CoBANK KNOWLEDGE EXCHANGE

October 2018

A New Era of Dairy Price Cycles: Structural Change Ahead in the Dairy Industry

By Ben Laine
Senior Economist

Inside…

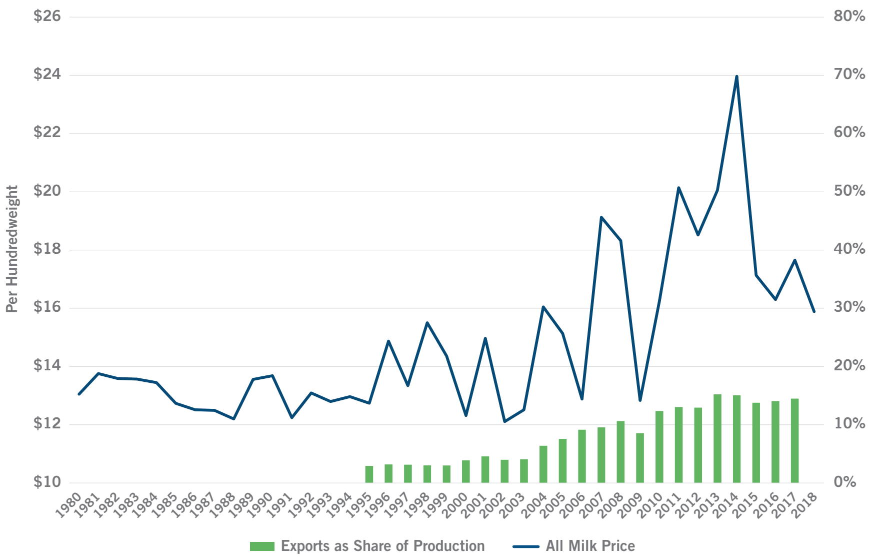
Key Points:

- Dairy farm consolidation has ushered in a new era of muted price cycles and sustained periods of low pricing, creating challenges for smaller dairy producers with higher cost structures.
- Three-year cycles beginning in the late 1990s drove an era of consolidation where large farms with economies of scale could better withstand price troughs. Since the last seasonal peak in 2014, price cycles in the dairy industry have been longer, deeper, and with less volatility.
- Dairy farms with more than 999 cows now comprise nearly 50 percent of the dairy industry, up from only 29 percent the decade prior. With farms of more than 1,999 cows enjoying the greatest consistency in profitability, large-scale farms are in the best position to survive extended periods of low milk prices.
- While smaller farms have trouble competing with large farms on a cost basis in the commodity milk market, they may find opportunity to add value in premium or niche markets.
- Cooperatives may best serve their members who operate smaller farms by investing in processing assets or branded products which can produce counter-cyclical returns to their membership. While climbing the value chain poses unique challenges for coops accustomed to competing in commodity markets, the risks of maintaining the status quo may be even greater.

Introduction

Consolidation on dairy farms in the U.S. has driven the industry into what may be a new era of longer, more drawn out price cycles. Large dairy operations have taken advantage of economies of scale and are better suited to withstand the periods of low milk prices that put extreme strain on the margins of smaller farms that face higher unit costs. The large-scale farms, which account for the majority of milk produced nationally have contributed to a situation in which the milk supply is much less responsive to short term price shocks. This lack of supply response will likely mute the traditional three-year cycles the industry has become accustomed to in recent history.

EXHIBIT 1: Milk Price Volatility and Exports as a Percent of Production



Source: USDA-ERS, USDA-NASS, CoBank

During the extended periods of low prices in the new price cycles, it will continue to be the large operations that have a better chance of surviving. A diverse dairy production base will remain valuable, however. A broader base of supply reduces risk in situations involving farm-specific disruptions due to contamination or other disasters. Still, farms that want to maintain a smaller scale, and the cooperatives that market their milk, will be best positioned in a value-added niche or a cooperative-owned processing or branded business, rather than trying to compete on a commodity basis with large, efficient, and low-cost operations. Evolving into a value-added or branded business model, though, will bring new and different challenges for coops and their members accustomed to traditional commodity marketing.

Milk Price Cycle Evolution

In 1949, the government implemented the Dairy Price Support Program (DPSP) to purchase storable dairy products at announced prices. This kept volatility at bay, but by the mid-1980s, the program had become expensive to operate and government purchases represented about 15 percent of milk supply. Support prices were reduced steadily through 1989 until they were below market clearing prices. This shift introduced seasonal market-driven volatility back into the market.[1]

In the late 1990s, volatility increased further and the magnitude of the price cycles increased. This increase of volatility coincided with an increasing share of U.S. milk production being sold to export markets. (*See Exhibit 1.*)

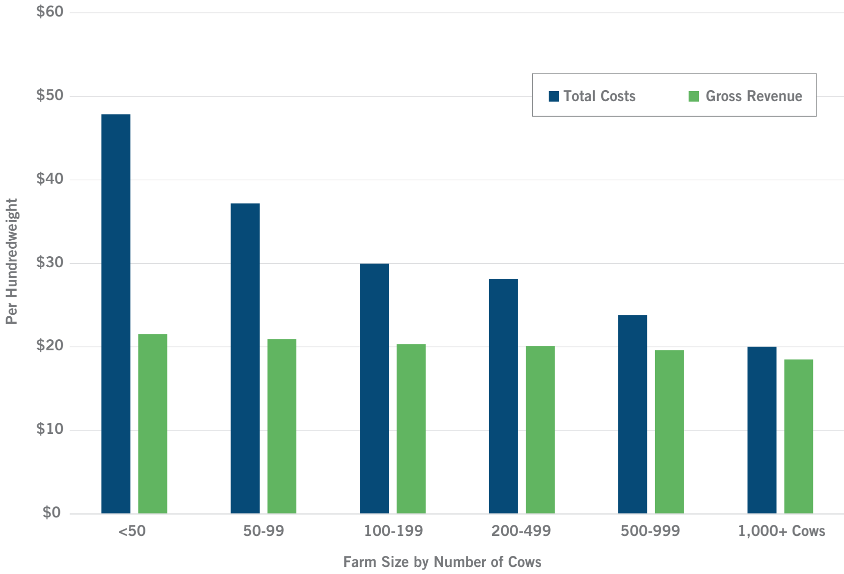
The period between 1996 and 2014 also revealed more clearly the cyclical nature of milk prices on an approximately 3-year basis. These cycles drove producers to expand after a profitable year. However, the low-priced periods in the cycles put strain on profitability, increased the perceived risk to the producers and may have ultimately impacted farmers' ability to finance an expansion due to reduced equity and access to debt capital.[2]

Consolidation and Economies of Scale

While each peak of these price cycles rewards (or relieves) those who have hung on, the valleys offer opportunity for those looking to enter or expand at a lower cost. In some cases this takes the form of financially strained small operations selling their herds and larger operations absorbing them.

Larger operations tend to be longer-term focused rather than respond to monthly or even yearly price movements. Substantially large farms enjoy significant economies of scale which lowers their cost of production per unit of milk far below that of smaller operations. (*See exhibit 2.*) The biggest reduction of unit costs by increasing scale are in the categories of machinery and equipment, and the opportunity cost of unpaid labor.

EXHIBIT 2: Gross Revenue and Total Costs per Hundredweight Milk by Farm Size (2017)



Source: USDA - ERS

If price volatility subsides, prices could remain lower for longer without the intermediate peak years to provide relief. It will be critical for cooperatives and producers to position themselves to prepare for this scenario.

Finally, the migration and consolidation of the production sector could increase the industry's susceptibility to events such as natural disasters, disease outbreaks, or food safety incidents. Any of these events that impact a large farm or a dense production region may have a much more significant market impact in the future.

A New Era with New Risks

The volatility over the past several years has led to heavy adoption of futures markets and other similar risk management tools to mitigate some of the financial risk that can develop over the course of a year. These financial markets, however, do little to protect against volatility that occurs over a longer period.

As a result, there has been an effort on the part of some industry groups to investigate additional insurance programs or government-run supply management programs similar to the DPSP or other programs of the past.

A number of cooperatives and handlers have already implemented programs individually to reign in their own milk supply in times of surplus. Most of these take the form of base excess programs in which members are assigned a base level of production according to their historical production over which they receive a lower price to account for the higher marketing costs of the surplus milk.

Opportunity Remains

Opportunities present themselves alongside many of these risks. Large farms are partnering more with processors directly. This can provide a long-term offtake agreement with a predictable price which helps offset longer-term risks. Some of these partnerships may also involve partial ownership of the processing business which can act as a natural hedge against market shifts.

Smaller farms, however, will be challenged to compete on a cost basis in the commodity milk market with their larger counterparts. The capital needed to build a dairy operation large enough to take advantage of economies of scale can range from $30 million to $50 million and above, before taking into account the cost of the cows. In some regions of the country, smaller scale family operations have found success by pooling resources to build larger, more efficient operations.[3]

Smaller farms can also be positioned to quickly adapt to evolving consumer tastes and preferences and tap into niche markets for their milk. Examples of this include organic, grass-fed, local, and other options marketed as premium dairy products.

Dairy cooperatives that have historically only pooled and marketed the milk of their producer members will also need to investigate opportunities for adding value to the process. These cooperatives have traditionally benefitted producers by reducing the cost of marketing milk across a pool of their producers. While still important, that alone may not offset the economies of scale disadvantage.

Changing a business model on a farm or at a cooperative after generations involves significant risk. Entering into branded business requires different management and marketing skills, as does investing in and operating a manufacturing plant. But while changing strategies and entering new markets may be challenging and risky, the risk of maintaining the status quo may be even greater.

Cooperatives that are best suited to survive these downturns will be diversified with processing assets and/or strong branded businesses, the profits of which tend to move counter-cyclically to producers. Investment into value-added assets, though, is no guarantee of success. Cooperatives must still carefully consider capital allocations and the distribution of profits back to the farm with an eye toward long term strength. ■

[1] Stephenson, Mark. 2010. *Milk Price Volatility Today.* Article, USDA Cooperative Extension.

[2] Nicholson, Charles F, and Mark W Stephenson. 2014. *Milk Price Cycles in the U.S. Dairy Supply Chain and Their Management Implications*. Working Paper, Program on Dairy Markets and Policy.

[3] Minnesota State Senate. Committee on Agriculture. 2018. “Presentation of the State of Agriculture.” Saint Paul, MN.

CoBank’s Knowledge Exchange Division welcomes readers’ comments and suggestions. Please send them to KEDRESEARCH@cobank.com.