



**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.

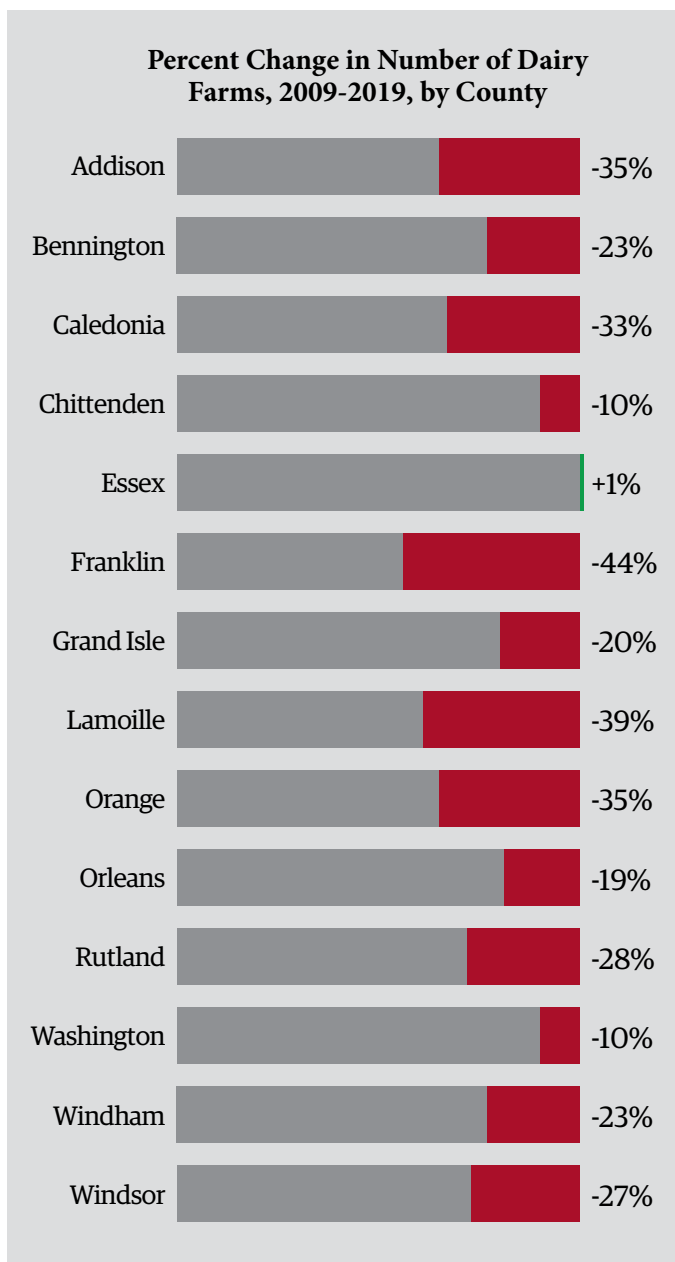
**Current Conditions**

Vermont's 664 dairy farms<sup>1</sup> (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.

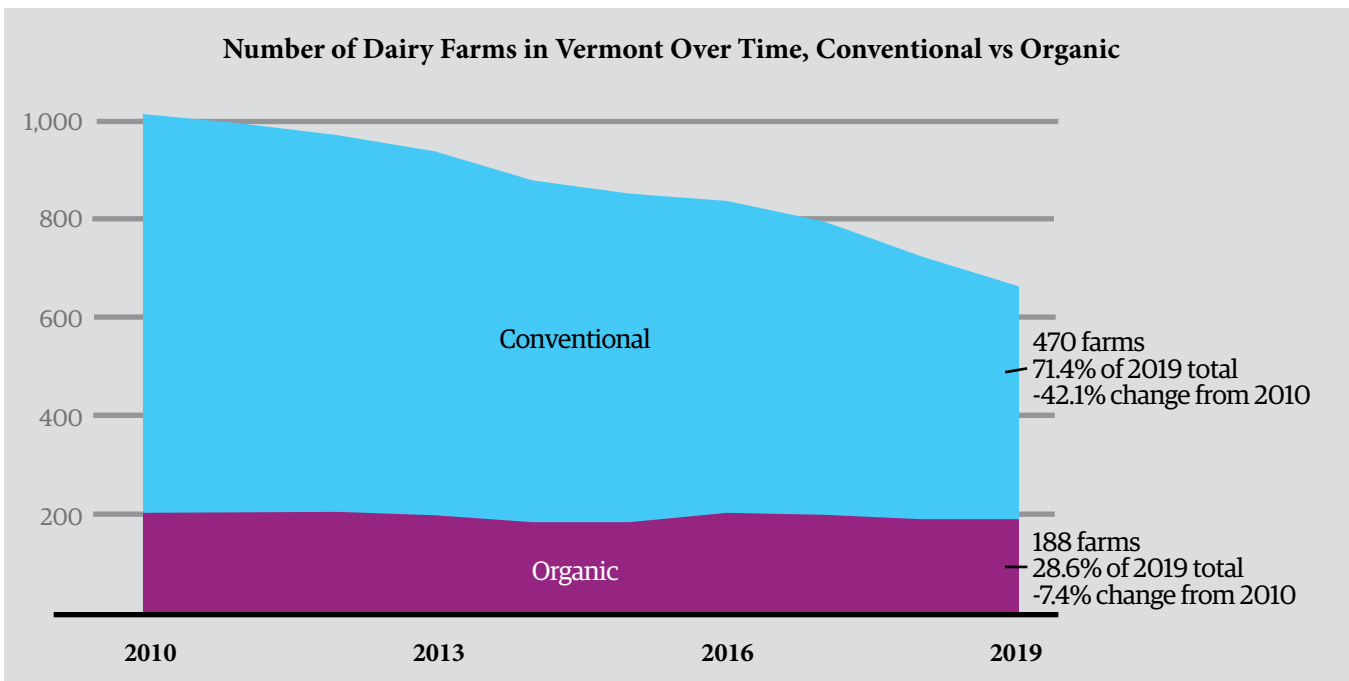
Vermont's dairy sector, across all scales and production methods, has been impacted by the extended downturn in pricing over the past five years, which has been exacerbated by decreased exports and a changing global political landscape. While conventional milk prices have always fluctuated, typically 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.

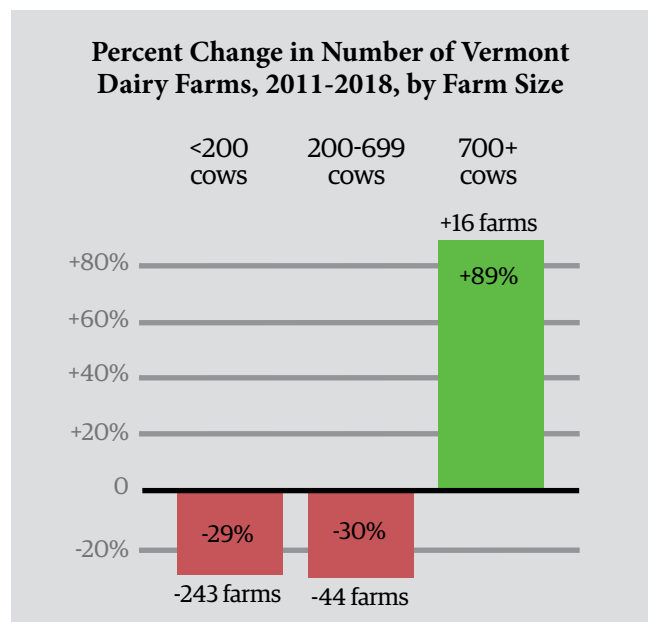
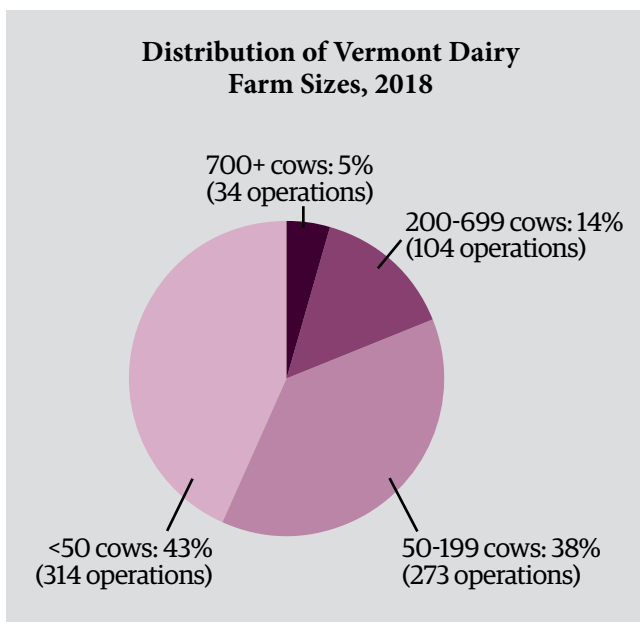
In response to the current dairy crisis, the amount of interest and work focused on the dairy industry has continued to increase and is originating from many different perspectives. Over the past two years, this work has included: Northern Tier Dairy Summit; Dairy and Water Quality Collaborative; Future 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.

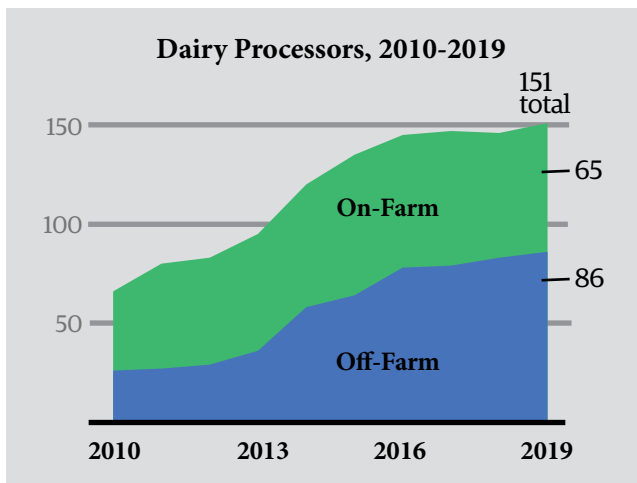
### Opportunities

- 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.<sup>2</sup> (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.

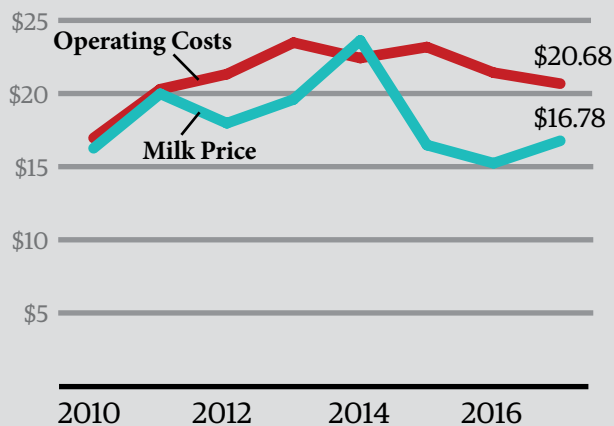
### Bottlenecks & Gaps

- 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.

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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