

# PRICE STABILITY AND ECONOMIC SUSTAINABILITY—ACHIEVABLE GOALS? A CASE STUDY OF ORGANIC VALLEY<sup>®</sup>

YE SU AND MICHAEL L. COOK

Organic Valley is the largest organic cooperative in North America, one of two national buyers of organic milk, and one of two national organic dairy manufacturers. The cooperative's official name is Cooperative of Regional Organic Producers, and it is organized as a new generation cooperative, owned and controlled by patron-members who also transact with the business. Organic Valley has a unique policy of sustainable and stable producer pay-pricing for organic milk in the emerging organic dairy industry. This case presents challenges faced by the leadership of Organic Valley cooperative to maintain a stable and economically sustainable pay price for its farmer members. This case also introduces students to a new organizational form of cooperative, including its governance, the industry, and the market structure in which the cooperative operates. The objective of this case study is to improve student understanding of economic concepts such as theories of the imperfect market, demand and supply, and organizational design. The case also aims to help students improve their critical thinking and analytical skills by exploring the possibility of maintaining a unique sustainable and stable pricing method through the data provided. Additionally, the story introduces the economic role that organic dairy operation might play for small and medium-size dairy farmers as they attempt to maintain an economically sustainable family farm lifestyle.

*Key words:* Demand and supply, economic sustainability, industry organization, stable price.

*JEL Codes:* A22, A23, Q01, Q11, Q13.

Originating from a bold idea, Organic Valley currently reigns as the largest organic cooperative in North America. In 1988, from the non-glaciated, hilly part of southwestern Wisconsin, seven progressive rural entrepreneurs started a courageous and visionary journey. The founders' original objectives were to create an organization that would provide farmers with stable pay prices and an economically sustainable family

farm lifestyle. For much of its 26-year history, Organic Valley has achieved this mission. However, in the past few years a more hostile economic environment has emerged to test the resolve of Chief Executive Officer (CEO) George Siemon and the Organic Valley leadership team. This case shares the evolution of a determined, idealistic group of mostly small rural producers as they lead a farmer-owned firm from nothing but a dream to a complex multi-pool international cooperative. The current quandary: can the original mission of Organic Valley—to simultaneously deliver a stable producer pay price and an economically sustainable family farm life style to member suppliers—be maintained?

In the agricultural sector, producers are usually price takers and have minimal influence in determining the price they receive for their output. Since 1995, conventional milk price has fluctuated year to year, and often on a monthly basis. Price volatility increases the uncertainty and risk in farming. These

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create difficult and complex decision making environments, especially for small farmers because they have relatively lower margins and risk-bearing ability than large farmers. Cook and Marion (1981) argue that the more stable a price is for a given commodity, the larger the proportion of small farmers that will remain in the industry. Unstable prices drive larger farmers to invest and force the small farmers out of business (Cook and Marion 1981). Organic Valley had a stable pay price policy throughout its history. Through chosen representatives, members contribute to the pricing decision. When assured of a stable pay price, it is assumed that farmers will concentrate on managing their production costs. However, when the costs of production increase to such a degree that their margins are zero or negative, farming is not economically sustainable under the stable price regime. This policy helps us understand the relations between stable pay price and economic sustainability.

The objective of this case study is to improve our understanding of economic concepts such as theories of the imperfect market, especially oligopsony models and their application to real world problems, and demand and supply theory. Further, we explore how factors that shift supply and demand affect prices, how conditions that control supply can affect and stabilize prices, and how innovative organizational forms enhance the probability of economic success. The case is also intended to help students improve their critical thinking and analytical skills by exploring the possibility of maintaining a unique sustainable and stable pricing method through the data provided. Additionally, the story introduces the economic role that an organic dairy operation might play for small and medium-size dairy farmers as they attempt to maintain an economically sustainable family farm lifestyle.

## The Evolution of Organic Valley

The 1980s was an economically difficult decade for U.S. farmers. The globalization of commodity markets, excess production, double-digit inflation, interest rates approaching 20%, and consolidation in the food processing and input supply industries converged to lower gross and net margins at the farm production level. During the latter

part of the decade many producers sold farm assets, combined operations with other families, restructured their operating and mortgage loans, suffered through foreclosures, or declared bankruptcy. In some instances, however, groups of farmers attempted to control their destinies by creating new organizational forms. This was the case of seven farmers near LaFarge, Wisconsin.

In late 1987, this group of farmers met to explore alternatives that might offer the opportunity to continue a way of life they did not want to forego. After four informal meetings, the Coulee Region Organic Producer Pool (CROPP) was founded in March 1988. This group's goal was to combine family farmers into a unified group to collectively market their organic output. They defined a family farm as "a farm owned and operated by families with a focus on protecting the land and supporting the community and rural economy for future generations," (Organic Valley 2013b). CROPP was organized with distinct marketing pools. Shortly after cooperative incorporation, they established an organic dairy pool.

The newly-formed group was quick to action. By 1990, the Organic Valley® brand was established and cheese was being marketed under the brand. Shortly thereafter, Organic Valley was marketing fluid milk. As the decade progressed, more organic products were added as the market opportunities appeared. By 2002, Organic Valley began marketing private label products, and within eight years private label output accounted for 25% of total revenue. Marketing branded, private label, and bulk products became the cooperative's three-pronged strategy (Organic Valley 2011). By 2014, the cooperative approached one billion dollars in revenue, and offered more than 500 products in the organic food market.

## Organic Valley: Organizational Structure and Operations

Organic Valley is structured as an international, multiple pool, centralized, and quasi-virtual closed membership agricultural marketing cooperative. The cooperative adds new members only when there is an increased demand for milk that cannot be met by current members. Organic Valley's marketing agreement requires members to



**Figure 1. Organic Valley producer map**

Source: <http://www.farmers.coop/producer-pools/cropp-producer-map/>.

deliver 100% of their milk to the cooperative, and has strict, enforceable termination clauses. Each member holds one share of Class A membership stock. This stock entitles members to a one-member, one-vote voting right.

In 1994, Organic Valley expanded its membership from Wisconsin into Minnesota and Iowa as it began the process of accessing raw material supplies regionally and then nationally. Consequently, the cooperative changed its name to the Cooperative Regions of Organic Producer Pools (CROPP) in 2001 to reflect a national organization with regional pools. Organic Valley now has members in 35 states, Australia, and three provinces of Canada (figure 1); the majority of their members are dairy farmers. In 2014, the cooperative was sourcing its organic milk from eight regional dairy pools<sup>1</sup> in 31 states

(New York, Northeast, Midwest, Northwest, Rocky Mountain, California, Southwest, and Southeast; Organic Valley 2013a). Such diverse membership enables the cooperative to build markets more efficiently, reduce the costs of production, and ensure a stable raw material supply. Currently, the cooperative is discussing possible further expansion of its global footprint (Preusser 2013).

“Self-funding has been a key to Organic Valley’s success,” (Organic Valley 2013c). This acceptance of membership responsibility permeates the Organic Valley culture as evidenced by the adaptation of self-funding equity capital acquisition policies and practices. From the beginning, Organic Valley issued preferred stock with a \$50 face value and a maximum 8% interest rate or premium

and contributors receive average net payments. Typically, each grower’s products lose their identity and are treated collectively as one lot by grades. All producers receive the same average price for the specific grade. Multiple pools determine proceeds on the basis of two or more grades, varieties or periods.”

<sup>1</sup> A definition of pooling taken from the textbook of Cobia (1989): “Pooling is a method of handling products whereby lots of the same product from different producers are combined by grade

**Table 1. Organic Food Sales in the United States (2002–2012)**

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Total sales*	8.6	10.4	12	14.2	17.2	20.4	23.6	24.3	26.7	29.2	31.3
Growth rate	17.3%	20.9%	15.4%	18.3%	21.1%	18.6%	15.7%	3.0%	9.9%	9.4%	7.1%

Source: Nutrition Business Journal 2012. Asterisk indicates that the numbers are presented in billions of dollars.

in 1988 and 1989. They borrowed working capital from banks by pledging farmer members' assets as collateral in the early years of the cooperative. Beginning in 1993, the cooperative initiated a base capital plan and required each member to invest 5.5% of the member's annual sales in the cooperative. This retained capital becomes Class B stock and earns 8% interest annually. The cooperative also issued Class C and Class E nonvoting preferred stock with varying rates of dividends to members and outside investors in 2004, 2009, and 2013. All stock is transferrable, except Class A voting shares, with approval of the board of directors.

From the beginning, Organic Valley's strategy for rapid growth was to outsource processing through strategic alliances. The cooperative owns two processing plants. It contracts with regional processing plants to process fluid milk in specific production pool regions. These partnerships are derived from the cooperative's general strategy "[T]o build the business and then the buildings - build Organic Valley by identifying co-pack plants to work with us," according to George Siemon, CEO and founding member of Organic Valley. This co-packing strategy saves Organic Valley from investing large amounts of capital in fixed assets.

A board of seven directors, elected at large from the cooperative's membership, governs the cooperative. Board members meet once per month to discuss the cooperative's business. Executive committees, one for each commodity pool, report to the board of directors. Each commodity pool is divided into regional pools based on geographic locations. Representatives to executive committees are elected regionally. Executive committees are important to Organic Valley's governance in that they serve as a two-way conduit, communicating members' concerns and recommendations to and from the board. The dairy executive committee has monthly conference calls to discuss pay price, feed costs, or other members' concerns. A professional management team is

responsible for day-to-day operations of the cooperative.

### Background: Organic Industry

Sales of organic food in the United States increased from \$1 billion in 1990 to \$31 billion in 2012 (table 1). The U.S. organic food sector is largely driven by consumer demand (Greene et al. 2009; Dimitri and Oberholtzer 2009). About three-quarters of U.S. consumers purchase some organic food each year, and one-quarter of consumers purchase organic food monthly. In order to assure national standards, the U.S. Congress passed the Organic Food Production Act in 1990. This law established the National Organic Program (NOP), which created uniform national organic food standards that were implemented in October 2002 (National Organic Program 2014).<sup>2</sup>

Due to higher production costs for organic food and to increasing consumer demand, organic food has commanded a significant premium over comparable conventional food products since 2000. For example, a half-gallon of organic fluid milk generated a 60–109% premium over conventional branded milk in 2006 (Smith, Huang, and Lin 2009). In the 1990s, most organic food was sold in natural and specialty stores. By 2011, only 38% of organic food was sold in this category of store, and 55% of organic food was sold through traditional food retailers (Organic Trade Association 2012).

Organic dairy is the second largest segment of organic food after organic produce. Sales of organic dairy represented 16% of total organic food sales in 2012 (Organic Trade Association 2013). Organic dairy sales increased from less than \$500 million in 1997 to about \$3.9 billion in 2012. Sale of

<sup>2</sup> U.S. organic standards and certification information is provided in supplement 5.

organic milk decreased in recession-riddled 2008–2009, but increased again starting in 2010.

### Organic Milk Processors

The United States has two national organic milk buyers and processors: Horizon Organic, a subsidiary of WhiteWave Foods, and Organic Valley, a cooperative. These two rivals compete in organic milk procurement and organic dairy wholesale and retail markets. Both Organic Valley and Horizon Organic invest heavily in brand building, customer loyalty, quality, new product and new package development, and market analysis. In 2004, the organic fluid milk market share was 42% for Horizon Organic and 36% for Organic Valley; in 2007, these figures were 33% and 19%, respectively (Dimitri and Venezia 2007). Their initial success encouraged the entrance of numerous local and regional enterprises, leading to the declines.

Horizon Organic, founded in 1990, was the first company to market fluid organic milk nationally. It was acquired in 2004 by Dean Foods and operated under the WhiteWave Foods Division until 2012, when Dean Foods spun off WhiteWave Foods as an independent company. WhiteWave Foods is a natural and premium food processing company owning well-known brands such as Silk, International Delight, Earthbound Farm Organic, Horizon Organic, and the European brand Alpro. Net sales of WhiteWave Foods in 2013 were \$2.5 billion (WhiteWave Foods 2014). In 2013, Horizon Organic was the number one brand in organic dairy products, with 43% of the U.S. market share in organic fluid milk.

Organic Valley is the second largest organic milk processor (details are embedded in other part of this case). The third-largest organic milk processor is Aurora Organic Dairy, a private company located in Boulder, Colorado; it is vertically integrated, comprising large dairy farms and a processing facility. The main products of the company are privately labeled organic milk and butter (Aurora Organic Dairy 2014). Stonyfield is a premium organic yogurt processor located in New Hampshire, which sources milk from Organic Valley and independent producers. Other processors with brand recognition

include MOO Milk in Maine, Trickle Springs, and Natural by Nature in Pennsylvania. Besides these prominent organic milk companies, about 50 smaller organic milk buyers or processors operate in the United States. Some of them are family-owned-and-operated facilities, and others are local or regional factories or cooperatives that handle both organic and conventional milk.

### Organic Milk Supply

The National Organic Program, passed in the early 1990s but implemented in 2002, requires a three-year period for land, and one year for dairy cows to make the transition from conventional to organic production. Only 400 dairy cows, were certified as organic in 2004 due to the newly-enforced regulation (National Agricultural Statistics Service 2012). Since then, the number of certified organic dairy cows has grown gradually. By 2014, the total number of certified organic dairy cows in the United States had increased to over 235,000 (table 2). In 2013, Organic Valley's membership included 50% of all certified organic dairy cows and Horizon Organic had contracted with or owned 24% of U.S. certified organic dairy cows.

There were approximately 2,000 organic dairy farms in the United States in 2008 (National Agricultural Statistics Service 2012). Wisconsin has the largest number of organic dairy farms, but California provides the largest volume of organic milk. Of the 381 organic dairy farms in Wisconsin in 2011 (National Agricultural Statistics Service 2012), 292 are members of Organic Valley (figure 1). The average herd size is 90 cows for Horizon Organic producers (Horizon Organic 2014), and 77 cows for Organic Valley (Organic Valley 2014d). At the beginning of 2011, Organic Valley's membership included 1,144 dairy farmers. Horizon had 531 contracted farmers and two company-owned farms (table 2). In December 2013, Horizon Organic sold its 4,000-cow farm, but contracted with the buyer to purchase the milk (Cornucopia Institute 2014). By 2013, 1,530<sup>3</sup> dairy farmer members were affiliated with Organic Valley and Horizon Organic contracted with 600 dairy farms.

<sup>3</sup> This is the latest number from the Organic Valley 2013 Annual Report, which is greater than the number in figure 1.

**Table 2. Certified Organic Dairy Cows Supplying U.S. Organic Valley and Horizon Organic (2007–2013)**

	2007	2008	2009	2010	2011	2012	2013
Total certified cows in U.S.	166,178	249,766	n/a	254,579	254,771	n/a	235,620**
HO farms	400	500	n/a	533	n/a	n/a	600
HO cows	40,000	49,000	n/a	51,790	n/a	n/a	57,400
HO percentage of total	24%	20%	n/a	20%	n/a	n/a	24%
OV dairy farms	N/A	1037	1098	1144	1366	1507	1530
OV cows	69,300	79,849	84,546	88,088	105,182	116,039	117,810
OV percentage of total	42%	32%	n/a	35%	41%	n/a	50%*
Growth rate of OV farmers	n/a	15%	6%	4.2%	19%	10%	1.5%

Note: HO = Horizon Organic; OV = Organic Valley. \* Organic Valley, 2013. \*\*CROPP Cooperative Roots - the First 25 Years"; \*\* Calculated based on Organic Valley data. Source: Horizon and Organic Valley data are taken from their websites. U.S. data are from the USDA Economic Research Service.

## Organic Milk Pricing

U.S. conventional milk prices are primarily market-driven, but regulated by the Federal Milk Market Order (FMMO) System. FMMO announces a blended minimal milk price each month for non-organic milk. Organic milk prices are largely determined by market conditions. The two major organic milk processors, Organic Valley and Horizon Organic, forward contract with their milk producers. Horizon Organic and Organic Valley's pricing protocols include four basic elements: a base price, seasonal premium, seasonal deduction (Organic Valley only), and market-adjusted premium.

Horizon Organic contracts with farmers for one to three years by setting prices with individual farmers confidentially (Horizon Organic 2007). Horizon Organic changed its market-adjusted premium (MAP) to reflect market conditions and production costs. Further, it has the sole right to reduce the pay price, based on market conditions with 30 days' written notice to its producers if the proposed price change is less than 25% (Northeast Organic Dairy Producer Alliance 2011).

Organic Valley's farmer members collectively determine their pay price for the upcoming year based on current costs of production and a fair return (Organic Valley 2014c). This pay price is announced early in the calendar year and is fixed for one year. Members within the same region receive the same price regardless of herd size. If market conditions or cooperative performance change within a given year, the board of directors has the right and responsibility to adjust the pay price. The historical base prices for Organic Valley have been consistently set higher than the base prices for Horizon Organic. Nevertheless, with added premiums, the two rivals' final annual pay prices generally converge. Final average differences range between 25¢ to \$1.16/cwt (cwt = hundred lbs.) over the last seven years, as evidenced in table 3.

The observed base farm price for organic milk is more stable within a given year and also more stable in the long run than the conventional milk price. For the past 25 years, farm prices for organic milk increased each year, except 2008 and 2009. Even though the overall trend for conventional milk pay prices has been increasing, prices fluctuate year to year (figure 2). The largest difference

**Table 3. Organic Milk Pay Price for Organic Valley and Horizon (2007–2013)**

Year	Organic Valley (\$/cwt)*						Horizon Organic (\$/cwt)*							
	2007	2008	2009	2010	2011	2012	2013	2007	2008	2009	2010	2011	2012	2013
Base price	26	28.75	27.3	27.3	27.3	28.8	28.8	24	25	25	25	25	25	25
MAP					1	1	1	2	2.5	2	1	2.5	2.5	3.5
Seasonal MAP			2	2	3	3	3	1.5	3	4	3	3	3	3
Summer deduction		-1	-1	-1	-1	-1	-1							
Average	26	28.25	27.17	27.5	28.8	30.55	30.55	26.5	28.5	28.33	27	28.5	29.5	31.5

*Note:* Asterisk indicates the Northeast regional price; Organic Valley charges a flat hauling fee for each member, and pays all members in the same region the same price, with no volume premium. MAP = market adjustment premium. Organic Valley also has regional premiums based on the cost of production. In the Northeast region, the premium was \$3.25 in 2013; it has 11 regional premiums. Both firms offer component prices and quality premiums.

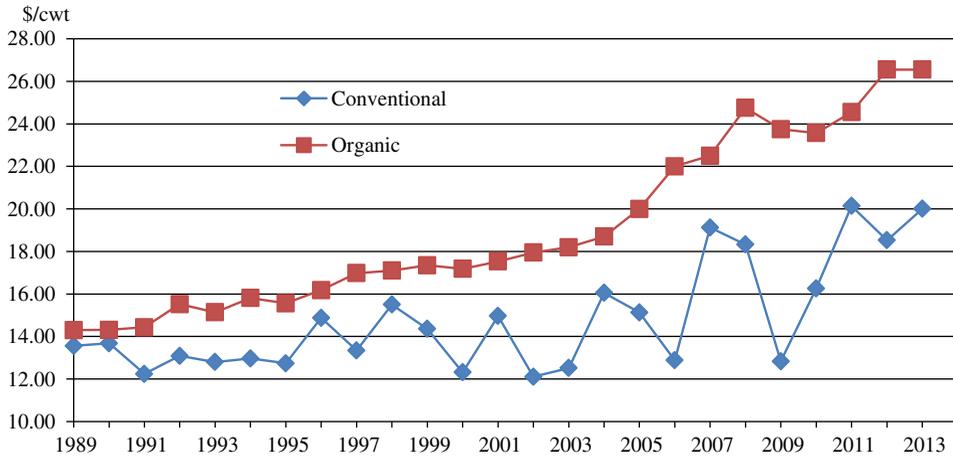
between organic and conventional milk prices was \$10.90 in 2009. This difference decreased to \$6.50 in 2013. The fluctuation in differences is primarily caused by variation in conventional milk prices. Comparing coefficients of variation (CV) for a five-year moving average between farm prices for organic and conventional milk, we observe that the CV values of conventional milk are much larger than the CV values for organic milk. The ranges are 16% for conventional and 10% for organic, and the means of these two CVs are significantly different at the 1% level (figure 3). The CV is explained in figure 3 (lower CV values mean less variation).

Organic Valley’s base price is fixed at the beginning of the calendar year, but the cooperative pre-announces a one-dollar summer deduction in May, June, and July to balance the burden of the spring flush. Moreover, Organic Valley provides incentive payments in addition to its base price in January, February, and December (e.g., \$2.00 in 2009 and 2010, and \$3.00 per cwt from 2011 to 2013). Therefore, the actual monthly pay prices may vary from month to month (figure 4), but the producers are aware of these adjustments in advance. The price range paid to producers for organic milk between 2008 and 2013 was \$5.98, compared to \$10.80 for conventional milk during the same period.

**Organic Valley’s Balancing Act: Farmer Pay Price Stability**

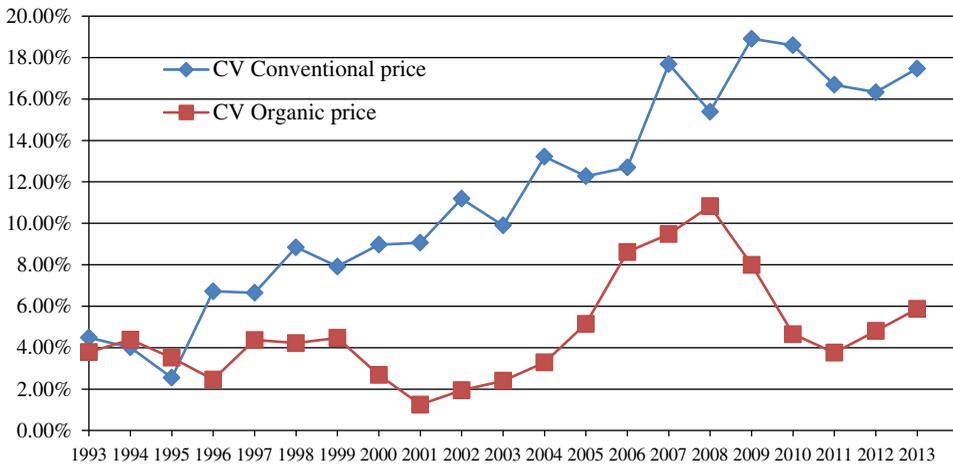
“Supply management is a critical part of maintaining our sustainable approach. The products our farmers produce must be utilized organically to ensure the premiums we all want for our labors. We want to maintain our stable price structure, and a key piece of this is providing the business with a stable and predictable level of production,” (Peters 2009).

From the founding of Organic Valley in 1988 until 2004, the growth of supply and demand for organic milk was mostly balanced. However, from 2004 (following the implementation of the organic standards regulations; fewer cows were certified after the new regulation) through 2008, demand for organic milk exceeded supply. This net margin opportunity became attractive to rivals. As a result, Dean Foods acquired



**Figure 2. Annual farm price for organic and conventional milk (1989–2013)**

Sources: Organic milk price is Organic Valley’s base price; conventional milk price is the milk price from the USDA Economic Research Service.



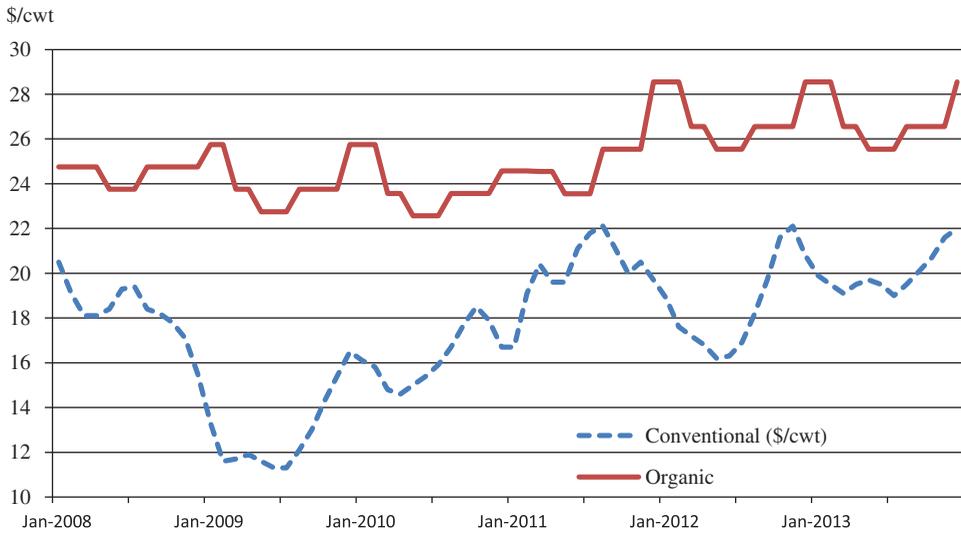
**Figure 3. Coefficient of variation (CV) for 5-year moving average of price**

Note: The coefficient of variation is defined as the ratio of the standard deviation to the mean and informs the comparison of variations between different samples.

Horizon Organic, and HP Hood licensed the Stonyfield brand for fluid organic milk. These transactions resulted in increased competition in the organic milk market, especially in milk procurement. Because of rapid growth in demand and lagged response in supply, Organic Valley was not able to supply all of its customers. Due to this tight supply-demand situation, Organic Valley decided to stop supplying 15 customers—including Wal-Mart, its third-largest customer at the time—to ensure supply for its core natural food store customers (Pattison 2007).

The economic recession of 2008–2009 brought an end to excess demand for organic milk. During 2008–2009, real per capita disposable income in the United States decreased by 1.3% and real consumption of food and beverages decreased by 1.5% (table 4).<sup>4</sup> In addition, the price of conventional milk decreased to about one-third the

<sup>4</sup> Previous studies suggest that organic fluid milk is more price and income elastic than conventional milk, and income has a positive effect on organic fluid milk consumption (Dimitri and Venezia 2007; Alviola and Capps 2010). Alviola and Capps (2010) report that income elasticity is 0.2672 for organic fluid milk, and –0.0135 for conventional milk, with price elasticity of –2.0046 for



**Figure 4. Monthly organic and conventional milk farm prices (2008–2013)**

Sources: Organic milk price is from Organic Valley; conventional milk price is from the USDA Economic Research Service.

**Table 4. Real Consumption Expenditure on Food and Beverage, Real per Capita Income Change, and Organic Fluid Milk Sales Change**

	2007	2008	2009	2010	2011	2012	2013
Real consumption change from previous year (%)	1.34	-1.19	-1.52	2.15	1.57	1.32	1.34
Real per capita income change from previous year (%)	1.15	0.59	-1.34	0.29	1.65	1.28	0.03
Annual sales of organic fluid milk (millions lbs)	1413	1676	1605	1810	2074	2156	2267
Annual sales change of organic fluid milk from previous year (%)	33.05	18.61	-4.24	12.77	14.59	3.95	5.15

Sources: Real Personal Consumption Expenditures by Major Type of Product, Quantity Indexes, Bureau of Economic Analysis, and the USDA Economic Research Service.

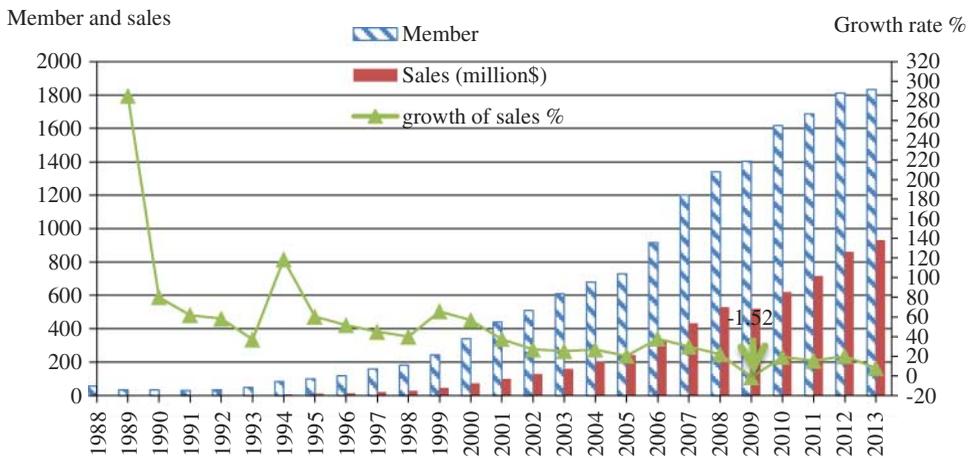
price of organic milk (Siemon 2010). The per capita income difference and the price gap between organic and conventional milk caused total sales of organic fluid milk to drop by 4% in 2009.

Due to the economic recession sweeping the nation in 2008–2009, Organic Valley’s 20% annual sales growth came to a screeching halt and its national average annual pay price decreased from \$28.05 to \$27.25/cwt

from 2008 to 2009, the first decrease since 2000 (Organic Valley 2010). Organic Valley’s total sales revenue in 2009 decreased by 1.5% (figure 5). However, the organic milk supply headed in the opposite direction. In early 2009, the supply of organic milk continued increasing for the first eight months (higher than projected), thus increasing inventories and related costs. A potential crisis at Organic Valley loomed. The cooperative’s values, policies, and practices would be tested.

To address this excess supply situation, Organic Valley’s leadership considered three options: 1) recalculate the pay price based on actual monthly organic milk utilization; 2) terminate the membership of recently-accepted members; 3) collectively reduce

organic milk and -0.8729 for conventional milk. When income decreases, consumers substitute more inexpensive milk for more expensive milk (Dong and Stewart 2013). Sales of Organic Valley branded products decreased during the recession, but private label sales increased. These trends are consistent with the previously mentioned studies.



**Figure 5. Organic Valley members and sales (1988–2013)**

Source: Organic Valley website <http://www.organicvalley.coop/>.

production. The board acted quickly and decisively. After discussion and communication with members, the board of directors adopted the third option and recommended a quota system. The quota program required that each farmer reduce deliveries by 7% based on the average of the farmer's previous three years of milk production. Farmers were allowed to deliver more milk, but the over-quota milk was priced at \$15, considerably less than the annual pre-announced base price. The supply of organic milk decreased in September, and was significantly lower than projected for the following three months, making projected and actual supply growth converge. The pay price remained unchanged. As a result of the quota program, organic utilization increased to 94%, inventory was reduced 25%, from 12.2 to 9.2 million pounds, and the quality of the milk delivered by farmers increased. Total milk delivered in 2009 increased by 1% from 2008 instead of a projected 3.7%, and customer complaints decreased due to the higher quality of the milk (Organic Valley 2010). The quota was enforced from July 2009 to July 2010 for most farmers, and until September 2010 for new members from HP Hood, and until December 2010 for West Coast farmers (Organic Valley 2011). All farmers managed their way through the crisis and no one left the cooperative. "The farmer-owners stepped up by providing leadership and sacrificing income to safeguard our long-term strategy," (Organic Valley 2010). The direct effect of the crisis on the organic milk processing industry

was dramatic. One of the large players, HP Hood, decided to leave the industry, and Organic Valley took over almost all members of HP Hood.

Due to the pre-announced pay price, Organic Valley did not decrease its wholesale price in 2009 and 2010 as Horizon Organic and other processors did. In an attempt to maintain market share, the cooperative spent an additional \$3 million on product promotion. The market share for Organic Valley's half-gallon fluid milk decreased by 10%, but private label and bulk sales increased due to the substitution effect (Organic Valley 2011).

Overall, 2010 was a successful year for Organic Valley. Sales increased by 19% over 2009, and the number of members increased 14% from 1,404 to 1,607. Although the quota was enforced for the first half of the year, the cooperative met its expected profit goal, which enabled the cooperative to renew its profit sharing program (Organic Valley 2011).

However, not all news was positive. During the recession, organic feed prices decreased between August 2008 and July 2010. In response, some organic grain farmers converted to conventional operations due to higher margins for conventional grain and lower margins for organic grain (Silva et al. 2012). Severe weather in 2011 and 2012 in organic grain growing areas also diminished grain and feed yields. These factors reduced the supply of organic grain and feed. As a result, organic feed prices skyrocketed in 2011 and 2012. Organic livestock farmers,

especially those who do not produce feed, were greatly affected by the high feed prices. Consequently, in the summer of 2011, a combination of these high feed costs and dry summer weather reduced organic milk supply significantly (Link 2012).

Although the price of organic feed increased, Organic Valley's milk pay price remained fixed. The margin for organic milk was squeezed. Therefore, organic dairy farmers fed their herds less grain, leading to reduced milk production. As a result, the organic milk supply decreased in late 2011 and 2012. Retailers and consumers clamored for organic milk. In response to high feed costs, Organic Valley raised its pre-announced base pay price by \$2.00 for the year 2012. However, this increase still did not cover the extraordinarily high feed costs. Consequently, some farmers sold part of their herds, and some fed them less, or lower-quality, feed. Further, a small number of farmers converted to conventional operations (Tampa Tribune 2012). These decisions further reduced organic milk supply. By late 2013, the average pay price for organic farmers in the Northeast was approaching the mid-\$30 range, but the profitability of many farmers continued to be unsustainable (Parsons 2013).

In June 2013, Stonyfield announced that it would begin sourcing a small portion of its milk from local organic dairy farmers rather than from Organic Valley (Lundgren 2013). Stonyfield is one of Organic Valley's largest customers, and was purchasing approximately 25% of Organic Valley's total milk volume, representing 13.5% of Organic Valley's total sales in 2011 and 10.5% in 2012. Additionally, Organic Valley had licensed the Stonyfield fluid milk brand since 2010. In 2011, Organic Valley's sales of Stonyfield milk represented 9.0% of the cooperative's total sales and 8.5% of its milk supply. In 2012, these figures dropped to 8.0% and 7.4%, respectively (Organic Valley 2013b).

Stonyfield's future actions regarding organic milk supply will have a profound effect on Organic Valley's milk procurement and utilization. As a preemptive move, in August 2013, Organic Valley farmers received notice from their cooperative that a second supply management quota would begin in October 2013. However, at the last moment, the quota was cancelled when the excess supply forecast was not realized (Organic Valley 2013c).

High feed costs, extreme weather, and rivals' tactics and strategies are putting farmers under extreme financial stress and are making it more difficult for Organic Valley's leaders to set a stable milk purchase price. Both undersupply and oversupply of organic milk challenge the cooperative's pay price and profit levels (Organic Valley 2012). Organic Valley and its farmers have experienced wide swings, particularly in the last ten years. Organic milk supply was short in 2004, 2011, and from August 2013 into early 2014. In contrast, the industry and Organic Valley were in an oversupply situation in 2009 and 2010. This increasing volatility creates a dilemma for Organic Valley's leadership since much of the cooperative's original appeal was based on a platform of family farm economic sustainability and stable pay prices.

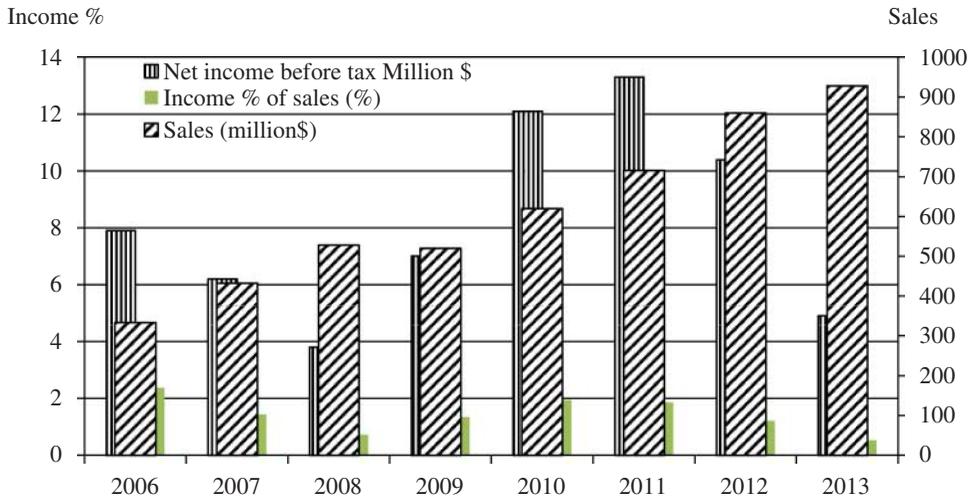
### **Organic Valley's Balancing Act: Family Farm Economic Sustainability**

Organic Valley promotes social, environmental, and economic sustainability. Economic sustainability is the root and mission of Organic Valley, and drives the operation of the cooperative.

#### *Organic Valley's Economic Sustainability*

"The continued success of the cooperative's branded products is the foundation of a sustainable pay price to farmers," said Mike Bedessem, Chief Finance Officer (Organic Valley 2014a). The cooperative invests heavily in marketing branded products to increase the reputation of Organic Valley and deepen brand loyalty. Organic Valley differentiates itself from investor-owned firms by emphasizing its farmer-owner roots and by involving member farmers in sales, marketing, and consumer awareness events. In addition, Organic Valley invests heavily in consumer research and marketing, and applies a three-pronged sales strategy to increase its organic utilization and improve revenue.

Organic Valley's revenues increase during most years, but net income is more variable (figure 6). At the beginning of each fiscal year, the board of directors sets a profit target for the cooperative. Historically, the profit level is set to return approximately 2% of sales. Once the profit target is met, the cooperative shares additional profits with



**Figure 6. Organic Valley net income and growth rate (2006–2013)**

Source: Organic Valley Website <http://www.organicvalley.coop/>.

employees, members, and their communities. In 2006 and 2010, Organic Valley met its profit target, so farmers received a 13<sup>th</sup> payment, in addition to the cooperative's normal monthly payment. However, profits dropped substantially in 2013 to only 0.5% of sales, far below the expected 2.4% level. This variability and level of return concerns Organic Valley's leadership.

Another concern for Organic Valley's board and management is leadership succession. Well-managed leadership succession, especially at the senior management level, is essential for the long-term sustainability of Organic Valley. Many of the cooperative's senior managers have worked at Organic Valley for more than 10 years and have collectively instilled the organization with a unique culture. CEO George Siemon is one of Organic Valley's founding members. Dairy Pool Director Jim Wedeberg is also a founding and active member. Chief Operational Officer Louise Hemstead started working at Organic Valley in 1993 and is also an active member. Finding qualified replacements for these senior managers who are approaching retirement is critical to maintaining Organic Valley's long-term vision, as well as long-term growth. Acknowledging this concern, the Organic Valley board increased the budget for staff training and started an annual farmer leadership symposium in 2011.

#### *Interdependency of Price Stability and Economic Sustainability*

During the 1990s, family farmers were forced to exit farming due to low margins generated from production agriculture. Organic produce prices offered a substantial premium over conventional produce prices and a promising market opportunity. High price and strict cost controls were the key factors for survivability in a depressed production agricultural sector. For Organic Valley's members, economic sustainability means that farming can provide enough profit for farmers to make a living, so farmers can stay on their land and maintain farming as a profession, a career, and a lifestyle. In addition, the next generation of farmers could remain in production agriculture if they so choose.

The tool Organic Valley adopted to provide economic sustainability is the stable farm gate price policy, which states that the farm pay price is determined by farm members and based on what the farmers actually needed to generate a reasonable income (Organic Valley 2014b). Through this yearly consensus building process, Organic Valley sets the target pay price for organic milk, which is considered economically viable for the sustainability of organic dairy farmers. This pricing method is considered unique and progressive by incorporating farmers' input into the price-setting process.

Organic Valley farmers feel they are in a better position to control their costs of production than to control product market pricing. By setting the organic milk price one year ahead, organic dairy farmers concentrate on improving farm management practices and strategies to control their production costs. The fundamental goal of Organic Valley, that is, to provide a stable and economically sustainable pay price, complements their practice of paying farmers first and operating on the remainder.<sup>5</sup>

#### *Farmer Members' Economic Sustainability: Is Organic Dairy Economically Sustainable?*

Due to increasing consumer demand, organic milk sales and margins increased dramatically before the 2009 U.S. economic recession. Indeed, organic dairy farmers had better economic returns than their counterparts operating in the conventional milk industry (Krieg 2007; Kilman and Reddy 2012). During this period, numerous conventional milk producers converted to organic dairy operations and experienced significant improvement in financial returns (McCrary and Parsons 2013b; McCrary et al. 2013; McCrary and Parsons 2013a).

The economic recession decreased consumer demand for both organic and conventional dairy products. The organic dairy farmers' revenue decreased by 10% on average, but conventional dairy farmers' revenue decreased by 40% in 2009 (Barham 2010). A major reason that the organic dairy farmers had higher returns was because of Organic Valley's supply control program. Through the self-imposed quota system, Organic Valley was able to maintain a higher and stable pay price. Exhibit 12 provides an example.

The period between 2009 to 2013 was economically difficult for conventional and organic dairy farmers. This is especially the case for small farmers because of their relative cost disadvantage. Nationally, organic and conventional dairy farms of all sizes saw a negative net return during this period, except for farms with more than a thousand cows (table 5 and see supplement 4 for

more information). In both the organic and conventional categories, large dairy farms have higher returns than smaller ones due to economies of scale. However, in the group of dairy farms with less than 100 cows, organic dairy farms outperformed conventional dairy farms, especially in terms of return on operating costs. Organic dairy farms have higher overhead and unpaid labor costs than conventional dairy farms of similar size, but the opportunity cost for unpaid labor affects dairy producers differently. Many small dairy farmers are willing to accept a lower return on their labor because they appreciate the family farming lifestyle. These farmers' major production decisions are based on operating costs, especially short-term production decisions (McBride and Greene 2010). This is why many small dairy farmers converted to organic production systems in the late 1990s and early 2000s—to save their farms financially. A well-governed and managed organic cooperative provides small dairy farmers with a greater opportunity to stay in the business and gives their children a chance to remain in farming (Campbell 2005). A recent study found that organic dairy farmers in Minnesota had positive profits from 2006 to 2013 and these profits were higher than the profits earned by conventional dairy farmers of similar size (table 6). Another recent long-term study of organic dairy farmers from 2004 to 2013 by Parsons and his colleagues found that profits are decreasing, larger farms are outperforming smaller ones, and half of organic dairy farmers cannot make a reasonable living wage if current margins are not increased. However, Parsons' study also shows that organic dairy farmers with better management skills have a probability of generating higher returns.

#### **Uncertainty and Challenges**

Organic Valley's founders aimed to create an organization with unique rules, rights, and responsibilities in order to help family farmers maintain an economic and social livelihood consistent with their values and beliefs. However, due to the uncertainty of demand and supply, as well as rapid structural changes within the industry, members and management are starting to ponder whether the original dream on which Organic Valley was founded is still achievable. At

<sup>5</sup> This is related to cooperative principles. Please see the appendix for a full description about cooperative organization form and its principles. Please refer to supplement 1 and supplement 2 for information about cooperative organizational forms.

**Table 5. Conventional and Organic Milk Production Costs and Returns per Hundredweight Sold, by Size Group, in the United States (2010)**

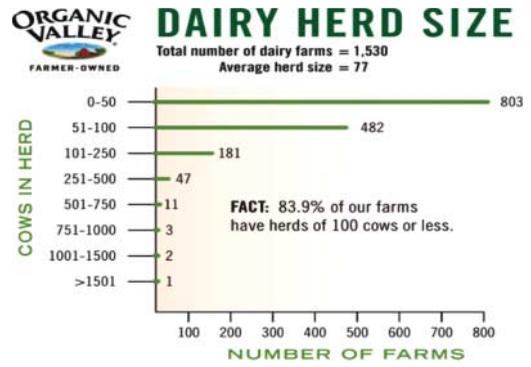
Item	<50 cows		50–99		100–199		200–499		500–999	>1,000	All Sizes	
	Con*	Org	Con	Org	Con	Org	Con	Org>200	Con	Con	Con	Org
dollars per cwt sold												
Milk sold	16.61	25.83	16.61	26.69	16.63	25.22	16.64	27.72	16.30	15.05	15.95	26.59
Total gross value	19.06	28.60	18.77	29.41	18.52	27.49	18.39	30.05	18.04	16.66	17.74	29.11
Operating costs:												
Total feed costs	12.54	15.65	11.50	14.96	11.04	14.79	10.94	15.51	9.69	8.85	10.01	15.24
Total operating cost	16.54	20.52	15.35	20.25	14.36	19.67	14.45	19.49	12.75	11.03	12.92	19.93
Allocated overhead:												
Hired labor	0.52	0.84	0.80	1.72	1.21	2.24	1.79	4.49	1.84	1.43	1.41	2.60
Opportunity cost of unpaid labor	13.22	15.52	6.79	8.99	3.42	4.59	1.40	1.01	0.49	0.16	2.09	6.65
Total overhead	22.55	27.46	14.88	20.56	9.88	15.43	7.55	10.99	5.33	3.85	7.40	17.60
Total costs listed	39.09	47.98	30.23	40.81	24.24	35.10	22.00	30.48	18.08	14.88	20.32	37.53
Value of production less total costs	-20.03	-19.38	-11.46	-11.40	-5.72	-7.61	-3.61	-0.43	-0.04	1.78	-2.58	-8.42
Value of production less operating costs	2.52	8.08	3.42	9.16	4.16	7.82	3.94	10.56	5.29	5.63	4.82	9.18
Supporting information												
Milk cows (head)	33	34	68	68	135	130	313	460	701	2,236	182	77
Output per cow (lbs.)	15,885	12,223	17,530	12,599	19,232	13,721	20,040	16,663	22,673	23,297	20,961	13,884

Notes: Con = Conventional; Org = Organic. Source: USDA Economic Research Service.

**Table 6. Organic and Conventional Dairy Analysis of the State of Minnesota (2006–2013), Average per Cow (\$ Value)**

	2013	2012	2011	2010	2009	2008	2007	2006
<b>Organic</b>								
Number of farms	19	25	27	38	31	30	23	22
Number of cows	103.8	95.9	84.8	78.8	77.8	76.9	64.7	72.3
Milk produced per cow	13,715	12,720	12,133	12,819	12,129	12,629	13,372	12,323
Avg. milk price per cwt.	29.92	29.23	27.32	26.19	25.77	25.39	24.44	22.15
Net return over operation expense	545.17	577.49	421.37	756.2	651.63	674.65	814.91	821.54
Net return	302.68	303.33	124.62	487.68	366.47	411.7	541.49	568.28
<b>Conventional</b>								
Number of farms	399	427	468	527	509	499	575	557
Number of cows	178.4	166.7	158.1	137	136.4	140.7	128.5	124.3
Milk produced per cow	22,926	22,434	22,071	21,732	21,264	21,344	21,300	21,432
Avg. milk price per cwt.	20.34	19.63	19.96	16.26	13.57	19.46	18.64	13.34
Net return over operation expense	289.93	293.33	535.24	211.85	-201.56	514.17	864.95	308.83
Net return	92.24	90.62	331.08	11.61	-402.77	290.44	639.12	103.52

Source: Farm Business Management of University of Minnesota, [www.fbnbin.umn.edu](http://www.fbnbin.umn.edu).



**Figure 7. Dairy herd size for Organic Valley**

the beginning of 2014, Organic Valley had 1,530 dairy farmer members. About 84%, or 1,284 farms, had fewer than 100 cows (figure 7). Given the rapid change in economic conditions, production costs, and increased degree of competition, how can the cooperative be successful for another 25 years, 50 years, or more? How can the cooperative continue to stay true to its founding mission as well as adapt to the changing environment? With these major issues looming, supportive organizations and important stakeholders are thinking about these specific questions:

- Can Organic Valley continue to maintain economic sustainability for their family farm members while maintaining their current stable pay price pricing policy? If so, will flexibility in the policy need to become more formalized?
- Can the cooperative organizational form meet the needs of small family farms? What are the pros and cons of this closed membership form of cooperative relative to more traditional forms of collective action and other organizational business forms?
- Is Organic Valley the price leader in the raw organic milk supply market?<sup>6</sup> What implications might this have or not have for Organic Valley farmer members?
- What assumptions should be made about future demand and supply, the structure of supply, and the future viability of small and large organic dairy farmers compared with their counterpart producers in conventional dairy?

<sup>6</sup> Please see supplement 3 for popular oligopoly models.

## Supplementary Material

Supplementary material is available at [http://oxfordjournals.org/our\\_journals/ajae/online](http://oxfordjournals.org/our_journals/ajae/online).

## References

- Alviola, P.A., and O. Capps. 2010. Household Demand Analysis of Organic and Conventional Fluid Milk in the United States Based On the 2004 Nielsen Homescan Panel. *Agribusiness* 26 (3): 369–88.
- Aurora Organic Dairy. 2014. Aurora Organic Dairy—About U.S. <http://www.auroraorganic.com/about.htmlfiles/14/about.html> (accessed May 13, 2014).
- Barham, B. 2010. Price Stability in an Era of Roller-Coaster Rides. In *Status of Wisconsin Agriculture 2010—Framing the Financial Crisis*. Madison, WI: Department of Agricultural and Applied Economics, College of Agricultural and Life Sciences, University of Wisconsin-Madison, 44–7.
- Campbell, D. 2005. Cream of the CROPP. *Rural Cooperative* 72 (3): 15–18.
- Cobia, D. W. (1989). *Cooperatives in Agriculture*. New Jersey: Prentice-Hall.
- Cook, H.L., and B. Marion. 1981. The Impact of Price Stability on Farm Structure. In *Economic Issues*. Madison, WI: Agricultural Experiment Station, University of Wisconsin-Madison.
- Cornucopia Institute. 2014. WhiteWave Watch: Former Dean Foods Subsidiary Sells Corporate-Owned Factory Dairy. <http://www.cornucopia.org/2014/01/white-wave-watch-former-dean-foods-subsidiary-sells-corporate-owned-factory-dairy/> (accessed May 13, 2014).
- Dimitri, C., and L. Oberholtzer. 2009. Marketing U.S. Organic Foods: Recent Trends from Farms to Consumers. Washington DC: U.S. Department of Agriculture, Economic Research Service.
- Dimitri, C., and K.M. Venezia. 2007. Retail and Consumer Aspects of the Organic Milk Market. Washington DC: U.S. Department of Agriculture, Economic Research Service.
- Dong, D., and H. Stewart. 2013. Households' Choices Among Fluid Milk Products: What Happens When Income and Prices Change? Washington DC: U.S. Department of Agriculture, Economic Research Service.
- Greene, C.R., C. Dimitri, B.H. Lin, W.D. McBride, L. Oberholtzer, and T.A. Smith. 2009. Emerging Issues in the U.S. Organic Industry. U.S. Department of Agriculture, Economic Research Service.
- Horizon Organic. 2007. Horizon Organic Pay Price. <http://www.horizondairy.com/faqs/files/16/faqs.html> (accessed May 13, 2014).
- . 2014. Frequently Asked Questions—How Big Are Horizon's Partner Farms? <http://www.horizondairy.com/faqs/files/16/faqs.html> (accessed May 13, 2014).
- Kilman, S., and S. Reddy. 2012. Organic Milk Prices March Higher. In *The Wall Street Journal*. Dow Jones & Company, Inc.
- Krieg, T. 2007. Summary of Economic Studies of Organic Dairy Farming in Wisconsin (Seven Years), New England, and Quebec. Center for Dairy Profitability, College of Agricultural and Life Sciences and Cooperative Extension, University of Wisconsin-Madison.
- Link, C. 2012. Is the Organic Milk Market Headed for a Price Crisis? <http://newhope360.com/managing-your-business/organic-milk-market-headed-price-crisis> (accessed May 13, 2014).
- Lundgren, B. 2013. Growing Organic Dairy Close To Home—Stonyfield—The Yogurt Dish. Stonyfield. <http://www.stonyfield.com/blog/close-to-home/> (accessed May 13, 2014).
- McBride, W.D., and C. Greene. 2010. Organic Dairy Sector Evolves to Meet Changing Demand. *Amber Waves* 8: 28–33.
- McCrary, L., and R. Parsons. 2013a. Transition to Organic Dairy Case Study: Franklin Family Farm (Guilford, Vermont). [http://www.extension.org/pages/59497/transition-to-organic-dairy#.VIsdvPnF\\_65](http://www.extension.org/pages/59497/transition-to-organic-dairy#.VIsdvPnF_65), Extension (accessed May 13, 2014).
- . 2013b. Transition to Organic Dairy Case Study: Hall and Breen Farm LLC (Orwell, Vermont). [http://www.extension.org/pages/59497/transition-to-organic-dairy#.VIsdvPnF\\_65](http://www.extension.org/pages/59497/transition-to-organic-dairy#.VIsdvPnF_65), Extension (accessed May 13, 2014).
- McCrary, L., R. Parsons, B. Wallis, and S. Flack. 2013. Transition to Organic Dairy Case Study: Fournier Farm (Swanton, Vermont). Extension.org.
- National Organic Program. 2014. Agricultural Marketing Service—NOP. <http://www.ams.usda.gov/AMSV1.0/ams.fetchTemplateData.do?template=TemplateA&navplateData.do?template=TemplateA&nav>

- Nav1=NOPHomelinkNOPFactSheets&topNav=&leftNav=&page=NOPNationalOrganicProgramHome&resultType=&acct=no (accessed May 13, 2014).
- Northeast Organic Dairy Producers Alliance. 2011. Organic Pay Price Update, December 2011. [http://www.nodpa.com/pay\\_price\\_update\\_01192012.shtml](http://www.nodpa.com/pay_price_update_01192012.shtml) (retrieved May 13, 2014).
- Organic Trade Association. 2012. Consumer-driven U.S. Organic Market Surpasses \$31 Billion in 2011. [http://www.organicnewsroom.com/2012/04/us\\_consumerdriven\\_organic\\_mark.html](http://www.organicnewsroom.com/2012/04/us_consumerdriven_organic_mark.html) (accessed May 13, 2014).
- . 2013. Consumer-driven and Farmer Powered Organic Food and Farming. <http://vitalfarms.com/wp-content/uploads/2013/05/ConsumerDrivenFarmerPowered2013.pdf> (accessed May 13, 2014).
- Organic Valley. 2010. CROPP Cooperative 2009 Annual Report. LaFarge, WI: CROPP Cooperative.
- . 2011. CROPP Cooperative 2010 Annual Report. LaFarge, WI: CROPP Cooperative.
- . 2012. CROPP 2011 Annual Report. LaFarge, WI: CROPP Cooperative.
- . 2013a. CROPP 2012 Annual Report. LaFarge, WI: CROPP Cooperative.
- . 2013b. CROPP Prospectus. LaFarge, WI: CROPP Cooperative.
- . 2013c. CROPP Sustainability Report. La Farge, WI.
- . 2014a. CROPP 2013 Annual Report. LaFarge, WI: CROPP Cooperative.
- . 2014b. CROPP Cooperative/Organic Valley Mission Statement. <http://www.farmers.coop/about-us/our-mission/> (accessed October 28, 2014).
- . 2014c. Dairy Pay Price. <http://www.farmers.coop/producer-pools/dairy-pool/pay-price/files/24/pay-price.html> (accessed May 13, 2014).
- . 2014d. Organic Valley—Herd Size. <http://www.organicvalley.coop/about-us/transparency/herd-chart/files/18/herd-chart.html> (accessed May 13, 2014).
- Parsons, R. 2013. Economic Sustainability of Vermont Organic Dairy Farms: How Strong Is the Economic Leg? Extension.org. <http://www.extension.org/pages/70086/economics-of-organic-dairy-farming-webinar-by-eorganic#U6nHR01OXcu> (accessed May 13, 2014).
- Pattison, K. 2007. Wal-Mart Loved Organic Valley's Milk: So Why Cut off the Flow? *Inc.*, Jul 2007, 50–53.
- Peters, W. 2009. Sustainability from the Roots Ip. In *CROPP Cooperative 2008 Annual Report*. CROPP Cooperative.
- Preusser, C. 2013. Organic Valey Celebrates 25 Years of Success. Last Modified 2013/04/17. <http://www.swnews4u.com/archives/12416/files/34/12416.html> (accessed May 13, 2014).
- Siemon, G.L. 2010. Organic Dairy Market also Hurt by Low Prices. *Rural Cooperatives* (January/February): 15–38.
- Silva, E., L. Paine, M. Barnidge, C. Carusi, and R. McNair. 2012. Organic Agriculture in Wisconsin: 2012 Status Report. In *Organic Dairy and Livestock Markets Impacted by Organic Grain Shortage*. UW-Madison Center for Integrated Agricultural Systems and the Wisconsin Department of Agriculture, Trade and Consumer Protection.
- Smith, T.A., C.L. Huang, and B.-H. Lin. 2009. Estimating Organic Premiums in the US Fluid Milk Market. *Renewable agriculture and food systems* 24 (03): 197–204.
- Tampa Tribune. 2012. Demand is Up, but Supply is Lagging for Organic Milk. In *Highlands Today*. Westville, NY: Tampa Media Group, LLC.
- U.S. Department of Agriculture, Agricultural Marketing Service. 2014a. Dairy Federal Milk Marketing Orders—Program Overview. United State of Department of Agriculture. <http://www.ams.usda.gov/AMSV1.0/ams.fetchTemplateData.do?template=TemplateO&navID=Industrytemplate=TemplateO&navID=IndustrytryMarketingandPromotion&page=FM MOProgramObjectives> (accessed May 13, 2014).
- . 2014b. Organic Grain and Feedstuffs Report. <http://search.ams.usda.gov/mndms/2014/01/LS20140122BNOF.PDF> (accessed May 13, 2014).
- U.S. Department of Agriculture, National Agricultural Statistics Service. 2012. 2011 Certified Organic Production Survey. Washington DC.
- WhiteWave Foods. 2014. WhiteWave Foods 10-K. <http://www.whitewave.com/investors> (accessed May 13, 2014).