
- Vermont-branded grains could leverage the state's brand and reputation for quality and farm-to-table foods and beverages.
- Investing in a local grain economy would help diversify farms and sustain or create new jobs in the agricultural sector (i.e., custom combine operations, grain equipment sales, grain processing jobs).

Recommendations

- Create a Vermont grains processing center with a multitude of benefits, including job creation and market security. This center would encourage more working lands to transition to grains, boosting the local markets. It would increase the reliability of grain quality for buyers, mitigating the risk of quality inconsistencies and boosting the potential monetary value for farmers. A grains center could control the quality of grain through consistent cleaning, drying, milling, processing, and storing.
- Provide funding for capital expenses to eliminate some of the small-scale infrastructure gaps. This funding could be available to farmers, or to organizations and/or businesses that work directly with farmers.
- Develop regional market connections and a marketing mechanism for Vermont grain products, particularly specialty grains. For example, fund the Northern Grain Growers Association to develop quality production standards for Vermont grain farmers to use if they so choose and fall under the qualifications of the program.
- Increase funding for research to identify marketable grains that grow well in Vermont, such as barley, spelt, and heirloom wheat varieties. With climate change and ever more unpredictable weather and seasonal patterns, creating new varieties and production strategies that can be resilient in Vermont will become of even greater importance than it is now. Cost: \$75,000 per year.
- Increase funding for technical assistance. Farmers and grain related businesses have technical assistance requirements that are not always readily available in Vermont. Building connections through UVM Extension and Northern Grain Growers Association to increase technical assistance availability would improve grain quantity and quality. Cost: one FTE at UVM Extension, \$125,000 per year.

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What's At Stake?

Vermont has driven growth in the artisanal cheese industry over the last 40 years. Today there are a dozen Vermont goat cheese brands, including the number two national brand of retail goat cheese. Due to the success of Vermont goat cheese makers, an estimated 5,000 additional milking goats could be needed in the state. In parallel to the goat dairy industry, the goat meat industry is still in development but has strong potential with both general and immigrant consumer markets. The goat industry represents a diversification opportunity for cow dairy operations, potentially contributing to keeping farms in business as well as maintaining a vibrant agriculture landscape in Vermont.

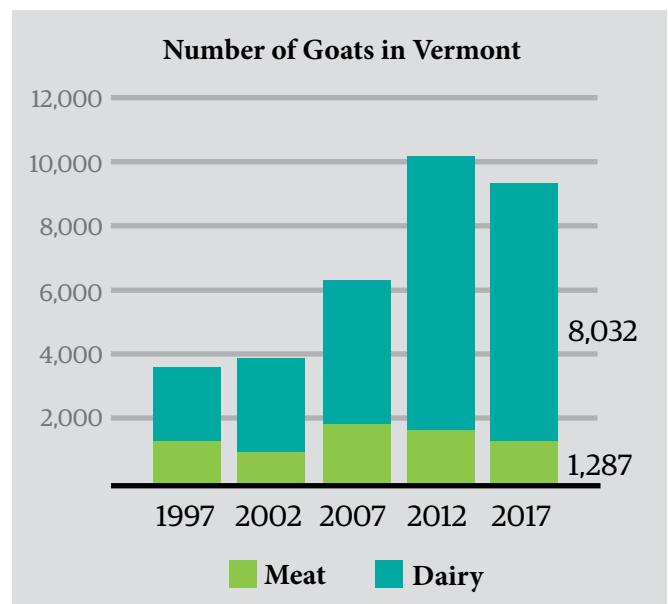
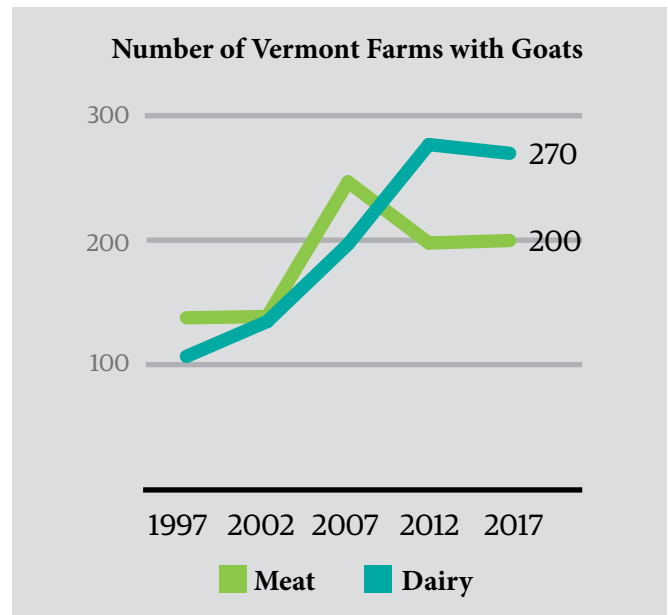
Current Conditions

Vermont's goat milk production has grown from 2 million pounds to almost 3 million pounds over the past five years. The demand for Vermont goat milk is larger than current state production, resulting in a out-of-state supply strategy from major Vermont cheesemakers. Vermont Creamery anticipates processing approximately 25 million pounds of goat milk over the next five years, a meaningful opportunity for the state's dairy farming industry. Other prominent Vermont cheesemakers have taken interest in the goat cheese industry (e.g., the Cellars at Jasper Hill).

Goats generate income for a farm within 12-15 months, and give birth to females more often than cow reproduction, enabling a quick growth of the herd and improvement of genetics. Less cash is required to set up an efficient goat dairy than an efficient cow dairy. Labor costs are higher for goat dairies than cow dairies, however the work itself can be less arduous.

Goat meat also shows promise nationally, with about 2.5 million goats being raised for meat in the U.S. currently, and a need for up to 750,000 additional goats per year in order to meet national demand.¹

Vermont can become a leading state for goat farming by increasing the availability of technical assistance and production expertise, improving marketing support for the industry, communicating the opportunity to meet growing demand, and ensuring access to financing for new and existing goat farms.



Bottlenecks & Gaps

- There is a lack of dedicated resources and knowledge about goat dairies and a corresponding shortage of targeted outreach on opportunities that exist in the goat dairy market.
- There is a lack of capital for on-farm diversification for farmers interested in adding goats.
- There is an insufficient level of support services in the Vermont goat industry (e.g., vets, feed consultants), especially regarding nutrition, genetics, and best husbandry practices.
- As the goat dairy industry grows, there is a need to further develop a market for goat bucklings (male kid goats) which are a by-product of dairy operations.
- The goat meat market faces a lack of consumer and chef awareness, as well as inefficient slaughter and processing infrastructure.

Opportunities

- Existing cheese processor demand could support at least ten new goat dairy farms of 400+ goats (the viable threshold for farm size).
- Farmers can diversify cow dairies by retrofitting milking parlors for goats.
- Growing demand for goat meat represents an additional market for farms as they grow their goat dairy operation. Current national demand leads to 52% of goat meat being imported from Australia and New Zealand.
- Additional consumer sampling, recipes, and cooking education regarding low fat, lean goat meat could be done through restaurant and retail partnerships.
- Local retailers see an opportunity for increased value-added products for retail to be further developed, such as goat yogurts, gelato, caramel, butter, ice cream, buttermilk, skyr, and jerky.

Recommendations

- Create a “Center of Excellence” with an on-site farm in Vermont to support growth of the goat farming industry and build expertise. Vermont Technical College has expressed interest in exploring this opportunity. This leadership could be a model for other states interested in farm diversification and keeping agricultural land in production. The first step is to explore the cost of creating such a Center.
- Offer financial support (a combination of low-interest loans and grants) for on-farm diversification that includes goats, in order to support the costs related to infrastructure, cash flow, and herd transition. A process to pair investors with farmers in search of capital could be mutually beneficial. The overall cost is approximately \$400,000 to diversify a cow dairy to include goats. The cost of a new milking parlor is \$150,000, the cost of 400 goats is \$160,000. (Total cost to get to ten 400-goat farms is \$4 million.)
- UVM Extension should create a staff position focused on goat farming to coordinate farm development efforts within the state and create resources to share with farmers interested in diversifying to goat dairy production. Cost: \$100,000 per year.
- The Vermont Agency of Agriculture, Food and Markets could assist in developing marketing materials for goat meat as well as consumer and chef education through training and sampling, and the facilitation of restaurant and retail partnerships.

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What's At Stake?

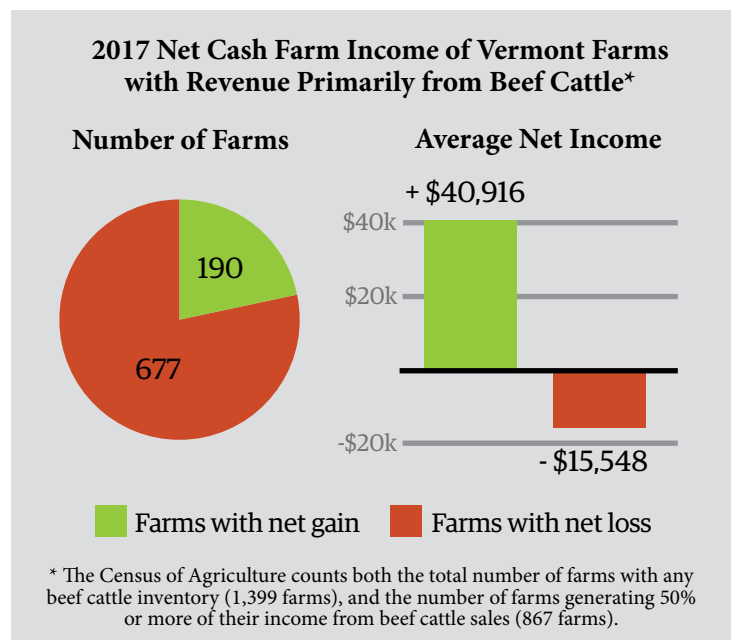
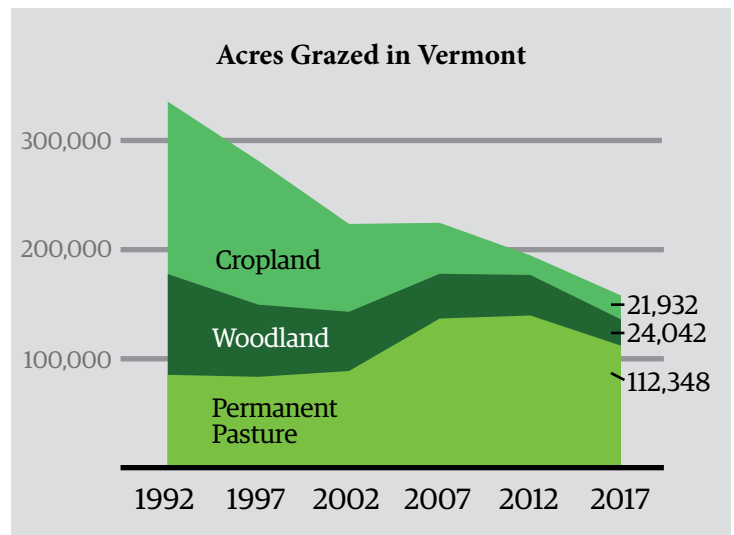
The market for beef labelled “grass-fed” has been growing quickly across the nation, from \$17 million in 2012 sales to \$272 million in 2016 sales.¹ Adding value through a production system and/or marketing label can bring higher prices paid to the farmer, and potentially higher farm profitability overall. That said, with increased demand comes increased national and international competition as well as a heightened need to improve Vermont beef genetics and grazing management in order to create year-round quality and consistency for local and regional wholesale markets. Beef represents an exciting opportunity for young and aging farmers, whether animals are grass- or grain-finished in Vermont or sold live into larger regional outlets, but will require focused coordination in order to grow within regional markets and maximize profitability and the benefits to Vermont’s farm economy.

Current Conditions

Grass-fed beef is experiencing a rising demand from consumers regionally, nationally, and internationally. Vermont is well positioned to serve grass-fed beef market demand in the Northeast, as we are able to grow grass at times of the year when other parts of the country experience drier conditions due to climate change-induced droughts, and because additional acreage could be converted from corn and hay that had been serving the dairy industry into grassland for beef production.

In 2017, Vermont had 1,399 beef cattle farms with more than 15,000 animals, a 37% increase over 2012. When managed well, grass-based beef and other livestock farms have been shown to increase soil fertility, improve water quality, sequester carbon, encourage biodiversity of soil microbes and wildlife, encourage farm profitability and farmer quality of life, produce high-quality meat with increased beneficial nutrients, and preserve a working landscape that enhances Vermont’s visual attraction to visitors and residents.

While offering the above benefits², the way that grass-based beef has historically been produced has been challenging financially for producers. Vermont beef farms often manage a complete birth-to-death cycle, raising animals through one or two winters, which requires expensive winter feed (i.e., hay) that deeply affects profitability. Slaughter and processing plants are financially strained by the seasonality of demand for their services. Additionally, the limited availability of less-expensive cattle feed (such as grass), genetic variability, speed of weight gain, and wide differences in grazing management skills can cause inconsistent quality in the meat eating experience.



* The Census of Agriculture counts both the total number of farms with any beef cattle inventory (1,399 farms), and the number of farms generating 50% or more of their income from beef cattle sales (867 farms).

Bottlenecks & Gaps

- Beef production requires large amounts of capital to get started, outside of the cost of acquiring land.³
- There are longstanding cultural expectations among farmers and consumers that farmers must manage every stage of the beef life cycle, regardless of farm size, production system, or skill set.
- There is a need to balance importing animals from other U.S. regions, in order to improve genetics for weight gain in forage-based systems, with the necessary protections to track animal movement and reduce the spread of disease.
- We need grazing management practices that produce the most profitable beef.
- The lack of a clearly defined, USDA-recognized “grass-fed” beef label outlining specific production practices, ingredients, and/or attributes creates inconsistency in the eating experience.

Opportunities

- Young and beginning farmers with a strong managed-grazing skill set want to enter the livestock industry.
- Aging farmers, particularly dairy, beef, and crop farmers, are retiring without defined successors (see [Succession brief](#)).
- Semi-retired dairy farmers with existing infrastructure can utilize their stored feed and manage beef in winter.
- Regional partners are coordinating sales of Vermont cattle into the regional system, are identifying skilled “grass-finishing” farmers, and are collecting packaged beef from farms with shared production methods to market under specific brands, using technological approaches to transparency of labelling and improved consumer education.
- Crossbreeding dairy and beef cattle for export to specialized markets may increase the value of dairy calves and meet consumer demand.

Recommendations

- Develop a multi-year benchmarking/tracking program with beef production methods (high and low-intensity grazing management, grain-finished and grass-finished), markets (regional auction, aggregator-mode, direct sale, etc.), and profitability levels in order to assist farmers in making better business decisions.
- Establish financial support for shared-learning cohorts of beef producers in business planning and management programs. In addition, make grant opportunities available to Vermont graduates of [Ranching for Profit](#), particularly participants in the benchmarking program.⁴
- Actively develop stronger beef-dairy partnerships to reduce feed and housing costs, share overhead expenses, and increase appropriate market channels for dairy beef as a complementary product.
- Create a targeted education and outreach program to improve beef quality and grazing management for all types of beef production, particularly for grass-finished markets, and to increase consistency to serve larger urban markets. Combined with this program should be improved matching of target markets to beef quality, land/soil quality, and grazing skills. Currently, staff capacity in this area is minimal and program establishment would require new funding.
- Identify and expand opportunities along the regional value chain focused on grass-based production. Models outside of our region include examples of shared services such as breeding technicians, veterinarians serving a cohort of partnering farms, co-owned equipment, and discounted rates on larger purchases of feed or supplies.

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What's At Stake?

Hemp is a versatile annual crop and, according to UVM research, is well adapted to Vermont's climate. In 2018, federal laws established hemp as a regulated agricultural commodity. That year, United States hemp sales grew to \$1.1 billion, dominated by cannabidiol (CBD), followed by personal care, food, and industrial products (e.g., building materials, textiles, bio-composites, etc.). From 2016-2018, the first Vermont farms and businesses that jumped in were rewarded with extraordinary prices for their high-CBD hemp. Market research shows the U.S. hemp industry will grow an estimated 19% from 2018-2022, however, as prices paid to producers continue to fluctuate, it is critical that Vermont's hemp sector prepare for where prices are headed, look to the future, diversify, and innovate.

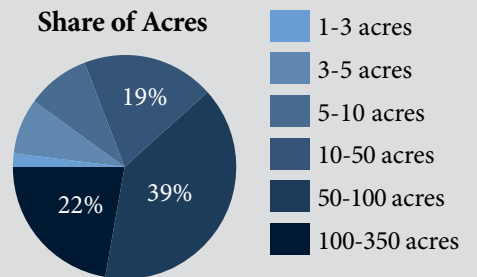
Current Conditions

In the United States, hemp is cultivated for its grain (seed), fiber, or cannabinoids (hemp's beneficial compounds, principally CBD). Vermont's hemp sector has expanded rapidly, driven by U.S. sales of \$390 million for CBD products in 2018. By 2019, cannabinoid production was the focus of 90% of registered Vermont hemp growers, followed by those growing hemp for seed or nursery stock, fiber, food, or "other." Among Vermont's 2019 hemp processors, most plan to dry hemp and/or extract its cannabinoids (64%). Another approximately 22% registered to explore seed oil or fiber processing, however, infrastructure and markets lag for these applications.

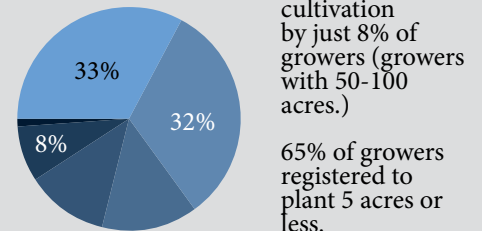
High-quality Vermont hemp biomass for CBD extraction was selling for \$100-\$150 per pound (net profit of approximately \$80,000-\$130,000 per acre) in 2018. As a result, successful 2018 operations expanded in 2019 and a flood of new registrants more than doubled the size of Vermont's hemp program. By November 2019, prices everywhere had dropped sharply to \$25-\$55 per pound. For those growers that rushed in unprepared, lacked a buyer, or harvested too late, 2019 will likely be a setback. Others who had the knowledge, a processing plan, and perhaps a sales contract, will do well.

As 2019 wraps up and Vermont measures its progress, the hemp industry faces regulatory headwinds brought on by USDA Interim Final Rule on the [US Domestic Hemp Production Program](#) and uncertainties about what steps the Food and Drug Administration will take to regulate CBD in 2020.

Registered Growers by Acreage Category

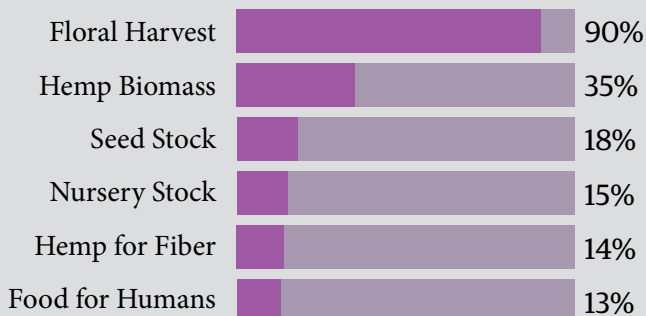


Share of Growers

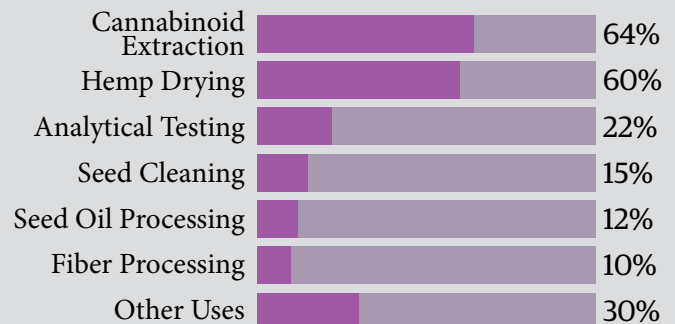


Percent of Registered Growers and Processors in 2019 Registered for Each End-Use

Registered to grow for:



Registered to process for:



Bottlenecks & Gaps

- Vermont farmers lack access to a high-quality and consistent supply of hemp seed. In 2019, difficulties obtaining seed and sales of poor-quality seed bred a lack of trust in the seed sellers.
- New hemp growers and processors lack industry knowledge and experience, access to markets, peer-to-peer networks, and the technical assistance needed to support informed business decisions.
- The hemp boom has led to an oversupply of high-CBD hemp, contributing to a steep drop in crop prices in Vermont and nationally.
- Due to a lack of sufficient investments in infrastructure at this early stage in the industry, various gaps and bottlenecks have emerged related to hemp production, drying, processing, testing labs, and other forms of infrastructure.

Opportunities

- Vermont's CBD hemp producers are gaining local and U.S. recognition for the quality, integrity, and the originality of their brands, in much the way that Vermont organic products, craft beer, and artisanal cheese have enjoyed market success.
- Hemp-derived CBD is now global and is projected to be a \$2.6 billion industry in the US by 2021. Vermont's climate and culture, the enthusiasm of its farmers and innovative entrepreneurs, and support provided by state government, will contribute to Vermont-branded hemp products enjoying a strong presence in the emerging marketplace.
- The passion of Vermont's hemp industry stakeholders presents an opportunity to prioritize research, development, and investment into other hemp applications, especially fiber, food, and feed.

Recommendations

- State investment in hemp research, education, feasibility, and innovation programs is essential to develop niche food, feed, fiber, and industrial products, professionals, and markets that go “beyond CBD.” UVM's Center for Agriculture and Life Sciences and Rubenstein School, UVM Extension, VAAFM, Vermont Sustainable Jobs Fund, and others are recommended to lead or expand such programs. The private sector also needs to accelerate hemp investment, research, and development.
- Additional technical assistance staff is needed to support hemp growers and processors. An allocation of \$200,000 to UVM Extension for two FTE staff is needed.
- UVM Extension should establish and support a hemp seed breeding and certification program over a three to five-year period. The program must engage Vermont growers to create stable genetics for the Northeast that cover the full range of hemp end-uses.
- The Vermont Legislature needs to pass legislation in 2020 approving hemp products (e.g., CBD) for use in food and beverages, and as a food supplement (see Maine's [ME LD630](#) from 2019).
- A working group is making progress towards forming a hemp trade association by Spring 2020. To jumpstart the group, the nascent hemp industry would benefit from two years of state funding to help leverage private funds. A trade association is critical as an information, education, and policy hub, and a clearinghouse for hemp market data. It could take the lead in promoting Vermont hemp products, becoming self-sustaining after two years. Cost: \$50,000 for two years.

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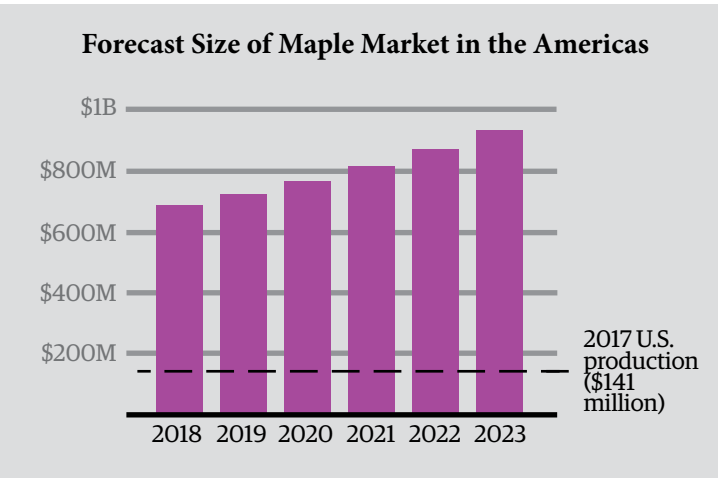
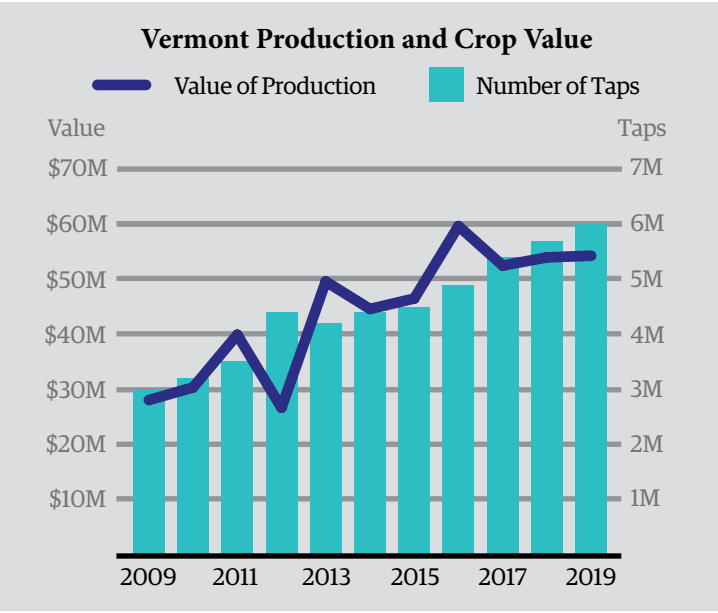
What's At Stake?

The Vermont maple sector is experiencing rapid growth in production and product innovation while holding a leadership role in maple distribution, research, and manufacturing for the United States. The expanding national demand for natural sweeteners, paired with improved production practices, creates an opportunity for continued expansion that will bolster job opportunities at all levels of the maple industry. Research estimates that 12% of the current maple resources are being used for syrup production, leaving a large amount of untapped forest available for expansion.¹ Maple leaders are optimistic about sustained growth but recognize the need to adapt to new policy, climate, land use, and market forces to maintain Vermont's role as the premier maple state in the United States.

Current Conditions

Vermont produces 50% of the entire United States maple crop. High syrup prices from 2008-2013 facilitated rapid expansion and a significant influx of new businesses. The overall tap count and gross agricultural sales of maple syrup doubled in Vermont from 2008 to 2018 with farm-level production valued at \$54 million in 2018.² By 2018 the softening market price slowed expansion but many existing producers continue to increase production. Research from the UVM Proctor Maple Research Center and adoption of new technologies have played a major role in improving best practices that have increased yields. Recent food safety policy, water quality regulations, and climate change, however, provide a new list of issues that will require new practices to address.

Over 80% of the annual Vermont crop is sold to bulk buyers and a large portion of Vermont syrup is exported out of the state by both packers and individual producers. In-state syrup markets are experiencing increased competition as the syrup supply and the number of producers increase. Canadian syrup imports and United States and Canadian currency exchange rates also create strong competition against Vermont syrup nationally. Recent U.S. trade policy and tariffs have provided an additional advantage favoring Canadian companies. Meanwhile, maple expansion in other states prompts the need to bolster an updated Vermont maple brand.



Bottlenecks & Gaps

- A tight labor market for sugar bush management and food manufacturing jobs is a challenge to growing companies.
- USDA National Agricultural Statistics Service (NASS) data is thought to under-report maple production and accurate sources for maple forest land use data do not exist.
- Retail inspection oversight has not kept pace with market expansion.
- Climate change impacts on forest ecosystems are not fully understood.
- A growing global syrup supply creates a price-competitive marketplace that favors low-cost producers and capable marketers.
- The changing demographic among sugarmakers challenges institutions of member associations, knowledge exchange, and collective communication and advocacy.

Opportunities

- Education and verification programs can teach and promote food safety best practices.
- Markets have room to expand throughout the U.S. and internationally.
- Market research could develop relevant campaigns including more product attributes and consumer experiences. This includes maple promotion as an all-natural sweetener and the environmental attributes of maple forest stewardship.
- Innovation in maple packaging and new product forms could expand maple into new product categories.
- Overall, appropriate investment will enable Vermont to maintain its preeminent role in maple research, production, technology innovation and marketing.

Recommendations

- Public-private marketing initiatives should be developed in order to maintain Vermont brand recognition and facilitate market expansion of pure maple syrup across the U.S. This should include the development of consumer education campaigns that position maple as a natural sweetener (i.e., corn syrup alternative) and highlight Vermont's position as a brand leader. Public-private partnerships should fund product development research and support first-mover businesses seeking to expand into new product categories, such as beverages and snacks.
- Improve preparedness for state agencies and institutions to make increased investment to keep pace with industry growth. Investment is needed in the following areas:
 - Expand Vermont Agency of Agriculture, Food and Markets retail inspections and oversight to maintain standards for syrup in the marketplace.
 - Expand educational programs focused on syrup grading and quality standards.
- Initiate a statewide workforce development and workplace safety program to address the unique needs of both forest management and food manufacturing career tracks as job opportunities increase.
- Develop Vermont as the industry leader in maple food safety programs. Expanded funding is needed to maintain the [Vermont Sugarhouse Certification Program](#) coordinated by the Vermont Maple Sugar Makers Association past 2020. Industry and state representatives must collaborate to determine which entities have the long-term capacity to oversee critical maple food safety training and verification programs. Additional programs will be needed for maple processors and handlers throughout the supply chain. Cost: ~\$100,000.
- Improved economic and land use data is needed to evaluate the impact of maple in Vermont and nationally.
- Prioritize forest climate change research and new programs to develop adaptation strategies.

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What's At Stake?

Significant challenges are on the horizon for more than 1,000 produce farms that add diversity and innovation to Vermont's agricultural economy, which is otherwise largely dependent on the commodity dairy industry. Though small in proportion to dairy, produce farms (excluding apple farms) generate over \$50 million in annual sales, employ thousands of (mostly seasonal) workers, and supply key components of a healthy diet.

Current Conditions

Recent growth in Vermont's produce industry has been fueled by demand for healthy local food and sustained by innovative growers that produce high-quality crops. This diverse industry is comprised of farms growing various combinations of vegetables, berries, and ornamental crops, both in the field and in greenhouses (apples are considered produce but are discussed in the *Apples* brief). Many of these farms also produce tree fruit or livestock, and some produce hemp, mushrooms, and an array of value-added products. Farms range in size from a few acres to a few hundred acres, and they sell primarily to retail and wholesale markets in-state. Growth in this sector appears to be leveling off due to competition for markets, high production costs, regulatory obstacles, and lack of affordable labor. The future of many of the larger farms in this sector is threatened by their lack of a farm succession plan.

The 2017 Census of Agriculture found 716 Vermont farms selling vegetables, about 400 farms selling berries, 220 farms selling floriculture and bedding plants, and 199 farms selling greenhouse tomatoes. These farms had aggregate sales of \$48 million out of the \$52 million in total annual produce sales. In 2019, the Vermont Vegetable and Berry

Growers Association had 360 member farms, up from 213 in 2010. USDA-Natural Resources Conservation Service has funded over 400 high tunnel greenhouses in Vermont totaling 1 million sq. ft. since 2010. In recent decades many new farmers markets, CSAs, and roadside stands have been established. New farmers continue to arrive, both young people and people changing careers. Many come from out-of-state, or return here after working elsewhere, attracted to Vermont's innovative grower and marketer community, and its passion for local food and farms.

Vermont has about 70 summer farmers markets, 17 winter farmers markets,¹ 65 CSA farms,² 91 pick-your-own farms,³ and hundreds of farm stands. Although total direct-to-consumer sales continue to grow, anecdotal consensus is that direct markets for fresh produce are becoming saturated, so when new enterprises get established they take customers from existing markets.

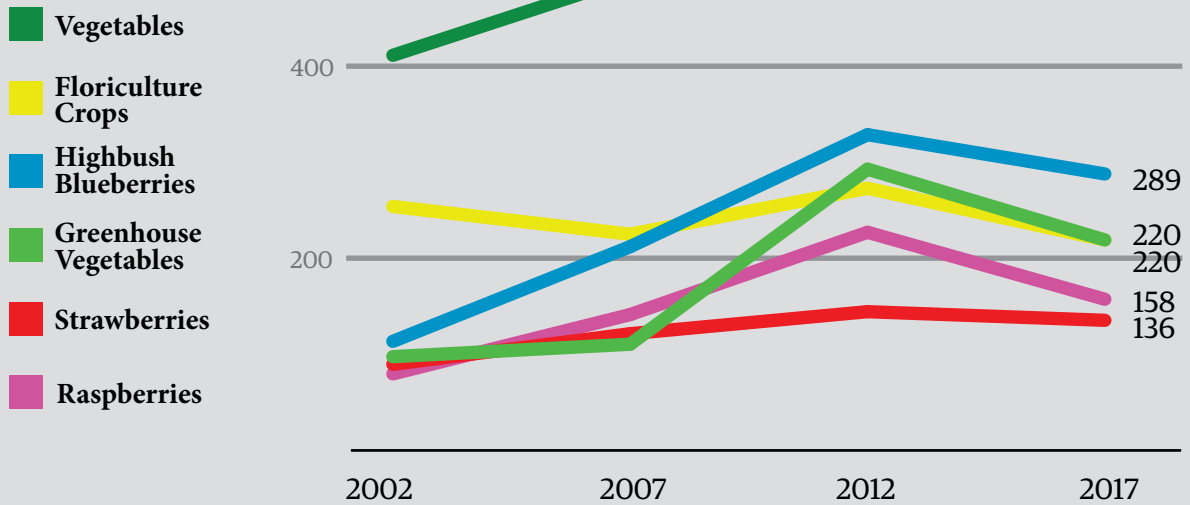
Although unsaturated niches exist, the potential for a lot more growth among direct markets seems low. Smaller farms could sell to wholesale markets, but in general

(continued)



Number of Produce Farms in Vermont, Select Categories

From 2002-2012 the number of farms selling horticultural products increased in all categories; from 2012-2017 that number declined in all categories.



Vermont Produce Farm Gate Sales, Select Categories



Current Conditions (continued)

those prices are not high enough to sustain farms that are used to getting retail prices from direct sales. A relatively small number of farms are selling to out-of-state retail customers through CSA delivery (e.g., Muddy Boots Farm collaborative), value-driven aggregators (e.g., Farmers To You), and specialty distributors (e.g., Meyers Produce). Those markets have potential for growth given larger urban populations in nearby states, and the capacity of Vermont growers to deliver high-quality, organic, and ecological products for much of the year as well as the widespread adoption of improved food safety, cold storage, and winter greenhouse production techniques.

Direct-to-store wholesale (not through a distributor) is a profitable and reliable market for many mid-sized produce farms, but sales may no longer be growing. This market, and other larger wholesale markets for fresh produce, are very competitive, with prices strongly influenced by low-cost, out-of-state producers. Unless per capita consumption of produce increases, new sales to retailers and distributors must come at the expense of existing and often well-established market relationships.

Supermarkets buy and sell a lot of produce (though specific data is lacking) but logistical barriers to entry are high and prices paid to producers are typically lower than those offered by health food stores, food co-ops, and some independent markets, which tend to buy in smaller volumes. Our larger vegetable farms are best suited to consistently supplying supermarkets, though a few smaller growers have developed strong market relationships with a nearby supermarket. According to grower testimonials, not many institutions (e.g., schools and hospitals) buy enough volume of produce, nor consistently enough, at fair prices to make that market viable. The few that do have organizational and cultural commitments to local food tend to go beyond economic motivations.

Value-added beverage and frozen opportunities exist for berries, but Vermont has only a handful of growers devoted exclusively to berry production, and most are at a scale better suited for PYO or direct-to-store sales. Vermont frozen fruit research shows that frozen production favors scale, requires significant investment and management acumen for post-harvesting labor, equipment, and quality control, and increased product liability coverage and food safety certifications.

Bottlenecks & Gaps

- Labor needs and costs are high, and retention of the seasonal workforce is a challenge. Reliability of local labor is low and as a result wholesale farms are very dependent on H-2A workers.
- In-state direct markets are nearing saturation and wholesale markets are competitive. Wholesaling profitably requires greater production efficiency and volume than most small farms are capable of.
- Many successful produce farmers are nearing retirement without a succession plan. There is a sizable pool of beginning farmers, but few are able to buy, or ready to manage, these larger-scale operations.
- There is often a mismatch between the larger parcel size and infrastructure of available or transitioning land, often dairy, and the needs of young and beginning produce growers. Dairy land parcels are often larger than needed for produce growers and capital costs to retrofit old dairy barns to meet produce food safety requirements can be prohibitive for young and beginning farmers with limited credit history and unstable cash flow.
- The time, expense, and knowledge required to comply with food safety, labor, water quality, and other regulations have increased.

Opportunities

- A changing climate, declining dairy industry, proximity to populous states, and an innovative farm culture may combine to increase the competitive advantage of our produce industry. Our growing season is getting longer, more farmland may be available, millions of potential customers for healthy food are just a few hours away, and there is a creative, connected community of growers and service providers to help with adaptation to an increase in extreme weather events, new pests, and regulations (see [Climate Change](#), [Business and Technical Assistance](#), and [Succession](#) briefs).
- Vermont's skill and reputation for quality organic and ecological produce is aligned with consumer preferences and could lead to a growth in sales to out-of-state markets, whether to retail aggregators, distributors, or supermarket chains. There is some evidence that younger customers (e.g., millennials) are especially keen to purchase this type of produce (see [Consumer Demand](#) brief).
- On-farm value-added processing could improve farm profitability and labor retention by adding non-perishable, artisan products that are easily shipped and serve year-round, high-end markets. On-farm operation and ownership allows farmers to retain control of the enterprises should they prove successful.
- Strengthening the network of technical service providers by establishing regular communication through video conference calls and annual in-person meetings would help clarify organizational roles, improve efficiency of service to the grower community, and should lead to program synergies.

Recommendations

- Offer grants to support farm infrastructure for marketing, processing, storage, and cooperative distribution. Build on the Vermont Agency of Agriculture, Food and Markets (VAAFM) [Produce Safety Improvement Grant program](#) approach that requires and facilitates engaging technical service providers for project design, implementation, and documentation of results of on-farm projects. \$200,000 annually, up to \$20,000 per farm.
- Provide funding to hire a highly skilled farm transfer service provider to focus on produce farms, offering intensive, frequent, one-on-one assistance to develop and implement farm succession plans, working with funders to facilitate farm purchases. This position must collaborate closely with the Vermont Housing and Conservation Board's [Farm & Forest Viability program](#), which is already facilitating this work. \$100,000 annually for five years to cover salary, fringe, overhead, and travel costs.
- Develop a regional training program to provide one-on-one business assistance and cohort-based educational programs which recruit, prepare, and place the next generation of wholesale produce growers and farm managers. Plan and implement the program through a consortium of Cooperative Extension and agencies of agriculture and economic development in several New England states along with nonprofits such as the Carrot Project and the New England Vegetable and Berry Growers Association.
- Collect ideas from small produce farmers on ways to make regulatory compliance easier and more efficient, through listening sessions, focus groups, and surveys. Examine policies in other states worthy of consideration. This should be a collaborative effort between VAAFM, UVM Extension, UVM College of Agriculture and Life Sciences, and NOFA-VT.
- Provide ongoing grant funds for capacity development for grower organizations (Vermont Vegetable and Berry Growers Association, Vermont Association of Professional Horticulturists) so they can improve communication, education, marketing, and applied research in collaboration with UVM Extension. Suggested funding: \$10,000 annually available to each organization, to be matched 50:50.



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VERMONT FOOD SYSTEM PLAN PRODUCT BRIEF



PRODUCT:
*Lightly Processed
Vegetables*

What's At Stake?

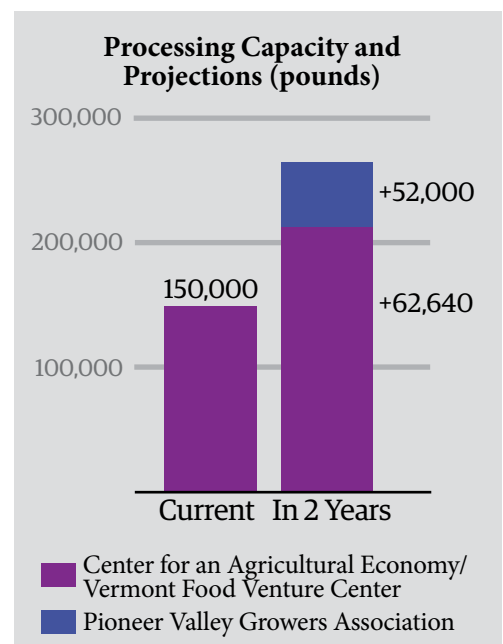
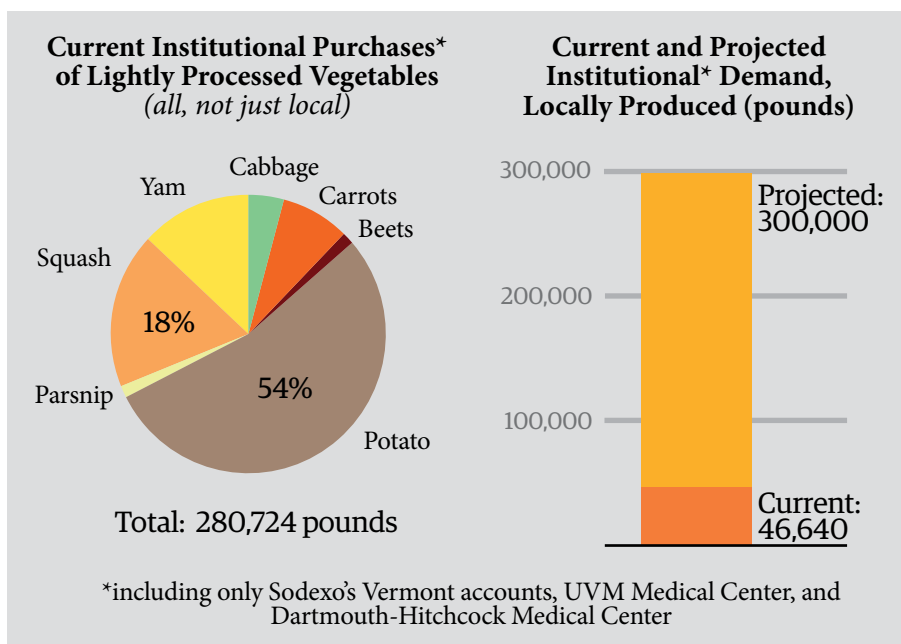
Vermont institutions, hunger relief organizations, restaurants, and food retailers are limited in the amount of fresh, whole Vermont produce they can purchase, due to increasing food service labor shortages and the difficulty and cost of working with seasonal, perishable, and irregularly shaped produce. To limit the loss of this market share to out-of-state producers, Vermont processing facilities have begun to sell cut and frozen locally grown vegetables, but issues of capital, infrastructure, logistics, and communication have limited their expansion potential. Collaboration between producers, processors, and buyers, substantial infrastructure investments, and policies to support producer and processor expansion are needed to encourage in-state minimal processing and continue the growing momentum of local purchasing.

Current Conditions

Vermont institutions are interested in Vermont produce, but this demand is often misaligned with the quantity, variety, and seasonality of fresh produce (see [College and Hospital Procurement brief](#), [School Food Procurement brief](#)). There are a number of logistical barriers to address such as food service labor shortages (resulting in insufficient time and capacity to process vegetables on-site), difficulty in using irregular, perishable produce in a timely manner, inadequate communication between buyers and producers both pre- and post-harvest, and discrepancies between the price producers need to receive for their products and buyers' budget limitations for purchasing unprocessed produce. Several of these barriers can be overcome with "light processing," defined here as drying, cutting, and/or freezing vegetables.

In the past several years, at least four Vermont businesses and nonprofits increased their investment in processing facilities, but have struggled to expand to appropriate product volume and staff capacity levels and to create a year-round, profitable business model. Food processing facilities face considerable workforce shortages, high start-up and scale-up costs, and challenges navigating food safety regulations, efficiency of scale, and distribution logistics, all limiting the growth of existing and potential for new processing ventures.

Developing a thriving local processing system requires investment in processing facilities, improved communication and commitment between producers, processors, and buyers, and thoughtful workforce recruitment and retention.



Bottlenecks & Gaps

- Processing ventures lack capital to invest in expensive, medium to large-scale processing equipment.
- Facility availability and distribution methods are lacking for producers and processors lightly processing vegetables.
- There is a gap between the cost of growing and processing local produce and the price institutional buyers are able to pay, especially as both face the costs associated with scaling up production volumes.
- Buyer needs and consumer demand do not always align with what is currently produced in the state and much of the state's institutional purchasing fluctuates with the academic calendar.
- Jobs in light processing are difficult to fill, as they are physically demanding, repetitive, and seasonal.

Opportunities

- Vermont-based buyers' strong interest in local, lightly processed vegetables can help support and expand local production.
- Increased availability of local, lightly processed vegetables could help alleviate food service industry labor shortage pressure.
- Light processing can help to decrease food loss and increase producer revenue by utilizing hard-to-sell but otherwise quality produce.
- Many businesses and workforce stakeholders are finding solutions for labor, equipment, and transportation shortages, with several promising models and the potential for further collaboration between local food businesses and organizations.
- Forward contracting between producers, processors, and buyers could provide greater stability and predictability in the market.

Recommendations

- Anchor buyers (e.g., Sodexo) and processors (e.g., Salvation Farms, Vermont Food Venture Center, Mad River Food Hub, and Western Massachusetts Food Processing Center) should compile the challenges of the local processing business model and develop a product list that works for producers, processors, and buyers. Sodexo's Vermont First initiative has begun determining products with high institutional demand and low local production volumes that local producers could feasibly address. This initiative should be continued and shared among buyers, processors, and producers.
- Investors, institutional buyers, and grant-makers (e.g., [Working Lands Enterprise Initiative](#)) should fund processors' capital investment needs for expensive equipment to start or scale up processing ventures.
- Processors and buyers should work with producers to set up clear and consistent communication around volume, scheduling, and logistics, and offer forward contracting — a commitment between two parties guaranteeing a buyer will purchase a certain amount of product — when possible.
- Researchers, related organizations, and businesses should investigate and advise Regional Development Corporations, the Vermont Department of Economic Development, and the Vermont Department of Labor about the extent of and type of labor needs, and opportunities for expanded processing in the state.

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Market Briefs

Vermont food producers sell their products in a wide range of market channels. The stage of development and scale of the operation often inform the market channel(s) a producer pursues. From direct-to-store deliveries and farmers markets with their higher margins, to institutions and grocery stores where margins may not be as strong but larger volumes can be sold, Vermont food producers continue to adapt to an ever-changing marketplace influenced by large-scale industry consolidation across the U.S.

Many of the recommendations found in these four briefs identify similar issues, such as the need for workforce development, marketing, technical assistance, and support with food safety regulations.

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What's At Stake?

Over a quarter of Vermont farms (1,833) sell directly to consumers through farmers markets, Community Supported Agriculture (CSA), and other “direct market” channels.¹ Direct markets are critical because they allow producers to capture more income for each product sold (compared to wholesale), require low up-front investment, give producers more autonomy over the products they sell, and foster customer relationships through experiential marketing (an increasingly important tactic across all industries). The trends towards consolidation and downward price pressure in wholesale markets favor larger producers and create challenges for many small to medium-scale producers, accentuating the importance of strengthening direct markets as the foundation of a working landscape of diverse farms at all scales.

Current Conditions

Since their revival in the 1970s, Vermont’s direct markets have been a critical market channel for producers and must continue to be a priority for focused market and business development. In addition, direct markets serve as a common entry point for shoppers who may be new to purchasing local food. In 2017, Vermont direct market sales totaled \$49.9 million.

Farms often rely on direct markets as part of a mix of market outlets critical to their business viability. The USDA’s Economic Research Service found, “farmers who market goods directly to consumers are more likely to remain in business than those who market only through traditional channels”² and that, for beginning farms, having direct markets as part of the business increased the chances of business survival.³ Through the 1990s to early 2010s, a boom in direct markets, buoyed by the burgeoning “local food movement,” coincided with growth in diversified farms across the state. This success brought competition from large retailers and corporations claiming “local” as a marketing term, sometimes misleadingly, leading to concerns about the viability of direct markets. Competition also increased innovation from direct market farms, from on-farm events to responding to consumer demand with more flexible CSA models (see [Agritourism brief](#)).

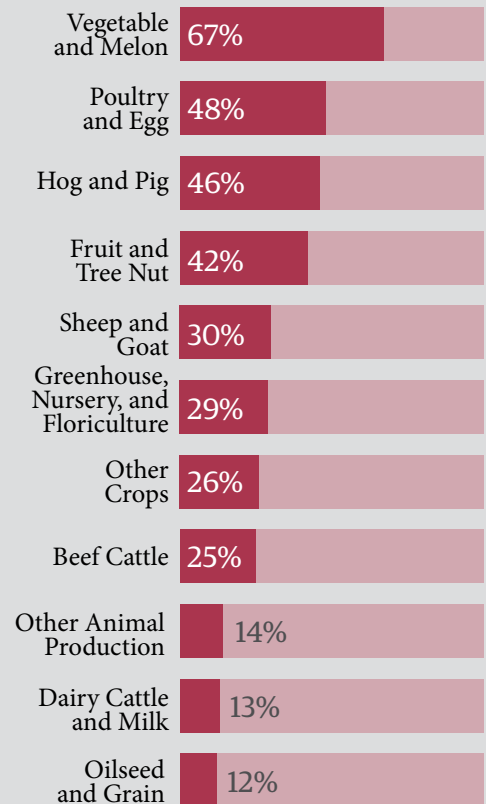
Results from the 2017 USDA Census of Agriculture show that direct sales are increasingly important to the bottom line for Vermont farms, with average sales per farm through direct market channels more than double those in 2012.⁴ Consumers in Vermont are spending more money in direct markets channels as well, with sales increasing over 82% from \$27.4 million in 2012 to \$49.9 million in 2017.⁵ Direct-to-consumer sales in Vermont made up over 24% of total local food and beverage purchases in 2017 and 3.3% of overall food and beverage purchases.⁶

Various organizations provide marketing assistance to producers, conduct statewide consumer campaigns about the benefits of direct markets, foster collaborative marketing between direct marketing businesses, and work to connect shoppers and visitors to Vermont producers. These promotion and technical assistance programs represent a solid foundation to expand upon.

1,833 farms, **26.9%** of all farms in Vermont, sell some food direct to consumers.

These direct-to-consumer sales provide an average revenue of **\$27,262** per farm.

Percent of Farms in 2017 with Direct-to-Consumer Sales, by Farm Type



Bottlenecks & Gaps

- Increased consumer demand for local food has resulted in distributors and retailers with vast marketing resources claiming products are “local,” even if their claims are not in line with customer expectations. This puts downward price pressures on farmers and challenges their viability.
- Direct market farmers are now competing against large companies able to capture customers looking for convenience through new marketing models such as online ordering, meal kits, and home delivery.
- Direct market farmers often lack the marketing skills, technology, broadband access, and funding necessary to reach modern consumers in this competitive environment.
- Many farmers markets lack resources to support professional staff, which impacts their capacity for marketing, managing vendors, securing stable locations, handling legal issues, providing good consumer experiences, etc.

Opportunities

- Consumer trends show people are looking for a relational form of food purchasing. Vermont can capitalize on these trends with increased marketing for, and storytelling about, direct markets (see [Consumer Demand brief](#)).
- Collaborative marketing is already happening at various levels (statewide, regional, groups of farmers) and can be built upon to support individual producers and farmers markets unable to compete with the marketing savvy of large companies.
- Online technology exists that can enable local producers to grow their web presence and reach a potential new customer base.
- Direct markets that participate in public health and/or food access programs such as [SNAP/3SquaresVT](#), EBT incentive programs, etc., ensure that all Vermonters can access local food from direct markets and producers can receive income from federal food assistance programs (see [Food Access and Farm Viability brief](#)).

Recommendations

- Provide \$500,000 annually in state funding for a collaborative, statewide marketing and consumer messaging campaign to focus on the unique attributes and values that direct markets offer, building affinity for shoppers to support direct markets.
- Provide annual funding for two FTE positions: one to provide centralized resources and marketing support to Vermont’s direct market producers, and one for the Vermont Farmers Market Association to provide centralized resources and marketing support to its members. Estimated cost: \$150,000 for two FTEs.
- Assess what resources would be needed in order to purchase/dedicate public land for eight “flagship” farmers markets across the state through land trusts, Vermont State Parks, or some other body that can help institutionalize market locations.
- To increase their sustainability and impact, provide funding to include farmers markets in business assistance programs like the [Vermont Farm and Forest Viability program](#). Funding would include stipends for the markets to dedicate a staff person to participate in the program. Estimated cost: \$3,000 per market.
- To expand direct markets’ ability to support public health/food access, create a state funding source devoted to perpetuating [NOFA-VT’s statewide direct market EBT doubling programs](#). Estimated cost: \$43,000 annually to support equipment and fees for 45 farmers markets and 20 farms.
- Develop peer-to-peer training and outreach to share success stories of producers that have been experimenting with online farm stands and customizable CSA models.

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VERMONT FOOD SYSTEM PLAN MARKET BRIEF



MARKET: School Food Procurement

What's At Stake?

Teaching Vermont students the value of Vermont food for both their own health and their community is an investment in future generations who will support agricultural policy, buy local, consider food system careers, and invest in resources for schools and other institutions. Schools purchase Vermont foods to build relationships in their community, and understand that the relationships have to be sustainable for both the school and the producer. However, pressures to prioritize cheap and/or prepared food are increasing due to decreased student enrollment, school consolidation, and administrative personnel changes. In addition, regulatory demands and food costs have increased at a greater rate than federal and state school meal reimbursement. School nutrition personnel, teachers, and administrators are focused on the basics of teaching required subjects and federal requirements for student meals rather than being able to creatively expand their Farm to School curriculum or spend time sourcing, purchasing, and serving local foods that students will enjoy. All this means that local purchasing is at risk of decreasing.

Current Conditions

“Farm to School” (FTS) is a spectrum of activities connecting the classroom, cafeteria, and community. The Vermont Farm to School Network (VT FSN) is working toward the goal of schools procuring 50% of their food from local or regional sources, and 75% school participation in integrated food system education by 2025. In 2019, the Vermont Legislature adopted a goal of 25% local purchasing in schools by 2023.

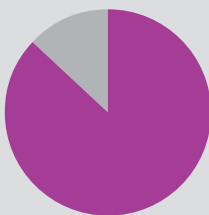
Approximately 250 public schools in Vermont serve meals to more than 50,000 Vermont pre-K to Grade 12 students, following the [USDA Child Nutrition Program](#) guidelines. The program costs \$50.3 million each year, and \$15.5 million of that money is spent on food. Of these students, 41% qualify for free or reduced-priced meals as part of the safety net for low-income families.¹ A 2016 UVM study found that in 2013-14, Vermont schools spent \$915,000 on local foods, or 5.6% of all food dollars spent. This in turn generated \$1.4 million in the Vermont economy, including \$374,000 related to the farm and food processing sectors.

If Vermont schools doubled their 2013-14 local food spending (from 5.6% to 11.2%) the total annual economic impact would be \$2.1 million.

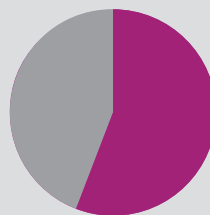
Despite progress, schools continue to face significant obstacles to increasing their local food purchasing, including cost and staffing constraints, reliable supply, and delivery and storage considerations. In the majority of schools, the meal program budget is separate from the school educational budget, and must operate sustainably on its own as a revenue generating program rather than a nutritional and learning program.

Much progress has been made in understanding how certain local products get into schools, the importance of values-based buying, and the complexities of the aggregation and distribution system. However, buying Vermont foods is not mandatory for schools. Success depends on the values of the school community, which builds the demand, and the ease of sourcing, properly procuring, and using local foods.

87% of Vermont schools purchased food from a local producer during the 2016/2017 school year.



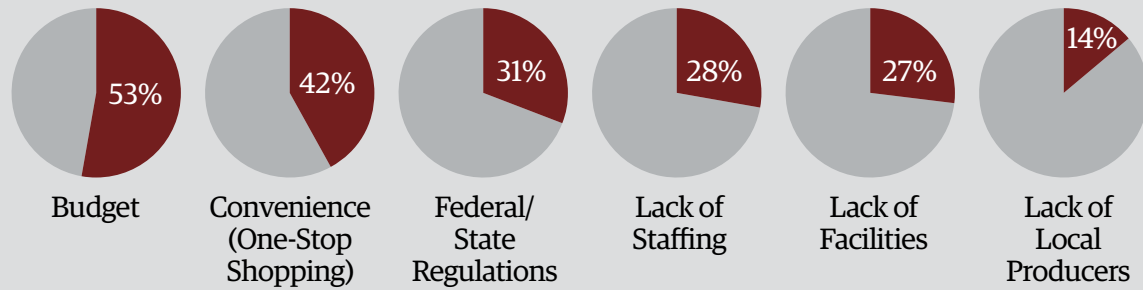
56% purchased local food often.



49% intended to increase their local purchasing during the following school year.



Most Commonly Cited Barriers to Purchasing Local Food
(percent of schools listing barrier)



Values and Demand

Current Conditions

A virtuous cycle can be created as people increasingly value the school food program: providing more local foods leads to increased school meal participation, which increases the revenue for the program, and thereby increases the food budget capacity to purchase additional local foods. “Local” often becomes a proxy for the values people hold when they evaluate whether the school food is good or the meal program is valuable. Many people believe “local” also implies fresh, quality, organic, or homemade meals. Schools are starting to develop values statements for their school food programs in order to clearly explain what their meals program is striving to do. In addition, many schools are developing “tiered buying” in which they identify specific products they want to purchase in their ultra-local area, from Vermont, and from the Northeast.

Bottlenecks & Gaps

- School food programs are expected to raise all the money they need by selling school meals. Food costs are increasing faster than the federal and state meal reimbursement rates schools receive for the number of nutritionally appropriate meals provided.
- School meals and school nutrition staff are often not valued or seen as essential for student success and are treated as outside the school educational environment and the total school budget.
- Buying and serving local food requires more work, storage, equipment, and professional development of staff. Schools are not prioritizing this investment.

Opportunities

- Experienced statewide and regional FTS partners provide technical assistance.
- Schools and districts are taking more interest and control over their school food programs, whether they write specific FTS local purchasing requirements in a Food Service Management Company (FSMC) bid, hire an experienced director to oversee multiple schools, upgrade the cafeteria, and/or contribute general funds to the school nutrition budget.²
- Other U.S. states are incentivizing local food purchasing in schools and their models are available to assess and use in Vermont.

Aggregation and Distribution

Current Conditions

Most schools have contracts with large distributors to purchase up to 95% of all their supplies and food, to cut labor and food costs, and to receive rebates. In order for schools to meet their FTS local purchasing goals, some are pressuring distributors to label the local products. For their “close to home” or “ultra-local” food purchases schools often buy directly from farmers or small food hubs that are more transparent about their operation costs and food sources, though this takes more work.

It is important for farmers and service providers to know more about how the wholesale and institutional supply chains work, whether through direct purchasing or through an aggregator (e.g., food hub or distributor), and how the school nutrition program operates. To ensure that we are building a sustainable food system for all, it's also necessary for institutions and organizations supporting school food procurement to be knowledgeable about how increasing local purchasing impacts the viability of farmers.

Bottlenecks & Gaps

- School procurement has complicated federal rules, prompting many schools to choose a large distributor over local suppliers to make local food purchasing easier.
- Managing purchasing relationships with multiple farm partners takes additional work, including ordering, delivery, and billing.
- To be viable, farmers often need to participate in the wholesale distribution supply chain to access institutions outside of their immediate region, yet this limits their ability to market their identity and values to the end buyer (the school), and get a fair price.

Opportunities

- [VT FEED](#) is successfully conducting values-based tiered buying and local food procurement training with FSMCs and independently run school nutrition programs.
- Expanding school meal participation is translating to an increase in local food purchasing.
- Food hubs are evolving as values-based organizations that provide a transparent supply chain from ordering to delivery, and a transparent pricing structure for farmers.

Products

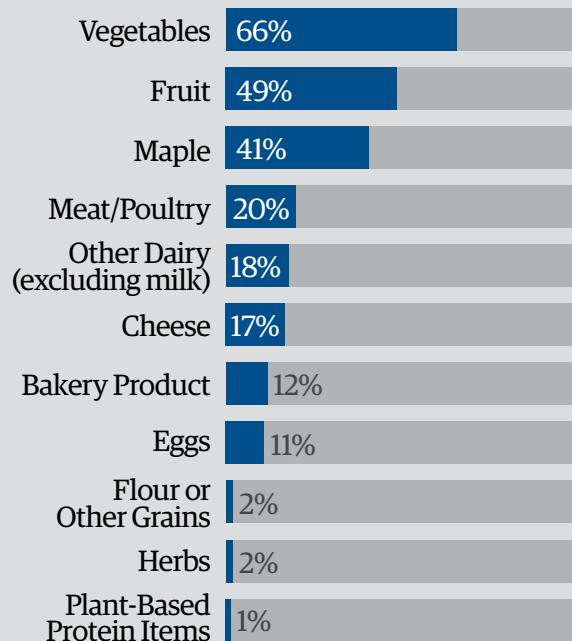
Current Conditions

Common products purchased by schools are vegetables, fruit, maple syrup, milk and other dairy products such as yogurt, and meats. Uncommon products are grains and legumes.

Over the years, Vermont FTS Network studies have estimated demand for local foods and determined the opportunity for increasing Vermont food sold to schools. The specific demand results have been presented to service providers, distributors, and farmers, listing the key products and amounts which schools would use, if more readily available. This has not significantly increased the amount of local food purchases, since no farmer will produce for an anticipated school market unless there is a contract or a guarantee.

Values-based tiered buying planning that [VT FEED](#) introduced several years ago is having a positive impact. Schools define their food program values and set goals for buying ultra-locally (in their county), from Vermont, and from the larger region. By doing this, schools are deciding what they can buy directly from a farmer or food hub, and can track what is from Vermont or regionally from their distributors (as long as the distributor labels products). The success of values-based tiered buying comes through training and technical assistance primarily provided school by school.

Percent of Schools Purchasing Local Products By Product Category



For more data sets, please see [Supplemental Materials](#).

Bottlenecks & Gaps

- Schools are often seen as the last market because of a myth that they won't pay prices farmers need.
- If school administrations and staff don't value local food in the school food program, the incentive to make additional efforts to purchase is absent.
- The definition of local food is determined by law by each School Food Authority. Distributors have their own definition of local as do FSMCs (which serve about 35% of schools). Thus, the sources of product purchasing data have different definitions of "local," ranging from 20 miles to 400 miles, making data tabulation challenging and labor intensive.

Opportunities

- When technical assistance and training on the procurement of local foods is provided, there is evidence of positive change in individual schools and product tracking becomes more possible.
- School districts buy a lot of food on a consistent basis, rarely go out of business, and can be a stable part of a diversified market for Vermont farmers and food manufacturers.
- Consolidation of school districts, in some cases, is leading to the hiring of skilled school nutrition directors who oversee multiple schools, can increase volume by aggregating purchasing, and thus become a more interesting customer to local farmers.

Summary

Schools have many competing priorities and yet Farm to School has become a top priority: an opportunity to develop community connections through local food and agriculture, thereby regenerating farming communities as much as regenerating agriculture. By pushing the dominant wholesale and distribution system to source more local food, we can ensure that a transparent system that values more than cheap food (a values-based system) is in place. This will enable schools to purchase food according to their evolving values, not just the price and convenience prized by the traditional system. This will also embolden students and school staff to value their school nutrition program and the food that is served.

Recommendations

- The state should support incremental steps towards universal meals, which increase student participation, decrease paperwork, and allow for time and money to be used on local food procurement.
- The Vermont Legislature should fund the Vermont Farm to School Network with \$500,000 of annual base funding for Farm to School infrastructure grants, technical assistance, and training to grow FTS in all counties.
- Incentivize local purchasing by developing, with Farm to School partners, a percent-per-meal reimbursement to schools for purchasing local products above a certain threshold. For example, New York provides \$0.25 per lunch to schools incorporating 30% New York product in their meal program. According to a Farm to School 2016-17 economic study³, "every dollar spent on local food contributes an additional 60¢ to the local economy."
- Further develop a transparent values-based system so buyers can buy according to their values, not just price. This includes values such as supporting the local economy, farming practices that support healthy soils and planet, fair labor practices, etc.
- Increase education and matchmaker events for buyers and producers to learn about values-based purchasing, forward contracting (i.e., contracted annual commitments between farms and buyers), and the criteria schools use to make purchasing decisions. Support the school nutrition profession with more school-funded opportunities for technical assistance and training around buying and using local foods for school nutrition, and around cooking from scratch and using local products.

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VERMONT FOOD SYSTEM PLAN MARKET BRIEF



MARKET:
College and
Hospital
Procurement

What's At Stake?

Colleges and universities, hospitals, and other health care facilities have a significant role to play in supporting Vermont's farm and food sector. They are important community anchors, serving as employers, educators, and thought leaders who interact with most Vermonters on a regular basis. They buy over \$40 million in food annually, on a consistent and reliable basis, and thus provide an important market opportunity for Vermont farmers and food manufacturers. The cafeterias at these institutions create meaningful and lasting impressions on patients, students, staff, and visitors about how and what to eat. Healthy, sustainable Vermont food should be on the menu.

Current Conditions

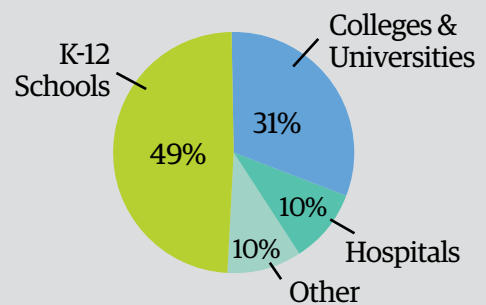
Vermont's 16 colleges and 16 hospitals serve tens of thousands of meals a day. Dining directors at these institutions overwhelmingly say they intend to buy more Vermont and New England food in the coming years. The increase in demand is coming from students, staff, and patients who increasingly expect to be served healthy Vermont food due to their experience with successful local food initiatives.

Investments in processing infrastructure for vegetables (e.g., Vermont Food Venture Center), beef, and pork (e.g., Black River Meats) are making processed products, which are easier to utilize in busy kitchens, more available to college and hospital buyers (see [Lightly Processed Vegetables brief](#)). Innovative purchasing strategies, including "forward contracting" at the beginning of the growing season, which guarantee sales for farmers and product availability for institutions, are helping increase local purchases as well. Changes in menus to favor seasonal foods and less meat enable institutions to use Vermont products without an increase in food cost. A strong network of organizations and agencies supports food service operators in the state and across the region with guidance, tools, and connections to accelerate promising practices that promote the use of local food.

However, colleges and hospitals still face significant barriers to increasing use of Vermont food. College and hospital budgets are getting tighter. Labor shortages make it challenging for dining operators to use whole (unprocessed) local produce and proteins which require more staff time and training, and to receive deliveries from multiple local producers. Consolidation in the food distribution industry has weakened relationships, and can make it harder for Vermont producers to become approved as vendors to these institutions and their distributors. Regional aggregation of dairy products makes it difficult to get 100% Vermont-produced and processed dairy. Further, institutions are accustomed

to low prices for dairy as well as specific serving sizes and formats that some Vermont dairy processors cannot provide (see [Dairy brief](#)). New federal, state, and institutional food safety regulations and standards add costs to Vermont producers selling to institutional markets, increasing the price to buyers.

Percent of All New England Direct-to-Institution Sales By Farms Made to Each Type of Institution

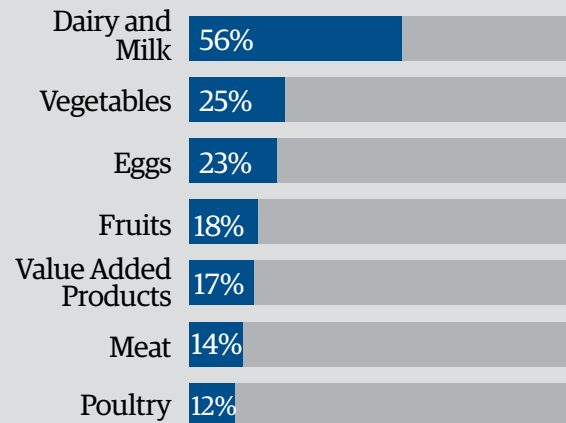


Colleges and Universities

Current Conditions

Vermont has 16 colleges serving over 30,000 undergraduate students. Thirteen of these schools serve an estimated combined eight million meals and spend nearly \$28 million on food annually. Of the six New England states, Vermont spends the highest percentage of its campus food budget on local food (31%), with \$4.5 million in local food purchases (2018). Small independent and large public colleges have more resources for local food while some of the small public ones have a more limited budget. Of the 16 Vermont colleges, 11 dining services are operated by food service management companies (FSMCs), such as Sodexo. The remainder are operated by the colleges themselves.

Average Percentage of Select Products Sourced Locally by New England Colleges



Bottlenecks & Gaps

- Vermont colleges have declining student enrollment, hence fewer students buying meal plans, and more constraints on college dining budgets.
- Dining operations do not always effectively promote local products, reducing the impact of the purchases in terms of student awareness.
- Fluctuating and seasonal college food service labor is a challenge for training staff to source, prepare, promote, and use of a greater variety of local foods. The seasonality of college food service is also misaligned with availability of some fresh farm products (e.g., summer vegetables.)
- Students have diverse dietary needs and interests which compete with buying Vermont food as a key priority.
- The wholesale distribution system is not transparent, so ordering Vermont whole or fresh products can be difficult.

Opportunities

- Students still forming life-long eating habits are an important constituency to reach with Vermont food.
- Student interest in local food continues to grow, justifying dining operator interest.
- Vermont agriculture and food are appealing aspects of the Vermont way of life to which out-of-state students are exposed and can encourage them to stay or return.
- There are 200 colleges in New England with dining services spending over \$100 million in local and regional food per year, representing an even greater market for Vermont producers.
- A variety of regional organizations provide resources to support college dining operators looking to increase their local and regional food procurement, including webinars, events, mentoring, toolkits, and research findings.

Health Care Institutions

Current Conditions

A majority of Vermont hospitals (15 of 16) are involved in the Vermont Healthy Food in Health Care Network, actively collaborating to source healthy, local food and address food insecurity. Vermont hospitals are national leaders in innovation in local sourcing. A 2017 Health Care Without Harm survey showed that nine reporting hospitals purchased over \$8 million dollars of food. Since hospitals provide steady, reliable, year-round demand for products, they represent important potential customers for Vermont producers.

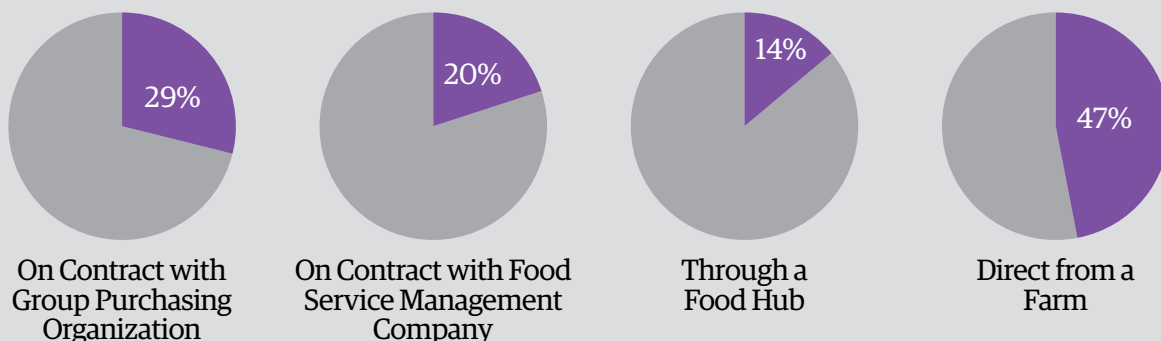
Bottlenecks & Gaps

- Hospital budgets are incredibly tight, and administrators may not choose or be able to prioritize local food expenditures.
- Health care institutions follow stringent nutritional guidelines, which are easier to meet using pre-packaged foods. Adding fresh local foods adds processes and costs.
- The Food Safety Modernization Act (FSMA) has some requirements that are challenging for Vermont producers to meet or verify, making it harder for them to be approved vendors for distributors and institutions.
- Smaller hospitals have a harder time getting distributors to source local as they have less buying power and influence.
- Some hospitals are bound by agreements to purchase most of their supplies through a Group Purchasing Organization (GPO) and/or nationally based distributors which do not often identify food sources, which makes it harder to know if products are from Vermont.

Opportunities

- Vermont hospital dining operators have a strong foundation of collaboration, and they represent a constituency ready to support statewide efforts to increase institutional sales of local food.
- Customers at Vermont health care facilities, including patients, staff, and visitors, have come to expect access to healthy, tasty, good food.
- Hospitals have a legal requirement (i.e., the [community benefits program](#)) as well as a moral imperative to spend funds supporting local communities, which can include sourcing and promoting local healthy food to address food insecurity.
- Hospitals are a dependable, consistent, year-round market and can create long-term buying agreements with food producers that enable greater investment, productivity, and profit.
- Senior and assisted living operations are joining the Vermont Healthy Food in Health Care Network because they are interested in local foods and professional development.

Percent of New England Hospitals Reporting Local Food Purchases through Different Sources



Summary

Vermont hospitals and colleges include recognized national leaders within the farm to institution movement, employing innovative strategies to source and prepare local healthy food, generating dependable markets for producers and positive impact on the local economy. While they have the potential to do even more, they face real barriers. Fortunately, there are effective Vermont and New England networks of partner organizations, businesses, and agencies that have a shared commitment to sourcing more local food at these institutions. There is a need for investment of time, energy, and resources to create sustainable purchasing relationships that will maximize benefits which far exceed the investment.

Recommendations

- Additional state and federal workforce development training funds are needed in order to train more food service workers in culinary skills that utilize more Vermont products, including skills to process, prepare, and serve irregularly shaped and sized vegetables as well as whole animals. Additionally, institutions need to create incentives to keep food service staff on the payroll: increasing compensation, providing paid training, and increasing longevity benefits.
- Vermont colleges and hospitals need assistance in marketing their contributions to the state's healthy and local food system as a way to increase food literacy. Building off the successful Vermont Farm to Plate "Rooted in Vermont" campaign, develop a strategy to help college and hospital dining operators market their use of local food.
- Help new and experienced Vermont producers understand college and hospital market opportunities. UVM Extension and the Vermont Agency of Agriculture, Food and Markets (VAAFAM) should collaborate with NOFA-VT, Farm to Institution New England (FINE), and Health Care Without Harm (HCWH) to help Vermont producers assess the costs and benefits of growing, processing, and marketing specific foods for institutions in Vermont and neighboring states. These entities can draw on numerous national models for evaluating costs and accessing institutional markets. Convene a forum to discuss current efforts and opportunities, including funding opportunities, and develop a coordinated five-year plan.
- Provide technical assistance to support contracting and supply planning at institutions. Colleges and hospitals can optimize their value as reliable, consistent markets for Vermont producers by making buying commitments in advance of the growing season. VAAFAM, UVM Extension, NOFA-VT, Vermont Farm to Plate Network, HCWH, and FINE should collaborate to provide assistance to producers and buyers on these contracting models.



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What's At Stake?

Retail food stores, from village markets to food cooperatives (co-ops) to national chain supermarkets, are the primary sales outlet for Vermont farm and food businesses of all sizes and scales. In 2017, Vermonters spent a total of \$310 million on local food, purchasing 32% of those foods at Vermont co-ops and grocery stores.¹ These stores have significant impact on Vermont's food producers, rural communities, and economy. The current trend toward out-of-state ownership and consolidation of distributors and food stores is greatly impacting the ability of Vermont farms and food manufacturers to sell their products to stores of all sizes.

The viability of independently owned businesses and regional supermarkets committed to increasing local sourcing is in turn critical to farm and food business viability. Vermont must support both growers' and value-added producers' ability to service grocery markets. Meeting growing consumer demand for fresh, local, high-quality products at grocery stores will advance Vermont's rural economic development and our rural communities.

Current Conditions

Local food and beverage sales at co-ops and other grocery stores in Vermont amounted to \$98.5 million in 2017, with \$42 million in local sales at co-ops alone. In total, Vermont's independently owned grocery stores (general stores, co-ops, rural convenience stores, on-farm stores, and small-scale supermarkets) account for approximately \$750 million in retail food and beverage sales in Vermont.²

There is much room for growth in the grocery market channel, both locally and regionally, as retail demand for local products and many of their associated values is high among consumers. However, accelerated consolidation in retail and distribution businesses (e.g., Amazon's purchase of Whole Foods, Reinhart Foodservice's acquisition of Black River Produce and the subsequent purchase of Reinhart by Performance Food Group) threatens the viability of the grocery market for Vermont farmers and food businesses (referred to as "suppliers" in the industry). Consolidation increases downward price pressure, diminishes suppliers' leverage in negotiating favorable terms and prices, and creates barriers for new suppliers to access retail markets.

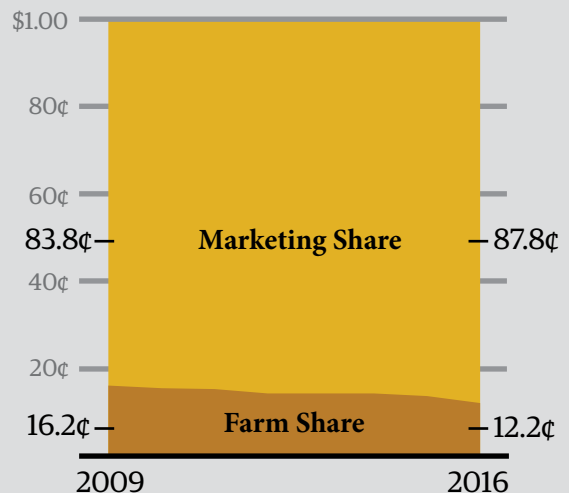
Consolidation is also happening at the independent store level and in rural areas. Over the past 15 years many independently owned village stores with gas stations were purchased by large, regional oil companies. This trend, combined with an influx of discount stores (e.g., Dollar General), shifted consumer purchases away from community owned and operated stores. At the same time, it reduces opportunities for local and fresh food to be sold within rural communities, some of which are, or are on the verge of becoming, food deserts.

Various business assistance and marketing initiatives

have emerged over the past few years to address these challenges and capitalize on opportunities in retail (e.g., a distribution cost analysis tool, retail merchandising and local sourcing training, subsidized attendance at regional trade shows, and collaboration amongst food hubs). These initiatives and increased investments in farm infrastructure to improve food safety, production, and storage, are all key ingredients to maintaining vital grocery market sales for Vermont suppliers.

Marketing Share of Each Food Dollar, 2009-2016

The farm share is the amount of each food dollar received by farmers from the sales of raw food commodities. The marketing share accrues in the rest of the supply chain, including inputs, transportation, wholesale, food service, marketing, etc. Numbers are adjusted for inflation to 2009.



Producers

Current Conditions

Most food is purchased at retail food stores, which are an important source of revenue for Vermont producers. There are 737 Vermont farms selling directly to retail markets, institutions, and food hubs, totalling \$54 million in sales.³ Local products are in demand and many Vermont producers are building a business around grocery sales, but the structure of the grocery market is complex and hard to navigate, and changes related to industry consolidation put most Vermont producers at a disadvantage.

Bottlenecks & Gaps

- Expanding food safety regulations require capital investment and make it harder to gain entry into grocery markets.
- After all expenses are taken into account, a producer selling into retail markets can receive 30% or less of a product's retail price.
- Producers and technical assistance providers have knowledge gaps related to the complexities of the grocery market channel.
- The seasonality of many Vermont farm products is a disadvantage when distributors and large grocers prefer or require consistent year-round supply.
- Producers may not know how to account for the costs of distribution into their business planning.

Opportunities

- Wholesale farmers benefit from selling to large buyers when they are able to sufficiently scale their operations and be efficient in their production methods.
- There is a well-coordinated business assistance network in Vermont which can provide advisory services related to retail markets.
- Cooperative processing ventures can expand market access for Vermont farm products.
- There is strong consumer demand for certain food attributes that align well with Vermont-made products (see [Consumer Demand brief](#)).

Distributors

Current Conditions

Food distributors, tasked with getting food from producers to stores, are a vital part of the farm-to-grocery supply chain. There are stores that accept deliveries directly from producers, freight providers (e.g., FedEx), and local food hubs. However, utilization of established distributors who purchase product from producers and resell to retailers is the predominant way to sell into the grocery marketplace, particularly to regional grocers.

Bottlenecks & Gaps

- Getting product into wider distribution networks requires trucking, proximity to existing truck routes, loading docks, and often pallet-sized volumes of product, which are not always readily available.
- Consolidation in the distribution industry limits onboarding of new producers as well as local product availability and source identification.
- Inefficient trucking routes and costly maintenance drives distribution costs up in Vermont, and understaffing of Commercial Drivers License (CDL) drivers and warehouse workers at distribution companies constrains the supply of affordable distribution options.

Opportunities

- Farmers and food manufacturers have access to new business planning tools which help them evaluate distribution options.
- Workshops that bring together farmers, food manufacturers, and distributors have been occurring in recent years across the state.
- Undertaking a rigorous assessment of the distribution system, including truck routes, backhauling, and cross-dock opportunities, may streamline trucking options and minimize costs.
- Alternative distribution models exist with potential to counteract industry-level consolidation (e.g., food hubs and other values-based small-scale distributors).

Sales at Independent Stores

Current Conditions

Sales of specific Vermont products at independent stores are hard to quantify, however, Vermont's large food co-ops do track sales and consistently see a high dollar value of Vermont products sold. National-scale supercenters, warehouse club stores, and online retailers (e.g., Walmart, Costco, Amazon) with their consolidating stores, broad marketing reach, and wide-ranging product mix are challenging the survival of independent stores in our rural communities.

Bottlenecks & Gaps

- With fewer marketing and financial resources, independent stores work harder to stay engaged with customers and trends, while attempting to maintain their narrow profit margins.
- Competitive pressure means stores must streamline buying, receiving, and store operations, potentially reducing staff numbers, which can reduce time for relationships with producers and distributors, and in turn local food deliveries.

Opportunities

- Independent grocers, as local community institutions, are well-positioned to understand and capitalize on consumer trends within their communities.
- Independent grocers do have the ability to be flexible with producers and can gain competitive advantage by offering products representative of their community and the state.
- In-store retail training and support services focused on Vermont independent grocers have proven successful and can be replicated.

Sales at Supermarkets

Current Conditions

Supermarkets sell groceries, produce, meats, baked goods, prepared foods, and housewares, and represent the primary outlet where consumers purchase food. Supermarkets serve customers seeking convenience, lower prices, and a wider selection than smaller, independent stores. Similar to independent grocers, supermarkets are experiencing heightened competition for market share due to the emergence of online retailing and shifts in consumer purchasing behaviors (e.g., consumers are less likely to shop at just one store for their groceries).

Bottlenecks & Gaps

- The efficiency of scale sought by supermarkets creates strong financial incentives for them to simplify supply chains and reduce the number of suppliers from which they buy. This, in turn, can limit options for consumers and producers alike.
- Supermarkets levy unanticipated fees, seek large producers who can guarantee contracted amounts, and will easily change the supplier of a product, dropping a local supplier in order to save pennies on the pound.

Opportunities

- In the last decade, supermarkets started capitalizing on demand for local food, developing local food programs that more prominently market local options, and leading to a surge in local food sales estimated to be \$19 billion in the U.S.⁴
- The threat of losing customers demanding "local" to other grocery outlets is pushing some traditional supermarkets to adapt to local producers' needs.
- Trainings, a local products database⁵, producer-buyer forums, and other resources have shown promise in facilitating supermarket access for Vermont wholesale producers.

Summary

Food retail is undergoing a period of significant disruption, simultaneously adapting to and fending off online competition while shifting store space and product selection to satisfy changing consumer preferences and shopping habits. To keep up, many small store owners and food co-ops are navigating towards greater consumer engagement, local food sourcing, in-store amenities like cafés, delis, and bakeries, and greater emphasis on convenience foods and prepared meals, while also reconnecting to their role as community resources. Disruption in the retail market caused by the mergers among major distributors and supermarket chains leaves small stores, farmers, and food manufacturers with less leverage in the marketplace. The grocery market remains a substantial opportunity for Vermont producers, and local food can be a strong differentiating foundation for Vermont's independent retailers, but increased business assistance, affordable capital, strategic partnerships between producers and values-aligned distributors and buyers, and improved marketing are needed.

Recommendations

- Continue philanthropic and state funding support for producer-buyer forums that bring together industry experts and buyers (both Vermont and regional), including product-specific forums (e.g., cheese, meat, produce, specialty food). Forums build market access for suppliers, help buyers differentiate their product mix, and increase trade association collaboration and engagement. Cost: \$60,000 total over three years.
- Explore the demand for and feasibility of a produce-buyer database web portal to expand the sale and distribution of Vermont products within Vermont and the region.
- Create three Vermont marketing broker positions to develop the regional market for a strategic catalog of Vermont products. The brokers would pilot a three-year program, identifying and developing top market channel opportunities within three target urban centers in the Northeast. Estimated cost: \$600,000 over three years.
- Devote more resources to retail-specific sales and marketing technical assistance. Subsidize the cost of attendance at national sales and marketing events for producers and service providers. Investigate funding models that could provide Vermont product merchandising, Point of Sale materials (e.g., product signage), and brand ambassadorship in retail markets. It is imperative that our food producers are given the tools they need to compete within regional and national markets, and can affordably access professional services needed to succeed in retail. Cost: \$50,000.
- Develop a five-year plan for statewide retail market development that helps stores maintain profitability and navigate the next period of consolidation and disruption through trainings, speakers, resources, and events.



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Issue Briefs

The Issue Briefs encompass topics ranging from water quality and climate change, to consumer demand and food access, supporting farmers and food entrepreneurs with access to business assistance and the right forms of capital as well as the increased need for assistance with intergenerational transfers of land and businesses. These nine briefs again point to the need for increased investments in business and technical assistance personnel, especially in the area of succession planning.

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What's At Stake?

Vermont will face considerable disruption to the local food system and farm profitability and viability because of climate change.¹ In addition, the significant impact of climate change on global food production and supply chains intensifies the need to increase the resilience of Vermont farming and local food systems and maintain our agricultural land base. Supporting Vermont farmers' efforts to adapt will also reduce greenhouse-gas emissions, improve water quality, and perhaps make farmers more competitive with farms outside Vermont. Additional training, education, financial support, and research on adaptation will help farmers be resilient and innovative as the climate continues to change.

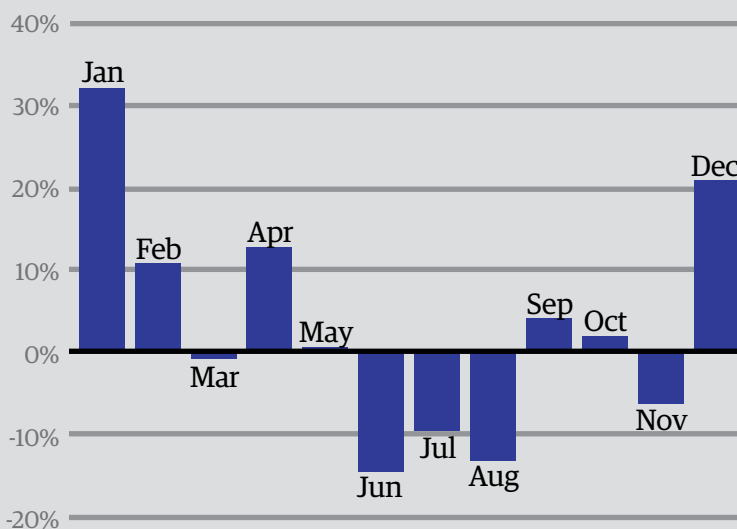
Current Conditions

Climate change effects on Vermont agriculture are largely dependent upon the type of farm, its specific production system, and its location and exposure to extreme events (e.g., flooding). Observed climatic changes include an increase in annual precipitation, a greater frequency of heavy storms, warming in annual average temperature, and higher temperature extremes. Projections estimate that these trends will continue to intensify, with more rain through the winter and spring months, and an increased risk of drought in late summer. For farms, this means increased pest and disease pressure, water stress on crops, and more heat stress on livestock.

Wet soils are already a significant concern and will continue to exacerbate resulting soil compaction, along with the risk of greater runoff, erosion, and nutrient loss from fields due to heavy storms. Overall, farms may face fewer field-working days due to wet soils in the spring, despite a lengthening of the growing season. At the same time, reliable water sources will become increasingly important for all farms, and efficient irrigation will be critical to sustain fruit and vegetable production. Apple growers will face an increased risk of frost damage as a result of warmer winter and early spring temperatures. Sugar maple sap runs may occur earlier in the winter, and result in a sugar season with fewer days when sap can be collected.

Farmers are adapting to the observed changes to some degree, but many lack the capacity to invest in adequate adaptation measures. There is also significant interest by farmers in employing management practices that store carbon and help mitigate climate change, but financial incentives for doing so are currently lacking. More action is necessary to maintain agricultural viability into the future.

Vermont's precipitation has been changing, and will continue to change. This figure shows projected change in **monthly average precipitation** between the period 1980-1999 and 2050.



Very heavy precipitation events have been increasing. From 1958 to 2016, the Northeast experienced:

- a **55%** increase in volume of precipitation falling in the heaviest 1% of events, and
- a **27%** increase in the maximum daily precipitation in consecutive five-year periods.
- In both of these metrics the Northeast saw the greatest increase of any U.S. region.

Bottlenecks & Gaps

- A recent survey indicated that vegetable and berry growers utilized crop insurance at a very low rate (7%) due to restrictive guidelines or structure of the programs.²
- A large majority of farmers understand they are vulnerable to extreme weather conditions. Fewer claim to have the knowledge and skill to deal with the threats. Only 45% say they have the financial capacity to deal with the threats.³
- Climate change adaptation is not currently funded by any financial and technical assistance program in Vermont.
- Applied research on specific adaptation practices is lacking for a variety of farm types, enterprises, and sizes.

Opportunities

- With research and by drawing upon agricultural knowledge and practices now being used in regions south of Vermont, new enterprises and crops can be adopted that are more resilient to the expected climate conditions and associated impacts.
- New programs could be developed to pay farmers to implement practices that help mitigate climate change and/or provide other ecosystem services (e.g., water quality, soil health, etc.).
- Significant greenhouse gas emission reductions and carbon sequestration on a national and international scale can help slow down climate change, giving Vermont agriculture more time to adapt. Vermont can support and partner with larger movements to encourage climate action.

Recommendations

- Fund a training program to be given to all agricultural service providers on the observed and projected changes in Vermont's climate, how it can affect agriculture, and basic adaptation principles. What is learned in these trainings can then be shared with their farm clients. Existing farmer networks can be utilized for climate change outreach and education, especially through peer-to-peer connections.
- Further investigate market mechanisms and existing systems, nationally and internationally, including voluntary, bilateral, and compliance, for providing payments to Vermont farmers for sequestering carbon and reducing greenhouse gas emissions.
- Investigate innovative funding mechanisms for assisting with implementation of climate change adaptation practices (such as cover crops and building organic matter in soil), crop insurance for diversified Vermont-scale farms, and emergency recovery following extreme weather events, so that we are better prepared to respond when climate change related events occur. Even with technical assistance program support, some water quality Best Management Practices (BMPs) that assist with climate change resiliency are still financially out of reach for many farms.
- By 2023, create carbon sequestration offsets protocols within Vermont's rules for the [Regional Greenhouse Gas Initiative](#) and the emerging, analogous Transportation Climate Initiative.

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What's At Stake?

Our challenge is to find a path forward in Vermont agriculture that allows for food production while protecting water quality. Agriculture dominates Vermont's working landscape in many parts of the state and is also important to the state's economy, both directly and indirectly. Similarly, our natural resources, including clean water, are why many people live in Vermont or come to visit, fueling the tax base and the tourism economy. At the present moment, agriculture is experiencing an explosion of momentum around the concept of "soil health," a steep escalation in concerns and investments in water quality, and an intensification of the confounding effects of climate change. We will need to use common sense, the power of community, respect, sound science, and creativity to successfully navigate the dynamic intersection of these tightly interwoven factors.

Current Conditions

The 2016 issuance of a federal Total Maximum Daily Load (TMDL) to limit phosphorus (P) loading to Lake Champlain drew much public attention to the connections between agriculture and water quality in Vermont. Harmful algal blooms in the lake, which are partially attributable to P in the water, have increased in severity since 2016. While there are many sources of P runoff across the landscape (including urban areas, roads, and wastewater treatment plants), models estimate that approximately 41% of the P entering Lake Champlain comes from agricultural lands. State legislation, such as 6 V.S.A. § 4803, has increased regulation and oversight on the agricultural sector.

At the same time, significant state and federal resources for improved farm management and infrastructure have been allocated to the agricultural sector. In general, farmers have stepped up to the challenge, and have significantly increased implementation levels of Best Management Practices (BMPs). BMPs include structural improvements

(e.g., manure storage) and field-based changes related to increasing soil health and minimizing risk of nutrient and soil losses (e.g., cover crops and manure injection). There is clear momentum in the farming community toward improved management, and farmers are now becoming very interested in potential systems that would compensate them for various "ecosystem services" they provide to the state (e.g., carbon sequestration).

Simultaneously, further improvements to water quality may be hindered due to economic turmoil on many farms, combined with an aging farmer population that has a hesitation to invest in infrastructure upgrades. Probably even more impactful is climate change, which has brought more frequent heavy storms, increasing the potential for erosion and nutrient loss from fields. Despite these challenges, farmers, educators, researchers, and other service providers continue to make progress toward environmental goals and economic viability by working collaboratively across multiple agencies and organizations.

State Funding Awarded for Clean Water Projects in State Fiscal Year 2016-2018, by Major Basin and Sector



Soil Management

Current Conditions

There is growing knowledge and appreciation in the farming community of ideas and practices that improve soil health. The concept of soil health is a holistic way of viewing the soil that acknowledges the complex interconnectedness of its various biological, physical, and chemical characteristics, and how important these are to environmentally sustainable agricultural systems. In addition to potentially improving yields by increasing the resilience of crop and pasture systems, building soil health can increase infiltration of rainfall on farmland, potentially decreasing runoff, nutrient loss, and erosion. Management practices that enhance soil health are being promoted by many groups for use on all types of farms (i.e., dairy, livestock, grain, fruit, vegetables, etc.). Some of the more commonly recognized soil health BMPs include cover crops, reduced tillage (including no-till), perennial crops, strategies to increase organic matter, rotational grazing, and crop rotation.

Bottlenecks & Gaps

- Investments in management changes to improve soil health need to be economically sustainable for farmers.
- There is a lack of clear data on the variety of linkages between soil health-related management practices and water quality conditions at the watershed scale.
- Actual soil health data from Vermont farms is sparse due to lack of measurement and monitoring.
- Measuring soil health remains expensive.
- Additional research and program flexibility is necessary for figuring out how to build soil health on a variety of farm types while minimizing risk to yields.

Opportunities

- Vermont has excellent farmer-led organizations (i.e., farmer coalitions) for harnessing the power of peer-to-peer education around soil health practices.
- We have numerous success stories of improving soil health from a variety of farm types and sizes that can be promoted.
- Soil health practices can also provide climate change mitigation (carbon sequestration) and potential community resiliency benefits to surrounding communities.
- Young and beginning farmers have tremendous energy around soil health, which is an opportunity to advance this topic and its related practices.

Management of Manure and Phosphorus

Current Conditions

In some cases, business decisions and management practices based on farm economics have resulted in concentrations of P on farms in excess of what is appropriate for the land base. All farms must now follow state water quality regulations — [Required Agricultural Practices \(RAPs\)](#) — and a nutrient management plan. These regulations direct farmers to manage manure (the primary source of P on farms), in ways that will minimize P runoff. Some newer strategies to improve nutrient utilization and limit runoff — like manure injection — are being used across the state. However, more tools for better distribution and management of manure to minimize overloading of P on cropland are needed.

Bottlenecks & Gaps

- Long winters, extended wet conditions, and more extreme events as a result of climate change remain challenges for managing manure and preventing nutrient runoff.
- The infrastructure cost and time necessary for manure injection can be prohibitive for some farms. Not all farms have liquid manure or land suitable for injection.
- A surplus of P exists in Vermont due to current and historical importation of grain, yet some fields still need P for optimum crop production.
- When manure applications are reduced, or eliminated, due to high soil P and/or high risk of runoff, nitrogen (N) is still necessary for crop production. Purchasing needed N in the form of commercial fertilizer is difficult to justify economically, and nearly impossible on organic farms.
- No viable manure transfer program exists for distribution of manure away from high P soils to where P is needed.

Opportunities

- Manure, and its ability to maintain and increase soil organic matter, is a valuable resource and a key component of increasing soil health and growing crops.
- Newer technologies being trialed may further improve how manure nutrients are managed. These include manure P removal systems, grassland manure injectors, precision application advancements, and solutions being investigated through the [Vermont Phosphorus Innovation Challenge](#).
- The nutrient management planning system offers a framework for the improvement of existing tools and implementation of new tools for improved P management and risk assessment. This could include incentives or market-based approaches to reward farmers for achieving lowered P losses from farms.

Tile Drainage

Current Conditions

Tile drainage is the placement of perforated pipes in agricultural fields beneath the roots of crops in order to lower the water table and more quickly drain excess water after rainfall. It has been shown to dramatically increase crop yields and allow farmers to enter fields with equipment without damaging soil during wet periods. The rate of tile drainage installation has increased in the past several years, along with concerns about its role as a pathway for P runoff from a field. All types of farms (i.e., large, small, dairy, vegetable, livestock) are investing in tile due to its significant production benefits in the face of climate change and increasing rainfall. Farmers indicate that tile drainage is allowing them to be more successful with soil health BMP implementation. Policy makers and researchers are struggling to keep pace and understand the full impact of this complicated situation.

Bottlenecks & Gaps

- Climate change is increasing the demand for tile drainage on farms, but water quality effects are not well understood.
- There is not enough information on tile drainage and its potential impact on water quality in Vermont.
- How tile drainage affects the overall magnitude of P loss from a tiled field vs. an untiled field due to decreased surface runoff is poorly understood.
- We lack information on how to best manage manure in tile-drained fields to minimize potential P runoff.

Opportunities

- There is interest by farmers to be involved in tile drainage research to increase understanding and find ways to reduce P runoff using practical approaches.
- Advancements in tile-outlet treatment systems for high-risk fields are being made in Vermont and elsewhere.
- There is a need to provide additional technical assistance to farmers to install tile in ways that minimize environmental impact.

Summary

The agricultural sector is energetic about increasing soil health and its benefits for water quality in Vermont, however, management changes must be economically justifiable for the farmer and supported by data demonstrating benefits. Improvements in soil health are achievable on many farms, but can potentially be overwhelmed by mismanagement of manure. Manure, high in organic matter, is a resource for soil health improvement and new technologies are emerging to allow for better utilization but manure distribution remains a challenge. Tile drainage is an important tool for farmers given climate change, and is allowing for increased adoption of soil health BMPs, but more information is needed around manure management in tiled fields.

Recommendations

- Dedicate funds to support Vermont Natural Resources Conservation Districts and farmer watershed organizations with the specific objective of allowing them to reach other farmers and do farmer-to-farmer education about improved soil and manure management. We know this to be one of the most effective means of influencing change, so we should facilitate it as much as possible. Cost: \$100,000 per year, per organization; total cost \$300,000 per year.
- Dedicate \$5 million to research that monitors field-scale water quality performance of practices post-installation, and will inform a [Payment for Ecosystem Services program](#) that provides incentives to farmers for reducing P losses.
- Dedicate \$1 million to measuring and continuously monitoring soil health across the state of Vermont, building a statewide database, benchmarking specific soil types, and correlating changes with specific BMP implementation.
- Fully fund the Vermont Agency of Agriculture, Food and Markets [Farm Agronomic Practices Program](#) and the [Capital Equipment Assistance Program](#) to financially assist farmers with improving soil health and lower the economic hurdle of changing management during these challenging economic conditions.
- Continue to fund the Vermont Phosphorus Innovation Challenge to launch current projects and pilot the most promising technologies.



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The Vermont Agency of Agriculture, Food & Markets (VAAFAM) facilitates, supports, and encourages the growth and viability of agriculture in Vermont while protecting the working landscape, human health, animal health, plant health, consumers, and the environment.

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What's At Stake?

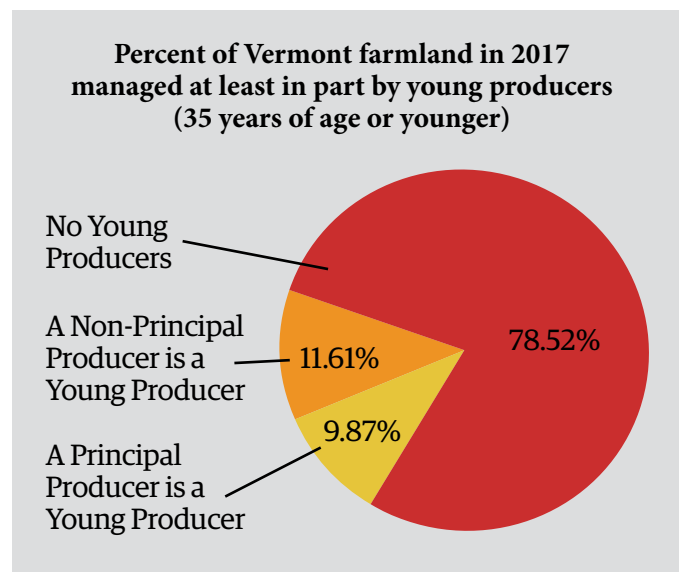
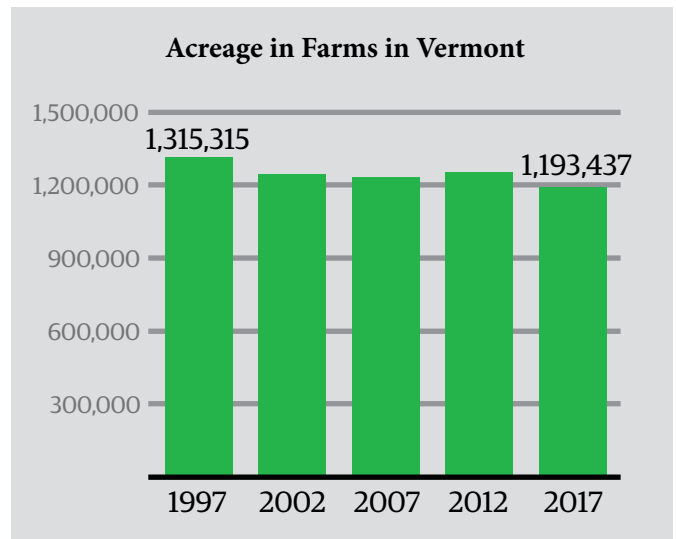
At a time when Vermont farms are facing downturns in prices and markets — and most are challenged to be profitable — farms are also set to transfer to new ownership at an unprecedented rate. The majority of Vermont farmers do not have a succession plan in place, and many do not have an identified successor. Of Vermont farmers 65 and older, 92% have no one under 45 working under them, and relatively few incoming farmers are interested in or prepared to assume responsibility for large-scale operations. This may lead to a change in the agricultural landscape that has not been seen for many generations, including a significant decrease in the amount of land in active agricultural use, land lying fallow for years or developed for other uses, and a setback in the amount of food produced in the state.

Current Conditions

Vermont farmer retirement and succession are occurring at a rapidly increasing pace year to year. For instance, the Vermont Land Trust estimates that as many as 300 farms could change ownership between 2020-2025. Many soon-to-be retiring farmers are not prepared to make decisions that will keep their land in farming, provide farming opportunities to family or unrelated producers, and maintain their farm business into the future.

It is much more difficult to successfully transition farmland and farm businesses when the businesses on the land are not currently profitable. In many instances, the retiring generation may profitably operate farmland with low debt, but future owners may not reach profitability because they will be servicing the debt load of the land purchase and/or investing in new farm infrastructure. In addition, new farm businesses tend to be significantly smaller farm operations in terms of acreage in active production than existing farm businesses, and this poses a challenge to successful land transfers to new and beginning farmers.

Vermont and the Northeast have services and tools available to support retirement and succession, as well as finding a buyer or successor, but the current funding, personnel, and promotion of these services do not match the high need (see [Business and Technical Assistance brief](#)). Although 21.6% of Vermont's agricultural land is conserved, we must confront the possibility that much of Vermont's agricultural land may be underutilized or at risk of being lost, potentially permanently, to development or alternative land uses in the near future. Additional human and financial capital are needed to accelerate the rate at which farms move through the succession process.



Bottlenecks & Gaps

- The cost of farmland (for lease or purchase) is high relative to the profitability of business models on that land base given current market conditions.
- Old infrastructure is often a liability for successful farm transition (e.g., run-down barns), as is marginal production land, particularly when those lands or outdated infrastructure have created water quality issues.
- In many cases, there is not enough capital left in farming businesses (e.g., equity, retained earnings, net-positive cash flow) given current market conditions, to enable successful transfers.
- Retiring farmers struggle to have sufficient retirement income and housing options.

Opportunities

- Multi-stakeholder farming opportunities exist for utilizing larger farm parcels.
- Some established farms continue to have the ability to purchase land and grow, and will purchase a farm from retiring owners.
- Retiring farmers without successors are willing to transfer their farms to unrelated farmer-owners.
- Vermont has a strong foundation of existing programs and farmland access tools, such as the sale of development rights, to enable initial access to affordable farmland for farmers at all stages of their business development.
- Developing new market opportunities in Vermont and the Northeast metropolitan region could be a way to create predictable, scaled-up markets for existing and beginning farms.

Recommendations

- Increase state resources for conservation efforts that support farmland access and succession planning (see [Supporting Future Farmers brief](#)).
- Consider options to encourage multiple tenants/owners on larger conserved farms, including policy incentives. Public funds and/or easement permissions may be critical to repurpose, remove, or add infrastructure to support new businesses and new business models.
- Increase availability of business assistance for farmers looking at options for farm transfer and succession, as well as legal and tax capacity and support. In particular, increase the number of service providers of succession assistance (see [Business and Technical Assistance brief](#)). Cost: \$600,000 per year for six additional FTE.
- Invest in sample business plans, market analyses, and financial benchmarking tools for emerging business models such as grass-fed beef, hemp/CBD, pork, and value-added dairy products. Cost: \$250,000 over three years.
- Develop additional low-cost and flexible financing programs for farm buyers. The Vermont Land Trust (VLT) is currently raising \$15 million for their Farmland Future Fund that will enable them to provide low-cost financing for farm buyers to make infrastructure changes and improvements.
- Vermont Agency of Agriculture, Food and Markets, VLT, and members of the Clean Water Partnership should assess and quantify the funding gap and identify sources of funding needed for farmland conservation. Then make public funds available to resolve older infrastructure that can have water quality issues.

Farm to Plate is Vermont's food system plan being implemented statewide to increase economic development and jobs in the farm and food sector and improve access to healthy local food for all Vermonters.

The Vermont Agency of Agriculture, Food & Markets (VAAF) facilitates, supports, and encourages the growth and viability of agriculture in Vermont while protecting the working landscape, human health, animal health, plant health, consumers, and the environment.

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What's At Stake?

Vermont is facing a dramatic shift in the agricultural sector due to economic and demographic changes. The key to the maintenance and development of the farms that form the backbone of our rural communities is to support the next generation of farmers. These new and beginning farmers face a number of challenges including shifting markets and production models, increased risk due to climate change, and barriers to accessing land. The types of support that are critical to their success include assistance in identifying and accessing suitable land, development of strong management and production capacity, supportive policies around markets, and access to capital. The new generation of farmers needs this type of support to create viable farm businesses, to keep the Vermont landscape in active agricultural use, and to preserve the character of our rural communities.

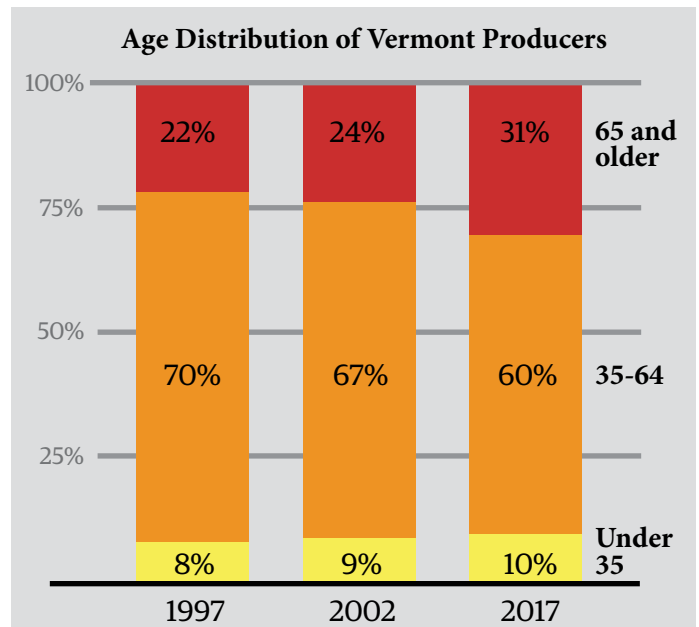
Current Conditions

State and national trends show an aging farmer population, increased land pressure for non-agricultural uses, and a rapidly changing marketplace for agricultural goods. Within Vermont, the conventional dairy sector, which has long been the backbone of the state's agricultural economy, is struggling to maintain viability (see [Dairy brief](#)).

The current and future generation of Vermont farmers face a number of significant challenges, including limited markets for local products, increasing land values, increasing production uncertainties due to climate change, and evolving agricultural business models. In addition, starting and growing a farm operation has become increasingly capital intensive in terms of both operating expenses and land purchase. All of these factors combine to make for a very challenging environment for farmers to be successful.

As agricultural production practices and markets shift, accessing land remains one of the most important factors in the success of new and beginning farmers. The decline in the number of dairy farms in the state and adoption of diversified farming models is changing the types of farmland and infrastructure that are suitable for viable farm businesses. Land conservation initiatives like the Option to Purchase at Agricultural Value (OPAV) and the [Farmland Access Program](#) at the Vermont Land Trust promote increased affordability and access to farmland to some buyers. These projects are now paired with robust business planning and technical assistance to improve the potential success of the farmer. Although this process improves the potential viability of a new farm, the capacity to support these complex projects is still very limited due to funding constraints.

Despite the challenges faced by new and beginning farmers in Vermont, there are reasons for optimism within the agricultural sector. Vermont's new and beginning farmers are enthusiastic, resilient, and well supported in approaching farming as a business. They are supported by statewide service providers to grow their management and production capacity toward making sustainable business decisions.



New and Beginning Farmers

Current Conditions

While agriculture in Vermont faces a number of significant challenges, there are still large numbers of new and beginning farmers eager to make farming their life-long livelihood. These diverse and enthusiastic agrarians are learning from other farmers in their community and through business and technical assistance from various service providers, but they face many structural challenges to achieving successful, viable businesses. These challenges include access to capital, access to markets, and the decline of the dairy sector and associated agricultural support services (e.g., large animal veterinarians).

- **41.6%** of farmers in Vermont in 2017 were female, a percentage that has been growing over time.
- In 2017 in Vermont, **1,856** producers (15.1%) had been farming for five years or fewer, and **1,898** (15.4%) had been farming for 6-10 years.
- In a 2017 National Young Farmers Coalition poll, **63%** of respondents said they are making or will eventually make sufficient income in farming to meet their life goals.

Bottlenecks & Gaps

- New farmers can face saturation in local markets, insufficient price points, and regional markets that are difficult to access.
- Lenders may not understand new farm models, making it difficult for farmers to access capital.
- New farmers may be impacted by racial prejudice, student loan debt, lack of off-farm jobs for a partner, and unaffordable health insurance, housing, and child-care.
- Some agricultural support services (e.g., feed dealers) may not have enough farm activity to support their businesses, thus impacting other farms.

Opportunities

- Enthusiasm for socially and environmentally conscious investment can be harnessed to develop new and creative financing tools for operations and land purchase.
- Individuals or groups of producers can develop marketing mechanisms for niche or higher-margin product lines.
- Access to regional metropolitan markets through improved distribution and marketing infrastructure remains a potential area of improvement.

Farmland Access

Current Conditions

As farmer demographics change and agricultural business models shift, access to suitable and affordable farmland is a major concern for the next generation of new and beginning farmers. Using services like Vermont Land Link, a farmland-specific listing and linking service, farmers can identify and assess potential land opportunities for lease or purchase. The Vermont Land Trust's [Farmland Access Program](#) is now routinely paired with robust production and financial technical assistance from the Intervale Center, UVM Extension, or other service providers to help new farmers succeed.

- **79%** of farmland in Vermont does not have an operator under age 35 as of 2017.
- **30%** of respondents to a National Young Farmer Coalition survey indicated that land access is preventing them from farming (the most frequently reported barrier).
- The average market value of Vermont farms has increased **13.5%** since 2012 to **\$620,691** in 2017.

Bottlenecks & Gaps

- Vermont land costs are high relative to the potential for income generation from agricultural activities.
- Exiting farmers often stay on their land for financial or sentimental reasons. This can force beginning farmers into non-favorable land agreements or struggles to find suitable housing.
- Current farm business models often require less land or different infrastructure than the parcels that are available.
- Potential farm successors do not always have the skillset or financial position to assume management or ownership of larger existing farm operations.

Opportunities

- Many retiring or exiting farmers do not have identified successors, leading to opportunities for new and beginning farmers to access land.
- There could be better utilization of farmland owned by non-farming landowners through lease or eventual purchase.
- New or novel land use models are being developed, including multiple farm operations co-locating on a single parcel or even shared ownership models.
- The Farmland Access Program and accompanying farm business development technical assistance to accelerate farmland access can be expanded.
- Continue to explore the use of creative land-holding and financing mechanisms to assist farmers in land access and purchase.

Supporting Farm Businesses

Current Conditions

Farming today requires a diverse and refined skill-set. As access to viable commodity markets become more difficult, farmers must focus on business management and marketing. They are supported in developing management capacity by business advisors from the Farm Viability Network and production technical assistance from the University of Vermont and producer networks.

- **83%** of Vermont producers who have been farming for ten years or fewer are operating farms with less than \$50,000 of agricultural products sold annually, compared to **73%** of producers who have been farming for over ten years.

Bottlenecks & Gaps

- New markets and production models require a much higher level of business management skills from farmers to communicate with customers and manage day-to-day operations.
- As production models shift away from established commodity models, there is an increased need for applied research and education around alternative products and markets.
- Farmers with limited capital have difficulty accessing and purchasing land.

Opportunities

- If continued, financial support for, and development of, the Farm Viability Network and increased business assistance for farmers will build their planning, decision-making, and management capacity (see [Business & Technical Assistance brief](#)).
- Targeted applied research would improve production and financial knowledge in specific sectors, including grass-fed beef, maple, vegetable, and diversified production.
- Support for producer organizations would increase education and marketing efforts to improve access to markets. Development of informal farmer networks through cohort-based support can strengthen producer communities as they take risks and try new enterprises.

Summary

Supporting new and beginning farmers is essential to the long-term success of Vermont's agricultural sector and the culture of our rural communities. Expanding existing business and technical assistance along with the right match of capital can improve farmers' ability to access suitable, high-quality farmland and ensure they develop successful farm businesses. These efforts can be paired with policy mechanisms, alternative financing mechanisms, and enriched market research opportunities to incentivize farm business development.

Recommendations

- Expand financial support for Vermont Land Trust's land conservation and transition efforts, including buy-lease-sell opportunities, [Farmland Access Program](#), and land conservation.
- Support regional market development efforts, especially entrepreneur-driven aggregation and distribution activities. Develop co-marketing enterprises that allow for local sales associated with a specific farm brand while also providing aggregated regional market access.
- Increase funding support for Vermont Housing and Conservation Board [Farm & Forest Viability Program](#) and UVM Extension's production technical assistance for farmers. This should include increasing funding for one-on-one technical assistance, bolstering producer associations, and increasing directed applied research and education.
- Increase the development of non-traditional land access and financing models, including collaborative/co-located farms, local low-cost financing options, and programming for underserved populations.
- Increase education and advocacy efforts to inform state and federal programs about new and emerging business models. Involve farmers and business assistance providers in the development and implementation of state and federal regulatory, conservation, and financing programs.



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What's At Stake?

Properly capitalized farms and food businesses are critical for a healthy food system. Food system businesses need different kinds of capital depending on their stage of growth, scale of operation, and the markets into which they sell. In part due to the aging of our population, Vermont is experiencing an unprecedented generational transfer of farmland and food businesses. We need to develop new business models, and support access to affordable farmland for new and beginning farmers and young entrepreneurs to take over food businesses, all of which require significant capital and business acumen for success. Critical to this process is connecting the next generation of values-driven investors with opportunities to support farms, food producers, and food system businesses, through a variety of capital provider organizations and through programs that educate new investors.

Current Conditions

Strengthening the state and regional food system is one of the most important paths for broad and sustainable wealth creation in rural communities, yet Vermont farm and food businesses are forced to rely on a more limited financing landscape than businesses in other sectors.

There is a deep interrelationship between matching the right kind of capital with the right capital structure and provider, as well as individuals and/or networks that can provide that capital.

Capital can take many forms, as shown in the capital continuum diagram. Financial capital can be structured as debt, equity, grants, and more. The maturity of different types of businesses within the food system can impact

access to capital, as well as dictate the form of capital that is most suitable. For instance, for food manufacturing businesses that are growing or pivoting their business and expanding facilities and/or distribution, there is often a lag time between when investments are made in a new facility or equipment and when revenues are generated from that investment. This leads to cash flow challenges as the business grows and requires additional working capital that is patient and flexible.

From 2008 - 2018, a suite of new and diverse forms of capital have become available to Vermont farm and food businesses. Alongside the growth in Yankee Farm Credit

(continued)

Capital Continuum



and Vermont Agricultural Credit Corp (VACC) portfolio of loans over the last decade, new lending programs, such as the Vermont Community Loan Fund's (VCLF) [Food, Farms & Forest Fund](#), have been developed. The advent of crowdfunding, complemented by the changes to the Vermont Small Business Offering Exemption, have allowed food system businesses the ability to seek capital directly from individual investors. One example is Milk Money Vermont, a platform for businesses to raise capital from Vermont investors in amounts and at a scale that are accessible to the full range of individual investors.

The Vermont [Working Lands Enterprise Fund](#) is another example of an important new source of capital, providing grant funding to strengthen and grow the businesses connected to Vermont's working landscape. Since its inception in 2012, the Fund has distributed over \$5.3 million to 184 agriculture and forestry projects.

➤ See [Supplemental Materials](#) for a full [Farm and Food Enterprise Financing Inventory of Capital Providers](#).

Financing Farmland and Farms

Current Conditions

Demographics and market shifts are accelerating the pace of generational farm transitions. There are multiple costs when farms transition, including the farm land transfer, the transaction, and the start-up costs of the new farm. New and beginning farmers are attempting to access farmland on which to develop their businesses, but as the historic mechanisms of family inheritance and transferable dairy markets have become the rare exception, innovative lease-to-own models are emerging that enable incoming farmers to build equity and working capital while they grow markets and customers.

Bottlenecks & Gaps

- Some of the traditional agricultural capital providers are not yet knowledgeable about new and diversified farming business models (e.g., grass-fed beef), and many have taken losses that might make them more risk averse in the future. Additionally, the methods of risk assessment commonly used by such capital providers cannot readily be applied to new models.
- Affordable land access is one of the biggest costs in starting and growing a farm business. The fact that Vermont's new farmers often don't have the equity and down payment needed to purchase land calls into question cultural assumptions that land ownership is the first step for a new farmer.
- When new farmers do purchase land early in the life of their business, they often struggle to have sufficient capital for operating expenses and capital expenditures to make improvements.

Opportunities

- Yankee Farm Credit is expanding their [Young, Beginning, Small and Minority \(YBSM\) farmers program](#), which includes Farm Start, reduced underwriting criteria for YBSM, business consultation, and business education.
- Yankee Farm Credit partners with the Farm Service Agency (FSA) on the [USDA Beginning Farmer program](#), requiring only a 5% downpayment on real estate purchases.
- Both VACC and FSA offer low-cost real estate and operating loans to beginning farmers and on-farm value-added operations.
- The Vermont Land Trust's [Farmland Access Program](#), and newly launched [Farmland Futures Fund \(FFF\)](#), is an innovative, successful, and evolving tool for the transfer of farmland to the next generation.

Financing Food Businesses

Current Conditions

There are myriad lending programs supporting Vermont value-added food businesses. Companies with hard assets (e.g., equipment, real estate) are commonly able to finance early growth in small amounts through these sources of debt. As food system businesses scale and grow, they can be at risk of over-leveraging their business if they don't grow as quickly as planned, or they can lack sufficient working capital and personnel to properly manage the growth.

Meanwhile, new and emerging businesses with high-growth-potential products (e.g., breweries, kombucha, CBD products) are seeing an influx of capital during their early stages of growth, but as they grow and need larger and more risk-focused capital, they are having a hard time raising it from in-state sources.

Bottlenecks & Gaps

- We need more educated, values-aligned, equity investors in Vermont that can bring sufficient amounts of capital to help businesses grow.
- Attention to succession planning and the requisite capital to facilitate a transition to new ownership is often brought up too late in the life cycle of the business.
- Few food system businesses have advisory boards or mentors to help them navigate the challenges of growing their business.
- There is a gap in flexible funding options for slower-growing, lower-margin food system businesses.
- There remains a lack of understanding of the sources of capital among food entrepreneurs.

Opportunities

- Businesses and projects in Vermont's [Opportunity Zones \(OZ\)](#) may see better access to alternative sources of capital if the OZ attracts investor dollars.
- Writing case studies and sharing stories of failures in food system entrepreneurship can provide important lessons learned to entrepreneurs who are just starting out and would benefit from knowing they are not alone.
- Advisory boards can mitigate risk for entrepreneurs and investors, while insuring against executive burnout and enhancing growth strategies and access to markets.
- The Vermont Women's Investor Network and the Northern New England Women's Investors Network educate and engage female investors in support of female entrepreneurs.

Systemic Issues Impeding Food System Businesses' Ability to Access Capital

Current Conditions

Capital providers tend to be siloed. If investors, lenders, grantmakers, bankers, and other types of capital providers built stronger ties across the capital continuum and outside of their traditional networks, they would have a wider choice of providers to bring to the table when an entrepreneur doesn't fit their particular criteria or needs more than one type of capital to grow. The traditional investing model is lopsided and skewed towards investor gains (or protection from losses), as opposed to being a true partnership with entrepreneurs whereby all stakeholders' interests are considered.

Bottlenecks & Gaps

- There are low-cost loans available to farm and food businesses but much of this debt remains dependent on collateral to get approved, which can be challenging for early-stage businesses.
- There are not enough diverse investors (e.g., women, people of color, Generation X, and millennials).
- Business assistance providers have varying levels of expertise and knowledge along the capital continuum, which could lead them to suggest a mismatch between businesses and capital providers.
- We have some mechanisms for helping low-income and underserved populations access capital, but typically in the form of small grants that are expensive to administer. Furthermore, these populations often lack access to social capital and advisory services.

Opportunities

- A significant transfer of wealth from baby boomers to millennials is underway. Millennials are more likely to value strong local food systems and community (see [Consumer Demand brief](#)), and are interested in alternative investment opportunities.
- Impact investing has gained traction among a wide range of investors, including the largest financial institutions, pension funds, family offices, private wealth managers, foundations, individuals, commercial banks, and development finance institutions. Impact investing refers to investments made into companies, organizations, and funds with the intention to generate a measurable, beneficial, social or environmental impact alongside a financial return.

Summary

Human and social capital are as important to food system businesses as financial capital. Having the right people and talent, networks, and connections is as critical as money to grow a business, and can assist with the transition of that business to new ownership when the time comes. Human capital is defined as the team that brings value to your organization. Social capital is the connections and shared values that exist between people and enable cooperation. When a company has developed social capital, it is much easier to access other resources such as investors, recruiting experts, or building a team. Even if a company is generating revenue and has a great team, without a network of supporters, the first bump along the way may send the company down a road they can't recover from. The recommendations below offer ways to support entrepreneurs and their need for financial, human, and social capital.



Recommendations

- Provide at least \$1.5 million in funding annually to the [Working Lands Enterprise Fund](#). These grant funds are a unique and critical source of capital that leverage and accelerate innovation and sustainability in Vermont food system businesses.
- Work with public-private entities to explore the creation of an Agricultural Loan Loss Reserve Fund for businesses that need financing but lack collateral. Such a fund would serve as a guarantee in lieu of collateral, and only be drawn from upon loss of principal.
- Foster regional relationships across New England states to bring regional capital (financial, social, human) into Vermont for food system businesses (e.g., Northern New England Women's Investors Network, New Hampshire and Maine Charitable Foundations). In particular, convene philanthropic, public, and private organizations to collaborate on solutions for farm-transfer financing (e.g., down payment on land, guarantees for farmers who provided owner financing, and lease-to-own models designed to address farmer needs and interests).
- Provide targeted education and outreach to main street investors (non-accredited) to build awareness of opportunities to invest in intermediary institutions, such as Community Development Financial Institutions (CDFIs) and credit unions who are lending to and/or investing in food system businesses.
- Revise the [Vermont Training Program](#) statute to enable funding for food system and working lands entrepreneurs who want to secure coaching and mentoring services (e.g., leadership and CEO/peer-to-peer mentoring). As businesses grow and scale, entrepreneurs and founders need the same support an incumbent worker may need to upgrade their skills.
- The Vermont State Treasurer should expand the focus of the state's Local Investment Initiative to include investments that support a healthy food system in Vermont. Investments could be in the fixed income public markets, fixed income private debt markets, cash, and real assets. The [Soil Wealth](#) report provides guidance on investing in agriculture across asset classes.
- Explore what would be required to develop a college loan forgiveness program for aspiring farmers to make it easier for them to acquire land and start their farm.

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VERMONT FOOD SYSTEM PLAN ISSUE BRIEF



ISSUE:
*Business and
Technical
Assistance*

What's At Stake?

Water quality regulations, market changes, low farm gate prices, and increased competition are all challenging the profitability and future viability of Vermont farms and food businesses across most production types. Working with business and technical assistance service providers is an effective way to strengthen a business in good times and work through various options during challenging times. Vermont's agricultural and food business and technical assistance network is well established and nationally renowned. However, additional effort, investment, and personnel are needed to ensure programs and providers keep up with the rapidly evolving needs of the agricultural and food sector (e.g., succession planning, dairy supply chain disruptions), so that they are able to continue to provide relevant, high-level, valuable services to businesses across the range of production types, scales, and markets.

Current Conditions

Many nonprofit organizations and private consultants in the state work with farms and food businesses across various stages of development, while some focus on certain stages or types, such as new and beginning farmers or growth-stage food manufacturers.

Business assistance providers work with the owners/operators of farms and food businesses to build business plans, identify and secure appropriate capital, assess capital expenditures and equipment needs, plan for business or farm succession, and strengthen their personnel and project management skills.

Technical assistance providers offer a range of support services, from agronomic and production best practice research to food safety planning, engineering and permitting support, animal health and nutrition consultations, water quality and nutrient management assessments, and equipment optimization support (e.g., temperature and humidity of produce coolers).

The Vermont Housing and Conservation Board (VHCB) [Farm & Forest Viability Program](#) finds that in-depth business planning over a two-year period results in an average 10% increase in gross income and a 62% increase in net income in the year following Viability Program participation (aggregated data from 2014-2018). In addition, business planning assistance leads to higher business acumen and very high success rates in accessing capital. Of Farm & Forest Viability Program 2014 participants who used their business plan to seek financing, 100% successfully received loans and 87% successfully received grants.

An estimated 17 additional full-time business and technical assistance positions are needed to serve the sheer number of farms and food businesses who need

additional support services, if Vermont's agricultural sector is to remain the backbone of the state. There is also a great need to invest in the professional development of existing services providers, given the challenges facing the farming community — from emergency situations and financial rescue, to shifts in production and business models, to increased need to market and sell products wholesale, to beginning farmer training or succession planning. Food entrepreneurs need greater support in understanding their unit economics, how to manage cash flow while expanding their operations and navigating food safety regulations, and raising equity or other forms of expansion capital.

The importance of the existence of an aligned and coordinated network of service providers and the diverse set of accessible services they offer statewide cannot be overstated.



Business and Technical Assistance Providers

- By state statute, the Vermont Housing & Conservation Board is tasked with managing the [Vermont Farm & Forest Viability Program](#) in partnership with the Vermont Agency of Agriculture, Food and Markets (VAAFM). The Viability Program manages and invests in a network of nonprofit organizations and consultants that provide wrap-around, individualized business assistance across a breadth of business topics from financial recordkeeping and business planning to management, accounting, succession planning, marketing, and enterprise analysis.
 - The Farm Viability network of nonprofit organizations includes UVM Extension, NOFA-VT, Intervale Center, Center for an Agricultural Economy, Land for Good, Windham Grows, and the Vermont Sustainable Jobs Fund (VSJF).
- **UVM Extension** also provides specialized technical and production assistance on crops, soils, engineering and design, food safety, etc., despite declining state funding, often through soft-funded Extension positions and programs.
- **Farm First** was created by the Vermont Legislature and the Agency of Agriculture, Food and Markets to provide the equivalent of an [Employee Assistance Program \(EAP\)](#) to address farmers' needs and issues and support the emotional health of farm families. It is a critical resource available to farmers and their family members.
- The [Vermont Agricultural Mediation Program](#), primarily federally funded, provides legal and mediation resources for such issues as debt restructuring, bankruptcy, family conflicts, and succession planning.
- In 2011, the State of Vermont created the [Working Lands Enterprise Initiative \(WLEI\)](#), which provides competitively awarded funding for business and technical assistance in addition to direct grants to agricultural, food, and forestry sector businesses. The WLEI staff and board place a high value on business and technical assistance and have seen the direct benefit to grantees who have accessed high-quality outside assistance.

Farm and Food Business Assistance Continuum
Business Assistance Providers by Stage of Business Development



For more details about this list of business service providers and the services they offer, visit workinglands.vermont.gov/working-lands-business-development-continuum

Bottlenecks & Gaps

- Businesses frequently wait too long to get outside support, which can allow avoidable emergencies or larger issues to arise. Businesses more successfully navigate financial, production, or personnel challenges when they engage with business assistance providers early.
- Farmers and food business owners are often so tied up with day-to-day operational issues that they cannot dedicate enough time to work *on* their business (e.g., longer-term planning, sales pipeline development, workforce training, succession planning).
- There is a skills gap among existing business and technical assistance providers on topics like marketing and sales, production benchmarking, land and environmental assessment, and what types of capital are best given a farm or food business' current needs.
- Non-agricultural professionals (e.g., lawyers, CPAs) are often not equipped to work with farmers, but Vermont has an increasing need for farm transfer and succession support.
- It is difficult to recruit new business service providers for open positions, there are an insufficient number of providers overall based on the level of need, and some areas of the state are less supported than others.



Opportunities

- Increased funding to the organizations involved in the [Viability Program](#) network would enable them to hire more full-time personnel, which in turn would lead to additional farms and food businesses being able to receive support, at a time when many market forces are negatively impacting these businesses. The support structure to do this important work is already in place, it just needs additional funding to match the level of need.
- A regional Northeast business provider network is currently under development and will open up more possibilities for communities of practice, professional and workforce development, and possibly increased access to funding.
- Farmers and food entrepreneurs have an easier time acquiring capital if they have well-founded business plans and financial acumen, which is often a result of working with a business assistance service provider. Lenders, grant-makers, investors, and other capital providers advocate for and in some cases support business and technical assistance programs.
- With additional resources for outreach and marketing, it would be possible to improve the awareness of farmers and food entrepreneurs about the availability of high-quality service providers who can assist them throughout their business life cycle.

What Do We Mean By Viability?

Viability means that a farm or food enterprise is economically profitable as well as socially and environmentally responsible.

Viable enterprises tend to be the sole, or an important, contributor to the owners'/operators' family income once past the start-up stage, and they must be profitable in order to provide adequate income. Owners/operators of viable enterprises understand and can articulate their mission and the direction they want to take their business, and are successful in meeting their goals, even if those goals shift over time with changing markets, competition, family situations, etc.

This definition of viability includes nonprofit-owned enterprises. Such enterprises must still cover their costs in order to be viable, but the nonprofit may bring in funds to subsidize educational activities or other mission-based programming that complements the farm or food enterprise.

Recommendations

- Increase the number of Vermont farm and food business service providers with specialized skills, and ensure qualified providers are available to farm and food businesses equally across the state and across stages of development. Estimates from the 2020 Vermont Food System Plan Briefs show the need for at least:
 - Six additional business assistance providers with a focus on succession planning, business finances, transition to other production strategies, and potential diversification. Four of these to work with dairy farms and two to work with other types of farms and food businesses
 - Two additional technical assistance advisors with expertise in land and environmental assessments
 - Two additional consultants or FTEs with expertise in marketing and sales
 - Two additional FTE business and technical assistance advisors specializing in grazing (i.e., grass-based business models) and small and large animal livestock
 - Four additional FTE technical assistance advisors with specialized production expertise: one for grain, one for apples, and two for hemp production
 - One additional FTE at Farm First and/or the [Vermont Agricultural Mediation Program](#), to assist farmers in crisis
- Provide current service providers with professional development on farm succession planning as well as climate change threats to Vermont food production.
- Increase outreach to farms and food businesses to increase awareness of the diverse network of service providers that exist and the value of having someone outside a farm or food business provide advice and assistance across all stages of development and over time.
- Support alternative ways to encourage farmer learning including peer-group-based education, workshops, and farmer-to-farmer programming.
- Investigate the creation of a searchable database to connect available bookkeepers and accountants with working lands businesses, to increase the businesses' financial literacy.



Farm to Plate is Vermont's food system plan being implemented statewide to increase economic development and jobs in the farm and food sector and improve access to healthy local food for all Vermonters.

The Vermont Agency of Agriculture, Food & Markets (VAAFAM) facilitates, supports, and encourages the growth and viability of agriculture in Vermont while protecting the working landscape, human health, animal health, plant health, consumers, and the environment.

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What's At Stake?

Consumer demand for local, organic, and specialty foods have surged over the last ten years, helping Vermont's agricultural vitality. As these markets are maturing, slowing growth and increased competition are leading to downward price pressure and other scale-related barriers for Vermont producers. While Vermont's food producers are renowned for high-quality products, authentic stories, and inspiring social values, it can be difficult for these businesses to develop marketing platforms and messages in order to stand out in an increasingly crowded field. Americans are exposed to 4,000-10,000 ads each day and only about 100 will successfully penetrate the "attention wall." If Vermont producers want to earn premium pricing, they will need resources and coordination to support strategic and compelling marketing tactics that are able to penetrate the noise and attract consumers' scarce time and attention.

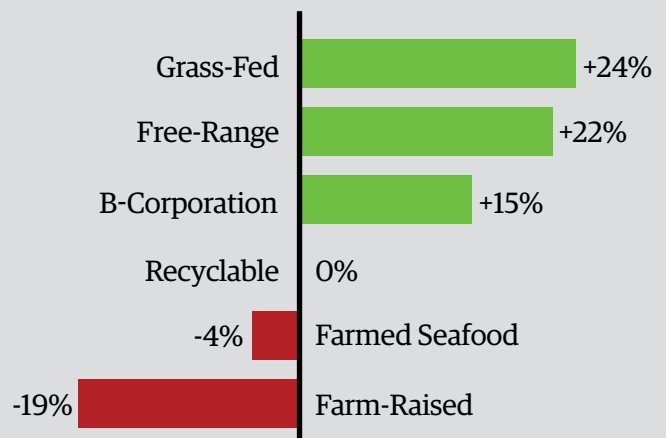
Current Conditions

Vermont has long benefited from a reputation for high-quality, authentic food products. This reputation, or "market value," offers opportunities for increased sales if producers can gain visibility and align with consumers' needs. To leverage market value, producers must employ good marketing strategies including market research, market positioning, brand development, and marketing tactics. The relatively small size of many Vermont producers limits competitive advantages gained from economies of scale, and their marketing spending is generally believed to be an area of under-investment compared to national industry averages.

Complicating Vermont producers' ability to fulfill consumer demand is that today's food marketplace is no longer the predictable, regular weekly trip to the grocery store. Consumers now purchase food in many different outlets (e.g., supermarkets, "big box" stores, specialty stores, online, etc.) and at many times of day.^{1,2} Disruptions in traditional media and retail channels are mirrored in consumers seeking shopping experiences that fit their custom needs (see [Grocers brief](#), [Direct Markets brief](#)). They are seeking products that align with their particular dietary preferences, and demand transparency of ingredients and production practices.

To stay viable, Vermont's food producers must be savvy to these rapidly shifting consumer trends. In addition, investment is needed in both the private and public sectors to elevate the presence of Vermont products to consumers. Recent examples of state investment to understand consumer demand include consumer-based market research from the Vermont Agency of Agriculture, Food and Markets (VAAFAM) and Agency of Commerce and Community Development (ACCD) to understand consumer perceptions related to the Vermont brand, maple, and specialty cheese.

Change in Dollar Sales for Sustainability Claims in U.S., 2017-2018



Demographic Consumer Trends and Consumer Values-based Demand

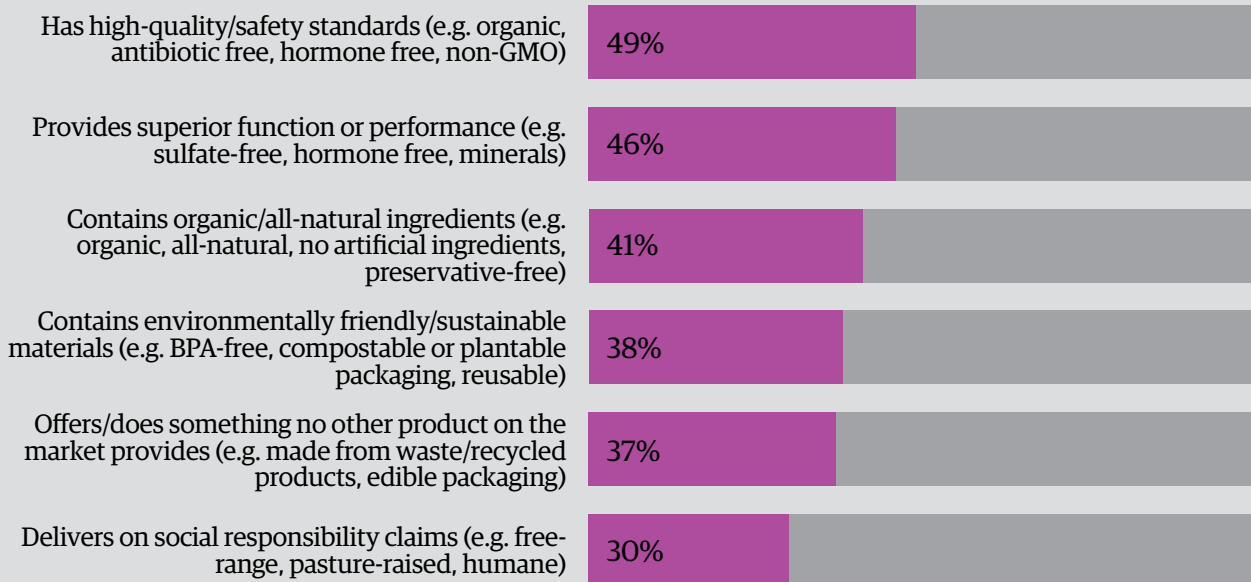
While baby boomers (b. 1946-1964³) still have impact, millennials (b. 1980-1996⁴) are now the largest generational group and are influencing the marketplace with their purchasing choices. Millennials communicate their identity and values with their product choices. They favor unique and personal experiences, which leads them to try new brands, new channels, and to seek niche shopping experiences.⁵ Meanwhile Generation Z (b. 1996-2015) is emerging as the largest and most ethnically diverse generation. Millennials and Gen Z consumers are increasingly vocal about their purchase experiences and turn to their online networks for purchase advice. Further, these hyper-connected consumers are seeking purchase experiences that appear authentic and will be share-worthy.⁶

Today's consumers demand products that meet their own health needs, emotional values, and broader social concerns. Many of these values have direct relevance to Vermont producers and present strategic marketing and growth opportunities. Local, organic, and non-GMO labels have widespread market appeal. The U.S. local food market grew from \$5 billion in 2008 to \$12 billion in 2014 and is expected to rise to \$20 billion by the end of 2019.⁷ Across the board, consumers are emphasizing a need for increased transparency in the foods they are choosing, and to know more about agriculture and food manufacturing practices.⁸

Consumers feel strongly that companies should help improve the environment, and half of global respondents say they're inclined to pay higher-than-average prices for products with high quality standards, which consumers often associate with strong sustainability practices. Just behind safety and function, consumers are willing to open their wallets for products that are organic, made with sustainable materials, or deliver on socially responsible claims.⁹ As the concept of "sustainability" matures, consumers are getting more specific in their demands, seeking bundled benefits (e.g., high-protein organic milk) and product innovations (e.g., plant-based proteins).¹⁰

The organic market is maturing and mainstreaming, leading to declining price points for producers, while the marketplace is seeking large-scale solutions to meet price and volume demands. GMOs continue to rank high in the list of consumer concerns, with almost universal consumer awareness of GMOs, and an estimated half of shoppers avoiding them.¹¹ Concerns about animal welfare may have increasing impact on Vermont's food producers, especially as consumers are turning to plant-based beverages and meat substitutes. Plant-based proteins are a good example of a market trend that is meeting the consumer demand for perceived benefits to the environment, health, and animal welfare.

Percent of Global Consumers Willing to Pay Higher-than-Average Prices For Products with Select Attributes (2018)





Bottlenecks & Gaps

- Growth of markets like local and organic can pose a variety of challenges for Vermont’s niche producers as they lack the scale to compete against larger companies with better economies of scale and larger marketing budgets.
- Maintaining price premiums is more difficult and nuanced as the local food category becomes more mainstream and mature.
- Meeting consumer demand for more information and products that meet their personalized needs requires robust, sophisticated, emotionally compelling, and multi-faceted storytelling that also fits into the soundbite nature of modern communications and connectivity. Vermont’s businesses often lack the resources to invest in packaging updates, “content creation” (e.g., videos, blog posts, social media posts), and social media curation to stay in relationship with target consumers.
- The diversification of consumer demand creates opportunities for success via careful market segmentation; however, segmentation is a nuanced marketing skill that many small businesses lack, and/or lack funds to execute.
- While relevant data at the business level is not publicly available, anecdotal evidence supports the conclusion that Vermont food and farm businesses tend to be under-resourced in executing sophisticated marketing strategies.

Opportunities

- Vermont food products align with current trends for authenticity, purity, and trusted relationships, and consumers seeking highly personal and custom experiences.
- Existing, publically available market research can be used by the state and individual businesses in segmenting markets and developing targeted content.
- The growth of Vermont’s digital marketing sector provides valuable marketing infrastructure to support Vermont’s food businesses.
- Vermont producers benefit from proximity to major urban markets and a robust tourist economy.
- Vermont producers may benefit from adding attributes to their products such as enhanced nutritional value (e.g., high-protein organic milk), animal welfare benefits (e.g., grass-fed), or other social benefits (e.g., authentic connection back to the farm).
- Vermont food businesses have the authentic experiences and values well suited for behind-the-scenes online and social media storytelling that is attractive to consumers.
- Online platforms designed to enhance marketing through digital content created and shared by consumers offer a means for small farms and food businesses to affordably promote their products and create a community of “brand ambassadors.”
- Vermont is well-positioned for statewide coordination around conducting, interpreting, and collaboratively implementing marketing strategies based on shared understanding of consumer trends specifically focused on Vermont-produced foods.

Summary

Vermont has been successful in cultivating a reputation for high quality food, authentic and trustworthy businesses, and a natural environment that is clean and pure. This reputation has helped to shape the broader brand identity of Vermont food and farm products. Vermont has been a leader in the local, organic and sustainable food marketplace. As those markets go mainstream, we must be cautious not to lose our competitive edge. The food marketplace is becoming more crowded and nuanced. While there are growing opportunities to tap into consumer trends, we should not underestimate the competitive pressure and expense of maintaining a visible presence in a multiplicity of media channels and market outlets. If we want to see Vermont's food and farm economy thrive, we cannot afford continued reliance on fragmented, product-specific marketing messages. Rather, now is the time to invest in coordinated, robust marketing strategies across the state.

Recommendations

- Provide a \$100,000 annual appropriation to the Vermont Agency of Agriculture, Food and Markets for the marketing of Vermont food and farm products.
- Develop a shared communications and graphic design “content creation” position to be co-located between the Agricultural Development Division at VAAFM and the Vermont Department of Tourism and Marketing (VDTM) at ACCD to further support outreach to Vermont producers, increase the presence of Vermont food producers on social media and at trade shows, and to strengthen the existing marketing team and coordination with VDTM and the Chief Marketing Office. Initial research recommends \$100,000 per year to support the position, with tactical funds being generated through grant support.
- Provide \$24,000 in funding support to the Vermont Farm to Plate Network to host, in partnership with VDTM and VAAFM, quarterly collaborative marketing summits for food and farm businesses to improve marketing skills and understanding of consumer demand (e.g., market research, social media strategies, developing marketing assets, etc.), and identify partnership opportunities.
- Launch a Vermont Brand and Marketing Collaborative to leverage improved marketing strategies and collateral. Include representatives from VDTM, VAAFM, and independent businesses in tourism, food, and outdoor recreation.
- Create three Vermont marketing broker positions to develop the regional market for a strategic catalog of Vermont products. Explore developing a three-year pilot program that explores broker logistics for identifying and developing top market channel opportunities within three target urban centers in the Northeast. Cost: \$600,000 over 3 years.



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What's At Stake?

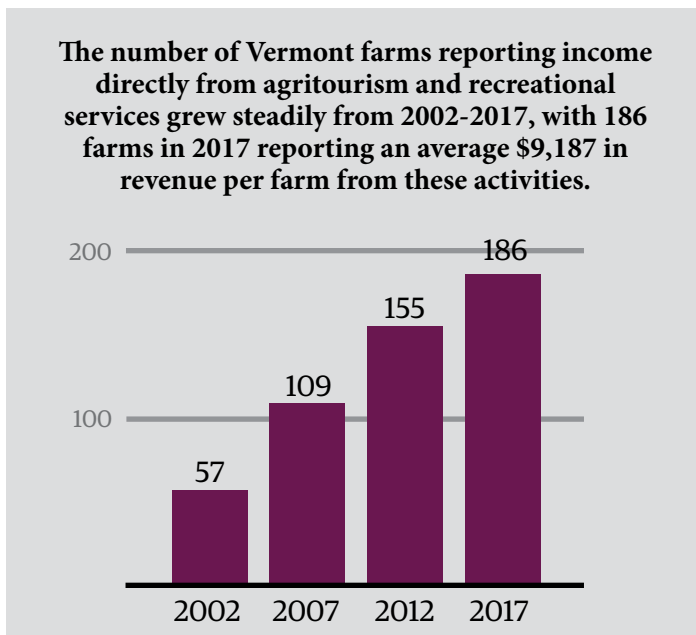
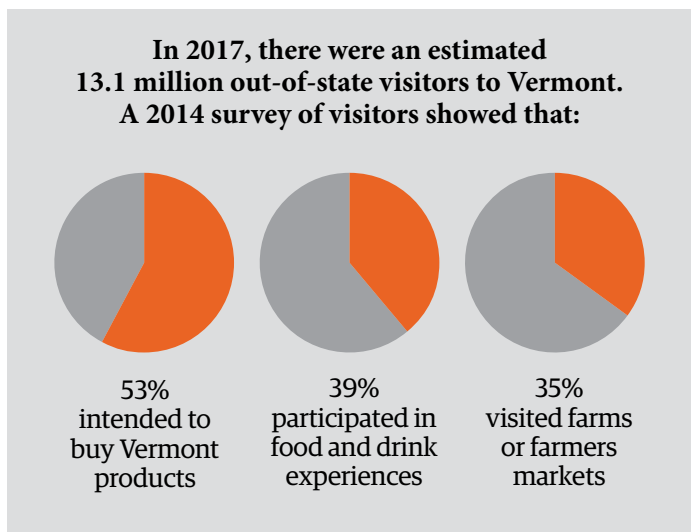
Agritourism is a promising sub-sector of Vermont's agricultural economy, encompassing direct-to-consumer sales of local food (e.g., farm stands, pick-your-own), agricultural education (e.g., school visits and workshops on farms), hospitality (e.g., overnight farm stays), recreation (e.g., hunting, horseback riding), and entertainment (e.g., hayrides, harvest festivals). Agritourism enterprises allow farms to diversify their operations while preserving their core production model and the working landscape, retaining or creating additional jobs, and maintaining farming traditions. At the same time, the public becomes educated about the importance of agriculture to a community's economic base, quality of life, history, and culture. However, opening a farm to visitors increases liability exposure and requires skills beyond food production, such as marketing and customer service.

Current Conditions

Consumer demand for local food and experiences on farms has led to rapid increases in agritourism around the world. The global agritourism market was estimated at \$5.7 billion in 2018 with projected annual growth of 12% through 2025.¹ Vermont is at the forefront of this movement. In 2017, at least 1,833 farms in Vermont benefitted from \$49,971,000 in direct sales. The same year, 186 farms reported \$1,709,000 in income from agritourism and recreational services such as farm tours, hay rides, hunting, and fishing. In addition, many farms offer agritourism activities as a way of building consumer demand without receiving income directly from those activities.² (see [Consumer Demand brief](#), [Direct Markets brief](#)).

Agritourism is a way for Vermont farms to differentiate themselves through authentic experiences that strengthen the Vermont brand and increase product sales. Several organizations are working together to establish beneficial

partnerships for marketing and technical assistance to support food, beverage, and farm tourism. However, bridging the divides between agriculture, education, and tourism comes with challenges. Farmers must acquire different skills than those used for producing food, and new facilities may be needed to accommodate visitors. Innovative enterprises test the boundaries of policy and regulation, which led to the passage of Act 143 in 2018, related to accessory on-farm businesses. A multi-state research project led by the University of Vermont is underway to address critical success factors for agritourism, but substantially more research and outreach is needed to fully understand the scale and scope of this sub-sector and the best ways to support farmers, their communities, and the local food system.



Bottlenecks & Gaps

- Agritourism may require new skills for farmers, such as marketing and customer service.
- Farmers often have questions about zoning, regulations, and permitting at the municipal, state, and federal levels; and creative enterprises may test boundaries. Answers can be difficult to find and vary from town to town.
- Concerns about liability and safety discourage some farms from allowing visitors on their property.
- The languages of tourism and education are different than the language of agriculture, creating barriers for collaboration.
- There is not a current, comprehensive database of all types of agritourism businesses to advise tourism operators and the media.

Opportunities

- Many people, both within and outside of Vermont, are interested in experiencing agritourism and are looking for ways to identify specific experiences.
- Best practice standards for high quality, educational, authentic agritourism experiences were initially developed by Vermont Farms Association and have been updated.
- Municipal and county officials regularly participate in training and professional development programs.
- Separate training and networking events already take place annually for Vermonters working in agriculture, education, and tourism and can be built upon.
- Research methods from other states have been developed to measure the size and scope of agritourism as well as food and farm tourism in a broad sense.

Recommendations

- Organize training and networking events that bring together farmers, educators, and tourism professionals, contribute to the development of a statewide agritourism strategy, and help service providers support agritourism. Priority topics include marketing and communications, liability and safety, and group tours (ranging from school field trips to media tours).
- Develop and promote best practice standards for agritourism that enhance the Vermont brand and reputation for high-quality, authentic products and experiences. As agritourism is rapidly expanding, standards are needed that allow for innovation while also protecting farmers, consumers, and neighbors.
- Conduct market research to develop a narrative toolkit for practitioners and consumer-facing digital content. Consolidate databases and share lists to facilitate communication internally and contribute to research that measures the size and scope of agritourism.
- Draft tightly-crafted legislation around the definition of agritourism in a way that supports a limited liability statute for farms offering agritourism experiences. This type of legislation would build on the accessory on-farm business statute (Act 143) and potentially impact zoning, insurance, liability, signage, and the types of activities permitted on farms.
- To demystify zoning and regulations, develop decision trees that detail procedures for addressing issues related to zoning, regulations, and permitting at the municipal, state, and federal levels. Help farmers strengthen relationships with municipal and planning officials to create a more supportive environment for agritourism.

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VERMONT FOOD SYSTEM PLAN ISSUE BRIEF



ISSUE:
*Food Access and
Farm Viability*

What's At Stake?

All Vermont residents should have access to nutritious local foods they can afford, and Vermont farms should all be profitable. However, many people in our state struggle with the rising cost of living, high housing and utility costs, transportation barriers, health issues, and underemployment, all of which can make it challenging to afford food. Today, 74,520 Vermonters are food insecure, including 18,760 children. To build a robust and equitable food system, we must address both food access and farm viability simultaneously. For the health and wellbeing of all eaters, food access cannot be addressed by the charitable food system alone but rather must be considered in relation to all the major market channels: retail, direct markets, and institutions. By increasing the ability of all eaters to access and use local food, we also benefit our farm businesses and the entire Vermont economy.

Current Conditions

Although Vermont's local food economy grew from \$7.5 billion in 2007 to \$11.3 billion in 2017, access to Vermont-grown foods by all residents continues to remain inequitable. Programs which increase accessibility to locally produced foods for low-income and at-risk populations have grown and diversified in an attempt to address this inequity. At the same time, efforts to improve Vermont farm viability through expanding markets for locally produced foods have often focused on value-added, specialty, and export markets which do not inherently increase access within local communities where Vermont residents shop.

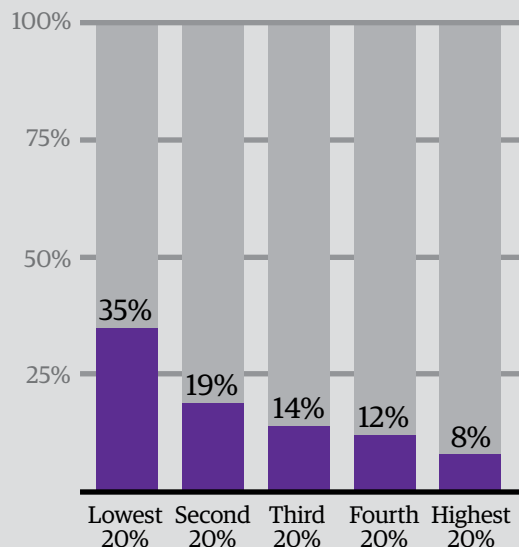
Vermont residents shop for and obtain food through a wide variety of outlets, or "market channels," with the majority of food purchased at supermarkets. Some Vermont communities may have multiple food outlets, others are "food deserts" without sufficient access to fresh, nutritious foods within a reasonable distance.¹ Some Vermonters rely on meals provided by state, municipal, or nonprofit institutions like schools, prisons, and hospitals. Food from any outlet may be supplemented by additional food received from charitable programs, including food shelves and free meal sites. Most market channels are limited in their ability to secure locally produced foods due to a variety of reasons, the most predominant including price points, ease of ordering, availability, and transportation logistics. Additional barriers exist within the operational mindset of some of these outlets, including a reluctance to adapt to different size packaging, varying appearance, consistency, and flavor, and/or a set of priorities that don't include sourcing locally grown and produced food to support the local economy (see [Grocers brief](#), [School Food Procurement brief](#), [College and Hospital Procurement brief](#)).

Many of Vermont's residents cannot afford to increase their spending on food. Food expenditures are often the

most flexible of basic needs, that is, in the short term, it is easier to purchase less or cheaper food than to lower housing or transportation costs. Local food is often more expensive than that produced out-of-state at the industrial scale. However, Vermont farmers are unable to reduce the cost of the foods they produce and net farm incomes are often below livable wage themselves. Vermont's effort to increase access to local food by all its residents must do so with an understanding of production costs and attention to providing a livable net income for farmers.

Percent of Income After Taxes Spent on Food, by Income Quintile (National, 2018)

Americans' food expenditures as percent of income varies significantly, with the lowest income quintiles spending a significant portion on food.



Closing the Economic Gap

Current Conditions

Barriers to increasing access to local foods are reinforced by the cheap cost of industrial, nationally and internationally sourced foods with which Vermont farms must compete. Even when retail and wholesale buyers and consumers understand and support the social and environmental benefits of local agriculture, price is often the bottom line.

Bottlenecks & Gaps

- Fixed costs of production limit farmers' ability to reduce prices while maintaining economically viable businesses.
- Barriers in the supply chain affect the availability and affordability of local foods and reduce the income farmers receive. More aggregators, processors, and distributors are needed to help bring local food to markets but this also requires increased product volume.
- Many Vermont residents have limited resources, not only in money and transportation but also in time for food preparation and familiarity with utilizing different ingredients.

- In 2018 the [Vermont Livable Wage](#) was a yearly income of **\$27,754**, compared to a yearly income of **\$21,840** working full-time at the Vermont minimum wage.
- In 2017, the average net income for Vermont farms was **\$26,215**, and only **42%** of farms had a net gain.

Opportunities

- Efforts to keep farmland in production and to increase the viability of farms can have a positive effect on local food access.
- New models and growing support for socially responsible businesses can help farms meet the social need of food access without sacrificing business viability.
- Efforts to increase consumer purchasing power are key to growing the number of Vermont residents who can afford local food. This includes expanding programs such as [3SquaresVT](#), and encouraging policies that help people meet basic needs like health care and housing.

Programs

Current Conditions

A number of Vermont programs across market channels increase the purchasing power of people and food outlets and enable them to purchase locally produced food. For example, many Vermont food co-ops offer members who qualify for food assistance additional discounts on purchases. Several local food incentive programs are underwritten by federal and philanthropic grant funding. Examples include vouchers for fresh local food; "Crop Cash" through which [3SquaresVT](#) users can double their dollars at most Vermont farmers markets and some farmstands; and reduced-price or free Community Supported Agriculture (CSA) farm shares available to low-income individuals and families. In addition, both charitable programs and institutional meal programs purchase some of the food they distribute from local farms.

- In 2019, the Department of Children and Families' [Farm to Family program](#) issued a total of **\$140,280** in coupons to **4,676 customers**. **\$91,020** of these coupons (**65%**) were redeemed.
- In the May 2018-April 2019 market season, **\$62,538** in [Crop Cash](#) were redeemed at Vermont farmers markets, a redemption rate of **90%**.
- **37%** of farmers markets in towns with high [3SquaresVT](#) eligibility levels do not accept 3SquaresVT payment.

Bottlenecks & Gaps

- Many of these programs have limited budgets reliant on philanthropic and governmental funding, which can lead to caps on the services or number of recipients. Availability of funding may also change and it is often difficult to fund a program long-term through these sources.
- Participation can be hampered by a lack of consumer understanding about how the programs operate, the burden participants face in learning about and applying for multiple programs, the stigmatization of receiving charity, and a perception that local food is exclusive and elitist.
- Participation in these programs can be burdensome to the farmers, who need to understand different programs available to them and acquire and manage infrastructure such as EBT machines.

Opportunities

- For some farms, participation in these programs supports their existing business plan.
- Many market outlets and social service providers, including healthcare entities, are interested in supporting these programs.
- [3SquaresVT](#) benefits can be applied to food-producing items (trees, seeds, etc.) as well as food itself, providing a way for recipients to produce their own food over a span of time and potentially freeing up additional funds for purchases from local farms.
- Program providers do coordinate to a certain extent and are interested in increasing alignment of outreach and evaluation to more effectively and efficiently serve participants.

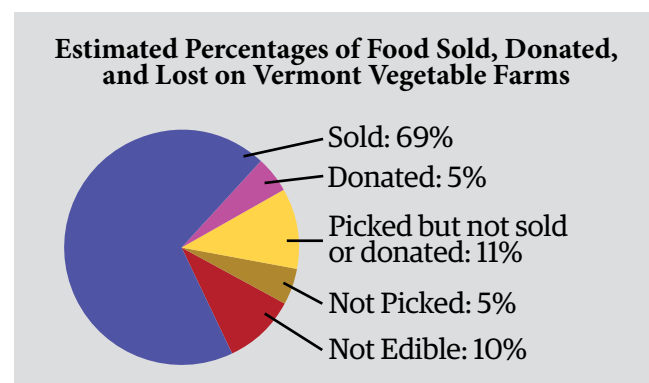
Gleaning

Current Conditions

“Gleaning” means gathering food left behind after harvest, an activity historically performed by food insecure people themselves. Modern gleaning is a service provided to farms by coordinating agencies that engage volunteers to harvest edible crops or collect already-harvested crops and facilitate distribution to charitable food outlets. These gleanings are donated by the farm. Federal charitable tax deductions are sometimes available but are often not utilized by the farm.

Bottlenecks & Gaps

- Not all areas of Vermont are served by gleaning programs with adequate staff and infrastructure.
- The charitable food system experiences market saturation during peak harvest times and cannot fully utilize all the surplus food that is available.
- The availability of gleaning (and potential tax deductions) as an option to manage surplus food can disincentivize the development of other markets for this surplus.



Opportunities

- Data, information, and trends observed in gleaning programs can inform other food system development opportunities.
- On-farm surplus presents an opportunity to increase in-state paying markets for surplus or seconds in addition to serving the charitable food system.
- Gleaning is a community-building, educational activity that furthers community members' connections with their local farms and increases opportunities for people to try local foods, leading to increased consumer comfort and purchasing by individuals and meal programs.

Summary

Though Vermont has a strong reputation for its local food system, many Vermonters struggle to put food on the table and aren't able to fully participate in that local food system. It is critical for the legislature to support programs that help lift people out of poverty and provide access to local food for all Vermonters. Strengthening the programs that work at the intersection of food access and farm viability will feed people today while supporting our local agricultural economy. These programs have a lasting impact on the individuals and communities who are given opportunities to engage directly with Vermont farms and the food they raise, building familiarity and comfort with using local foods and instilling a sense that local food is for everyone. Beyond these programs, however, long-term farm viability and food access require efforts to strengthen the economic stability of both farmers and consumers.

Recommendations

- Fund a pilot aggregation and sales system that effectively serves both the charitable food system and institutional and other market channels, through a structured partnership among established processors, aggregators, and gleaners. The pilot would include data collection on specific marketable surplus food products. Potential partners include Center for an Agricultural Economy, Deep Root Organic Cooperative, Salvation Farms, and the Vermont Department of Corrections. Estimated cost: \$100,000 per year for four years.
- The Vermont Legislature should fund an appropriation of \$500,000 a year to enable organizations in the charitable food system to source food directly from Vermont farmers (e.g., [Vermonters Feeding Vermonters](#)).
- The Vermont Legislature should create a Local Food Access Funding Program, with an appropriation of at least \$250,000 a year, available to multiple organizations to support program needs including:
 - maintaining or increasing benefits that increase consumer purchasing power for local food at farmers markets or other retail outlets, and outreach around these services.
 - making wireless EBT machines available at no cost to producers and farmers markets. Estimated cost: \$43,000 annually to support equipment and fees for 45 farmers markets and 20 farms.
- The Vermont Legislature should fund an appropriation of at least \$100,000 a year to enable the hiring of a shared full-time staff person to support coordination across gleaning programs in the state.
- Social service providers and those who are delivering food access programs should each understand the many different program options that are available and work cooperatively to market them to reach full utilization with less administrative burden on participants. State agencies should explore ways to coordinate or otherwise support this effort in partnership with key nonprofit partners.



Farm to Plate is Vermont's food system plan being implemented statewide to increase economic development and jobs in the farm and food sector and improve access to healthy local food for all Vermonters.

The Vermont Agency of Agriculture, Food & Markets (VAAFAM) facilitates, supports, and encourages the growth and viability of agriculture in Vermont while protecting the working landscape, human health, animal health, plant health, consumers, and the environment.

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To read other food system briefs, visit:

agriculture.vermont.gov/administration/annual-report



Supplemental Materials

These Supplemental Materials pertain to specific items requested in Act 83 §1(b)3 and 4.

1. Vermont Food System Financing Inventory

A listing of capital providers who help to finance farm and food businesses, including debt, equity, and royalty financing, as well as various grant programs, has been developed and is available as a separate document and online at vtfarmtoplate.com/resources/food-system-financing-inventory.

2. Business Assistance Continuum

A visual representation of business assistance service provider organizations has been developed and included in the Business and Technical Assistance brief. This has also been developed into an online, searchable tool by the Working Lands Enterprise Initiative and can be found here: workinglands.vermont.gov/working-lands-business-development-continuum.

3. Farm to School Products & Opportunity

The School Food Procurement brief outlines the potential to increase the amount of Vermont agricultural products purchased by school nutrition programs in Vermont, as requested by Act 83. The recommendations in the brief indicate critical actions that will enable schools in increasing local food purchases. For those interested in more details, the Vermont FEED 2018 Vermont Integrated Food, Farm, and Nutrition Programming Data Harvest contains additional data regarding school demand, barriers, and resources schools identify that would assist them in increasing local food purchases. The Data Harvest can be found at vfeed.org/feed-resource-library. Act 83 requested an inventory of products where demand from schools would create a viable market for Vermont farmers.

End Notes and Data Citations

(Briefs organized in alphabetical order)

Agritourism

End Notes:

1. Zhao Peihong and Zheng Yali, *Global Agritourism Market Report, History and Forecast 2014-2025, Breakdown Data by Companies, Key Regions, Types and Applications*, QY Research (Mar. 2019).
2. *2017 Census of Agriculture, Volume 1, Geographic Area Series Part 45, Vermont, State and County Data*, United States Department of Agriculture, National Agricultural Statistics Service, (Table 7) 17 (Apr. 2019), https://www.nass.usda.gov/Publications/AgCensus/2017/Full_Report/Volume_1,_Chapter_1_State_Level/Vermont/vtv1.pdf.

Data Sources:

Out-of-State Visitors

Ken Jones, *2017 Benchmark Report: Tourism in Vermont*, Vermont Department of Tourism & Marketing (Dec. 2018), <https://accd.vermont.gov/sites/accdnew/files/documents/VDTM/BenchmarkStudy/VDTM-Research-2017BenchmarkStudyFullReport.pdf>.

William Valliere, Lisa Chase, and Robert Manning, *Vermont Tourism and Recreation Survey Final Report*, University of Vermont Tourism Research Center (2014), https://www.uvm.edu/sites/default/files/Rubenstein-School-of-Environment-and-Natural-Resources/Vermont_Visitor_Survey_Final_Report_7-24-14.pdf.

Farms Reporting Agritourism Income

Census of Agriculture, Vermont State, and County Data, United States Department of Agriculture, National Agricultural Statistics Service (See Tables 'Income from Farm-Related Sources') 2007, 2017 (Multiple Years), <https://www.nass.usda.gov/AgCensus/index.php>.

Apples

Data Sources:

Acres in Apple Orchards

New England Agricultural Statistics, United States Department of Agriculture National Agricultural Statistics Service New England Field Office (See Tables 'Apple Acreage, Yield, Production, Price, and Value') (2001, 2004, 2009, 2012, 2017) (Multiple Years), https://www.nass.usda.gov/Statistics_by_State/New_England/index.php.

Price per Bushel

New England Agricultural Statistics, United States Department of Agriculture National Agricultural Statistics Service New England Field Office (See Tables 'Apple Acreage, Yield, Production, Price, and Value') (2001, 2004, 2009, 2012, 2017) (Multiple Years), https://www.nass.usda.gov/Statistics_by_State/New_England/index.php.

Cheese

Data Sources:

Membership of the Vermont Cheese Council

Vermont Cheese Council, www.vtcheese.com (last visited Jan. 05, 2020).

National Consumption of Dairy Fluid Milk and Cheese

United States Economic Research Service, <https://www.ers.usda.gov/data-products/dairy-data/> (last updated December 11, 2019).

Climate Change

End Notes:

1. Dupigny-Giroux, Mecray, Lemcke-Stampone, Hodgkins, Lentz, Mills, Lane, Miller, Hollinger, Solecki, Wellenius, Sheffield, MacDonald, and Caldwell, *Fourth National Climate Assessment - Chapter 18: Northeast Volume II: Impacts, Risks, and Adaptation in the United States*, U.S. Global Change Research Program, 669–742 (2018), <https://nca2018.globalchange.gov/chapter/18/>.

Ben Hill, *Climate Impacts Maple Breakfast*, NH Food Alliance, (Mar. 2017), <https://www.nhfoodalliance.com/content/climate-impacts-maple-breakfast>.

David W. Wolfe, Arthur T. DeGaetano, Gregory M. Peck, Mary Carey, Lewis H. Ziska, John Lea-Cos, Arment R. Kemanian, Michael P. Hoffmann & David Y. Hollinger, *Unique Challenges and opportunities for northeastern US crop production in a changing climate*, *Climatic Change* 231-245, (2018) <https://link.springer.com/article/10.1007/s10584-017-2109-7>.

2. Alissa White, Joshua Faulkner, Sarah Sims, Phoebe Tucker & Kyle Weatherhogg, *Report of the 2017-2018 New England Adaptation Survey for Vegetable and Fruit Growers*, Department of Plant and Soil Science, University of Vermont (2018), https://www.researchgate.net/publication/328789531_Report_of_the_2017-2018_New_England_Adaptation_Survey_for_Vegetable_and_Fruit_Growers.

3. Alissa White, Joshua Faulkner, Sarah Sims, Phoebe Tucker & Kyle Weatherhogg, *Report of the 2017-2018 New England Adaptation Survey for Vegetable and Fruit Growers*, Department of Plant and Soil Science, University of Vermont (2018), https://www.researchgate.net/publication/328789531_Report_of_the_2017-2018_New_England_Adaptation_Survey_for_Vegetable_and_Fruit_Growers.

Data Sources

Projected Change in Precipitation

Hostetler, Alder and Allan, *Dynamically downscaled climate simulations over North America: Methods, evaluation and supporting documentation for users*, U.S. Geological Survey: Open-File Report (2011), <http://regclim.coas.oregonstate.edu/visualization/rccv/>.

Very Heavy Precipitation Events

Wuebbles, Fahey, Hibbard, Dokken, Steward and Maycock, *Climate Science Special Report: Fourth National Climate Assessment, Volume 1*, U.S. Global Change Research Program (2017), <https://science2017.globalchange.gov/>.

College and Hospital Procurement

Data Sources

Percent of Direct-to-Institution Sales by Type of Institution

Nessa Richman, Lydia Oberholtzer, Jennifer Obadia, Kaitlin Haskins, Peter Allison, *Producer Perspectives: The New England Farm-to-Institution Market*, Farm to Institution New England (Jun. 2017), <https://www.farmtoinstitution.org/sites/default/files/imce/uploads/FINE%20Producer%20Report.pdf>.

Percent of Products Sourced Locally

Andy Cox, Holly Fowler, Simca Horwitz, Michael Leviton, *Campus Dining 201: Trends, Challenges, and Opportunities For Farm to College in New England*, Farm to Institution New England, (Figure 11) (2018), https://static1.squarespace.com/static/5611a020e4b00b12a23c69fe/t/5ca3c7ba4192024e39d06a2d/1554237374219/Campus+Dining+Report_FINAL_Digital+%283%29.pdf.

Percent of Hospitals Purchasing Locally through Different Sources

Jen Obadia, *Farm to Health Care: Region At-A-Glance*, New England Farm to Institution (2017), <http://dashboard.farmtoinstitution.org/hospitals>.

Consumer Demand

End Notes:

1. Max Magni, Anne Martinez, and Rukhshana Motiwala, *Meet today's American Consumer*, McKinsey & Company (Jun. 2016), <https://www.mckinsey.com/industries/consumer-packaged-goods/our-insights/meet-todays-american-consumer>.
2. Max Magni, Anne Martinez, and Rukhshana Motiwala, *Meet today's American Consumer*, McKinsey & Company (Jun. 2016), <https://www.mckinsey.com/industries/consumer-packaged-goods/our-insights/meet-todays-american-consumer>.
3. "Baby boomer," *The Merriam-Webster.com Dictionary*, Merriam-Webster, Inc. (Dec 2019), <https://www.merriam-webster.com/dictionary/baby%20boomer>.
4. Michael Dimock, *Defining Generations: Where Millennials end and Generation Z begins*, Pew Research Center, (Jan. 2019), <https://www.pewresearch.org/fact-tank/2019/01/17/where-millennials-end-and-generation-z-begins/>.
5. Christina Adams, Isabella Torres Maluf, Miguel Ramirez, and Roberto Uchoa de Paula, *A winning growth formula for dairy*, McKinsey & Company (Mar. 2019), <https://www.mckinsey.com/industries/consumer-packaged-goods/our-insights/a-winning-growth-formula-for-dairy>.
6. Patricia Redsicker, *Digital Natives: How they are Changing the Content Marketing Game*, Content Marketing Institute (Apr. 2012), <https://contentmarketinginstitute.com/2012/04/how-digital-natives-are-changing-content/>.
7. *Sales of Local Foods Reaches \$12 Billion*, Packaged Facts (Jan. 2015), <https://www.packagedfacts.com/about/release.asp?id=3717>.
8. Jean Hamilton, *Stagnant, Saturated, or Ready to Surge? Strategic Marketing Investments for Vermont's Direct to Consumer Markets*, Northeast Organic Farming Association of Vermont

(2017), https://nofavt.org/sites/default/files/files/resources/vt_direct_markets-stagnant_saturated_or_ready_to_surge.pdf.

9. *The Evolution of the Sustainability Mindset*, Nielsen Global Connect (Nov. 2018), <https://www.nielsen.com/us/en/insights/report/2018/the-education-of-the-sustainable-mindset/>.

10. *Unpacking the Sustainability Landscape*, Nielsen Global Connect (Nov. 2018), <https://www.nielsen.com/us/en/insights/report/2018/unpacking-the-sustainability-landscape/>.

11. Hartman reports that 46% of shoppers deliberately avoid GMOs. The market of Non-GMO Project Verified is estimated to be at \$26M.

Data Sources:

Changes in Dollar Sales for Sustainability Claims

Unpacking the Sustainability Landscape, Nielsen Global Connect (Nov. 2018), <https://www.nielsen.com/us/en/insights/report/2018/unpacking-the-sustainability-landscape/>.

Global Consumers' Willingness to Pay

Unpacking the Sustainability Landscape, Nielsen Global Connect (Nov. 2018), <https://www.nielsen.com/us/en/insights/report/2018/unpacking-the-sustainability-landscape/>.

Dairy

End Notes:

1. Interview with Diane Bothfeld, Director of Administrative Services, IV and Dairy Policy, VAAFM (Oct. 2019).

2. *Research Report: Specialty Cheese Market*, Prepared for VAAFM by Atlantic Corporation (Aug. 2019), <https://agriculture.vermont.gov/form/specialty-cheese-market-research-report>.

3. Serge Wiliam Wiltshire, *Grass-Based Dairy in Vermont: Benefits, Barriers, and Effective Public Policies*, University of Vermont Graduate College Dissertations and Theses (2015), <https://scholarworks.uvm.edu/cgi/viewcontent.cgi?article=1491&context=graddis>.

4. Mike Opperman, *How Consolidation Has Changed The Dairy Industry*, Farm Journal's Milk (Aug. 22, 2019), <https://www.milkbusiness.com/article/how-consolidation-has-changed-dairy-industry>.

5. Will Cushman, *Regional production, federal rules and global markets dictate dairy farmers' paychecks*, Wisconsin State Farmer (Apr. 11, 2019), <https://www.wisfarmer.com/story/news/2019/04/11/ever-wonder-what-factors-impact-milk-prices-and-farmers-paychecks/3443889002/>.

Data Sources:

Percent Change in Farms by County

Census of Agriculture, Vermont State, and County Data, United States Department of Agriculture, National Agricultural Statistics Service (See Tables 'County Data- Cattle and Calves- Inventory and Sales') 2012, 2017 (Multiple Years), <https://www.nass.usda.gov/AgCensus/index.php>.

Number of Farms, Conventional vs Organic

E-mail from Laura Ginsburg, Agricultural Development Division Chief, VT Agency of Agriculture, Food & Markets, to Sarah Danly, Farm to Plate Network Manager, Vermont Sustainable Jobs Fund (Dec. 5, 2019, 2:07 EST) (on file with author).

Distribution of Dairy Farm Sizes

Census of Agriculture, Vermont State, and County Data, United States Department of Agriculture, National Agricultural Statistics Service (See Tables 'County Data- Cattle and Calves- Inventory and Sales') 2012, 2017 (Multiple Years), <https://www.nass.usda.gov/AgCensus/index.php>.

Percent Change in Number of Dairy Farms by Size

Census of Agriculture, Vermont State, and County Data, United States Department of Agriculture, National Agricultural Statistics Service (See Tables 'County Data- Cattle and Calves- Inventory and Sales') 2012, 2017 (Multiple Years), <https://www.nass.usda.gov/AgCensus/index.php>.

Consumer Trends Text Box

Rick Barrett, Daniel Higgins, *Milk vs. almond, soy, oat milk, water and soda: How can dairy compete?*, Milwaukee Journal Sentinel (Sep. 5, 2019), <https://fresh-world-news.com/blog/milk-vs-almond-soy-oat-milk-water-and-soda-how-can-dairy-compete/>.

Dairy Data- Dairy Products: Per Capita Consumption United States (Annual), United States Economic Research Service, <https://www.ers.usda.gov/data-products/dairy-data/> (last updated December 11, 2019).

Forage-Based Production Systems Text Box

Elizabeth Dunn, *With USDA Organic Dairy in Decline, Grass-Fed Sales are Booming*, Heated (May 1, 2019), <https://heated.medium.com/with-usda-organic-dairy-in-decline-grass-fed-sales-are-booming-6a1350ed63c4>.

Census of Agriculture, Vermont State, and County Data, United States Department of Agriculture, National Agricultural Statistics Service (See Tables 'Farms, Land in Farms, Value of Land and Buildings, and Land Use') 2007, 2017 (Multiple Years), <https://www.nass.usda.gov/AgCensus/index.php>.

Dairy Processors

E-mail from Laura Ginsburg, Agricultural Development Division Chief, VT Agency of Agriculture, Food & Markets, to Sarah Danly, Farm to Plate Network Manager, Vermont Sustainable Jobs Fund (Dec. 5, 2019, 2:07 EST) (on file with author).

Operating Costs and Milk Price

Milk Cost of Production by State, United States Department of Agriculture Economic Research Service: Milk Cost of Production Estimates <https://www.ers.usda.gov/data-products/milk-cost-of-production-estimates/> (last updated Dec. 11, 2019).

Direct Markets

End Notes:

1. *2017 Census of Agriculture, Volume 1, Geographic Area Series Part 45, Vermont, State and County Data*, United States Department of Agriculture, National Agricultural Statistics Service, (Table 71) 74 (Apr. 2019), https://www.nass.usda.gov/Publications/AgCensus/2017/Full_Report/Volume_1_Chapter_1_State_Level/Vermont/vtv1.pdf.
2. Nigel Key, *Farms that Sell Directly to Consumers May Stay in Business Longer*, United States Department of Agriculture, Economic Research Service (Feb. 21, 2017), <http://blogs.usda.gov/2016/04/28/farms-that-sell-directly-to-consumers-may-stay-in-business-longer/>.
3. *Number of farms with direct-to-consumer sales increases, sales plateau*, United States Department of Agriculture, Economic Research Service (May 06, 2016), <https://www.ers.usda.gov/data-products/chart-gallery/gallery/chart-detail/?chartId=78934>.
4. *2017 Census of Agriculture, Volume 1, Geographic Area Series Part 45, Vermont, State and County Data*, United States Department of Agriculture, National Agricultural Statistics Service, (Table 2) 9-11 (Apr. 2019), https://www.nass.usda.gov/Publications/AgCensus/2017/Full_Report/Volume_1_Chapter_1_State_Level/Vermont/vtv1.pdf.
5. Scott Sawyer, Ellen Kahler, Kit Perkins, Erica Campbell, *Farm to Plate Strategic Plan, Chapter 2: Getting to 2020: Goals and Indicators*, Vermont Sustainable Jobs Fund, (Jul. 2013), <https://www.vtfarmtoplate.com/getting-to-2020/1-total-local-consumption#indicator-population-indicator-value-of-local-food-by-destination-3>.

Data Sources:

Percent of Farms with Direct-to-Consumer Sales

2017 Census of Agriculture, Volume 1, Geographic Area Series Part 45, Vermont, State and County Data, United States Department of Agriculture, National Agricultural Statistics Service, (Table 71) 74 (Apr. 2019), https://www.nass.usda.gov/Publications/AgCensus/2017/Full_Report/Volume_1_Chapter_1_State_Level/Vermont/vtv1.pdf.

Food Access and Farm Viability

Data Sources:

Percent of Income After Taxes Spent on Food

Quintiles of income before taxes: Annual expenditure means, shares, standard errors, and coefficients of variation, Bureau of Labor Statistics: Consumer Expenditure Surveys, Annual Calendar Year Tables (2018), <https://www.bls.gov/cex/2018/combined/quintile.pdf>.

Closing the Economic Gap Text Box

Vt. Legis. J. Fis. Off. *Vermont Basic Needs Budget and Livable Wage*, 2019.

2017 Census of Agriculture, Volume 1, Geographic Area Series Part 45, Vermont, State and County Data, United States Department of Agriculture, National Agricultural Statistics Service, (Table 5) 16 (Apr. 2019), https://www.nass.usda.gov/Publications/AgCensus/2017/Full_Report/Volume_1_Chapter_1_State_Level/Vermont/vtv1.pdf.

Programs Text Box

E-mail from Emily Hammond, Food & Nutrition Assistant Administrator, VT Dept. for Children & Families, to Alissa Matthews, Agriculture Development Coordinator, Direct Markets, VT Agency of Agriculture, Food & Markets (Dec. 20, 2019, 10:06 EST) (on file with author).

E-mail from Jennifer Porter, Market Development Manager, Northeast Organic Farming Association of VT, to Alissa Matthews, Agriculture Development Coordinator, Direct Markets, VT Agency of Agriculture, Food & Markets (Dec. 19, 2019, 12:16 EST) (on file with author).

E-mail from Suzanne Kelley, SNAP-ED Program Manager, VT Department of Health, to Alissa Matthews, Agriculture Development Coordinator, Direct markets, VT Agency of Agriculture, Food & Markets (Dec. 30, 2019, 1:34 EST) (on file with author).

Percentages of Food Sold, Donated, and Lost

Theresa Snow & Elana Dean, *Food Loss in Vermont: Estimating Annual Vegetable & Berry Loss*, Salvation Farms (2016), https://salvationfarms.org/VT_Food_Loss_Study_2016.pdf.

Food-Grade Grains

Data Sources:

Number of Establishments

See *Occupational Employment Statistics*, United States Bureau of Labor Statistics, <https://www.bls.gov/oes/home.htm> (combining multiple NAICS codes); see also *U.S. Census Bureau Quickfacts: Vermont*, U.S. Census Bureau, (Jul. 2019), <https://www.census.gov/quickfacts/fact/table/VT/PST045219>.

Acres in Grain Production

Wheat and barley demand is derived from estimates provided by two regional mills, a handful of Vermont bakeries, and barley use from Vermont craft breweries. Wheat acreage assumes average winter wheat yield of 3,851 lbs/acre. Barley calculation assumes production fulfilling 25% of current barley demand of Vermont craft brewing industry.

Vermont Grain Market Study, New Venture Advisors (Dec. 2019) (unpublished market study) (on file with Vermont Farm to Plate).

See generally Heather Darby, *Winter Wheat Variety Trial*, University of Vermont Extension: Field Season Research Reports (averaging winter wheat acreage yields over a 10 year period) 2009-2019 (Multiple Years) <https://www.uvm.edu/extension/nwcrops/research>.

2017 Census of Agriculture, Volume 1, Geographic Area Series Part 45, Vermont, State and County Data, United States Department of Agriculture, National Agricultural Statistics Service, (Table 1) 7-8 (Apr. 2019), https://www.nass.usda.gov/Publications/AgCensus/2017/Full_Report/Volume_1,_Chapter_1_State_Level/Vermont/vtv1.pdf.

Goats

End Notes:

1. Julia Kendrick, *Goat Meat Could Save Our Food System, But We're Too Afraid To Eat It*, Huffpost (Oct. 15, 2018), https://www.huffpost.com/entry/goat-meat_n_5bb64c71e4b028e1fe3bcfa2.

Data Sources:

Number of Farms

Census of Agriculture, Vermont State, and County Data, United States Department of Agriculture, National Agricultural Statistics Service (See Tables 'Summary by Size of Farm') 2007, 2017 (Multiple Years), <https://www.nass.usda.gov/AgCensus/index.php>.

Number of Goats

Census of Agriculture, Vermont State, and County Data, United States Department of Agriculture, National Agricultural Statistics Service (See Tables 'Goats, kids, and mohair - Inventory, Mohair Production and Sales') 2007, 2017 (Multiple Years), <https://www.nass.usda.gov/AgCensus/index.php>.

Grass-Fed Beef

End Notes:

1. *Back to Grass: The Market Potential for U.S. Grassfed Beef*, Stone Barns Center for Food & Agriculture (Apr. 2017), https://www.stonebarnscenter.org/wp-content/uploads/2017/10/Grassfed_Full_v2.pdf.
2. See generally Savory Institute, <https://www.savory.global/> (last visited Dec. 20, 2020); See also, *Grazing As A Vermont Climate Solution*, Soil4Climate, <https://www.soil4climate.org/resources.html> (last visited Jan. 3, 2020).
3. Sam Smith, Maggie Donin, Kevin Channell, Annalise Carington, Sarah Flack, *Vermont Grass-Based Beef Profitability: Lessons and Budgets*, Intervale Center and Vermont Farm to Plate (2018), <https://www.vtfarmtoplate.com/assets/resource/files/Grass%20Fed%20Beef%20Profitability%20Guide%202018%20Final%20web%202.pdf>.

Data Sources:

Acres Grazed

Census of Agriculture, Vermont State, and County Data, United States Department of Agriculture, National Agricultural Statistics Service (See Tables 'Farms, Land in Farms, Value of Land and Buildings, and Land Use') 2007, 2017 (Multiple Years), <https://www.nass.usda.gov/AgCensus/index.php>.

Net Cash Farm Income

2017 Census of Agriculture, Volume 1, Geographic Area Series Part 45, Vermont, State and County Data, United States Department of Agriculture, National Agricultural Statistics Service (Tables 48) 41 (Apr. 2019), https://www.nass.usda.gov/Publications/AgCensus/2017/Full_Report/Volume_1,_Chapter_1_State_Level/Vermont/vtv1.pdf.

Grocers

End Notes:

1. Scott Sawyer, Ellen Kahler, Kit Perkins, Erica Campbell, *Farm to Plate Strategic Plan, Chapter 2: Getting to 2020: Goals and Indicators*, Vermont Sustainable Jobs Fund, (Jul. 2013), <https://www.vtfarmtoplate.com/getting-to-2020/1-total-local-consumption#indicator-population-indicator-value-of-local-food-by-destination-3>.

2. According to estimates conducted by Farm to Plate in 2014. See Sona Desai, Erin Roche, Jane Kolodinsky, Annie Harlow and Clem Nilan, *Exploring the Next Frontier: Increasing Vermont's Independent Retailers*, Farm to Plate: Aggregation + Distribution Working Group (2014), https://www.vtfarmtoplate.com/assets/resource/files/Exploring%20the%20Next%20Frontier%20Increasing%20Local%20Foods%20Sales_NOV-2015.pdf.

3. *2017 Census of Agriculture, Volume 1, Geographic Area Series Part 45, Vermont, State and County Data*, United States Department of Agriculture, National Agricultural Statistics Service, (Table 71) 74 (Apr. 2019), https://www.nass.usda.gov/Publications/AgCensus/2017/Full_Report/Volume_1,_Chapter_1_State_Level/Vermont/vtv1.pdf.

4. Cathey Seigner, *Shoppers want local food, but grocers aren't providing the goods*, Grocery Dive (Jul. 26, 2018), <https://www.grocerydive.com/news/grocery--shoppers-want-local-food-but-grocers-arent-providing-the-goods/533822/>.

5. "Based on a database compiled through the work of Vermont Farm to Plate's Independent Grocers Task Force, Farm to Plate estimates over 780 Vermont food producers are selling beyond the farmers' market and using multiple distribution options for Regional and national sales."

Data Sources:

Marketing Share of Each Food Dollar

Food Dollar Series, United States Department of Agriculture Economic Research Service (Mar. 2019), <https://www.ers.usda.gov/data-products/food-dollar-series/>.

Hemp

End Notes:

1. L.D. 630 (129th Legis. 2019).

Data Sources:

Registered Growers by Acreage Category

Interview with Stephanie Smith, Chief Policy Enforcement Officer, Vermont Agency of Agriculture, Food & Markets (Dec. 19, 2019).

Registered Growers and Processors by End-Use

Interview with Stephanie Smith, Chief Policy Enforcement Officer, Vermont Agency of Agriculture, Food & Markets (Dec. 19, 2019).

Lightly Processed Vegetables

End Notes:

1. Theresa Snow & Elana Dean, *Fresh Produce Needs Across Vermont: Results from the Fresh Produce Survey*, Salvation Farms (Oct. 2016), http://16s0tj3s5ozn3bf14lj8qra4.wpengine.netdna-cdn.com/wp-content/uploads/2016/12/Fresh_Produce_Needs_Across_Vermont_Report_2016.pdf.

Data Sources:

Current Institutional Purchases and Projected Demand

E-mail from Annie Rowell, Vermont First Coordinator, Sodexo to Kyle Harris, Agriculture Development Specialist III, VT Agency of Agriculture, Food & Markets (Jan. 7, 2020, 11:25 EST) (on file with author).

Processing Capacity and Projections

E-mail from Annie Rowell, Vermont First Coordinator, Sodexo to Kyle Harris, Agriculture Development Specialist III, VT Agency of Agriculture, Food & Markets (Jan. 7, 2020, 11:25 EST) (on file with author).

Maple

End Notes:

1. Stephen N. Matthews & Louis R. Iverson, *Managing for delicious ecosystem service under climate change: can United States sugar maple (Acer saccharum) syrup production be maintained in a warming climate?*, International Journal of Biodiversity Science, Ecosystem Services & Management (2017), https://www.fs.fed.us/nrs/pubs/jrnl/2017/nrs_2017_matthews_001.pdf.

2. *New England Agricultural Statistics*, United States Department of Agriculture National Agricultural Statistics Service New England Field Office (2009, 2012, 2017) (Multiple Years) (See Tables 'Maple Syrup Taps, Yield, Price, and Production'), https://www.nass.usda.gov/Statistics_by_State/New_England/index.php.

Data Sources:

Production and Crop Value

New England Agricultural Statistics, United States Department of Agriculture National Agricultural Statistics Service New England Field Office (2009, 2012, 2017) (Multiple Years) (See Tables 'Maple Syrup Taps, Yield, Price, and Production'), https://www.nass.usda.gov/Statistics_by_State/New_England/index.php.

Forecast Size of Market

Maple Syrup Markets & Growth Opportunities, Atlantic Corporation- Prepared For: Vermont Agency of Agriculture, Food & Markets (Sep. 2019), <https://agriculture.vermont.gov/form/maple-syrup-markets-growth-opportunities>.

Produce

End Notes:

1. *Farm Stands, CSAs & Farmers Markets*, Vermont Agency of Agriculture, Food and Markets (2019), <https://agriculture.vermont.gov/farm-stands-csas-farmers-markets>.

2. *Find Organic & Local Food: CSAs*, Northeast Organic Farmers Association of Vermont (2019), <https://nofavt.org/find-organic-local-food/csas>.

3. *Vermont U-Pick Farms*, Pick Your Own (Dec. 2019), <https://www.pickyourown.org/VT.htm>.

Data Sources:

Number of Produce Farms

Census of Agriculture, Vermont State, and County Data, United States Department of Agriculture, National Agricultural Statistics Service (See Tables 'Vegetables, Potatoes, and Melons Harvested for Sale' 'Berries by Acres' and 'Floriculture and Bedding Crops, Nursery Crops, Propagative Materials Sold, Sod, Food Crops Grown Under Glass or Other Protection, and Mushroom Crops') 2007, 2017 (Multiple Years), <https://www.nass.usda.gov/AgCensus/index.php>.

Farm Gate Sales

Census of Agriculture, Vermont State, and County Data, United States Department of Agriculture, National Agricultural Statistics Service (See Tables 'Vegetables, Potatoes, and Melons Harvested for Sale' 'Berries by Acres' and 'Floriculture and Bedding Crops, Nursery Crops, Propagative Materials Sold, Sod, Food Crops Grown Under Glass or Other Protection, and Mushroom Crops') 2007, 2017 (Multiple Years), <https://www.nass.usda.gov/AgCensus/index.php>.

School Food Procurement

End Notes:

1. *How Do We Feed Vermont's School Children?*, VT FEED, (Sep. 2019), <https://vtfeed.org/resources/how-do-we-feed-vermonts-school-children>.
2. *See 2018 Vermont Integrated Food, Farm, and Nutrition Programming Data Harvest: Results for the 2016-2017 School Year*, Vermont Agency of Agriculture, Food & Markets, Agency of Education, Department of Health, (Oct. 2018), https://vermontfarmtoschool.org/sites/default/files/2018%20FTS%20Data%20Harvest_103118_final.pdf.
3. Erin Roche, Florence Becot, Jane Kolodinsky, PhD and David Conner, PhD, *Economic Contribution and Potential Impact of Local Food Purchases Made by Vermont Schools*, University of Vermont Center for Rural Studies (May 2016), https://agriculture.vermont.gov/sites/agriculture/files/documents/Farm_to_School_Institution/Economic%20Contribution%20of%20Farm%20to%20School%20in%20Vermont%20.pdf.
4. Food Service Management Company (FSMC) is a for profit company that is contracted by a school or district to run the school food programs.

Data Sources:

School Local Food Purchasing and Plans to Purchase More

2018 Vermont Integrated Food, Farm, and Nutrition Programming Data Harvest: Results for the 2016-2017 School Year, Vermont Agency of Agriculture, Food & Markets, Agency of Education, Department of Health, 15 (Oct. 2018), https://vermontfarmtoschool.org/sites/default/files/2018%20FTS%20Data%20Harvest_103118_final.pdf.

Commonly Cited Barriers

2018 Vermont Integrated Food, Farm, and Nutrition Programming Data Harvest: Results for the 2016-2017 School Year, Vermont Agency of Agriculture, Food & Markets, Agency of Education, Department of Health, 18 (Oct. 2018), https://vermontfarmtoschool.org/sites/default/files/2018%20FTS%20Data%20Harvest_103118_final.pdf.

Percent of Schools Purchasing Local Products by Category

2018 Vermont Integrated Food, Farm, and Nutrition Programming Data Harvest: Results for the 2016-2017 School Year, Vermont Agency of Agriculture, Food & Markets, Agency of Education, Department of Health, 17 (Oct. 2018), https://vermontfarmtoschool.org/sites/default/files/2018%20FTS%20Data%20Harvest_103118_final.pdf.

Succession

Data Sources:

Agricultural Acres in Vermont

2017 Census of Agriculture, Volume 1, Geographic Area Series Part 45, Vermont, State and County Data, United States Department of Agriculture, National Agricultural Statistics Service, (Table 1) 7-8 (Apr. 2019), https://www.nass.usda.gov/Publications/AgCensus/2017/Full_Report/Volume_1_Chapter_1_State_Level/Vermont/vtv1.pdf.

Percent of Agricultural Acres with Young Producer

2017 Census of Agriculture, Volume 1, Geographic Area Series Part 45, Vermont, State and County Data, United States Department of Agriculture, National Agricultural Statistics Service, (Tables 67-70) 68-71 (Apr. 2019), https://www.nass.usda.gov/Publications/AgCensus/2017/Full_Report/Volume_1_Chapter_1_State_Level/Vermont/vtv1.pdf.

Supporting Future Farmers

Data Sources:

Age Distribution of Vermont Producers

Census of Agriculture, Vermont State, and County Data, United States Department of Agriculture, National Agricultural Statistics Service (See Tables ‘*Young Producers*’) (2007, 2017) (Multiple Years), <https://www.nass.usda.gov/AgCensus/index.php>.

New and Beginning Farmers Text Box

Census of Agriculture, Vermont State, and County Data, United States Department of Agriculture, National Agricultural Statistics Service (See Tables ‘*Female Producers- Selected Producer Characteristics*’) 2007, 2017 (Multiple Years), <https://www.nass.usda.gov/AgCensus/index.php>.

Census of Agriculture, Vermont State, and County Data, United States Department of Agriculture, National Agricultural Statistics Service (See Tables ‘*New and Beginning Producers - Selected Producer Characteristics*’) 2007, 2017 (Multiple Years), <https://www.nass.usda.gov/AgCensus/index.php>.

Sophie Ackoff, Andrew Bahrenburg, Lindsey Lusher Shute, *Building a Future with Farmers II: Results and Recommendations From the National Young Farmer Survey*, National Young Farmers Coalition (Nov. 2017) <https://www.youngfarmers.org/wp-content/uploads/2018/02/NYFC-Report-2017.pdf>.

Farmland Access Text Box

Census of Agriculture, Vermont State, and County Data, United States Department of Agriculture, National Agricultural Statistics Service (See Tables ‘*Young Producers*’) (2007, 2017) (Multiple Years), <https://www.nass.usda.gov/AgCensus/index.php>.

Sophie Ackoff, Andrew Bahrenburg, Lindsey Lusher Shute, *Building a Future with Farmers II: Results and Recommendations From the National Young Farmer Survey*, National Young Farmers Coalition (Nov. 2017) <https://www.youngfarmers.org/wp-content/uploads/2018/02/NYFC-Report-2017.pdf>.

Census of Agriculture, Vermont State, and County Data, United States Department of Agriculture, National Agricultural Statistics Service (See Tables 'Young Producers') (2007, 2017) (Multiple Years), <https://www.nass.usda.gov/AgCensus/index.php>.

Supporting Farm Businesses Text Box

Census of Agriculture, Vermont State, and County Data, United States Department of Agriculture, National Agricultural Statistics Service (See Tables 'Young Producers') (2007, 2017) (Multiple Years), <https://www.nass.usda.gov/AgCensus/index.php>.

Water Quality

Data Sources:

State Funding Awarded for Clean Water Projects

Vermont Clean Water Initiative 2018 Investment Report, Vermont Agency of Administration, 6-9 (Jan. 2019), https://dec.vermont.gov/sites/dec/files/wsm/erp/docs/2019-01-15%20Vermont%20Clean%20Water%20Investment%20Report%20SFY2018_Revised%202019-02-01.pdf.

What's To Come: Product, Market, Issue Briefs Under Development in 2020

Products

- Agroforestry
- Bread and Baked Goods
- Beer
- Compost
- Eggs
- Grapes and Wine
- Hay, Corn Silage, and Custom Feed Cropping
- Hogs
- Hops
- Meat Slaughter, Processing, and Products
- Poultry (meat)
- Sheep
- Spirits
- Specialty Food

Markets

- Co-Packers, Food Hubs, and Commercial Facilities
- Major Metropolitan Markets in our Region
- State of Food Distribution
- State of Restaurants' Sourcing Vermont Products

Issues

- Additional Environmental Considerations Related to Agriculture
- Farmland Conservation
- Local & Regional Agricultural Land Use Planning
- Payment for Ecosystem Services
- Understanding the Existing Agricultural Policy Landscape
- Consumer Food and Agricultural Literacy
- Marketing and the Vermont Brand
- Marketing Technical Assistance
- Alternative Ownership Models
- Legal and Tax Structure Support
- Fair Wages and Labor Rights
- Healthcare and Occupational Health
- Pathways for Employees
- Outcomes for Employers

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Page 80: VSJF

Page 81: Middlebury Natural Food Coop

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Page 90: Capital City Farmers Market

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