

DAIRY IN THE UPPER VALLEY

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The purpose of this report is to provide an overview of dairy trends in the Upper Valley, defined here as the four counties of Orange, Windsor (VT), Grafton, and Sullivan (NH). This document also attempts to draw connections between main actors in the dairy industry and outlines national patterns in the organic sector that affect farmers in the Upper Valley region. In summary, although the Upper Valley landscape and economy is not dominated by agricultural activity, this region remains a productive area for dairy farming and some small-scale processing. Moreover, although the Upper Valley is often perceived to hold a discrete and bounded food system (most characterized by a strong “buy local” sentiment), this report suggests that food system sustainability must reach beyond the local and consider the wide-reaching institutional forces that shape agriculture in complex ways. Some of these forces—cooperatives, farm policy, milk pricing, etc.—are explored in this report.



UPPER VALLEY AGRICULTURE: OVERVIEW

Compared to other regions in New England, the Upper Valley agricultural land base—not including forested land—is relatively small at 6.2% of total land area in 2017 and has been declining steadily in recent years: total agricultural land has decreased by 34% since 2008.¹ In contrast, the agricultural land base of the Northeast Kingdom (Caledonia, Essex, and Orleans counties) sits at around 15% of total land area.²

The cross-state nature of the Upper Valley produces interesting trends that gesture at the two states’ histories. In 2017, cropland made up 11% and 8% in the Vermont counties of Orange and Windsor respectively, while those percentages were lower in Grafton and Sullivan at 3% and 5% (see Table 1).

Land Use	Grafton	Orange	Sullivan	Windsor
Corn	3544.1 (10%)	3937.3 (8%)	2557.5 (14%)	2557.3 (5%)
Grass/Pasture	254.2 (1%)	384.1 (1%)	161.7 (1%)	808.4 (2%)
Other Hay/Non Alfalfa	32227.7 (89%)	45088.1 (91%)	14621.3 (83%)	47894 (93%)
Total Cropland	36322.6	49586.9	17697	51614
Total Land Area	1093497	439697	344010	620529

Table 1: Land use by Upper Valley county in acres, 2017. Corn, grass/pasture, and other hay consistently ranked in the top 5 land uses in each county. Cropland area does not include forested land. (Data: USDA Cropland Data Layer 2017)

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The geologic histories of the two states partially account for New Hampshire’s lower agricultural activity. While Vermont bedrock is primarily composed of limy minerals, a vestige from its coastal nature 400 million years ago, New Hampshire’s soils are sandy and acidic. Lime-rich soils make for fertile agricultural land and sugar maple trees, while New Hampshire’s soils have produced dense white oak and pine forests. The two states’ economies progressed accordingly, with Vermont turning toward agriculture and New Hampshire toward lumber and ship-building.³

Agricultural land in the Upper Valley—and in the two states generally—is by and large concentrated in hay production (Table 1). With the exception of Sullivan County, corn and grass ranked second and third in land area in the Upper Valley. (In Sullivan County, alfalfa land use was higher than that of grass/pasture by a few percentage points.) Corn is mainly grown along the Connecticut River, while hay and grass is more evenly distributed across each county. These three crops are primarily used as livestock feed, more specifically as feed for dairy cows. Although hay and corn travel outside this region, much of this cropland is owned by dairy farms operating within the Upper Valley. With respect to land use, dairy therefore remains a central player in Upper Valley agriculture.

A side note on alfalfa: in 2008, alfalfa constituted a greater portion of farmland in the Upper Valley but has since been replaced by either corn or other types of hay.⁴ Alfalfa—high in protein and favored by livestock farmers—is notoriously fragile; the dramatically reduced use of this high-risk, high-cost crop could suggest declining economic conditions for farmers across the Northeast, changes that are reflected in other indicators explored later in this report. Moreover, greater variability in climate in recent years could also have affected this change.⁵

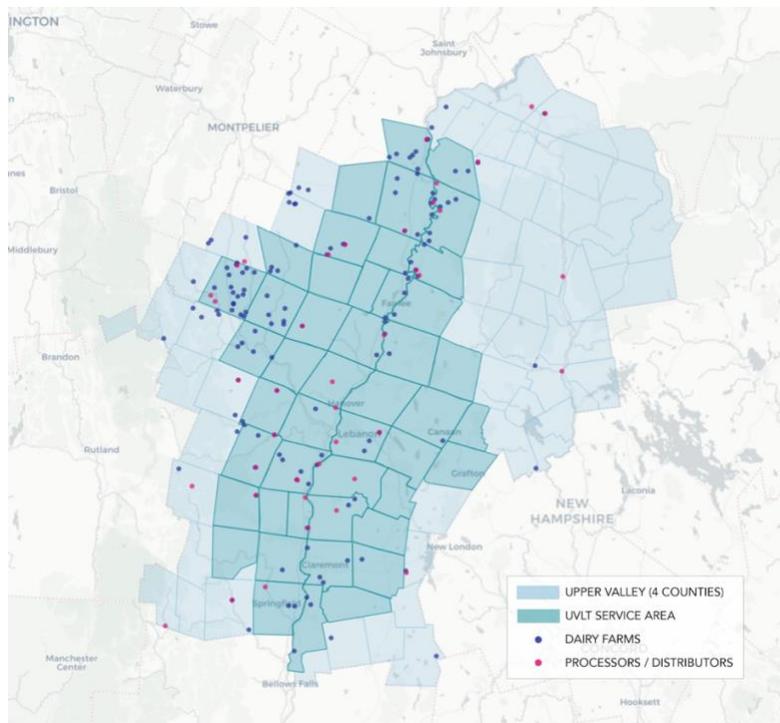


Figure 1: Dairy farms, processors and distributors in the Upper Valley. [Explore this map interactively here.](#) (Data: VT Agency of Agriculture, NH Department of Health and Human Services)

THE UPPER VALLEY DAIRY INDUSTRY

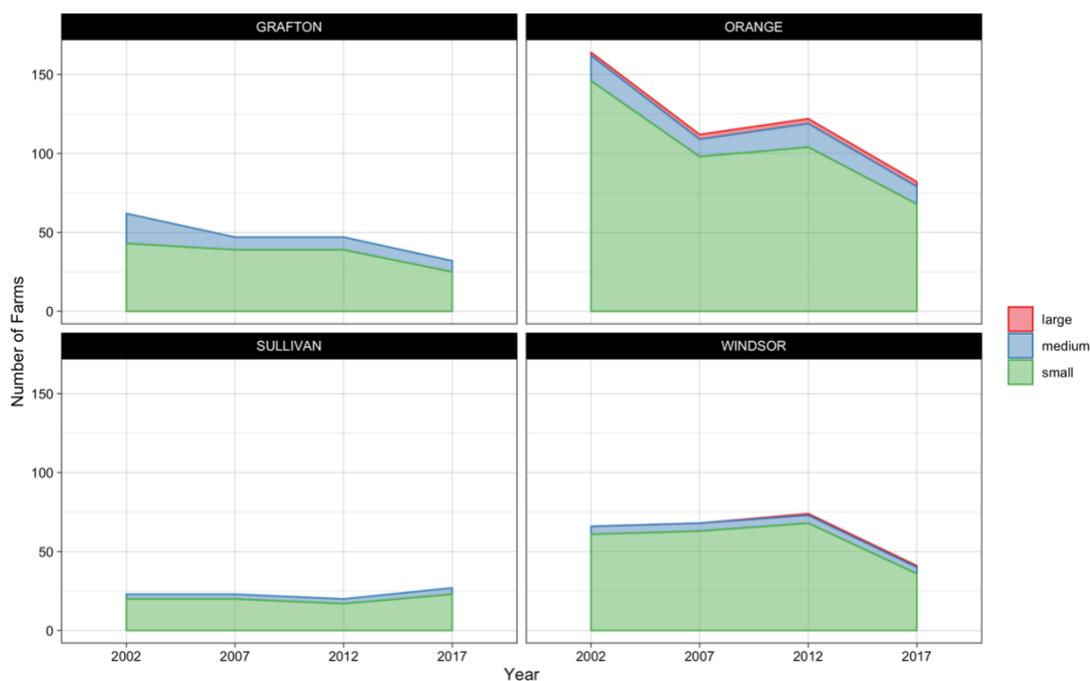


Figure 2: Number of dairy Farms in Upper Valley counties, 2002–2017. Small: 1–99 cows / Medium: 100–499 / Large: 500+. (Data: USDA Census of Agriculture)

In the past half-century, declining milk prices have caused a wave of dairy farm closures across the United States, particularly in traditional dairy states like New York, Wisconsin, and Vermont. Concurrently, forces of consolidation and industrialization have rippled through the dairy industry, as they have across all sectors of food production. Between 2000 and 2006, the share of milk produced by Vermont dairy farms with 500 or more cows increased by 13%, while that produced by farms with fewer than 100 cows declined by 9%.⁶ These interlocking trends of farm closures and herd size growth are reflected in the Upper Valley, although looking within counties reveals the local variability within these larger patterns.

Dairy Farm Characteristics

In 2017, there were 182 farms with milk sales in the Upper Valley, a 42% decrease from 315 farms in 2002 (Table 2). The loss of farms is primarily accounted for by farms with fewer than 200 cows, i.e. small and medium-sized farms. Small farms are defined here as those

NUMBER OF DAIRY FARMS	2002	2017	% Change
Grafton	62	32	-48.4%
Orange	164	82	-50%
Sullivan	23	27	17.4%
Windsor	66	41	-37.9%

Table 2: Number of Dairy Farms in the Upper Valley, 2002–2017. (Data: USDA Census of Agriculture)

with fewer than 100 cows, and medium as farms with 100–499 cows. A small caveat here: these definitions were settled on somewhat arbitrarily. The Vermont Agency of Agriculture sets higher breaks at 200 and 700 cows, necessary due to the thousand-cow operations in the Champlain Valley.

For the purposes of this report, these breaks have been lowered to account for the Upper Valley context: the average dairy herd size in the Upper Valley is 86, compared to the Vermont average of 170.

While Grafton (NH) and Orange County (VT) experienced a relatively steady decline in farm numbers, this was not the case for Sullivan (NH) and Windsor (VT) County (Figure 2). The number of farms rose in Windsor County from 2002 to 2012, from 66 to 74, before crashing to 41 in the years leading up to 2017. Sullivan, meanwhile, saw an overall increase in farms from 2002 to 2017, with a low of 20 farms in 2012. Looking at herd size data shows that these fluctuations are due to the entry and exit of farms with fewer than 200 cows (Figure 3). The disproportionate closure of smaller farms, along with an uptick of large farms, has led to an increase in average herd size across the Upper Valley. In 2002, the average dairy farm had 61 cows, compared to the average of 86 today. Much of this increase occurred after 2012; before then, average herd size was decreasing for both Grafton and Windsor counties (Figure 4). The period between 2007 and 2012 appeared to be a time of small-farm growth for the Upper Valley dairy industry. All counties experienced an increase in farms with 1-9 cows during this period, with Orange County sporting an increase of 30 farms of that size. This small-farm revival was met with a sharp decline in the following years, pulling the average herd size up to today's number.

Milk Sales

The dairy industry's presence on the Upper Valley landscape is matched by its dominant role in the agricultural economy. In 2017, milk sales made up roughly half of total agricultural sales in this region (Table 3); sales of value-added dairy products (cheese, yogurt, etc.) and agricultural inputs (grain, hay, etc.) contribute additional value to the food system.

County	Milk Sales (million \$)	Milk Sales (%)	Total Ag Sales (million \$)
Sullivan	9.782	51%	19.301
Orange	36.485	66%	55.050
Windsor	10.761	43%	25.058

Table 3: Milk Sales in the Upper Valley, 2017. Milk sale data for Grafton County has been withheld in the Ag Census to avoid disclosing data for individual operations. (Data: USDA Census of Agriculture 2017)

Milk sales by acre vary largely from county to county. At the highest, Orange County dairy farms bring in an average of \$738 per acre, while the lowest average is in Windsor County at \$218 per acre. Sullivan County averages out at \$564 per acre, again not accounting for additional sales in value-added dairy products and inputs. These variations in dairy production efficiency can be attributed to differences in average herd size and suggest changing agricultural practices as farms grow larger. The lower per acre sales in Windsor County could also be pegged to its greater number of value-added dairy operations; lower milk sales could be compensated for by cheese or yogurt sales.

As an economic comparison to the dairy industry, vegetable operations bring in around \$7000 per acre in sales across 1,112 acres in the Upper Valley, although it is important to keep in mind that

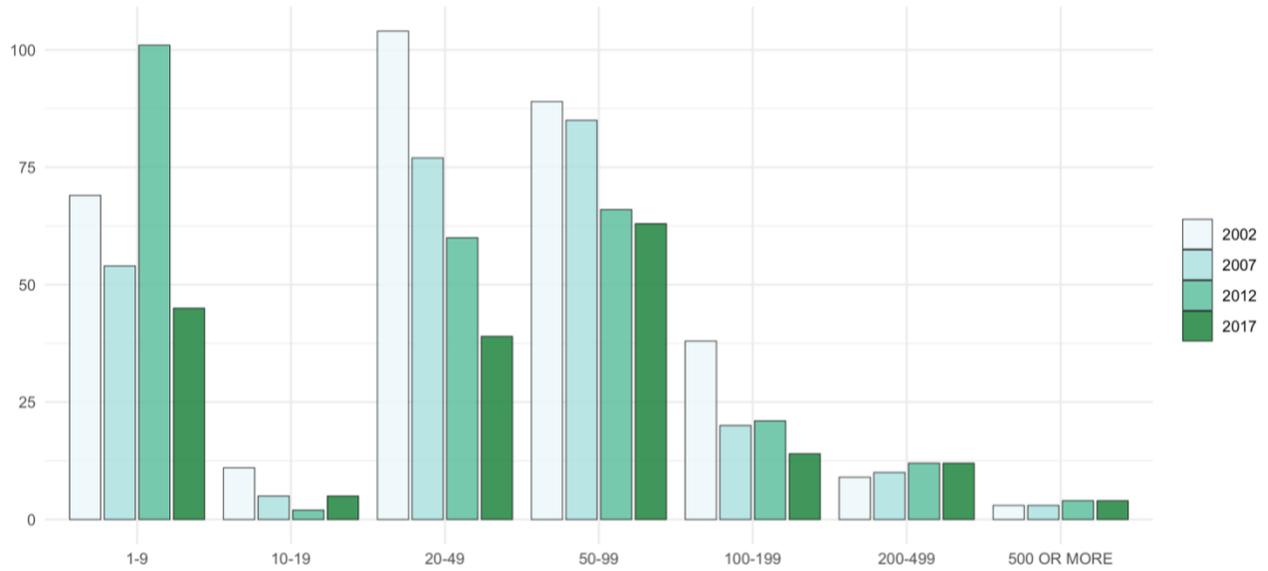


Figure 3: Number of farms by herd size in the Upper Valley, 2002–2017. (Data: USDA Census of Agriculture)

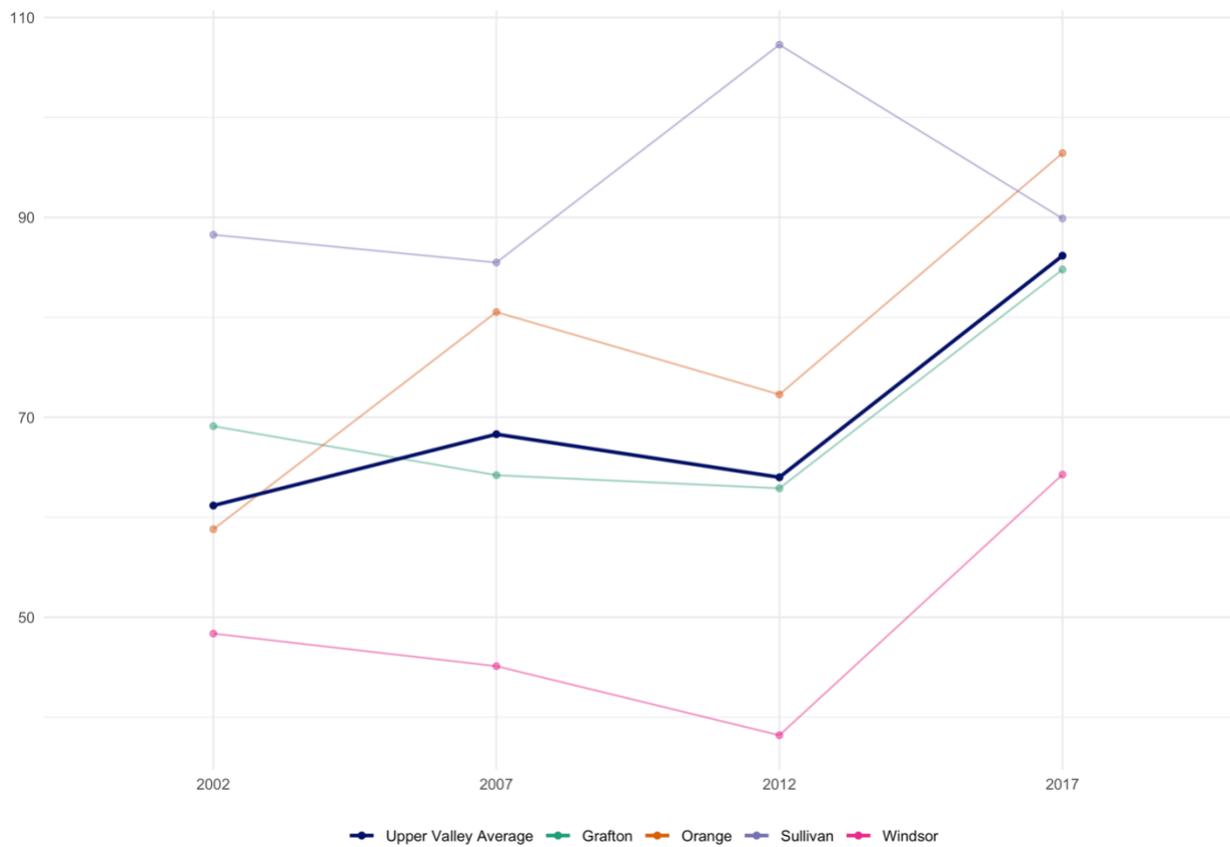


Figure 4: Average herd size in Upper Valley counties, 2012–2017. (Data: USDA Census of Agriculture)

purchasing decisions. This is largely due to the heavily institutional nature of the dairy industry; consumer dollars are filtered through a milk pricing structure in the United States that does not accommodate for the inevitable tendency toward overproduction, and farmers are increasingly bound to cooperatives and processors that are rapidly consolidating (see next section). Although the Upper Valley is home to a handful of successful local processors for which the “buy local” movement has certainly benefited, the vast majority of agricultural land in the Upper Valley and across the United States is increasingly bound to factors that lie outside the influence of a mere purchasing choice. An understanding of the regional food system and the future of agriculture in this region must therefore reach beyond a purely “buy local” discourse and consider how local actors can leverage resources across multiple scales, from the local to the regional, to the national and global.

Dairy Cooperatives

Although some farmers sell directly to regional buyers like HP Hood or otherwise process their own milk, the vast majority of Upper Valley dairy farmers belong to a cooperative, an organization that aggregates milk from multiple producers and markets it to buyers.⁸ Farmers were organized in cooperatives since the 18th century, when the disparate locations of farms made pooling necessary to create markets for dairy products. Early cooperative creameries sprung up in areas where large volumes of butter production were possible; butter and cheese production were comparatively advantageous to farmers, given the risky enterprise of transporting fluid milk to urban consumers. When the fluid milk market ballooned under railroad construction and rapid urbanization in the mid-1800s, small cooperatives began to specialize in marketing milk. By the end of the 19th century, thousands of dairy farmers sold their product to just a few milk dealers, leading to the formation of larger cooperative associations. The legitimacy of large farmer cooperatives was secured with the Capper-Volstead Act of 1922, which granted them limited anti-trust immunity. As a result, farmers were able to gain more competitive prices from milk dealers who would previously try to undercut prices by negotiating between unorganized producers.⁹

Cooperatives today are still technically farmer-owned and operated. However, they are consolidating at a rapid rate and creating oligopolies of their own. In 2002, the United States had 196 dairy cooperatives with a total of 61,390 members. By 2017, that number of cooperatives had dropped to 124 with 45,114 members. Although both cooperative and membership numbers have decreased, the volume of milk handled by cooperatives has increased from 144 billion pounds in 2002 to roughly 170 billion pounds in 2017. In 2018, the top five dairy cooperatives handled 46% of total milk in the United States.¹⁰ Larger cooperatives like Dairy Farmers of America can offer milk to buyers at a lower price than their smaller counterparts, in turn lowering the price paid to farmers. Instead, cooperative executives enjoy additional profits derived from partnerships with large food conglomerates like Dean Foods.

In a twisted reversal of the dairy cooperative’s original purpose, inequitable competition often keeps milk prices at the minimum rate mandated by the Federal Milk Marketing Order (FMMO), which is frequently below or little higher than the cost of milk production.¹¹

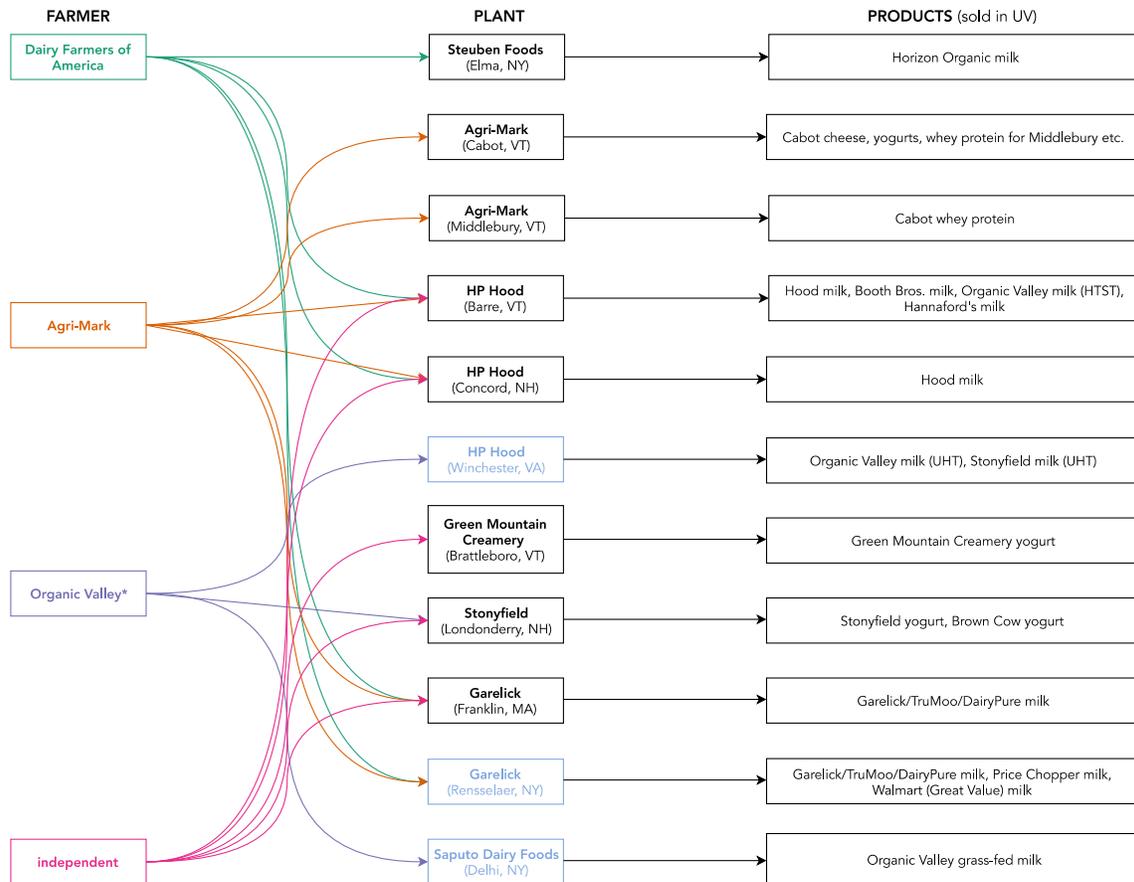
Farmers usually have little to no choice of whether to join a cooperative. As debt loads increase and food processing equipment grows in size to accommodate agricultural industrialization, on-farm processing becomes increasingly inviable for the smaller farms that dot the Upper Valley. Moreover, some cooperatives have wielded their market power to incentivize farmers to join. In recent years, DFA has stopped marketing independent farmers' milk in certain regions, instead mandating that they join DFA to maintain access to the cooperative's customers.¹²

Three cooperatives are currently active in this region: Agri-Mark, Dairy Farmers of America (DFA), and Organic Valley/CROPP. St. Albans Cooperative Creamery, Vermont's oldest independent cooperative, merged with DFA on August 1, 2019. DFA is by far the largest cooperative in the U.S., marketing 50 billion pounds of milk from their 8551 members in 2018 (25% of U.S. milk). According to the DFA website, 2446 of those members—or roughly 30%—are located in the Northeast. Organic Valley/CROPP is also a national cooperative, ranking 18th in member milk volume (1.6 billion pounds between 2000 members). Agri-Mark, based in Massachusetts and serving farmers in New England, is the only regional cooperative amongst the three. Agri-Mark ranks 12th in member milk volume with 3.2 billion pounds of milk and 1005 members. On average, a DFA farmer produces seven times more milk than an Organic Valley farmer. Agri-Mark farmers four times more milk than an Organic Valley member.¹³ These differences are most likely due to the larger land base required for organic dairy farming, in addition to the quota system implemented by Organic Valley (elaborated on in “Organic Dairy” section below).

Agri-Mark, Organic Valley, and DFA all process milk in addition to offering marketing services to their members. Processing cooperatives accounted for three-quarters of all milk handled by dairy cooperatives in 2002. Control over processing infrastructure affords cooperatives greater flexibility over their milk supply, including the ability to cater closely to consumer demand and to absorb excess milk in times of oversupply.¹⁴

The connection between farmer, cooperative, processor, and consumer is challenging to trace. Cooperative milk travels to multiple destinations, and buyers source from several cooperatives or producers at a time. Agri-Mark, for example, ships milk to their own processing plants in Vermont and New York, but also sells any surplus product to external processors like HP Hood, Guida's and Garelick Farms depending on need. Organic Valley is unique in its lack of physical infrastructure; instead, Organic Valley milk ships to partner processors like HP Hood where it is branded as Organic Valley milk. Organic Valley also markets and sells Stonyfield Farms fluid milk under a licensing agreement.

Figure 6 shows a working diagram of milk flows from Upper Valley farms, separated by cooperative membership. The second column shows the plants that process milk from Upper Valley farms. As mentioned above, milk flows are challenging to trace; therefore, some of these plants may not necessarily process Upper Valley milk, but nonetheless serve New Hampshire and Vermont farms. Plants in light blue are not confirmed to process NH/VT milk, but supply significant volumes of dairy products to the Upper Valley. Whether these farms process NH/VT milk in reality depends on the milk supply in the area surrounding the plant.



* Organic Valley farmers are also associated with another cooperative like Agri-Mark, DFA, or National Farmers Organization. This provides farmers with access to resources like lab testing and veterinary services.

Figure 6: Milk flows from Upper Valley farms, separated by cooperative. Plants in light blue are not confirmed to process Upper Valley milk. Whether these light-blue plants process Upper Valley milk is dependent on the availability of milk supply in the area surrounding the plant.

For example, the HP Hood plant in Winchester, VA produces ultra-heat treated (UHT) milk that is branded by Organic Valley or Stonyfield. While there are Organic Valley farms close to the plants, the volume of milk supplied by these farms may be insufficient; in that case, milk would be sourced at greater distances, including from New Hampshire and Vermont. Organic Valley milk that is processed further away in Virginia and in New York is usually ultra-heat treated, a common method of pasteurization for organic milk due to the lower volume of consumption (UHT increases the shelf-life of milk by six to nine months). High-temperature short-time (HTST) pasteurization is the more common method used in conventional dairy. Organic Valley HTST milk is produced at the HP Hood plant in Barre, VT, although I have yet to see this product appear on Hanover, Lebanon, or West Lebanon shelves.

Saputo Dairy Foods in Delhi, NY (the last in the plant column) outputs Organic Valley UHT grass-fed milk. HTST grass-fed milk is in the Organic Valley lineup, although it is unconfirmed as to whether it is processed at the HP Hood plant in Barre, VT. If not, Saputo would potentially be the only place to which Organic Valley farmers can ship grass-fed milk.

The third column only includes primary (milk) and secondary (yogurts, cheeses, etc.) products that are made using Upper Valley milk. The ultimate destination of dairy processing byproducts (e.g. skim milk powder, whey protein) are not traced here due to the complexity of that network; dairy byproducts are widely used in the food processing industry (think Cheetos and coffee beverages!).

Dairy Processing

There are roughly 30 dairy processors based in the Upper Valley. Processors are defined here as farms that pasteurize or process milk into another dairy product, or are permitted to sell raw milk. Approximately three-quarters of these processors are located within the 45 towns of the [Upper Valley Land Trust service area](#), suggesting that the small-dairy economy is concentrated closer to the river, as opposed to being scattered evenly across the four counties.

Product/Characteristic	# of Operations	% of Operations
cheese	17	68%
milk	8	32%
yogurt	2	8%

Table 4: Products of Upper Valley dairy processors. Percentages do not add up to 100%, as some processors produce multiple products. (Data: VT Agency of Agriculture, NH Department of Health and Human Services)

68% of milk handlers in the Upper Valley are small-scale cheesemakers, half of which operate in Windsor County. 80% of Upper Valley processors produce dairy products with milk from their own cows; the remainder source their milk from a nearby farm. Eight farms in the Upper Valley sell their milk as a final product. Of these farms, four sell pasteurized and homogenized milk, three sell creamline (non-homogenized) milk, and three sell raw milk.

As touched on above, on-farm milk bottling is challenging for small farms due to lack of equipment and startup capital. Local mid-sized milk bottlers such as McNamara Dairy and Strafford Organic Creamery are successful largely due to their early entry into small-scale processing, which allowed them to gain market power and get ahead of now-obsolete processing equipment or source infrastructure from abroad.¹⁵ Aside from these highly local brands, the milk sold in Upper Valley stores is processed mainly at the HP Hood plant in Barre, VT or, if organic, at plants in Virginia and New York.¹⁶



Randy Robar of Kiss the Cow Farm (Barnard, VT) bottling pasteurized milk at a shared value-added facility. Robar has purchased some of his equipment from Bob-White Systems.

At the same time however, the Upper Valley is home to a mini-revival in small-scale processing equipment. Based in Royalton, VT, Bob-White Systems was founded in 2006 by dairy farmer Steve Judge to manufacture low-volume milking apparatuses for

goats, sheep, and cows. The presence of Bob-White Systems in the Upper Valley has offered a convenient way for small farms in this region to purchase and maintain processing equipment, a luxury that is rarely found in the United States.

Organic Dairy

Organic dairies in New Hampshire and Vermont make up 17% of dairy farms in Vermont and 10% in New Hampshire.¹⁷ While U.S. conventional milk prices are regulated by the Federal Milk Marketing Order (FMMO) system which determines classified price plans and minimum prices, organic dairy prices are primarily subject to market conditions. Today, organic dairy farmers enjoy a pay price that is almost double that of conventional dairying.¹⁸ However, although organic dairying found its beginnings in a fundamental departure from industrial farming, it is now experiencing many of the same forces that depressed conventional dairying in the 1950s.

Organic dairy products did not properly enter the mainstream market until the mid-1990s, when the artificial growth hormone rbST became available. The hormone's FDA-endorsed introduction to dairy farming was met with large-scale consumer opposition, effectively carving out a market for dairy produced without chemical inputs. However, dairy farmers in the Northeast and Midwest reverted to organic methods decades before, after World War II developments in chemical production and mechanization began to alter agricultural operations across the United States. These farmers, observing the adverse effects of industrial farming methods on their land and animals, chose to transition to organic despite the absence of a financial reward. Before the advent of an organic market, farmers using organic methods had no other option but to sell their product to conventional markets due to the pooled nature of dairy processing.¹⁹

In contrast to early converters, farmers transitioning after the establishment of an organic market were more significantly motivated by financial gains. For Earl Ransom of Strafford Organic Creamery, it is a “no-brainer” to transition, given the 150% increase in pay price with a 50% increase in inputs.²⁰ Indeed, comparatively high pay prices in the late 1990s and early 2000s afforded organic dairy farmers a cushion that had long disappeared for conventional farmers.

The relative financial security of organic dairying has eroded in recent years due to a market glut, primarily caused by the entry of large-scale organic farming operations in states like California, Colorado, and Texas. The arrival of big players like Aurora Organic and Natural Prairie (elaborated on below) can in part be traced to the nationalization of organic standards. Organic certification began as a grassroots initiative in pockets across the country; for dairy, that took place in Minnesota, Wisconsin, New York, and Vermont. Few organic organizations had standards for organic dairying in the 1980s, including the Northeast Organic Farming Association (NOFA) which is most active in New Hampshire and Vermont. As such, the organic dairy standards active today were largely drafted by farmers themselves who codified their own agricultural practices as officially organic.²¹ When a national standard was implemented in 2002, the USDA drew from these regional practices but in effect weakened organic certification by employing the lowest common denominator between them. The barrier to corporatization in organic agriculture, previously held high by grassroots organizations, was therefore lowered with the federal co-opting of the organic label.²²

Grass-fed milk, or milk produced by cows fed on a 100% grass-based diet, is the most recent development in the organic dairy market; a certification standard drafted by Organic Valley and Maple Hill (a 150-farm processor based out of Kinderhook, NY) was released just in February 2019 and will be implemented later in the year.²³ Unlike the wave of organic dairy transitions in the early 2000s however, the rise of grass-fed milk has been slower, thus holding off the milk glut that has characterized other trends in the dairy industry.²⁴ The slower rate of transition is largely due to the stringent conditions specific to grass-based dairy farming, including a larger land base and herd genetics that are advantageous to grazing. Grass-based dairy farming also requires a large degree of knowledge acquisition and management education, which is helped along by university extension services and independent research groups.²⁵ Farmers that do transition to grass-fed dairy are often rewarded for their choices. Since the advent of a grass milk premium, farmers have received prices as high as \$47/hundredweight.²⁶

In 2004, the organic fluid milk market was dominated by Organic Valley and Horizon Organic, together holding 78% of market share. By 2007, the market share of private label milk (e.g. supermarket-branded milk) had doubled, cutting Organic Valley and Horizon's market share by 25%.²⁷ Organic Valley, as mentioned above, operates as a cooperative with 2000 members and an average herd size of 75 cows. In the past decade, Organic Valley has been enforcing a quota as a supply-management strategy, paying below standard price for milk that exceeds a cap specific to each farm. Organic Valley is not currently taking any new members. Horizon Organic, on the other hand, is a milk company owned by DanoneWave, one of the largest international food conglomerates. Horizon sources from around 600 farmers across the U.S., often members of Dairy Farmers of America members.

Private-label milk is often sourced from large organic dairies in the West, most notably Aurora Organic Dairy. Founded in 2003, Aurora Organic Dairy operates four farms in Colorado and Texas with a total of around 20,000 milking cows. Since its founding, Aurora has been mired in a series of legal complaints centered around their livestock management practices—namely, their cows' lack of access to pasture, one of the central requirements for organic dairy. Organic farmers in this region have also expressed distaste with the common practice of continuously transitioning conventional heifers to organic cows on factory farms. The “Origin of Livestock” provision in the National Organic Program stipulates that livestock must be raised organically before birth, unless the farm is undergoing the initial transition phase from conventional to organic. Large organic dairies have used this caveat as a loophole to continuously transition conventional heifers, which require cheaper feed. Farmers have argued that this allows factory farms to grow at a rapid rate and flood the market with cheap milk, thus disadvantaging small farms in the Midwest and Northeast.²⁸

Overall, although organic was once seen as a life raft for dairy farming in the United States, shrinking margins are now forcing some farms to sell their herds. That being said, the success of an organic dairy farm—and conventional farms, too—is largely dependent on herd and finance management strategies. While some Organic Valley farmers have felt a need to expand their herd and have expressed dissatisfaction toward the cooperative's quota system, others have been able combat growing pressures by strategically creating other income streams (e.g. artisanal breeding, consulting).²⁹

CONCLUSIONS & FURTHER RESEARCH

One of the questions originally driving this research was: will more local processing help relieve some of the pressures affecting Upper Valley dairy farmers? Short answer: yes. Farms that have control of processing infrastructure are somewhat removed from the economic and regulatory system that increasingly depresses milk prices for farmers in the mainstream dairy market. As such, value-added dairy farms (pasteurization is a form of value addition) and/or farms that sell direct to consumers can more effectively strategize for changing market conditions (which is not to say that these market conditions are often very favorable). Currently, these farms constitute a very small percentage of the Upper Valley's agricultural land base; expanding processing capabilities on individual farms could possibly help stabilize the dairy landscape and temper consolidation.

The question then becomes: is there want and capacity for growth? Investigating the following questions could open up possibilities for growth in the small-scale processing sector:

- What is the nature of this desire? Are farmers looking to increase their land base to meet growing demand? Or is a desire for growth centered around the need for more consumers?
- Are producers thinking about transitioning to more sustainable agricultural practices like grass-fed dairy?
- If producers are looking to expand their operations, what would make land acquisition more competitive for small, value-added dairy farms?
- Is there room in the market for new farms and products, or is it more feasible to elevate existing operations?
- How can locally-processed dairy products be made more accessible to low-income community members?
- Given the low number of yogurt processors in the Upper Valley, what is the market potential for yogurt production? This question is asked with the caveat that previously successful yogurt producers like Butterworks Farm (Westfield, VT) are currently feeling tremendous pressure from the proliferation of yogurt products on the market.³⁰



Cows running to pasture at Kiss the Cow Farm (Barnard, VT).

For the main share of dairy farms in the Upper Valley—that is, farms with 50-99 cows (Figure 3)—transitioning to on-farm processing is challenging due to their size, lack of capital, and inability to access appropriately-sized equipment such as a vat pasteurizer or a homogenizer. Further studies should explore whether the fluid-milk market in the Upper Valley has room for new farms to transition into mid-sized processing operations. Current major players in the locally-processed fluid-milk market include Strafford Organic Creamery (Strafford, VT) and McNamara Dairy (Plainfield, NH), which milk 60 and 150 cows respectively. Due to Strafford’s organic status, their customer bases do not significantly overlap.³¹ Strafford’s distribution network is relatively concentrated in Vermont and is more spread out, while McNamara has a relatively even share of retailers in the two states. McNamara, however, has a more clustered network surrounding their production location (Figure 7). The following questions may be pertinent to future research on mid-sized processing in the Upper Valley:

- Why has Strafford Organic Creamery pursued a more evenly distributed retail network, as compared to that of McNamara Dairy (Figure 7)? What qualities of their business models, if any, have created the conditions for these geographic patterns?
- What factors have led their distribution networks to more-or-less stay in their respective states? Is expanding into the other state of interest to these two producers? If so, what are some ways that community organizations can decrease any potential barriers to entry?
- Given that the distribution radius of McNamara Dairy is relatively localized to the area around Plainfield, are there any producers in other parts of the Upper Valley that would be interested in transitioning and pursuing a similarly localized distribution network? Who are the potential retailers and customers for this milk? The geographic variability of socioeconomic status in the Upper Valley is an important factor to consider.
- How can existing distribution networks for other on-farm processors be improved? Hatchland Farm in North Haverhill, NH is another major milk bottler in the Upper Valley. Is there a way to increase their access to Upper Valley customers?

The development of an aggregated processing structure, where milk from multiple farms is processed at a central location, would also be unfeasible due to a number of constraints. Firstly—and again—there is the question of consumer demand for Upper Valley processed dairy products, particularly for fluid milk. Secondly, opting out of cooperative membership and into a local processing agreement is highly risky for farmers, given that few cooperatives are currently taking on new members. The failure of a local processing plant would mean that farmers would then be left without a market for their milk.

Investing time and resources into existing processing infrastructure may be the most feasible way to intervene in the Upper Valley dairy industry. Although larger, specialized dairy farms play an integral role in our working landscapes and communities, attempting to remove these farms from the dominant system or to otherwise make change on the economics of conventional dairy is a futile endeavor at the local scale. Finally, while the “buy local” movement remains important for food producers in the Upper Valley, regional institutions should additionally consider the wide range of factors that shape how food is produced, how land is used, and ultimately how we will relate to this landscape going into the future.

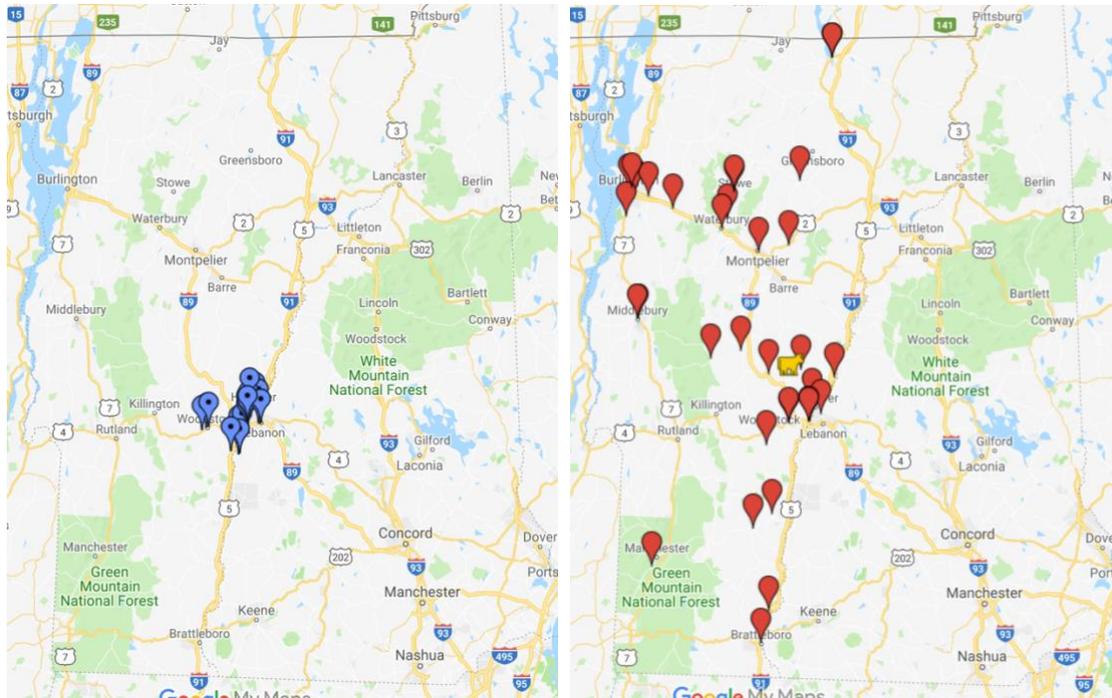


Figure 7: Distribution networks of McNamara Dairy (left) and Strafford Organic Creamery (right). Note that the McNamara Dairy map does not include locations using their products as an ingredient (e.g. restaurants and cafes, while Strafford’s does). Regardless, Strafford’s bottled milk retail remains more evenly distributed. (Source: McNamara Dairy website & Strafford Organic Creamery website).

AUTHORSHIP & ACKNOWLEDGEMENTS

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UPPER VALLEY LAND TRUST

NOTES

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