

Vermont in Transition:

A Summary of Social Economic and Environmental Trends

A study by

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for the

Council on the Future of Vermont

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Chapter 6: AGRICULTURE



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Chapter 6:

AGRICULTURE

This chapter examines the major trends that are influencing the character and outlook of agriculture in Vermont. As we have seen in other chapters, the trends identified often reflect national and international forces, but at the same time, Vermont is unique in many ways, and these differences will be highlighted. According to the U.S. Bureau of Economic Analyses, agriculture contributed \$184 million to Vermont's gross domestic product in 2006, down from \$254 million the year before.¹ Total agricultural sales, as opposed to the value added, were \$677 million in 2007, up from \$491 million in 2006.^{2,3} As a percent of GDP, these figure are modest at around 1%, but they exclude the value of the many support services that maintain Vermont's agricultural sector (e.g., veterinarians, brokers, repair shops, feed and fuel dealers, insurance and transportation companies) as well as the additional value added by the Vermont-based industries that process the products of farms, some of which are among the largest and best known employers in the state (e.g., Cabot Creamery, Ben & Jerry's, Franklin Foods, St. Albans Cooperative Creamery).⁴ Adding the value of the food processors more than doubles the estimate of agriculture's economic impact on the Vermont economy.

Few would argue, however, that the impact of agriculture in Vermont is limited to economics alone. The Vermont way of life, which was defined by over 400 Vermonters in a 2005 study of the quality of life as a "measured pace of life," and a strong sense of community, honesty, and trust among neighbors, flows from Vermont's rural agricultural heritage.⁵

¹ U.S. Department of Commerce, U.S. Bureau of Economic Analysis, Gross Domestic Product by State: <http://www.bea.gov/regional/gsp/action.cfm>

² U.S. Department of Agriculture, Economic Research Service, State Fact Sheets: Vermont, September 15, 2008.

³ Value added is the difference between the price of output and the cost of its inputs, excluding labor.

⁴ Within New England, Vermont and Maine are tied in terms of the percent of state GDP that comes from agriculture and forestry.

⁵ "Pulse of Vermont: Quality of Life Study 2005," The Vermont Business Roundtable. Bolduc and Kessel.

Farms also provide Vermonters and tourists alike with a source of fresh local food and attractive pastoral landscapes. Perhaps even more importantly, the agriculture sector sustains rural communities by providing critically needed jobs and incomes in areas of the state that have not benefited fully from Vermont's economic growth over the last three decades. The counties with the highest agricultural sales in 2002 were as follows: Franklin (24% of the state), Addison (22%), Orleans (7%), Chittenden (6%), Caledonia (5%), and Rutland (5%).⁶ As one would expect, the counties with the largest agricultural output are largely rural, and as discussed in the Chapter 4, are economically lagging behind Chittenden County, Vermont's most populace county.

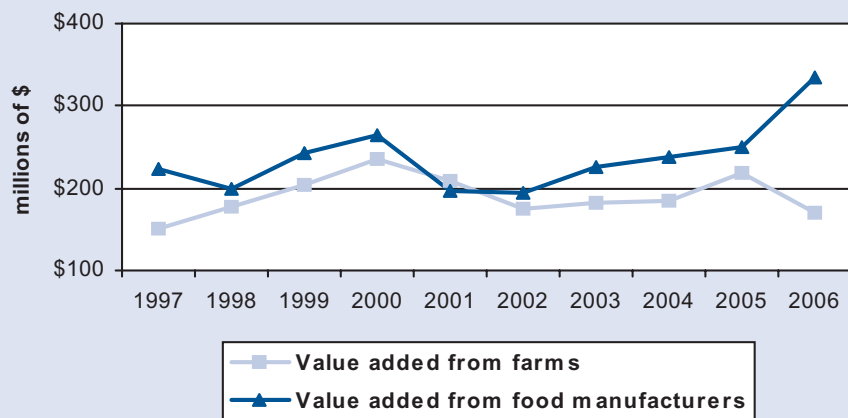
Trends in Agriculture in Vermont

Trend number 1: The inflation adjusted value added output of farm products over the last decade generally reveals no clear trend.

The value of farm output in Vermont, as is true nationally, is subject to some degree of volatility. An answer to the question of whether the value of output has increased in recent years depends upon the years compared. Adjusting for inflation, the value added of farm output increased between 1997 and 2006 by 11%, but it decreased by 28% between 2000 and 2006. Food manufacturers have seen a steady real increase in the value added of output during this period, with the exception of the economic slowdown between 2001 and 2002.

⁶ U.S. Department of Agriculture, Agriculture Statistics-Vermont (2006). The percentages are listed for 2002, the most recent agricultural census.

Vermont Agriculture and Food Processing Net Output (in millions) Farms and Food Manufacturers 1997 to 2007



Source: U.S. Department of Commerce, Bureau of Economic Analysis
* Inflation adjusted figures are in 2000 dollars

Trend Number 2: The number of Vermonters working on farms has decreased, while the number of undocumented workers has increased. Employment levels have increased in food manufacturing and processing, support services and marketing.

Reliable agricultural employment numbers are difficult to obtain. For example, the Vermont Department of Labor's agricultural employment numbers do not include the self-employed, people "working under the table," unpaid family workers and undocumented workers. The U.S. Department of Agriculture (USDA) publishes its own employment numbers for farm proprietors, farm wage and salary workers and those working in closely related fields.⁷ According to the U.S. Department of Agriculture, just under 5% of workers in Vermont in 2002 were employed on farms and closely related sectors, a decline from just over 8% recorded

in 1981.^{8,9} During this period of time, employment on farms fell by almost 5,000 workers, a consequence of the loss of farms and growing farm productivity. At the same time, employment in agricultural support services, processing and marketing grew by almost 2,000 workers.

Even though agricultural employment has declined for many years, when there are job openings, they are not easy to fill. There are many reasons for the shortages including low wages, difficult working conditions, work schedules, and preferences, especially among younger Vermonters, to work in other fields. Undocumented workers seem to be filling the employment gap. A recent national study of agricultural employment from the USDA estimated that roughly one-half of all hired farm workers were identified as being undocumented, who most frequently were found harvesting seasonal crops.¹⁰ No statistics for Vermont or other states were included in the analysis, but anecdotal stories in newspaper articles suggest that Vermont farms also rely on undocumented workers. For example, an article in the *Burlington Free Press* on February 27, 2008, quotes Senator Patrick Leahy as estimating that Vermont has 2,000 undocumented Mexicans working on dairy farms.¹¹ This was not the case 20 years ago. In addition, every year the U.S. Department of Labor certifies the eligibility of approximately 400 foreign workers for temporary visas to assist in harvesting berries, apples and turkeys. The number of temporary visas has changed little over the last decade. Most of these visas were issued to help harvest the apple crop (in 2007, for example, 262 H-2A visas were granted for this purpose in Vermont).¹² H-2A visas are of little help in the dairy industry as employment needs are neither seasonal nor temporary.

⁸ In 2002, 18,262 Vermonters were employed on farms and related agricultural sectors, an increase of just under 2,000 workers since 1981. While the absolute number of workers increased, the share of total state employment fell. U.S. Department of Agriculture, "Vermont Farm and Farm-Related Employment"

⁹ The U.S. Department of Agriculture ("Vermont Farm and Farm-Related Employment") also indicates that in 2002 an additional 45,122 people were employed in agricultural wholesale and retail trade and indirect agribusinesses.

¹⁰ U.S. Department of Agriculture, "Profiles of Hired Farmworkers, a 2008 update." William Kandel.

¹¹ The prevalence and problems of undocumented migrant dairy workers in Vermont was highlighted in a September 23, 2003 Vermont Public Radio show, Vermont Edition. An expert on the show estimated that 75% of dairy farms in Addison County employed undocumented workers.

¹² Vermont Department of Labor.

⁷ Closely related employment includes workers in companies that provide farm inputs and services, and agricultural processing and marketing companies.

In 2002, the average age of principal operators of Vermont farms was 54 years, up from 49 in 1978 (see Appendix, Chart 6-2). The aging of Vermont farm owners is consistent with trends in the Vermont population as a whole as discussed in Chapter 1. This raises a question of whether there will be a sufficient number of younger Vermonters willing and able to maintain Vermont farms in the future.

Trend Number 3: *The number of dairy farms has declined for many years, and the ones that remain are getting larger.*

The Green Mountain State’s rocky fields, rolling hillsides, and accommodating climate have come together with hard-working, resourceful, multi-generational farmers to develop the state’s dairy industry, the sector for which Vermont is best known. While there is little question that the dairy industry plays a prominent role in the state, by national standards, Vermont is not one of the larger milk producing states; today less than 2% of all milk produced in the country comes from Vermont, far behind the four largest producers, California at 21%, Wisconsin at 13%, New York at 7%, and Idaho at 6%.¹³ Vermont is the 12th largest producer of milk, although in 1975, Vermont’s milk production ranked 16th highest in the nation. One of the national trends in milk production has been the growth of western producers, specifically in the Pacific and Mountain regions of the country.¹⁴ In 1960, Vermont produced 23% of California’s total milk output. In 2007, Vermont’s production had fallen to only 6% of California’s total.

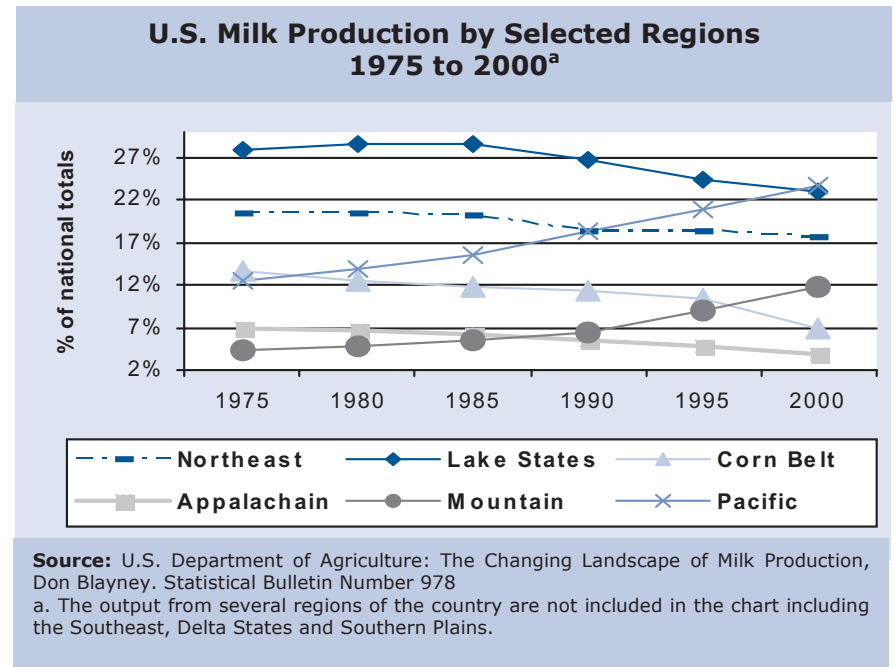
With dairy products accounting for just over \$500 million in sales in 2007, they dwarf all of Vermont’s other agricultural markets.¹⁵ More specifically, the dairy industry accounted for 77% of all agricultural sales in the state.¹⁶ The actual percent of sales would be considerably higher, upwards to 85%, if one includes the value of other products sold by dairy farms, such as

¹³ USDA, Economic Research Service, Profits, Costs, and the Changing Structure of Dairy Farming.

¹⁴ For example, between 1975 and 2000, the share of U.S. milk production in the Northeast fell from 20% to 18%, while it rose in the Pacific region (from 12% to 24%) and the Mountain region (from 4% to 12%).

¹⁵ USDA, Economic Research Service. State Fact Sheets: Vermont. September 15, 2008

¹⁶ Ibid



hay, corn, cattle and calves, maple syrup and logs.¹⁷ No other state has a single commodity that accounts for such a high percentage of its total agricultural sales. This statistics alone can be seen as either a positive attribute for the state or a cause for concern. On the one hand, there are lots of desirable synergies that come with the geographic concentration of production, from sharing information about new techniques between farms to the development of a vital support network. Yet, at the same time, “putting all your eggs in one basket” is always a risky proposition.

Both nationally and within the state, the dairy industry is in the midst of a period of transformation. The number of dairy farms has been declining for many years; in 1947, Vermont had 11,206 dairy farms. By 1990, the number had declined to 2,370, and in 2008, only 1,097 dairy farms remain. As the numbers of dairy farms diminish, the average size of the remaining farms has increased; in 1974, the average dairy farm in Vermont had a herd size of 49 cows; by 2002 the average rose to just over 100, and by

¹⁷ The Vermont Economy Newsletter, Agriculture’s Economic Impact in Vermont, December 2007.

2007, the average had risen once again to 120 cows (see Appendix, 6-3).¹⁸ Another way to see this trend is as follows:¹⁹

- In 1997, 6% of Vermont’s dairy farms had 200+ cows, accounting for 28% of the state’s milk output.
- By 2006, two times the number of dairy farms had 200+ cows, accounting for almost half the milk produced in the state.

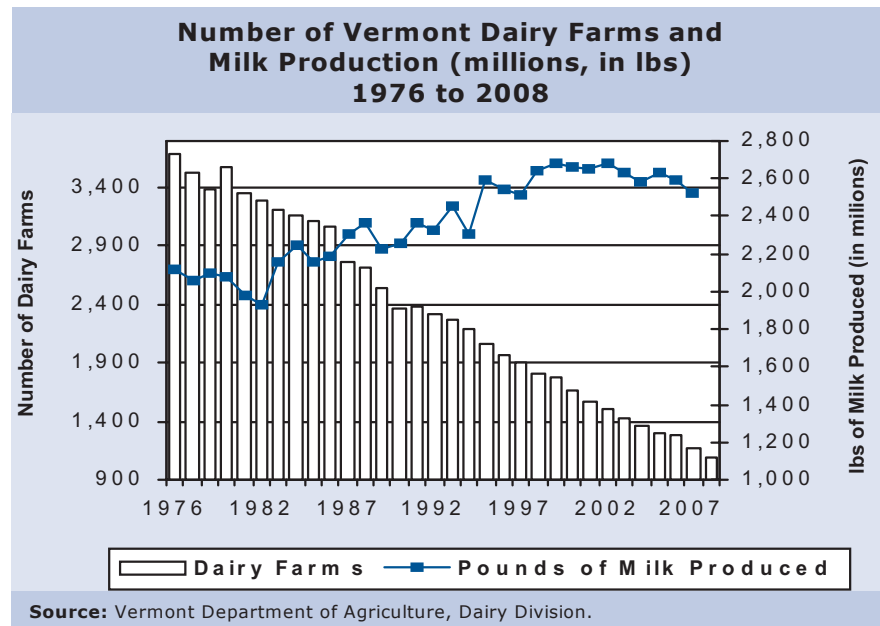
Even though Vermont farms have grown in size, they are still small by national standards. For example, in the year 2000, the average size of dairy herds was over 400 in the Pacific region of the country.²⁰ It’s not unusual today to find dairies in the West and Midwest with 1,000 to 5,000 cows, while the largest dairy farms have over 15,000 cows.²¹ With the growth in the size of dairy farms, the total amount of milk produced in Vermont increased through 1999. Since this time, total milk volume has declined

slightly.²² One possible explanation for this recent trend is that as farms close down, more cows are being sold out of state and not purchased in large numbers as they had been in earlier years by other local farmers.

The trend towards larger farms is not unique to agriculture. Indeed, there are very few sectors in our economy that have not experienced consolidation and firm expansion; one only needs to think about the growth in the “big box” retailers, the decline in regional and community hospitals, or the emergence of national and international accounting and financial firms. Competitive pressures and economies of scale and scope have been powerful forces leading to increasing concentration, lower cost structures, and lower prices. Whether these same forces are beneficial for the dairy industry is subject to considerable debate. Larger dairies displace higher cost, small family farms and create challenging manure handling and disposal problems.²³

Not only have farms gotten larger, but the productivity of cows has also been increasing for many years. Through genetic improvements and better herd management, the average cow in Vermont produced 18,079 pounds of milk per year in 2007, up substantially over the 10,000 pounds of milk per cow in 1970. In the last half of the 20th century, milk production per cow in Vermont was just above or at national levels.²⁴ In the last decade, productivity per cow at the national level has increased more quickly than in Vermont (see Appendix, 6-4). Perhaps more aggressive cull procedures or more rapid diffusion of technologies in other states can explain this growing gap along with a greater reluctance of Vermont farmers to use hormones such as rBST. Additionally, the growth of Vermont’s organic farms, discussed below, may also explain the rising productivity gap. Organic dairy farms tends to be smaller and more capital and labor-intensive operations.

The forces leading to the restructuring of the dairy industry will not likely recede in the future. A recent study on changes in the dairy industry



¹⁸ Vermont Department of Agriculture, Dairy Division. U.S. Department of Agriculture.

¹⁹ New England Agricultural Statistics: 2006 Annual Bulletin.

²⁰ U.S. Department of Agriculture: The Changing Landscape of Milk Production, Don Blayney. Statistical Bulletin Number 978.

²¹ USDA, Economic Research Service. Profits, Costs, and the Changing Structure of Dairy Farming / ERR-47

²² Vermont Agency of Agriculture, Dairy Division.

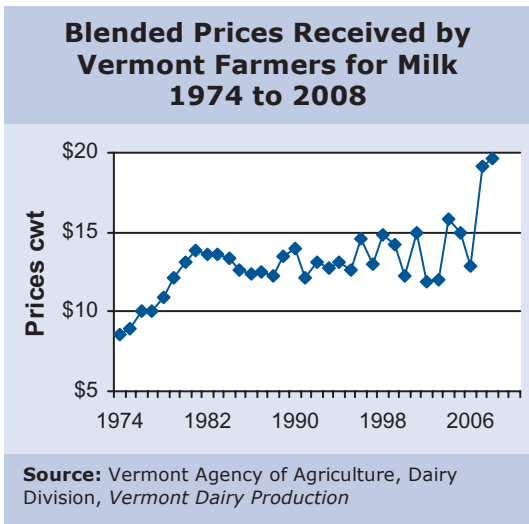
²³ According to an article published by the Economic Research Service of the USDA, farms with at least 1,000 cows have a cost structure that is 25 to 35 percent less than farms with fewer than 500 cows. Low Costs Drive Production to Large Dairy Farms, James M. MacDonald, William D. McBride, and Erik J. O’Donoghue.

²⁴ U.S. Department of Agriculture, National Agricultural Statistics Services, “Vermont State Agricultural Overview-2007”

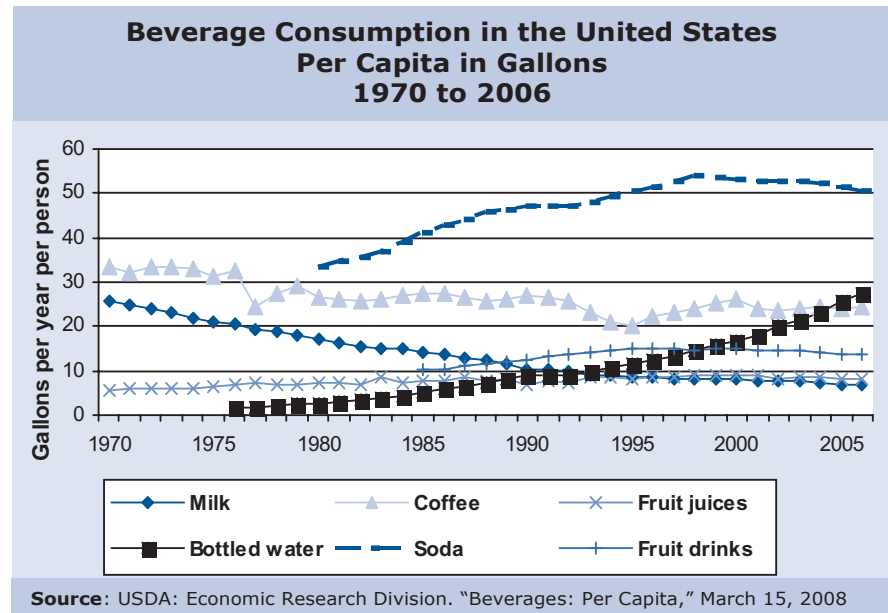
concluded, “the rate of structural change in the dairy sector is likely to accelerate as new technologies appear, and other factors (environmental regulation, land use, and contractual arrangements) continue the pressure for further consolidation and structural change.”²⁵

In most industries, increased productivity leads to higher revenues and growing profits. But in agriculture, and milk production in particular, things are different. Fluid milk (milk used as a beverage) is a commodity that is priced regionally and is subject to large yearly swings in prices, with regional supplies, at times, outstripping demand.²⁶ More recently, because of cost pressures and greater demand worldwide for powdered milk, milk prices have risen substantially.

Over the last 30 years, consumption of all dairy products has increased by less than the rising productivity of dairy cows. The particular elasticity of demand (highly inelastic) and income (very low) suggest that without government intervention (e.g., price supports, import restrictions, regional compacts such as the expired Northeast Dairy Compact and direct payments), falling prices and declining revenues would result, and the rate of exit from the dairy industry would likely accelerate.²⁷ At the same time, consumers



would likely pay less for fluid milk. Nationally, per capita consumption of fluid milk has fallen for a number of decades as consumers have increased their consumption of an increasingly wider array of competing beverages (soda and bottled water are two prominent examples) that have become readily available in recent years.²⁸



For over 70 years, federal agricultural subsidies have provided relief for Vermont farmers. Throughout the 1990s, the federal government provided between \$3 and \$12 million dollars to Vermont farmers.²⁹ In the last seven years, funding for federal farm support programs have increased considerably (see Appendix, 6-5). In 2006, for example, the federal government provided over \$19.8 million dollars to Vermont farms, over one half for payments through the milk income loss program (MILC), the largest federal dairy program in Vermont. Even with government support programs, the dairy industry has been subject to wide annual swings in the value of milk produced (see Appendix, 6-7).

²⁵ Anderson, David P., Joe L. Outlaw, and Robert B. Schwart. “Structural Change in the Dairy Industry.” <http://www.dairy.cornell.edu/CPDMP/Pages/Workshops/Memphis03/Anderson.pdf>

²⁶ Net farm income for all farms in Vermont displays similar year-to-year fluctuations.

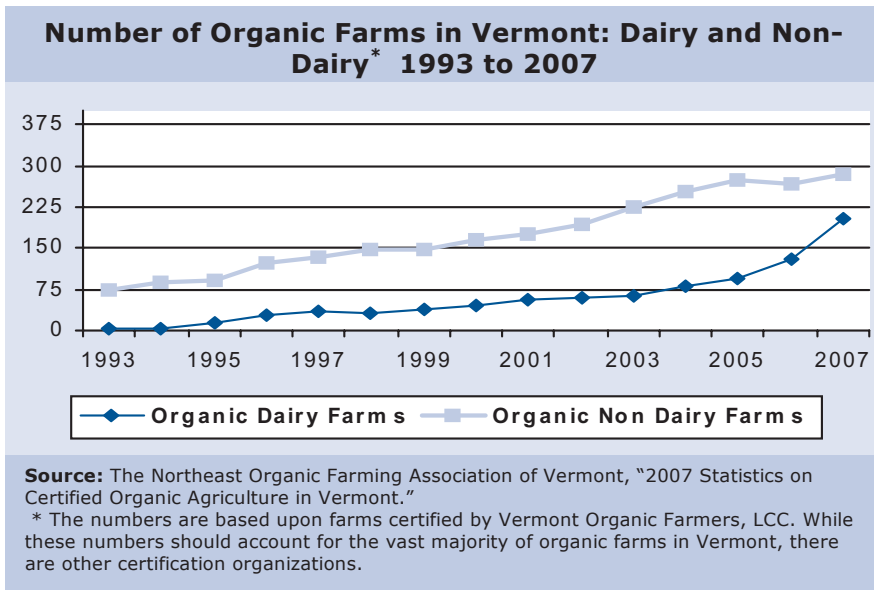
²⁷ According to the U.S. Department of Agriculture, both the price elasticity of demand and the income elasticity for milk are inelastic. If so, falling prices due to increased output will not increase the quantity demanded enough to offset the price reduction; falling prices would lead to reduced revenues. Furthermore, given the low-income elasticity, as consumer incomes rise over time, consumption of fluid milk may increase, but only slowly.

²⁸ “Economic Effects of U.S. Dairy Policy and Alternative Approaches to Milk Pricing,” Table 2.1. Dairy product: per capita consumption: 1980 – 2003, p.15. U.S. Department of Agriculture. While consumption of fluid milk has declined, people are consuming more cheese and ice cream.

²⁹ USDA.

Trend Number 4: The number of organic dairy farms has grown significantly.

Individual farmers have no control over milk prices and, partly in response, have joined cooperatives such as Agri-Mark and the St. Albans Co-op to increase their market power. Some dairy farms have begun selling milk directly to consumers as a way to improve their profitability. Many other producers have converted their operations or started organic dairy farms. At the national level, organic food is one of the fastest growing sectors in agriculture today.³⁰ In Vermont, there were few organic dairy farms in the earlier 1990s. By 2007, there were 204 such farms, indicating that almost one out of five dairy farms in Vermont were organic. According to the Vermont Agency of Agriculture, organic dairy farms are smaller (75 to 80 cows) than other dairy farms, but the value of their product is considerably higher; at the retail level, organic milk sells for nearly \$2.00 a gallon more than non-organic milk.³¹ The demand for organic milk remains strong, growing annually at a rate approaching 20% since the early 1990s.³²



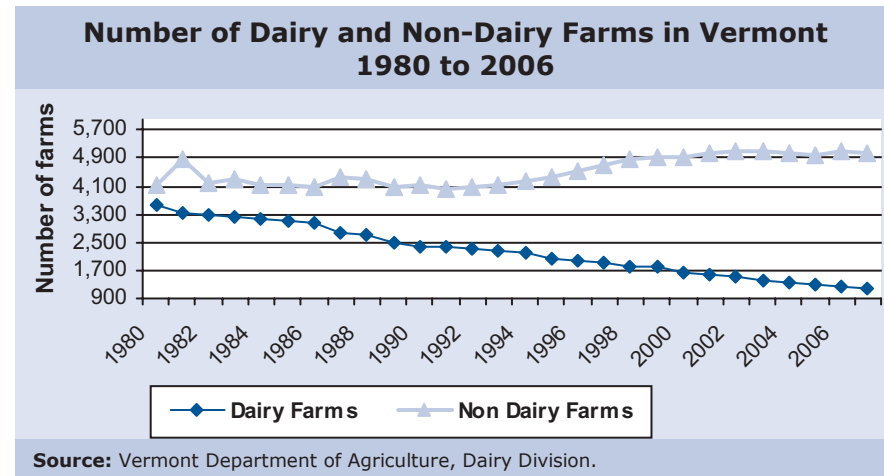
³⁰ USDA, Economic Research Service. Organic Production. <http://www.ers.usda.gov/data/organic/>

³¹ Agricultural Marketing Resource Center, Diane Huntruds, Organic Dairy Profile, May 2008

³² IBID

Trend Number 5: Vermont experienced an increase in the number of small non-dairy farms.

The Vermont dairy sector still accounts for the bulk of the state's agricultural sales. But, as dairy farms decline in number, although not in size, the reverse is true for non-dairy farms. The number of non-dairy farms has increased by just over 800 farms since the early 1980s.



Simply looking at the raw number of farms may mask some of the changes that are occurring in agriculture. There is always a debate about how to define a farm. The U.S. Department of Agriculture, which collects and publishes most farm statistics, has chosen a broad definition that includes any enterprise that sells at least \$1,000 of agricultural output per year. This definition explains, in part, why there are so many farms in Vermont, many of which are part-time or very small ventures. Between 1974 and 1997, approximately one out of four farms had sales under \$2,500, but this percent, surprisingly, has increased to 41% in 2002, the latest year these statistics are available.³³ The percentage of farmers whose principal occupation is farming has decreased to almost 53% in 2002, from 73% in 1974 (see Appendix, 6-6). This trend is consistent with the rise in the proportion of small farms. It's difficult to say what's behind this increase. Vermont is a high cost state (see Chapter 5, Affordability), and many people try to find ways to supplement their income, agricultural endeavors being one such way. Others may simply

³³ Census of Agriculture: 1974 through 2002.

desire to remain close to the land, to retain their connections with the state's agricultural heritage, while others may be motivated by the beneficial tax consequences of operating a home based business or being able to enroll land in the Current Use Program discussed in the Chapter 3, Land Use.

Most farms in Vermont are not large, but those that are, account for the bulk of sales. In 2002, there were 1,705 farms in Vermont that had sales under \$1,000. These farms, which comprised 26% of all farms, produced well under 1% of all farm sales in the state. In contrast, there were 77 farms with sales over \$1 million dollars, or 1.2% of all farms, and these farms produced 28% of all sales.³⁴ Nearly all of these large farms were either in dairy or the related industry of cattle and calves.

Trend Number 6: Many of Vermont's most important non-dairy agricultural products have displayed no clear trend in the value of output. However, the value of the output for many of the products is quite variable on an annual basis.

Vermont may be a dairy state, but Vermont farmers, some of whom are also dairy farmers, produce a range of agricultural products. The top ten in 2007 were:³⁵

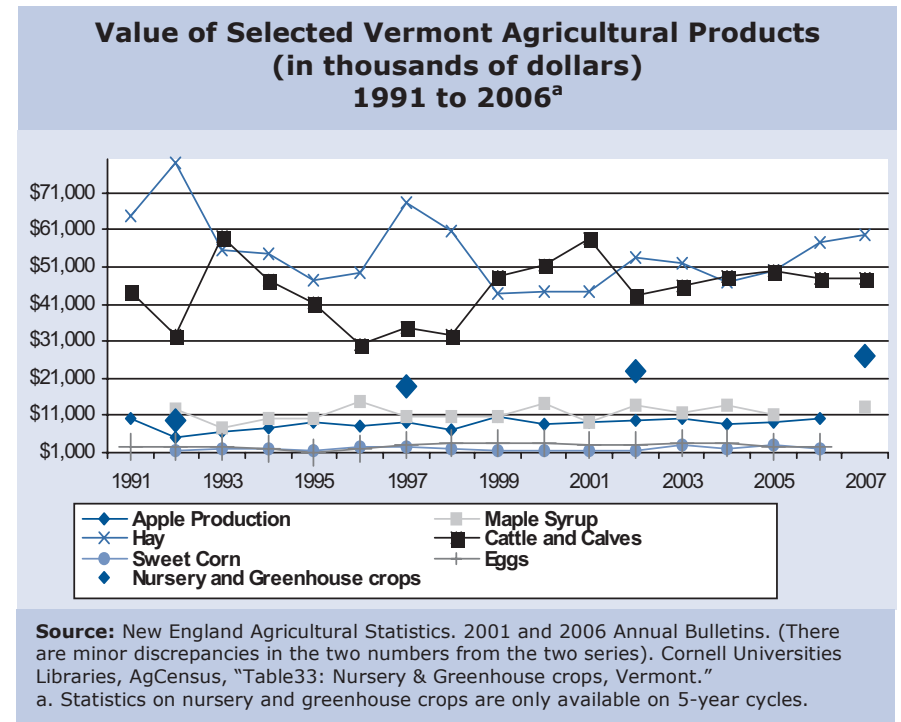
	Value (in thousands)	% of Vermont total
1. Milk	\$517,884	76.8
2. Beef cattle and calves	\$47,745	7.1
3. Greenhouse and nursery products	\$28,075	4.2
4. Hay	\$16,482	2.4
5. Maple products	\$13,095	1.9
6. Apples	\$10,620	1.6
7. Chicken eggs	\$4,091	.6
8. Sweet corn	\$3,672	.5
9. Turkeys	\$1,825	.3
10. Honey	\$403	.1

³⁴ U.S. Department of Agriculture. National Agricultural Services, "Table 56: Summary of Market Value of Agricultural Goods Sold: 2002."

³⁵ U.S. Department of Agriculture, Economic Research Service, "Vermont: Leading commodities for cash, 2006"

Vermont's agricultural products, with the notable exceptions of maple products and dairy, comprise a very small percent of U.S. output, all supplying well under 1/2 of a percent of national totals. In 2008, Vermont accounted for approximately 31% of the total maple syrup output crop, (500,000 gallons), the most for any state in the country. The next closest competitors to Vermont are New York (322,000 gallons) and Wisconsin (130,000 gallons).³⁶ Vermont has an ideal climate to produce maple syrup, but output varies significantly by year depending on precipitation, daily temperature swings, and atmospheric levels.

Sales trends from 1991 through 2006 rose for hay and greenhouse-nursery products, and are largely flat for the other agricultural products included in the chart below. All products, however, are subject to large year-to-year variations in the value of output. Any comparisons over time will be influenced by the choice of a starting and ending year.



³⁶ New England Agricultural Statistics, Maple Syrup, June 12, 2008.

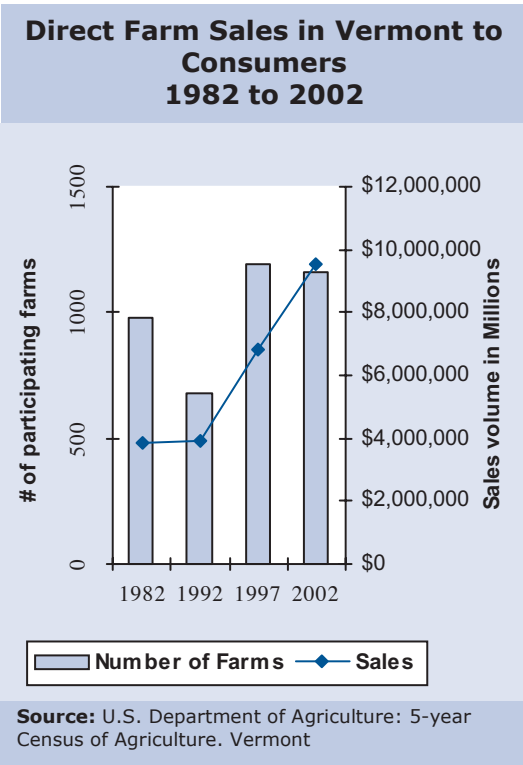
Livestock represents Vermont's second largest sector, and like other agricultural products, faces competitive challenges and unique strengths. One positive attribute is the recognition by much of the public, especially in New England, that Vermont products are grown or raised in one of the healthiest environments in the country. The Vermont Agency of Agriculture's "Seal of Quality" program was designed to promote the Vermont Brand. Vermont's small size and remoteness, the source of its strength, also present challenges. One such challenge is the long-term trend in the state's meat slaughtering and processing capacity. According to the Vermont's Agency of Agriculture, the state had 20 commercial slaughterhouses in 1985, dropping to 8 by 2001. Meat processing companies also have declined in number. Overall, Vermont's capacity to process its livestock can put farmers at a competitive disadvantage if they are forced to send their livestock out of state for slaughter or processing. A healthy livestock industry also supports tourism and the quality of life for all Vermonters by maintaining open fields and working landscapes.³⁷

Vermont has experienced an increase in the number of non-dairy organic farms. In 1993, there were 75 organic farms in the state, rising to 283 by 2007.³⁸ Vermont ranked 7th in the country in terms of the number of organic farms in 2005, and 17th in terms of the total certified organic acres in cultivation (48,759 acres of pasture and crop land).³⁹ As one might expect, the average sales from organic farms are considerably lower than non-organic farms, \$45,450 vs. \$71,993 respectively. Just as the dairy industry has helped to define the identity of Vermont for many years, the growth of organic farms holds out the promise of expanding Vermont agriculture's reputation and stabilizing farm incomes.

Trend Number 7: Direct sales to consumers and increased value added production, although still small, are becoming a more important source of revenue for Vermont farmers.

The health of Vermont's agricultural economy in the future will depend on the ability of farmers to differentiate their products; it is a challenge for farmers to compete on volume alone. The agricultural environment is likely to become even more competitive in the future with reductions in trade barriers and the continued expansion of larger Midwest and Western farms. Direct sales to Vermont consumers are one way that local farmers are differentiating their products. Farms can emphasize their community connections and the freshness of their products,

food attributes that are becoming increasingly important for consumers. The 2002 Census of Agriculture ranks Vermont 27th out of all states in this category, well above the state's ranking of national agricultural output (43rd nationally).⁴⁰ Direct sales to consumers have grown substantially over the last twenty years. The U.S. Department of Agriculture estimated that in 1982, \$3.8 million dollars of farm output was sold directly to consumers in Vermont. This number had reached \$9.6 million dollars or 4% of all agricultural sales in Vermont in 2002. Vermont farms have been able to accomplish this through a combination of farm stands (185 in 2006), farmer markets (93 in 2008, up from



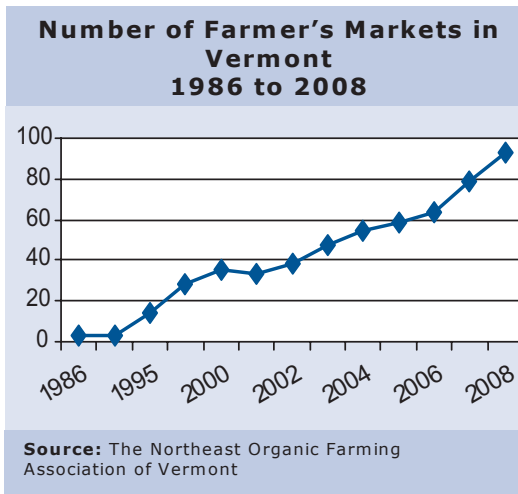
³⁷ Vermont Department of Agriculture, Food and Markets. 52nd, Biennial Report (2003-2004). Vermont Meat Product: 2007 and Beyond, Sam Comstock. University of Vermont Extension. February 6th, 2007.

³⁸ The Northeast Organic Farming Association of Vermont

³⁹ U.S. Department of Agriculture. Economic Research Service, "Organic Production."

⁴⁰ New England Agricultural Statistics, "State Rankings from 2002 Census." U.S. Department of Agriculture, Vermont Agricultural Statistics Service, "2002 Census of Agriculture State Profile."

3 in 1986), “pick-your own farms,” agri-tourism,” community supported agriculture—CSA’s (69 in 2008), and through the Vermont Fresh Network.^{41,42} The Network connects restaurants with local farmers, and promotes direct farm sales to hospitals, jails, schools, and workplace cafeterias. The trends in each of these areas are positive.



Another notable trend, in its early stages, is the growth in “on farm processing” in the dairy sector. In 1995, the Vermont Agency of Agriculture certified nine “on-farm” processors. Products such as cheese, milk and yogurt were being produced on dairy farms, and by 2008 the number of on-farm processes had increased to 37 and the range of products had expanded to include ice cream and butter.⁴³ In 2005, Vermont had 27 farmstead cheese producers, using their own milk from cows, goats, sheep and water buffalo to produce a product with a much higher value added than raw milk. While these are still very small-scale operations, Vermont has the highest number of farmstead cheese producers per capita in the country.⁴⁴ On-farm processors, along with artisan cheese makers, (specialty cheese makers who rely on milk from other farms), are able to connect directly to the consumer and produce a range of cheese products with significant value added. In the future, Vermont’s Cheese Trail, (a trail or roadmap that connects 37 specialty cheese producers) holds out the promise to create the type of positive economic benefits for the state as Napa Valley wine country does for California (perhaps on a more limited Vermont-based scale).⁴⁵

In sum, the most notable trends in Vermont’s agricultural economy are as follows:

1. The inflation adjusted value added output of farm products over the last decade in Vermont generally reveals no clear trend.
2. The number of Vermonters working on farms has decreased steadily, while the number of undocumented workers has increased. Employment levels have increased in food manufacturing and processing, support services and marketing.
3. The number of dairy farms has declined for many years, and the ones that remain are getting larger. They are still small, however, by national levels.
4. The number of organic farms, especially in the dairy industry has grown rapidly.
5. Vermont has experienced a notable increase in the number of small non-dairy farms.
6. Many of Vermont’s most important non-dairy agricultural products have displayed no clear trend in the value of output. However, the value of the output for many of the products is quite variable on an annual basis.
7. Direct sales to consumers and increased value added production, although still small, are becoming a more important source of revenue for Vermont farmers.

⁴¹ 2006-2007: Vermont Farmstand Survey. Jillian Abraham. Northeast Organic Farming Association of Vermont. Historical data does not appear to be available at this time.

⁴² Northeast Organic Farming Association of Vermont.

⁴³ Vermont Agency of Agriculture.

⁴⁴ Jane Sakovitz-Dale, Vermont Farmstead Cheese Marketing Study, 2006. <http://www.vhcb.org/pdfs/farmsteadcheesereport.pdf>

⁴⁵ Vermont Cheese Council: <http://www.vtcheese.com/cheesetrail.htm>

For the appendices and for pdf versions of this report, please visit the Council on the Future of Vermont's website; www.futureofvermont.org. or visit Vermont Council on Rural Development at www.vtrural.org.

The Appendix for this chapter contains the following charts:

1. Agriculture, Forest and Fishing, Value of Output (in millions), 1997 to 2007.
2. Average Age of Primary Operators of Vermont Farms, 1974 to 2002.
3. Average Number of Cows on Vermont Dairy Farms, 1974 to 2007
4. Milk Produced per Cow in Vermont and Selected Dairy States, (in Pounds), 2001 to 2007.
5. Value of Government Payments to Farms in Vermont, (Thousands of dollars), 1991 to 2006.
6. Changing Structure of Vermont Farms, 1974 to 2002.
7. Value of Milk Produced in Vermont, (millions \$), 1991 to 2006.
8. Employment on Farms and Related Industries in Vermont, 1981 to 2002.
9. Net Farm Income in Vermont, (Thousands of dollars), 1980 to 2006.
10. Number of Vermont Dairy Farms and Milk Production (millions of Pounds), 1980 to 2006.
11. Average Size of Vermont Farms, (in Acres), 1978 to 2002.

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December 2008

Chapter 6: AGRICULTURE ~ APPENDIX

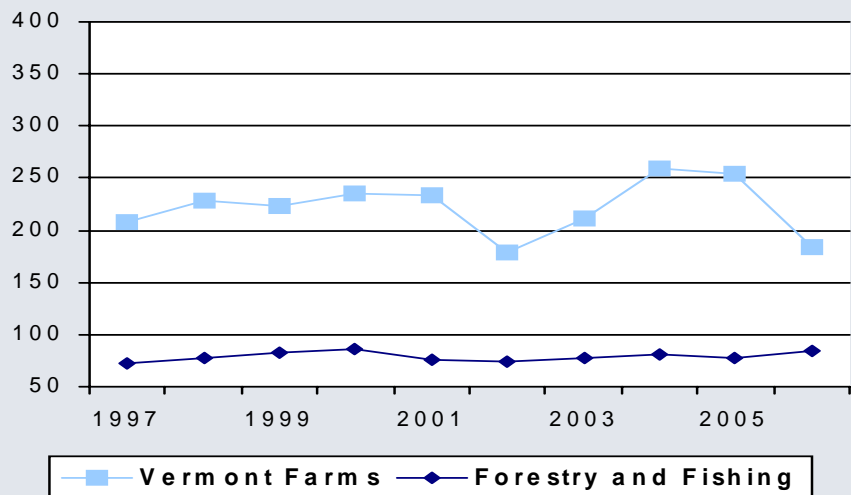
The Appendix for this chapter contains the following charts:

1. Agriculture, Forest and Fishing, Value of Output (in millions), 1997 to 2007.
2. Average Age of Primary Operators of Vermont Farms, 1974 to 2002.
3. Average Number of Cows on Vermont Dairy Farms, 1974 to 2007
4. Milk Produced per Cow in Vermont and Selected Dairy States, (in Pounds), 2001 to 2007.
5. Value of Government Payments to Farms in Vermont, (Thousands of dollars), 1991 to 2006.
6. Changing Structure of Vermont Farms, 1974 to 2002.
7. Value of Milk Produced in Vermont, (millions \$), 1991 to 2006.
8. Employment on Farms and Related Industries in Vermont, 1981 to 2002.
9. Net Farm Income in Vermont, (Thousands of dollars), 1980 to 2006.
10. Number of Vermont Dairy Farms and Milk Production (millions of Pounds), 1980 to 2006.
11. Average Size of Vermont Farms, (in Acres), 1978 to 2002.



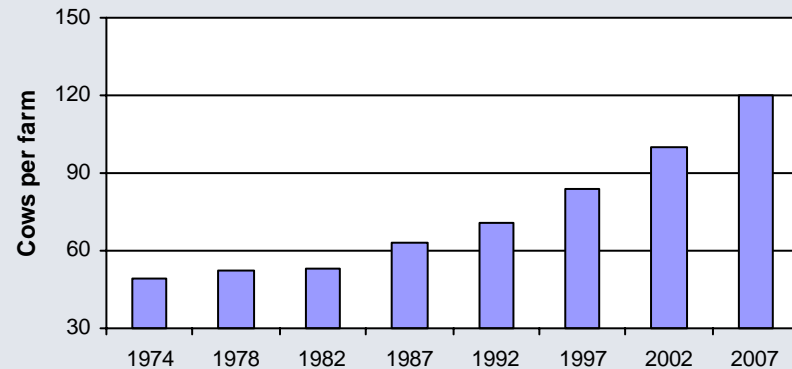
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Chart 6-1
Agriculture, Forest and Fishing
Value of Output (in millions)
1997 to 2007



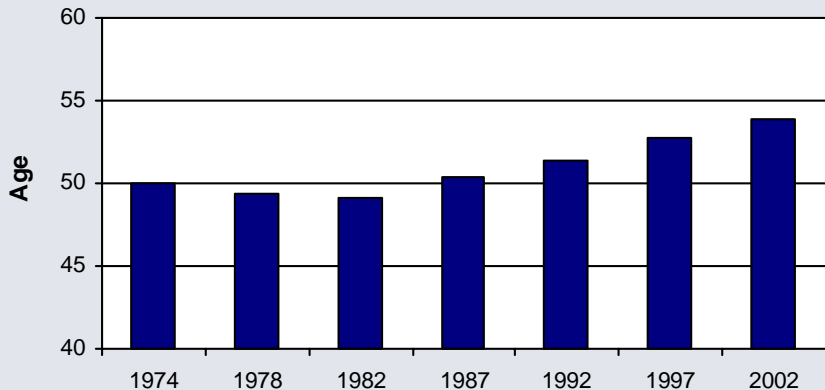
Source: U.S. Department of Commerce. Bureau of Economic Analysis

Chart 6-3
Average Number of Cows on Vermont Dairy Farms
1974 to 2007



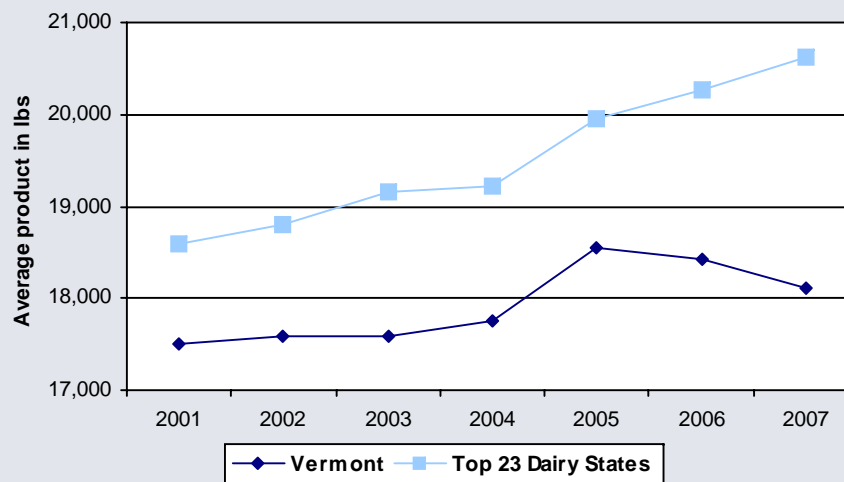
Source: Vermont Department of Agriculture, Food and Markets, Dairy Division, U.S. Department of Agriculture, National Agricultural Statistics Service, "Historical Highlights: 2002 and Earlier Census Years"

Chart 6-2
Average Age of Primary Operators of Vermont Farms
1974 to 2002



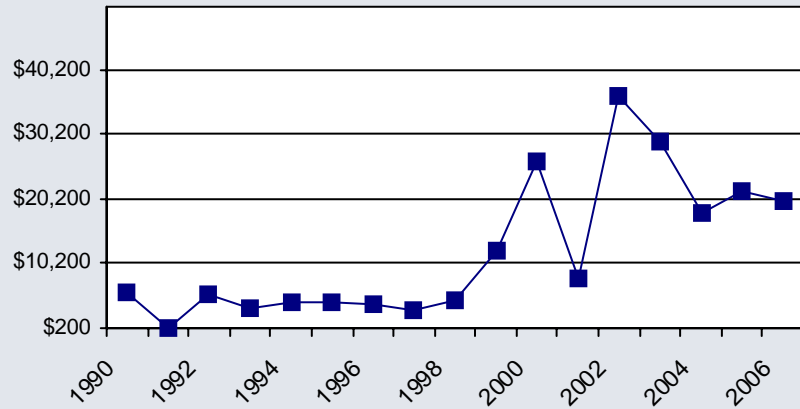
Source: U.S. Department of Agriculture. 2002 Census of Agriculture-State Data

Chart 6-4
Milk Produced per Cow in Vermont and Selected Dairy States (in Pounds), 2001 to 2007



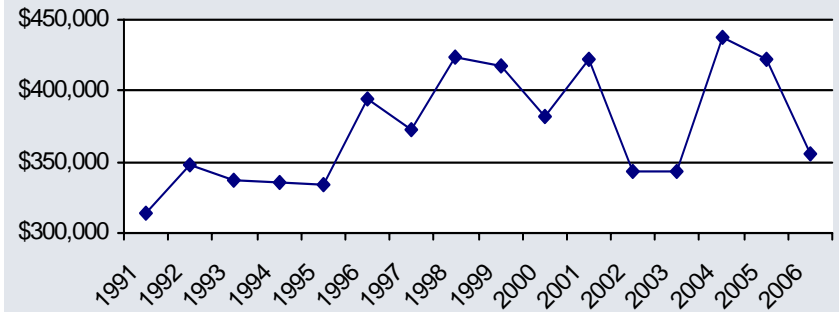
Source: Vermont Department of Agriculture (Internal spreadsheet).

Chart 6-5
Value of Government Payments to Farms in Vermont (Thousands of dollars)
1991 to 2006



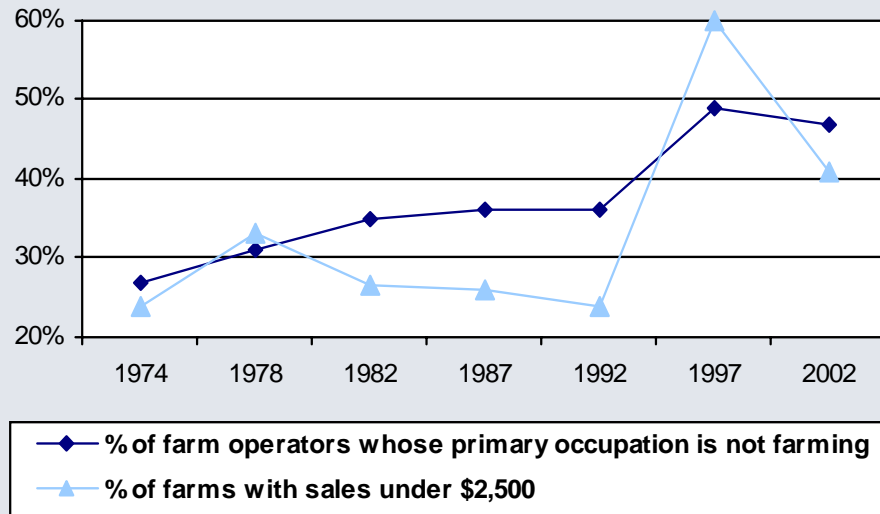
Source: U.S. Department of Agriculture. Economic Research Service.
<http://www.ers.usda.gov/Data/FarmIncome/FinfidmuXls.htm>

Chart 6-7
Value of Milk Produced in Vermont (1,000 dollars)
1991 to 2006



Source: New England Agricultural Statistics. 2001 and 2006 Annual Bulletins. (There are minor discrepancies in the two numbers from the two series)

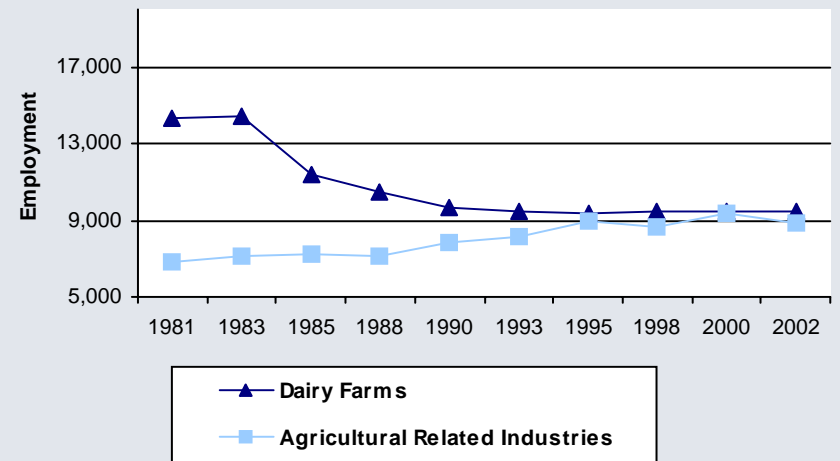
Chart 6-6: Changing Structure of Vermont Farms
1974 to 2002



◆ % of farm operators whose primary occupation is not farming
 ▲ % of farms with sales under \$2,500

Source: 2002 Census of Agriculture-State Data. Historical Highlights: 200-2

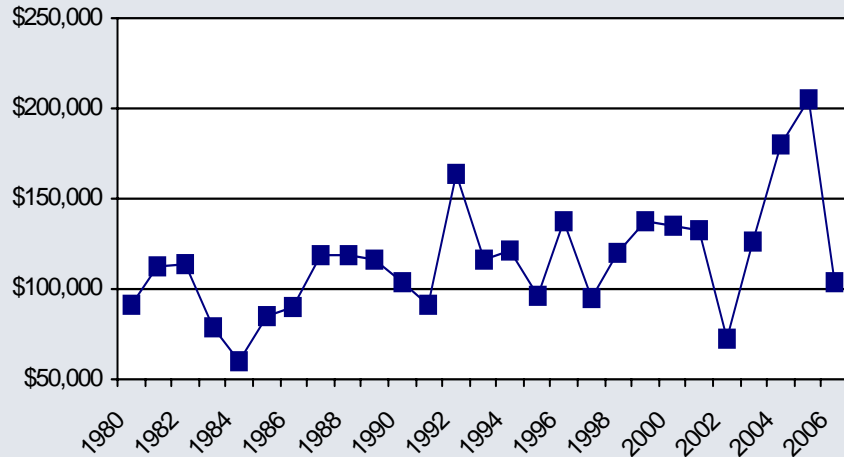
Chart 6-8
Employment on Farms and Related Industries in Vermont
1981 to 2002



▲ Dairy Farms
 ■ Agricultural Related Industries

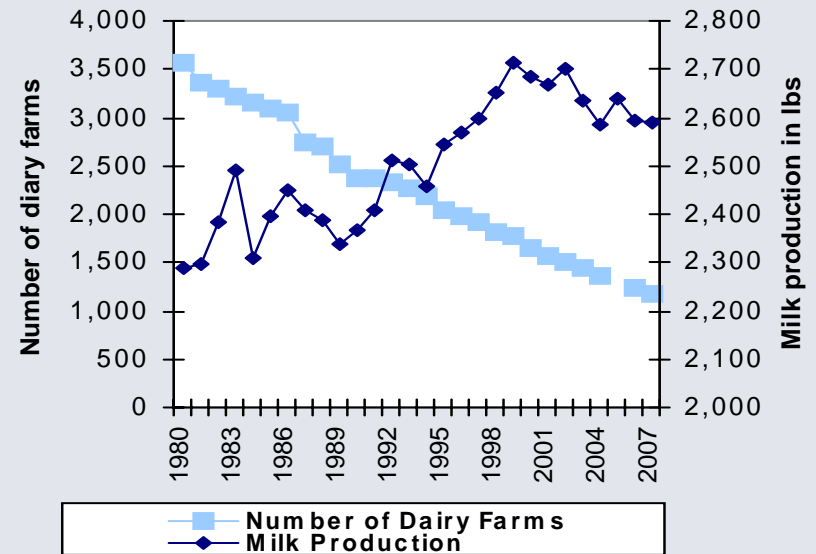
Source: U.S. Department of Agriculture: Economic Research Services,

Chart 6-9
Net Farm Income in Vermont
 (Thousands of dollars)
 1980 to 2006



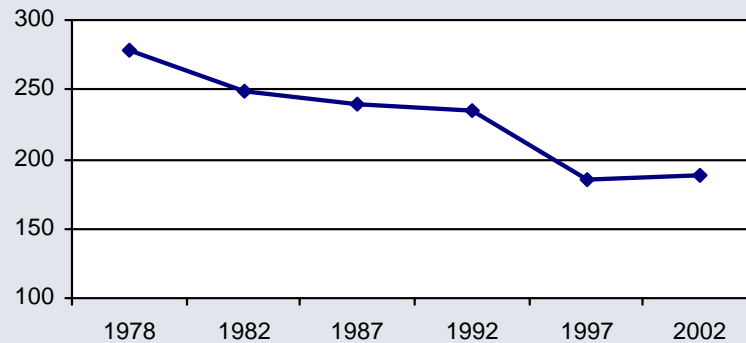
Source: U.S. Department of Agriculture. Economic Research Service.
<http://www.ers.usda.gov/Data/FarmIncome/FinfidmuXls.htm>

Chart 6-10
Number of Vermont Dairy Farms and
Milk Production (millions of Pounds)



Source: Vermont Department of Agriculture, unpublished chart, Vermont Dairy Production

Chart 6-11
Average Size of Vermont Farms
 (in Acres) 1978 to 2002



Source: United States Department of Agriculture. Economic Research Service. State Fact Sheets: Vermont