

Feed Costs and Management Decisions

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Following a period of many years when corn and soybean prices were generally low, the last couple of years have witnessed cash commodity prices increasing three-fold or more. With grain stocks tight and the close knit relationship between grain price and oil price, forecasts for the next 3 to 10 years are that the prices are not headed back to their old levels.

In addition to a higher level, feed prices have exhibited increased volatility. A weak U.S. dollar makes the world markets more important than ever in determining price levels here as our exports are quite competitive. Our objective here is to examine the levels and discuss management decisions that may be necessitated when dealing with a reality of expensive and highly volatile feed and milk prices.

A logical first step is to get a handle on recent history. The chart labeled "Figure 1" displays the annual average nominal farm prices received for milk, corn, soybeans and hay. With the exception of a period in 2002 and 2003, since 1995, supply and demand market forces have been determining the milk price without direct interference by the price support program. The increased volatility in milk prices has been a primary driver of variation in

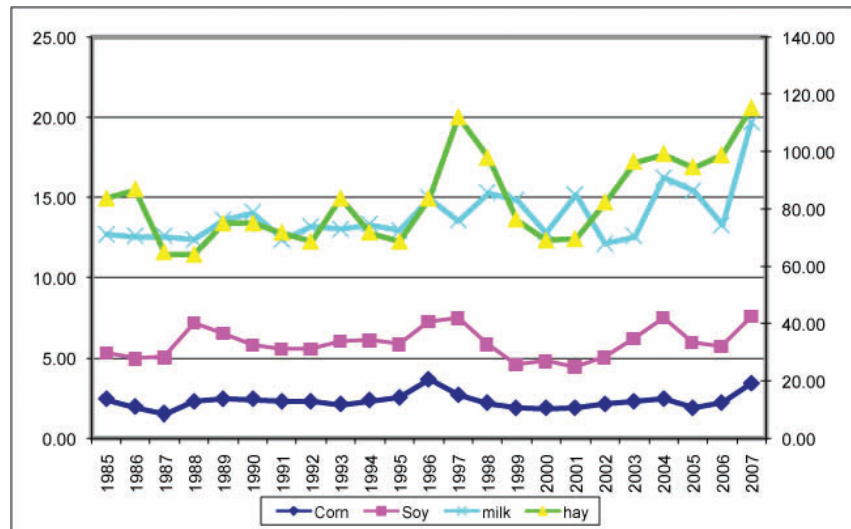


Figure 1. Annual Average U.S. Milk and Feed Product Prices,

income over feed costs.

Feed is the single largest expense, cash and total, of producing milk. Corn and soybeans are major world commodities and the prices respond to the international supply and demand situation. Annual average corn and soybean prices in recent years annual average corn and soybean prices have been stable and low until 2006-07. The corn price averaged \$2.31/bu from 1985-2007. Soybeans averaged \$5.94/bu over that same period. Variation in grain prices increased greatly in the past couple of years. Unlike corn and soybeans, hay prices are determined domestically and driven largely by supply shocks such as inclement

weather. Hay prices have trended steadily upward since 2000.

As of this writing the first week of August, the best available forecast (from Jim Hilker at MSU who perpetually wins commodity price forecasting awards) was for an average of \$6/bu. corn over the next year with \$5.25/bu. the following year and likely not below \$4.75/bu. average price for the next five years. To translate that to soybean price forecasts, multiply the corn price by 2.3 to 2.4 as that is the ratio to equilibrate acreage allocations across the crops. This implies a soybean price in the \$11.50 to \$12.50/bu range over the next five years. The single most important factor to watch is oil price. Currently, oil is trading at about \$125/barrel. If oil declines to \$80/barrel then the corn and soybean prices will likely decline by a similar percentage. If oil climbs to \$160/barrel, then a similar increase is expected. The take home message is that these concentrate prices are here to stay for a while if not permanently. Dairy farm management decisions should adjust accordingly.

The table at left displays dairy farm business analysis summary statistics from Michigan 2001-2006.

Michigan Dairy Farm Economic Statistics, 2001-2006

Year	2001	2002	2003	2004	2005	2006
Rate of return on assets (percent)	7.6	3.2	4.3	7.7	6.3	5.5
Milk Price (\$/cwt)	15.23	12.47	12.59	16.42	15.70	13.44
Purchased Feed* (\$/cwt)	3.95	3.45	3.56	4.36	4.06	3.74
Total Feed Cost** (\$/cwt)	6.75	7.01	7.18	7.47	8.14	8.22
Income Over Feed Costs (\$/cwt)	8.48	5.46	5.41	8.95	7.56	5.22

* Purchased feed costs are Michigan averages from MSU Dairy Farm Business Analysis Summary.

** Total feed costs US averages from USDA-ERS which include the value of home-grown crops.

Rate of return on assets is the preferred measure of profit. Purchased feed is about half of the total feed cost when homegrown feeds are included. Income over feed costs is the margin between milk price and feed cost. It is clear from the table that milk price and feed cost are major determinants of profitability on Michigan dairy farms.

So, what do these higher and more volatile prices mean to dairy farm managers? There are several tactics and strategies that might be appropriate depending on the farm. These include targeting feed and feed expenses, price and margin risk management, and enterprise decisions.

It is clear that high producing cows require starch to achieve these levels so that grains are a necessary part of rations. However, farmers might consider targeting the grains to their highest valued use. For example, it might be practical to re-group cattle and feed two rations (high and low, for example) rather than a single ration. This strategy is part of research being conducted at MSU by Mike Allen and the time is ripe for it with \$6/bu corn.

The implications of locking in prices are larger than ever. Risk management decisions should focus on the margin over feed costs rather than milk or feed price independently. Locking in one side of the margin leaves an operation vulnerable to movement on the other side. This need not be futures and options contracts although they may play a part. Forward contracts with feed mills and cooperatives are also important. Gross margin insurance is now available in Michigan for dairy producers and should also be considered.

In the longer-run, many farms will want to re-examine enterprise choices. Increasing the amount of homegrown crops can provide a buffer in high price years. In 1998 we conducted a detailed enterprise

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Project Selected for MMPA Applied Research Funding

During MMPA's annual meeting in March 2007 and again in 2008, MMPA delegates voted to deduct one cent per hundredweight from September milk production for an applied research fund. The board of directors, with input from the MMPA Advisory Committee, reviewed many beneficial proposals before narrowing it down.

The board chose to fund the first year of a research project dealing with comprehensive small farm manure runoff and milking wastewater management, submitted by Dr. Steven Safferman, an associate professor at Michigan State University.

Background

According to the research proposal, dairy farmers, particularly those with small herds less than 200 cows, face challenges managing storm water runoff and milking parlor wash water. Often large storage lagoons and manure storage structures are not available on smaller farms to collect parlor wastewater or storm runoff, and engineered treatment systems are not generally economically feasible.

Whether or not these options are available, the discharge of impacted water to surface and ground may result in health and

environmental risks. Even on farms that do house some type of manure storage system, diverting milk parlor wastewater to manure storage lagoons occupies approximately 20 to 50 percent of the lagoon volume, which increases hauling costs and dilutes manure nutrient value, negatively impacting nutrient balancing.

Through two separate scenarios, researchers are aiming to determine the effectiveness and efficiency of small farm manure runoff and milking parlor wastewater management practices. The information gained during the project will also be valuable to larger farms as the technologies being considered can be easily scaled up.

Vegetative Filter Strips

The researchers will study two technologies: a vegetative filter strip that is currently approved by the Michigan Department of Environmental Quality provided that cold weather performance is monitored for the test strip. Currently three large filter strips have been constructed at the MSU Dairy Research and Teaching Facility. Monitoring for this project began this summer.

Wetland Biofilter

An "AQUA" wetland biofilter is a three-cell system with discharge into a leach field. The design allows

for surface water application in summer and subsurface in winter. Several of these systems have been installed on dairies in Canada, and performance data on a Canadian dairy being studied show good potential. The AQUA treatment portion of the project will be conducted on a MMPA member farm and will receive additional funding from AQUA Treatment Technologies, the Canadian company that will assist researchers in the install of the wetland system.

Timeline

The initial stages of the projects have begun, with completed installation of technologies in late spring of 2009. Monitoring is planned through late spring of 2010. Researchers plan to publish their findings in late 2010.

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cost of production study of several Michigan dairy farms. One thing that jumped out was that the corn grain enterprise did not pay for itself. At that time, cash corn prices were about \$2.20/bu. The farms were able to cover costs of corn silage and hay but would have been better off buying their grain needs. That was probably true of many farms over many years but may no longer hold. One question a manager might ask is: how much can I afford to pay to rent more land rather than purchase cash feed?

The reality today is that there is more price risk on feed and milk than we have witnessed in a generation or more. Monitoring and targeting feed expenditures will require a portfolio of management decisions.

At the March 2008 MMPA State Annual Meeting, delegates approved the following resolution that allows for funding of the research projects like the one featured on this page.

C-24. Applied Research Funding

In 2007, MMPA delegates initiated an applied research fund in an amount equal to \$.01/cwt. on MMPA members' September milk production. We fully understand that applied research is important to the advancement of the dairy industry, and traditional research funding sources have become limited. We support the continuation of funding for the applied research fund in the amount equal to \$.01/cwt. produced by MMPA members for the month of September. This fund is to be managed by the MMPA board of directors or delegated committee.

We also encourage MMPA to work with other cooperatives and dairy industry groups to get all milk in the state participating in a similar manner.