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COMMITTEE ON AGRICULTURE
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Chairman Peterson, Ranking Member Lucas and Members of the Committee, thank you for the opportunity to appear today to review agricultural policy as the beginning stages of the 2012 Farm Bill occur. There will be many important choices to be made about future farm policy in the coming months as the 2012 Farm Bill is written. The Food and Agricultural Policy Research Institute at the University of Missouri (FAPRI-MU) looks forward to the opportunity to provide this Committee with unbiased quantitative analysis of the many policy proposals that will surface just as we have done over the past three decades.

It is true that animal agriculture has faced extreme changes in economic well-being in the past five years, in terms of both cash flow and equity. Disease outbreaks, trade restrictions, rapidly changing input costs, contraction in the United States and other important trading partners' economies, and fluctuations in the U.S. dollar are a few of the factors that have caused these sectors to experience record-setting highs and lows in profitability in just a few months.

Livestock and dairy producers have found themselves in the position of making strategic and tactical decisions that seem correct one day, but prove to be absolutely disastrous the next day. This quickly changing economic environment has made all market participants look for ways to reduce the impacts of market volatility.

This quickly fluctuating environment has led many to call for policy change to help livestock and dairy producers weather the difficult economic times they face today. The policy proposals currently circulating vary in their ability to reduce producer income volatility. In choosing policy instruments that best reduce producer income variability, it is instructive to examine the sources of the current variability.

First, it is important to realize the magnitude of change in factors outside of the direct control of animal agriculture. The economic downturn in the U.S. economy in 2008/09 was severe by historical standards with the economy shrinking at an annual rate of 6.4 percent in the first quarter of 2009. This level of contraction had not been experienced since the early 1980s. This economic downturn followed strong growth in real GDP over 2003 to 2007.

World income growth also experienced a historically large contraction in 2009 declining overall by one percent. International Monetary Fund (IMF) data on world GDP growth suggests this is the first annual contraction experienced over the past three decades. This contraction followed above-average growth of 4.7 percent over 2003 to 2007. This global contraction certainly reduced the demand for U.S. livestock and dairy products in 2009.

The combination of stronger than average income growth over 2003 to 2007, coupled with the contraction in 2009, resulted in many sectors of animal agriculture caught gearing up for the new and growing domestic and international demand for their products in the mid-2000s only to find contracting demand just as the production response was kicking in. The combination of falling demand and higher output caused prices to fall.

Second, these sectors have also seen a substantial rise in production costs over the past five years as prices for nearly all inputs experienced large increases. Although it is difficult to have a completely consistent set of production costs for the entire period since 1980, there are some interesting observations to be gleaned from the Economic Research Service's annual production cost estimates over this period.

For milk, production operating costs rose by 15 percent in 2007 followed by an additional 22 percent rise in 2008. These back-to-back increases are the two largest experienced since 1980. The next closest was the 1988 drought increase of 12 percent. In the past, periods of production costs increasing at a faster rate than the historical average are often followed by a period of declining production costs, thus limiting the overall long-term rise in costs of production. To put this in perspective, milk production operating costs rose by 24 percent over 16 years from 1990 to 2005. However, in just the past four years, 2006 to 2009, milk production costs have increased an additional 28 percent.

Third, disease events and their impacts on trade have added to the volatility animal agriculture has faced over the past few years. The 2003 outbreak of BSE, bovine spongiform encephalopathy, in Canada and the U.S. continues to disrupt trade in cattle and beef today. The April 2009 H1N1 influenza outbreak created domestic and international demand challenges for U.S. pork producers. Other trade restrictions such as the recent Russian curtailment of U.S. chicken imports have also had impacts on animal agriculture. It is impossible to eliminate or to predict these sources of added volatility but these are unlikely to be the last disease or trade events these industries will experience.

It becomes clear from this broad review that the volatility experienced in livestock and dairy markets is coming from a number of factors and cannot be isolated to a single source. It is just not that simple. Again, it is instructive to understand the many sources of variability as policy proposals surface that attempt to reduce volatility. Although the future remains uncertain, it is difficult to imagine that a policy that only deals with one aspect of an industry can be completely successful in reducing producer income volatility.

To understand more about the magnitude of volatility that exists for livestock and dairy producers, a partial perspective can be found in the variability in cash receipts from farming. According to USDA, livestock receipts increased by $20 billion in 2007 and then fell by $22 billion in 2008. Over the 1980 to 2000 period, the largest year-to-year increase occurred in 1996 at $6 billion while the largest year-to-year decline occurred in 1991 with a $3 billion decline. This comparison certainly highlights the added volatility in cash receipts the livestock and dairy industries have faced in the last decade, and also highlights that the volatility has its “ups” as well as its “downs” from the producers’ perspective.

Although it is more difficult to get a complete picture on the cost side of animal agriculture from the farm income production expense accounts, feed costs rose 33 percent in 2007 and another 12 percent in 2008. For 2009, USDA estimates a 6 percent decline in feed costs.

These industries experienced a severe price-cost squeeze between 2005 and 2009. Cash receipts declined by $6 billion while feed costs alone increased by $16 billion. Add to that the escalation of other production costs and it equates to the extremely unfavorable financial position of many livestock and dairy producers today. Pork and dairy producers in particular saw their bottom lines at crisis levels in 2009. It would have required several billion dollars of support from any program attempting to eliminate the volatility in profitability seen from 2008 to 2009.

Let me repeat that the income volatility the livestock and dairy industries have experienced the past few years is a result of both cost and revenue variability. The biological lag in production response can and has exaggerated this variability. If the objective of future policy is to reduce variability in producer income, both components of this equation must be examined.

The 2010 FAPRI outlook suggests livestock and dairy producers' financial positions will improve slowly in the next couple of years. We have begun to see signs of recovery already with feed costs moving down from their peaks and output prices moving higher as some demand recovery in this country and around the world is beginning to take place. However, the economic recovery will likely not be smooth and will result in continued variability in the livestock and dairy industries. The probabilistic FAPRI baseline certainly shows the possibility remains for extreme volatility.

There has been little direct support provided to meat producers in previous farm bills. However, there are a number of support programs included in the current farm bill to help support dairy farmers. The two I will discuss today are the Dairy Product Price Support (DPPS) program and the Milk Income Loss Contract (MILC) program.

The DPPS program has been a long-standing part of federal dairy policy. It was converted to a specific dairy product support program from a milk support program in the 2008 Farm Bill but operates in a virtually identical manner to the older program. Under this program, the CCC stands ready to buy all specified products offered at the supported product price level. This program essentially provides price floors for the supported dairy products. There has been times where product prices fell below the price floors because of the added costs of producing products that meet CCC specifications relative to market specifications. The program can become more challenging to use in an environment of commercial exports of dairy products out of the U.S. It can result in the U.S. being a commercial exporter one day to shutting off trade and selling product to the CCC the next day.

More important to the discussion today is the effect that the DPPS program has on producer income volatility. As only an economist can answer, "it depends" is the short answer. In the early 1980s, the program had support levels that were above market clearing price levels resulting in large CCC inventories of dairy products and little volatility in producer milk prices. As price support levels were ratcheted downward during the late 1980s and 1990s, it was common to find that support prices had fallen below market-clearing levels. This allowed for more price volatility that the industry began to experience in the late 1990s. With the rise in production costs that have occurred in the past five years, the support provided to producers by the DPPS program has weakened considerably. When the supported level is more than $5 per hundredweight below current operating costs, most dairy producers do not feel this offers much of a safety net. Since the DPPS program offers only price support, it does not adjust as producers' costs change over time.

The MILC program is a counter-cyclical direct payment program first implemented in the 2002 Farm Bill. Once producer milk prices fall below a specified target, producers can receive payments up to certain level of production. The annual cap on marketings eligible for MILC payments is currently set at 2.985 million pounds and will be reduced to 2.4 million pounds in September 2012 under current law. Very large producers have not found the MILC program beneficial largely as a result of the limit on the amount of their total marketings that are covered each year.

In the 2008 Farm Bill, a feed cost adjuster was added that raises the target price in months where the USDA/NASS reported dairy ration value exceeds $7.35 per hundredweight. The feed cost adjustment level increases to $9.50 per hundredweight in September 2012. This appears to be the only livestock industry that has a counter-cyclical feed cost adjustment under current law.

The MILC program includes features that adjust producer payments for high feed costs and low milk prices. Of all the components that determine dairy producer returns, only changes in non-feed production costs or production disruptions have no coverage under the MILC program. In addition to the production cap issue, other parameters also affect monthly MILC payments to producers.

Perhaps the most important parameter to discuss is the 45 percent factor (set to revert to 34 percent in September 2012) imposed on the difference between the target price and the relevant milk price for the month. This essentially means that once MILC payments are made, producers get $0.45 per hundredweight in a direct payment for each $1 the relevant market price falls below the trigger level. This MILC feature does not create a flat or solid price floor but it is a soft floor that still lets producers feel additional economic pain as milk prices fall further from the trigger level. There are certainly tradeoffs between a program that has a hard floor versus one that shares the loss of milk revenue between the level of government outlays and producer payments like the operation of the current MILC program.

Some of the early discussion surrounding policy alternatives for the 2012 Farm Bill has focused on offering whole farm insurance options to reduce the volatility producers have seen in their bottom lines. Many of these options look promising in addressing many of these concerns. It remains to be seen the exact program operation and parameters of these kinds of policy proposals, as there will certainly be tradeoffs between overall program costs versus the degree of volatility reduction offered to producers.

Again, FAPRI-MU looks forward to the opportunity to analyze the quantitative impacts of proposed policies for the 2012 Farm Bill. I am happy to address any questions that Members may have today.

Dairy Policy Issues for the 2012 Farm Bill

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Dairy Policy Analysis Alliance

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Dairy Policy Issues for the 2012 Farm Bill

Dairy Policy Analysis Alliance

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Introduction

Since the last farm bill (the Food, Conservation and Energy Act of 2008) was enacted in May 2008, the U.S. dairy industry has experienced major upheaval. The U.S. all-milk price in May 2008 was $18.30/hundredweight; a year later it was $11.60. Given high feed costs, this price was below the cash costs of producing milk for most, if not all, dairies in the United States. Moreover, the 37 percent fall-off in the milk price was indicative of the enormous increase in price volatility observed over the last 15 years, putting milk prices and dairy profitability on a more-or-less constant roller coaster ride that nearly all dairy market participants would like to see end.

Discussions about the dairy title of the next farm bill have already begun in Washington, DC, with this backdrop of intensified concern among producers about the level and volatility of milk prices. Also relevant to these discussions are anticipated federal spending constraints in the face of record budget deficits and the growing global presence of dairy companies located in the U.S. In addition to proposing alterations in existing federal dairy programs (including federal milk marketing orders, which are not usually part of farm bill discussions), dairy groups are looking at brand new federal programs and private initiatives to stabilize milk prices and provide a more effective price floor.

This report is intended to help sort through the myriad of dairy policy alternatives that will likely be considered as the next farm bill process evolves. We provide a description of existing and potential programs and policies that attempt to stabilize or support milk prices and identify issues relating to their current and future deployment.

In brief:

Dairy price supports have been a fixture of federal dairy policy for more than 60 years. The ability of price supports to maintain an effective price floor diminished as the support price was lowered and as dairy product manufacturers became increasingly reluctant to sell product to the government. In some cases, price supports have impeded U.S. dairy exports, distorted domestic markets, and constrained dairy product innovation.

The federal Milk Income Loss Contract (MILC) program is relatively new, and provides income support rather than price support. MILC has supported dairy farmers' incomes, but size-based limits on payments have generated strong opposition from regions with predominantly larger herds.

Voluntary supply management, which offers a carrot to producers willing to cut milk production in times of surplus, has been used only sparingly as a part of federal dairy policy. The Cooperatives Working Together (CWT) herd retirement program is a new approach that is privately funded through voluntary producer assessments. CWT has achieved success, but because assessments are not mandatory, there are issues related to free riders and the adequacy of funding.

Mandatory supply control uses a stick instead of a carrot to manage milk supplies, assessing penalties on producers who exceed assigned production quotas or bases. Mandatory supply control is attractive from a budgetary perspective because the milk price can be enhanced without payments to dairy farmers. But quotas and bases inevitably take on value that raises production costs for new entrants or farmers expanding their dairy herds and they can prevent efficient structural change and regional shifts in milk production.

Federal and state milk marketing orders have regulated minimum milk prices since the 1930s. Marketing orders are complex instruments that can significantly affect milk allocation and milk production decisions. Orders use classified pricing and pooling to achieve their stated purpose of promoting orderly marketing. Pricing issues relate to the appropriate number of classes and how to set minimum milk prices for manufacturing milk and price differentials for milk used for fluid products. Pooling issues include which dairy plants should be allowed to pool and how to promote equitable and efficient inter-order movement of milk.

Finally, ***U.S. dairy trade policy*** does not directly affect milk prices in the same way as marketing orders or the MILC program, but trade policy does influence the competitive environment for U.S. exports and imports of dairy products. Greater exposure to world markets has brought an added element of milk price instability to U.S. dairy markets. At the same time, foreign demand for dairy products is expanding more rapidly than U.S. demand, offering an opportunity for accelerated growth in U.S. milk production.

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This report was authored by members of the FAPRI-UW Dairy Policy Analysis Alliance. It serves as a companion to a related Alliance report titled, *Dairy Policy Briefs*, which consists of one-page summaries of the material covered here.

The Alliance is a cooperative dairy policy research and outreach program between the Food and Agricultural Policy Research Institute at the University of Missouri and the Department of Agricultural and Applied Economics at the University of Wisconsin-Madison.

Alliance documents and other resources can be accessed and downloaded at either of the following websites:

FAPRI site: (http://www.fapri.missouri.edu/)
University of Wisconsin Understanding Dairy Markets site: (http://www.aae.wisc.edu/future/).

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Dairy Price Supports

Price supports for milk and dairy products used in the United States represent a market intervention program. The government offers to purchase nonperishable dairy products (cheese, butter and nonfat dry milk) from manufacturers at specified (intervention) prices. The program is dormant when market prices are above intervention prices. It is activated when the supply of products exceeds demand at the intervention prices, preventing market prices from dropping to levels that would otherwise be necessary to clear the excess supply.

Dairy price supports have been amended over time, mainly to alter the way that the support price for milk is determined and how corresponding product prices are set and changed. A major change implemented with passage of the 2008 Farm Bill eliminated reference to supporting a milk price. Now, purchase prices for cheese, butter and nonfat dry milk are specified, but there is no longer a minimum milk price target.

Public policy issues and concerns relating to dairy price supports include:

- Effectiveness in establishing a realistic price floor
- Distortion in allocation of milk and relative product prices
- Impact on U.S. dairy trade

Historical Review

Price supports for milk and dairy products have been used continuously in the United States since passage of the Agricultural Act of 1949. That Act required the Secretary of Agriculture to support the price received by dairy farmers for manufacturing use milk at between 75 percent and 90 percent of parity. The Secretary determined the specific parity level within this range by forecasting the adequacy of future milk production in fulfilling market needs. Parity attempted to keep the same relationship between milk prices and farm costs as existed in the period 1910-14. The parity formula used the Index of Prices Paid by farmers to adjust the parity price for milk.

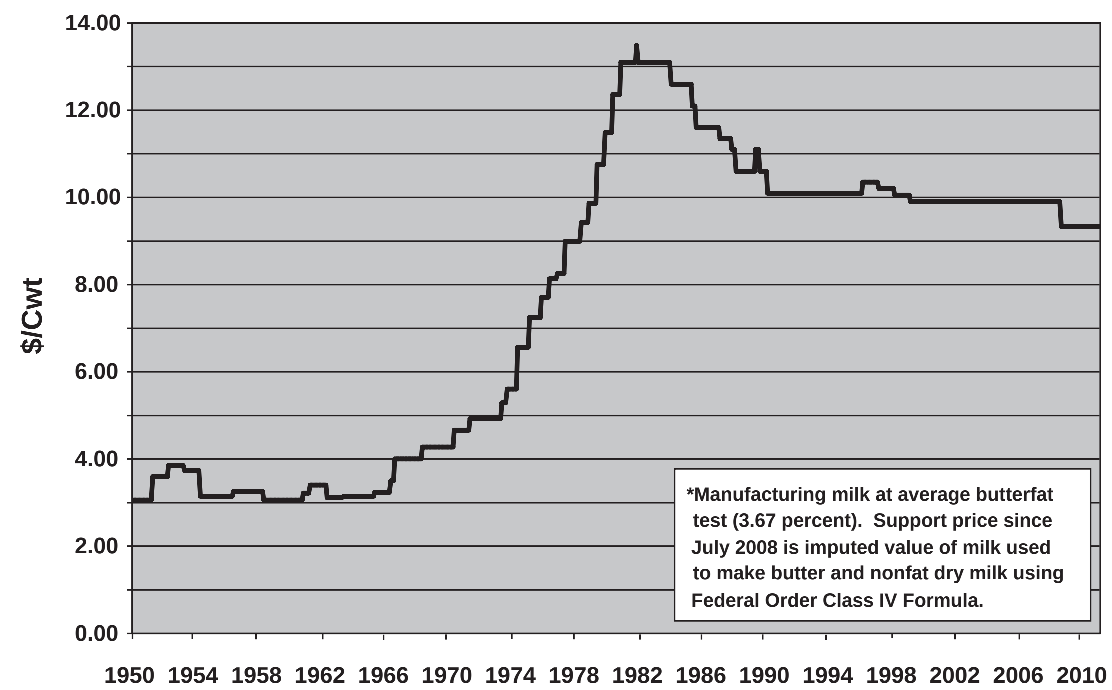
Using assumed yields and manufacturing costs, the support price for manufacturing use milk was translated into prices per pound for three "hard" (i.e., nonperishable) manufactured dairy products—cheddar cheese, butter and nonfat dry milk—and USDA's Commodity Credit Corporation (CCC) stood ready to purchase unlimited quantities of these dairy products at the announced prices. Reasonably efficient plants making and selling cheese, butter and nonfat dry milk at the purchase prices would, in theory, have enough money to pay farmers the announced support price for milk. And competition among plants would force those plants manufacturing other dairy products to also pay the support price or risk losing their milk supply.

As long as milk supply and demand were in balance and market prices stayed above CCC purchase prices, the support program was inactive. But during periods of surplus milk production, milk in excess of fluid and fresh product needs would increasingly be diverted to plants making nonperishable products. Larger supplies of cheese, butter and nonfat dry milk would lower their market prices, triggering government sales if and when market prices fell below CCC purchase prices.

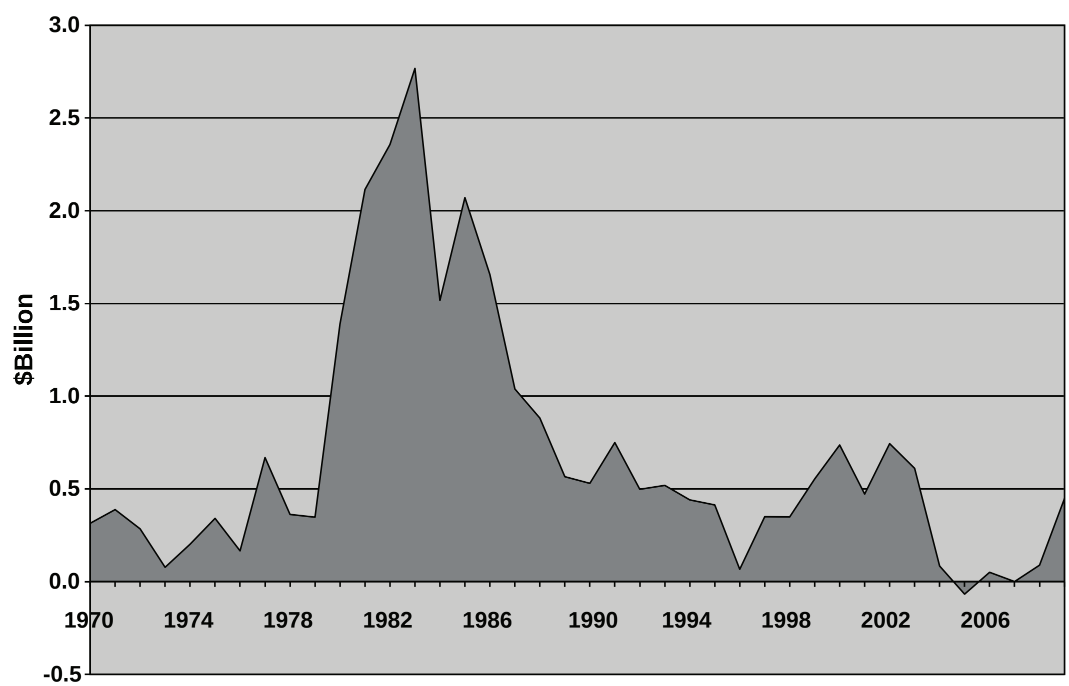
The 1949 Agricultural Act has been amended many times, most commonly through omnibus farm bills. A critical amendment that proved very disruptive and costly was in the 1973 Agricultural and Consumer Protection Act, which raised the minimum support level from 75 percent to 80 percent of parity. The subsequent farm bill (the Food and Agriculture Act of 1977) continued the minimum support level of 80 percent of parity through April 1, 1981 and required that the support price be adjusted semi-annually (October 1 and April 1) to reflect changes in the parity formula.

High rates of inflation during the 1970s—plus the fact that the parity formula ignored changes in productivity at the farm—resulted in the support price increasing from $4.28 per hundredweight on October 1, 1970, to $13.10 per hundredweight on October 1,1980 (see figure)[1]. Dairy farmers responded to rapidly-increasing support prices by increasing milk production far beyond commercial use. Surplus dairy products purchased by the CCC under the support program approached the equivalent of 10 percent of all farm milk marketed and associated government costs reached $2.7 billion in 1983 (see figures on following page.)

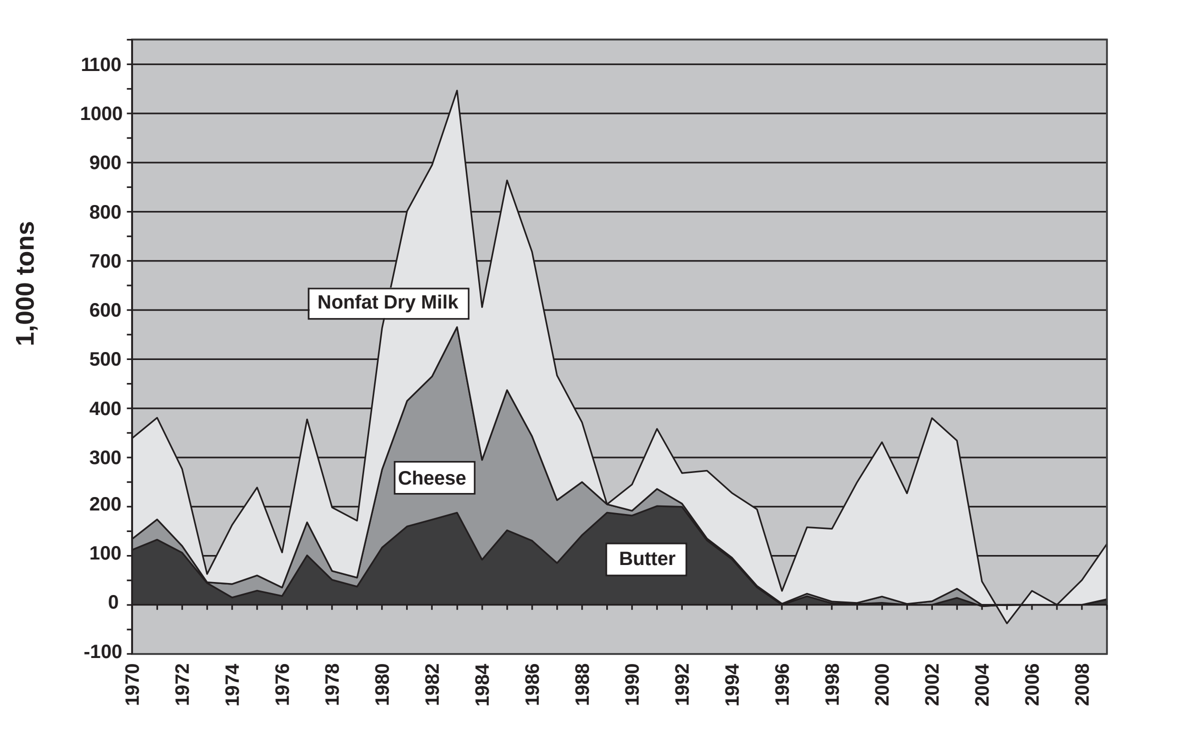
Support Price for Milk*



Budget Cost for Dairy Price Supports



Government Purchases of Dairy Products



This unprecedented surplus situation resulted in major changes in the support program. The Agriculture and Food Act of 1981 removed the milk support price from parity, instead tying it to the level of CCC purchases and associated net government costs of the program. Under this and subsequent amendments, the support price was gradually ratcheted down to $9.90 per hundredweight.

The Food, Agriculture, Conversation and Trade Act of 1990 required termination of the program on December 31,1999. Subsequent legislation extended the program until May 2002, when the Farm Security and Rural Investment Act of 2002 reinstated the price program through 2007 at the $9.90 per hundredweight support level then in effect.

The Current Price Support Program

The 2008 Food, Conservation and Energy Act made another major change in the federal dairy price support program. What was the Milk Price Support Program was renamed the Dairy Product Price Support Program. USDA still commits to purchasing cheddar cheese, butter and nonfat dry milk, but the CCC purchase prices for these products are no longer linked to a specified support price per hundredweight of manufacturing milk.

The CCC purchase prices specified in current legislation are: butter–$1.05 per pound; block cheddar cheese–$1.13 per pound; barrel cheddar cheese–$1.10 per pound; and nonfat dry milk–$0.80 per pound. These prices are the same as what were linked to the $9.90 milk support price in previous legislation. When the current purchase prices are inserted into federal milk marketing order formulas used for calculating minimum prices for milk used for cheese (Class III) and butter and nonfat dry milk (Class IV), they yield milk prices of $9.50 and $9.33 per hundredweight, respectively.[2]

Under current law, purchase prices may be reduced if CCC net removals of product exceed specified levels for 12 consecutive months.[3] These trigger inventory levels are large compared to recent net removals and are not expected to alter purchase prices during the life of the 2008 Act (expires December 2012).

Commodities purchased by CCC can be re-sold at market prices prevailing at the time of sale as long as market prices are at least 110 percent of the purchase price at the time the commodity was acquired. Sales back into commercial markets are called unrestricted sales.

Besides making unrestricted sales when market prices warrant, the CCC makes surplus dairy products available for use in several domestic and foreign food programs. Most of these special programs only provide dairy products on an “as available” basis; that is, donations are made only if there are stocks available to donate. The CCC has also held fire sales of nonfat dry milk for cattle feed and for manufacturing milk protein concentrate when stocks were especially burdensome.

While the change from supporting a milk price to supporting prices for dairy products may seem subtle, it could have significant implications for U.S. conformance with World Trade Organization (WTO) rules. Even though there were few CCC purchases of surplus dairy products between 2004 and 2007, the WTO still scores the dairy support program as a major trade-distorting domestic subsidy to dairy farmers. The WTO calculates domestic farm subsidies for a country by using a value called the Aggregate Measure of Support (AMS). Computing AMS for marketing intervention programs involves comparing supported prices with world market prices. Under the current WTO agreement (the 1994 Uruguay Round), the contribution of the dairy price support program to AMS is measured as the difference between the $9.90 per hundredweight support price and a world price of $7.25 per hundredweight (average price for 1986-88) multiplied by total U.S. milk production. For 2008, the dairy AMS calculation yields $5 billion ($2.65 per hundredweight X 1.9 billion hundredweight of milk). The AMS upper limit for all of U.S. agriculture is $19.1 billion annually, which means that the dairy price support program alone contributed more than 25 percent to this limit.

Supporting product prices instead of milk prices is an attempt to reduce dairy’s contribution to the WTO calculation of AMS for the United States. Using 1986-88 world market prices for cheddar cheese, butter and nonfat dry milk, we estimate that the current support program would contribute only about $3 billion to AMS. More recent base year prices that would be used in any new WTO agreement would generate much smaller AMS contributions.

Another major difference between supporting a specific milk price and supporting dairy product prices has to do with alignment of CCC purchase prices for butter and nonfat dry milk. Under current law, the Secretary can reduce the purchase prices for cheese, butter or nonfat dry milk if accumulated purchases of any of these products exceed trigger levels. The Secretary is not obligated to consider the impact on milk prices or to maintain relative price relationships.

This authority replaces language in farm bills dating to 1990 that instructed the Secretary to use butter-powder “tilts”— altering the relative CCC purchase prices for butter and nonfat dry milk — to minimize the public cost of the support program. Under previous versions of the dairy price support program, butter and nonfat dry milk were considered joint products and the combined net revenue from sales of butter and nonfat dry milk made from a hundredweight of milk was intended to yield the milk support price. So the purchase price of one product (e.g., butter) could only be lowered if the purchase price of the other product (nonfat dry milk) were increased enough to offset the reduced revenue

In the early 1990s, butter was in surplus relative to nonfat dry milk. Four tilts were made between April 1990 and July 1993, when the support price was constant at $10.10 per hundredweight. The butter purchase price was decreased from $1.0925 to $0.65 per pound and the nonfat dry milk price was correspondingly increased from $0.79 to $1.034 per pound in order to maintain the $10.10 per hundredweight value for milk used to make butter and nonfat dry milk.

Beginning in 2000, nonfat dry milk was in surplus relative to butter and the Secretary implemented two tilts, reducing the support price for nonfat dry milk from $1.032 to $0.80 per pound and correspondingly increasing the support price for butter from $0.6549 to $1.05 per pound in order to maintain the $9.90 per hundredweight support price then in effect.

The lowering of the nonfat dry milk price was very contentious because of its effect on the minimum price of milk used to make fluid dairy products.[4] Under the Dairy Product Price Support Program, CCC purchase prices for cheese, butter and nonfat dry milk are no longer tied to a milk support price. So if butter were in surplus relative to nonfat dry milk, for example, the CCC purchase price for butter may be lowered without increasing the purchase price for nonfat dry milk. The controversial issue of butter-powder tilts no longer exists.

Dairy Price Support Issues

Flooring milk prices. Dairy price supports have not always been successful in keeping dairy product prices above CCC purchase prices or in flooring farm milk prices when that was a direct program objective. For example, during the 48-month period January 2000 to December 2003, the Class III price was below the support price in 17 months, with the gap as large as $1.23 per hundredweight. During January 2009, the CME block cheddar cheese price averaged $1.07 per pound and reached as low as $1.04. These prices were well below the CCC block cheddar cheese price of $1.13 per pound.

Because of product, packaging, payment and other specifications that do not meet industry standards, it costs more to sell products to the government than to commercial buyers. This is a particular problem for cheese and butter; less so for nonfat dry milk. So market prices for the products that are purchased under the Dairy Products Price Support Program need to be less than intervention prices in order t o offset the difference in costs and trigger CCC purchases.

There are several ways of correcting this problem. A direct way is to simply raise the intervention prices enough to offset the higher costs of selling product to the CCC. This would require monitoring of cost differences and making periodic changes in CCC purchase prices, adding administrative burden to the DPPSP. Moreover, higher selling costs are not likely the only reason market prices fall below CCC purchase prices, so raising purchase prices would not guarantee the problem would be corrected.

Another option, at least in areas regulated by federal milk marketing orders, is to "snub" the butter, cheese, and nonfat dry milk prices used in federal order Class III and Class IV pricing formulas at the CCC purchase prices. In other words, if in any month a NASS product price used in the formulas were less than CCC prices, the formula would use the higher CCC price. This option was used in the California milk pricing system for about a two-year period beginning April 1, 2003. California 4a (butter-powder) and 4b (cheese) pricing formulas used the higher of market prices or CCC purchase prices for butter, nonfat dry milk, and cheese.[5]

Snubbing formula product prices would be a very effective way to prevent market prices less than support from negatively affecting federal order minimum Class III and Class IV prices. However, snubbing would not prevent market prices for cheese and other CCC products from falling below CCC purchase prices by at least the difference in selling costs between commercial and CCC sales. Consequently, manufacturers would object strongly to this option. They would legitimately argue that their margins were being squeezed whenever CME prices were less than CCC prices. Snubbing would place a particular hardship on smaller plants that are not in a position to sell to the CCC.

A third way to solidify DPPSP price floors is to have the CCC participate as a trader on the CME or contract with CME brokers to place an irrevocable bid (offer to purchase) for block cheese, butter and nonfat dry milk on the CME at announced CCC purchase prices. CCC product, delivery, and payment specifications would need to be modified to more closely match those of the CME. To the extent that is impractical or impossible under USDA rules, then the CCC would have to equalize net sales prices between CCC and CME sales, probably through premiums that offset these costs. Any offers to sell at the standing bid would be accepted by the CCC. Under CME trading rules, there can be no sales or offers to sell at a price below the standing bid. Hence, this option would place an absolute floor on CME prices at the CCC purchase prices.

While this option would effectively floor CME prices, it may not floor the NASS survey prices used in Class III and Class IV pricing formulas. For example, the relationship between CME and NASS cheese prices has been very tight because most cheese is sold through pricing formulas tied to CME prices. But there is a possibility that these sales contracts could be altered if the CCC were a buyer on the CME. Buyers might use larger discounts or smaller premiums when CME prices reached floors that resulted in. In that event, NASS commodity prices could end up lower than CCC prices.

Market price distortions. Dairy price supports have affected milk utilization by setting a price floor for some commodities but not for others. Perhaps the best example of this market distortion relates to nonfat dry milk. Nonfat dry milk is a source of dairy protein in many food applications. There is a large U.S. market for other dairy-based proteins, notably milk protein concentrate (MPC) and casein. Most of the MPC and nearly all of the casein used in the U.S. comes from imports.[6] Because nonfat dry milk is purchased by the CCC at a minimum price, it is often more profitable and less risky to produce nonfat dry milk than other forms of dairy proteins. U.S. production of whole milk powder (WMP) is similarly affected by the DPPSP standing ready to purchase unlimited quantities of nonfat dry milk. WMP is a major world dairy export product, but little is produced in the U.S.

The narrow line of homogeneous dry milk products stands in vivid contrast to the broad spectrum of whey products manufactured in the U.S. for domestic and export use. Whey protein has become essentially a "made to spec" product tailored to individualized uses. Whey is also converted to specialized lactose products. Not coincidentally, whey is not purchased under the DPPSP.

While the evidence is less clear, the DPPSP may also affect the mix of cheeses produced in the U.S. Cheddar cheese accounted for about a third of total U.S. cheese production in 2009. Obviously, cheddar cheese demand heavily influences how much is manufactured. But both absolute production and the styles of cheddar being produced may be influenced by the ability to sell cheese to the CCC.

U.S. dairy export effects. Prior to 2006, world prices for cheese, butter and nonfat dry milk were often below CCC purchase prices. This was primarily the result of limited world trade in dairy products and, for what trade there was, large EU export subsidies that kept prices low. Consequently, selling to the CCC was usually a more lucrative market than exporting.

During most of 2006-2008, world dairy market prices exceeded CCC purchase prices and the U.S. enjoyed a dairy export boom. Purchase prices are currently low by historical standards and they cannot be increased under existing law. Consequently, on average, export markets are expected to be more attractive to U.S manufacturers than selling cheese, butter and nonfat dry milk to the CCC over the long term.

But averages hide world market downsides. With the dairy price support program in effect, manufacturers shift their allegiance from export sales to CCC sales when world market prices dip far enough below CCC prices. This tends to make the United States an unreliable supplier to world markets.

Endnotes

[1] Milk price support levels noted here are for milk of average butterfat content (3.67 percent).

[2] The Class III price includes a value for dry whey, which is not purchased by the CCC. The Class III value noted here assumes a dry whey price of 19.11 cents per pound, which is equal to the whey make allowance in the Class III price formula. For every penny per pound that the whey price exceeds 19.11 cents, the supported Class III price would be higher by 5.8 cents per hundredweight

[3] Net removals under the 2008 Act are defined as CCC purchases plus Dairy Export Incentive Program (DEIP) removals minus unrestricted sales.

[4] See paper on federal milk marketing orders.

[5] Market prices under the California pricing system are defined as: CME butter, CME block cheddar cheese, California Grade A and Extra Grade nonfat dry milk, and Western dry whey. Federal orders use NASS prices for these four commodities.

[6] U.S. production of MPC was reported by USDA for the first time in 2009, and measured about 92 million pounds. MPC imports in 2009 were 114 million pounds. U.S. production of MPC is believed to have increased from near zero ten years ago, while imported MPC has declined 40 percent from 2005-2007 levels. U.S. casein production is not reported by USDA. In 2009, imports of casein and caseinates totaled 160 million pounds.

Milk Income Loss Contract (MILC) Program

The Milk Income Loss Contract (MILC) program is a target price-deficiency payment program that makes direct payments to dairy farmers when milk prices fall below specified target levels. MILC was first authorized in the Farm Security and Rural Investment Act of 2002 (the 2002 farm bill) and extended through annual appropriations bills and the Food, Conservation, and Energy Act of 2008 (the 2008 farm bill). Since it began through 2009, the program has made payments of $3.5 billion to U.S. dairy producers. Individual farm payments are limited by a cap on annual production eligible for payment. This has made the program unpopular in regions with larger herds. The program has also been criticized for extending the length of low price periods and causing larger dairies to bear the brunt of supply adjustments.

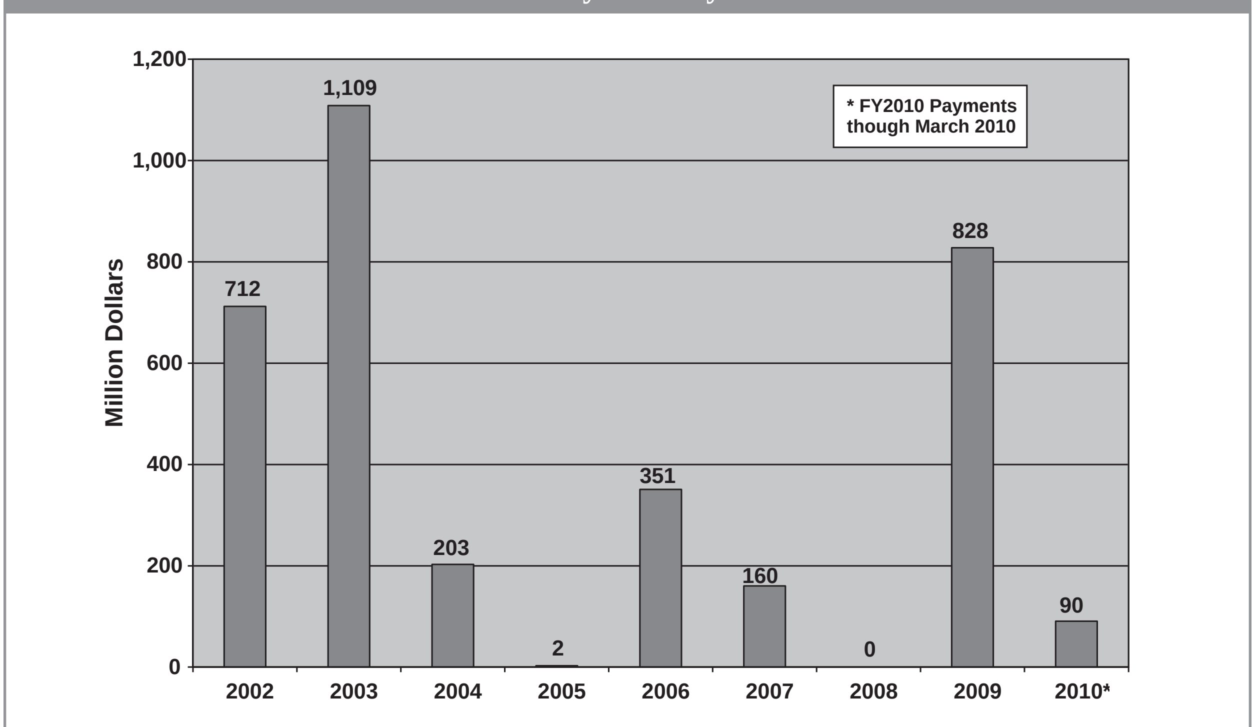
Historical Review

MILC is the product of a political compromise during passage of the 2002 farm bill. Members of Congress from the Northeast attempted to reinstate the Northeast Interstate Dairy Compact, which had expired in November 2001, in the 2002 farm bill. This attempt was fought by legislators from the Midwest. The Senate version of the Dairy Title of the new Bill contained a reincarnated compact applicable only to the New England states and a different target price-deficiency payment program applicable to the rest of the country.

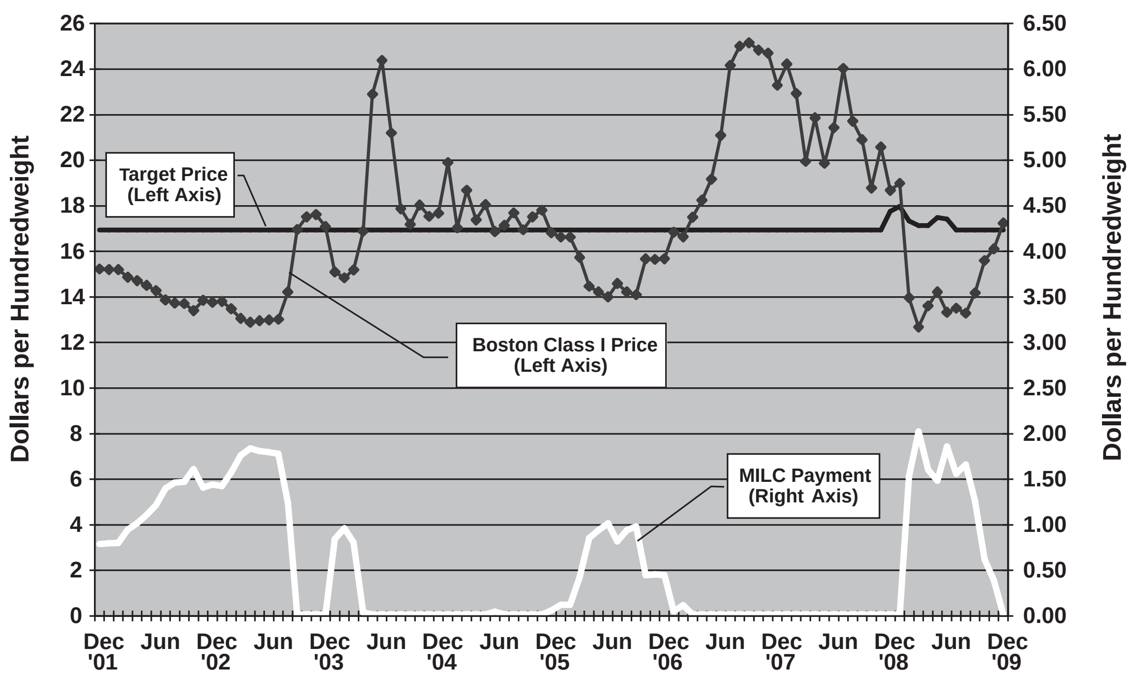
In the New England variant, the target price was the $16.94 per hundredweight compact target. If the Boston Class I price in any month was less than the target price, then producers in the New England states would receive 45 percent of the difference on their entire monthly milk deliveries regardless of how the milk was utilized.[1] In House-Senate conference, the wisdom of having disparate regional programs was called into question, and what ultimately emerged was the New England plan applied nationally with production caps—all milk marketed in the U.S. was eligible to receive the deficiency payment. The program was made retroactive to December 2001. Milk prices had fallen sharply in the fall of 2001, yielding MILC payments during the first month the program was in effect.

The MILC program was authorized with a unique method of limiting individual farm payments. Instead of using a dollar-denominated payment limitation as

Total MILC Payments by Fiscal Year



MILC Payments per Hundredweight



in most farm programs, the MILC program imposed a limit on milk marketings eligible for payment during any fiscal year. The cap was initially set at 2.4 million pounds, the annual production from a herd of 100-150 cows, depending on milk yield per cow. Producers could sign up to begin receiving payments any month during a fiscal year (October-September) and receive payments from that month until marketings for which MILC payments had been received reached the cap or the end of the fiscal year. Marketings during any month in which there was not a MILC payment did not count against the cap.

In the 2002 farm bill, the MILC program was only authorized through September 2005. The program was extended in the fall of 2005 through the life of the bill. The extension renamed the program MILC-X and reduced the payment rate from 45 percent to 34 percent of the difference between $16.94 and the Boston Class I price.

The MILC name and initial payment rate were reinstated in the 2008 farm bill. Other significant changes to this program were “floating” the target price in accordance with changes in feed prices and raising the payment cap from 2.4 million pounds to 2.985 million pounds.

Since it began, the MILC program has made payments of about $3.5 billion. More than half of total payments were made in the first two years the program was in effect. No payments were made in FY2008 and practically none in FY2005.

From the program’s inception, MILC payments per hundredweight increased steadily through an extended period of low milk prices that finally ended in late 2002. Payments were made every month of 2006. The longest period of no payments was 23 months—March 2007 through January 2009. The largest monthly payment was just over $2 per hundredweight in March 2009, when the Boston Class I price dipped to $12.68 and relatively high feed prices elevated the target price to $17.14.

The Current MILC Program

The current MILC program consists of the following elements, which apply to the period October 1, 2008 through August 31, 2012:

• The target price is a minimum of $16.94 per hundredweight. The target price is increased if feed prices exceed a base level as noted below.

• The target price is compared to the monthly Boston

Class I price. If the Boston Class I price is less than the target price, then all producers are eligible to receive a deficiency payment of 45 percent of the difference.

• Producers can receive payment on no more than 2.985 million pounds of milk marketed in any fiscal year (October-September). Producers can specify which month during the fiscal year they want to begin receiving MILC payments. Once payments begin, marketings during any month that payments are made count against the cap. The default month to begin receiving payments is October. Once enrolled in the MILC program a producer cannot withdraw from the program and then re-enroll during the same fiscal year.

On September 1, 2012 (unless altered by a new farm bill or other legislation), the payment rate is reduced from 45 percent to 34 percent and the production cap is reduced from 2.985 million pounds to 2.4 million pounds.

The feed price adjustment to the target price is based on the cost of a standard dairy ration, referred to as the National Average Dairy Feed Cost. This feed cost is the estimated cost per hundredweight of a 16 percent protein dairy consisting of 51 pounds of corn, 8 pounds of soybeans and 41 pounds of alfalfa hay.[2] In any month the National Dairy Feed Cost is above a specified base of $7.35 per hundredweight, the target price is increased by a percentage equal to 45 percent of the percentage difference between the National Dairy Feed Cost and $7.35. The base is increased from $7.35 to $9.50 in September 2012.

Prices for the feeds making up the National Dairy Feed Cost are the final U.S. average prices reported by USDA in *Agricultural Prices*. This results in a two-month delay in calculating MILC payments, since USDA does not report final estimates for a month until the end of the following month.

An example may clarify calculation of the feed price adjuster. Suppose that for a given month USDA reported final estimates of U.S. average prices for corn, soybeans, and hay of $4.00 per bushel for corn, $10 per bushel for soybeans, and $150 per ton for baled alfalfa hay. Using the weights noted above and bushel weights of 56 pounds for corn and 60 pounds for soybeans, these feed prices yield a National Dairy Feed Cost of $8.04 per hundredweight:

Corn:
($4.00/bu divided by 56 lb) = $0.071/ lb X 51 lb = $3.62

Soybeans:
($10.00/bu divided by 60 lb) = $0.167/ lb X 8 lb = $1.34

Alfalfa Hay:
($150/ton divided by 2000 lb) = $0.075/ lb X 41 lb = $3.08

Total value = $8.04

Based on the value of the National Dairy Feed Cost, the adjusted MILC target price is calculated as follows:

($8.04 - $7.35)/$7.35 = **9.8% over base**

9.8% X 45% = **4.4% feed adjuster increase**

($16.94 X 1.044) = **$17.69 target price**.

MILC Program Issues

Distribution of Program Benefits

The most controversial feature of the MILC program since its inception has been the individual producer cap on annual milk production eligible for payment. Opposition to the cap has come from large producers, some large enough to exhaust their 2.985 million pound cap in less than a month, and, politically, from regions like the West where large dairy herds dominate.

Differences in average dairy farm size and productivity across states do, indeed, affect the regional distribution of benefits from the MILC program. The table below shows dairy herd size and milk yield for the twenty largest dairy states. Average number of cows per herd in 2007 ranged from 66 (Pennsylvania) to more than 1,000 (New Mexico and Arizona). The percent of dairy farms with herds larger than 200 cows ranged from less than 10 percent in many states to 70 percent in California. The range in annual milk production per cow was from less than 17,000 pounds (Florida) to more than 23,000 pounds.

The last column of the table, labeled critical herd size, shows the maximum herd size in the twenty states that would be eligible to receive full benefits if MILC payments were made every month. Because of differences in per cow productivity, the critical herd size varies from fewer than 130 cows in Arizona and Washington to almost 180 cows in Florida. In general, there is a positive correlation between critical herd size and average herd size, meaning that states with the largest percentage of herds likely to exceed the eligibility cap would also exceed the cap with the fewest number of cows.

Herd Size and Annual Milk Yield per Cow, Top 20 Dairy States, 2007*

State	*Herds*	*Cows*	*Milk per Cow*	*Avg. Herd Size*	*% of Herds over 200 cows*	*Critical Herd Size***
	No.	*1,000*	*Lbs/Year*	*No.*	*%*	*No.*
California	2,200	1,813	22,440	824.1	70%	133
Wisconsin	14,200	1,247	19,310	87.8	8%	155
New York	5,700	627	19,303	110.0	10%	155
Idaho	810	513	22,513	633.3	42%	133
Pennsylvania	8,300	550	19,422	66.3	4%	154
Minnesota	5,100	460	18,817	90.2	7%	159
Texas	1,300	389	18,982	299.2	26%	157
Michigan	2,700	335	22,761	124.1	14%	131
New Mexico	270	332	21,958	1,229.6	54%	136
Washington	820	238	23,239	290.2	33%	128
Ohio	3,700	275	18,109	74.3	5%	165
Iowa	2,400	213	20,085	88.8	7%	149
Arizona	180	181	23,260	1,005.6	42%	128
Indiana	2,000	166	20,307	83.0	6%	147
Colorado	450	118	22,932	262.2	21%	130
Kansas	780	110	19,882	141.0	7%	150
Vermont	1,200	140	18,079	116.7	14%	165
Oregon	600	115	19,417	191.7	22%	154
Florida	420	125	16,832	297.6	26%	177
Illinois	1,200	103	18,612	85.8	8%	160
United States	***69,995***	***9,189***	***20,204***	***131.3***	***11%***	***148***

*Ranked by milk production in 2009. State herd numbers and size distribution last published by USDA for 2007.

**Current MILC payment eligibility cap (2.985 million pounds) divided by milk yield per cow

Source: USDA-NASS

The impact of varying herd size on receipt of milk payments by state is shown in the following table. The second and third column show calendar year 2009 milk production and the percentage of total U.S. production it represents. The third and fourth columns show fiscal year 2009 MILC payments for the state and share of total U.S. payments. The last column, denoted discrepancy ratio, is the percent of MILC payments for the state divided by the percent of milk production. The lower the discrepancy ratio, the smaller the share of benefits relative to what would have been received if benefits had been distributed in proportion to production.

The MILC program clearly provides disproportionate benefits to states and regions with smaller-sized herds. While this could be interpreted as discriminatory, payment limitations are a fixture of government agricultural programs, some involving income means tests and some absolute dollar limits. What makes the MILC cap unusual is the more visible regional impact because milk production is so broadly dispersed compared to the more concentrated production of many crops subject to program payment limitations.

Milk Production versus MILC Payments, Top 20 Dairy States*					
State	*CY2009 Milk Production*		*FY2009 MILC Payments*		*Discrepancy Ratio***
	Million Lbs	*% of U.S.*	*$Million*	*% of U.S.*	
California	39,512	20.9%	84.80	10.3%	0.5
Wisconsin	25,239	13.3%	175.01	21.3%	1.6
New York	12,424	6.6%	73.16	8.9%	1.4
Idaho	12,150	6.4%	18.59	2.3%	0.4
Pennsylvania	10,551	5.6%	69.01	8.4%	1.5
Minnesota	9,019	4.8%	66.27	8.1%	1.7
Texas	8,840	4.7%	20.82	2.5%	0.5
Michigan	7,968	4.2%	38.50	4.7%	1.1
New Mexico	7,904	4.2%	8.52	1.0%	0.2
Washington	5,561	2.9%	15.34	1.9%	0.6
Ohio	5,192	2.7%	30.09	3.7%	1.3
Iowa	4,379	2.3%	27.53	3.3%	1.4
Arizona	4,076	2.2%	4.75	0.6%	0.3
Indiana	3,383	1.8%	12.99	1.6%	0.9
Colorado	2,840	1.5%	5.23	0.6%	0.4
Kansas	2,488	1.3%	6.31	0.8%	0.6
Vermont	2,469	1.3%	17.72	2.2%	1.7
Oregon	2,248	1.2%	8.50	1.0%	0.9
Florida	2,077	1.1%	4.79	0.6%	0.5
Illinois	1,925	1.0%	14.37	1.7%	1.7
United States	***189,320***	***100.0%***	***822.37***	***100.0%***	***1.0***

*Ranked by 2009 milk production.

**Percent of total MILC payments divided by percent of total milk production.

Source: USDA-NASS and USDA-FSA.

To its credit, the production eligibility cap is a very effective means of capping farm payments compared to dollar-denominated payment limitations. Information is readily available through dairy plant records to monitor milk deliveries and impose caps. Evading the payment limit is difficult if not impossible.

The question of whether the MILC production cap is "fair" is partly tied to its role as establishing the only real price floor for dairy farmers (even though MILC is technically an income support program; not a mechanism to floor milk prices). The dairy price support program once served that purpose, but the support price for milk was ratcheted down over time to a level that ended up well below production costs for nearly all dairy farmers, especially given today's feed costs. And there is currently no milk price floor established under the Dairy Product Price Support Program. So an argument could be made that if MILC is the only mechanism that will be used to establish a floor price, then the floor should be more level.

Supply Impacts

While the purpose of the MILC program is to provide income protection to dairy farmers, most dairy farmers likely view MILC payments as an augmentation of their milk price rather than a decoupled income supplement. Accordingly, the MILC program has been criticized by some for lengthening the period of supply adjustment to low milk prices by implicitly raising prices, thus impeding or preventing the “natural selection process” of attrition that occurs in response to sustained low milk prices.

The argument behind this criticism is that operators of smaller dairy farms whose payments are not capped would be the most likely to exit the industry when milk prices are low. Since smaller dairies receive maximum MILC payments, they are able to stay in business. Moreover, the argument goes, operators of large dairies receive only a fraction of the per hundredweight MILC payments going to small dairies (a smaller milk price augmentation). Therefore they are forced to bear the brunt of supply adjustment.

While this argument is plausible, the assumption that, absent MILC payments, smaller dairy farms would be the first to go is questionable. There are many factors that determine financial vulnerability. Important determinants are debt load and debt-to-equity ratios. USDA-ERS dairy balance sheet data indicate that smaller dairy farmers carry less debt per dollar of assets and have a lower debt-to-equity ratio than larger dairy farmers.[3] Hence, it seems unlikely that smaller farmers are more likely to be forced out of business from foreclosure than large farmers.

Composition of the Feed Price Adjuster

The feed composition and the weights applied to corn, soybeans and alfalfa hay are subject to question. Few dairies include soybeans directly in their dairy ration, instead using soybean meal or other oilseed meals as a source of protein. Prices for soybean and other oilseed meals are highly correlated with the U.S. average soybean price, but the small weight on soybeans may not match the use of high protein meals in dairy rations. Similarly, while dry alfalfa hay is common in dairy rations, corn silage is extensively used in many parts of the United States. The value of corn silage would be more highly correlated with corn prices than alfalfa hay prices. Moreover, while the use of a single feed price adjustor is likely necessary for purposes of administration, it ignores significant regional differences in feed rations and feeding rates.

Delay in Calculating Feed Cost Adjuster

Using the feed price adjuster makes the MILC program more sensitive to cost side changes in dairy profitability, but the way it is calculated has created a delay in calculating MILC payments.

The monthly feed cost adjuster used to increase the MILC target price is based on USDA-NASS final estimates of U.S. average corn, soybean and baled alfalfa hay prices. These estimates are reported in the monthly *Agriculture Prices* report published by the USDA near the end of each month.

Agricultural Prices reports preliminary estimates of the prices making up the feed cost adjuster at the end of the current month. For example, preliminary corn, soybean and hay prices for the month of March 2010 were reported on March 30. Final estimates are reported at the end of the following month, e.g. March 2010 final estimates were reported April 30. This means that the feed price adjusted MILC target price is not known until the end of the month following the month it applies, e.g., the March 2010 target price could not be reported until April 30.

Federal Order Class I prices are announced on the Friday on or before the 23rd of the month before they apply. The March 2010 Boston Class I price was announced on February 19. So the reference price in the calculation of the March 2010 MILC payment was known 10 weeks before the target price.

Prior to adoption of the feed price adjuster, MILC payment rates were known as soon as the Boston Class I price was announced, which was several days before the month the rates applied. Currently, payments are not known until the end of the month following the month they apply, delaying the accounting and payment process.

This lag could be shortened by using preliminary NASS estimates of feed prices. Historically, differences between preliminary and final feed cost estimates have been small. But revisions have become larger on average with higher and more volatile corn and soybean prices in recent years.

Using preliminary feed prices would result in potential underpayment of producers in months when final feed price estimates exceeded preliminary estimates and possible overpayment if the opposite occurred. Over time, downward price adjustments would be expected to offset upward adjustments. But offsets would not likely match the timing of MILC payment months—for example positive revisions might occur mostly in months when no payments are made. USDA could adjust subsequent payments if feed price revisions resulted in over- or under-payments for a given month. But adjustments could not be made for several months if prices stayed above the target.

Soft Price Floor

The current MILC program pays out 45 percent of the difference between the feed price adjusted target price and the Boston Class I price. Especially in light of recent low milk prices, some question whether the program always offers an acceptable safety net for dairy producers.

The decision to use $16.94 per hundredweight in reference to the Boston Class I price is the main reason for the 45 percent payout factor. A payout factor of 100 percent would have resulted in a level of support above average price levels since the program's inception, considerably higher than what many might think is a reasonable safety net. Using a 100 percent payout factor would have resulted in very high government costs. Given budget constraints, the price floor can be made more solid only by setting a lower target price, perhaps in reference to some percentage of a moving national average all-milk price or the federal order Class III price.

Simply put and ignoring the production cap, once the Boston class I price falls below the feed-adjusted trigger level, producers only recoup 45 percent of the decline in market receipts from the MILC direct payments. That is, they still see lower overall receipts as prices decline from the trigger level.

This raises the question of whether a better option would be a sliding payout factor that increased the further the market price fell below the target price. Alternatively, once the market price fell to a specified minimum level, the program could compensate 100 percent of the difference between that level and the market price. Choosing a price floor would be a critical decision in order to avoid interference with market signals. Given the variability in production costs today, the price floor may need to be adjusted regularly to avoid the over-supply situation that excessively high support price levels created in the 1980s or the under-supply situation that could unfold if production costs continue their rise of the past few years.

Endnotes

[1]Under the compact, Class I handlers paid the full difference between $16.94 and the Boston Class I price into a compact pool, which was distributed to all producers in proportion to their monthly total milk marketings. Since Class I utilization in the compact area was about 45 percent, in effect, MILC reproduced the compact.

[2]For a spreadsheet model that shows the MILC feed adjuster refer to the following URL located within the University of Wisconsin Understanding Dairy Markets website: http://future.aae.wisc.edu/

[3]For state level balance sheet data, see: http://www.ers.usda.gov/Data/ARMS/StatesOverview.htm

Voluntary Supply Management

Government-sponsored voluntary supply management has been used infrequently in the U.S. dairy industry. Programs used in the mid-1980s involved paying dairy farmers to reduce milk production or exit dairy farming. After much of the burdensome supplies of the 1980s were controlled, there were no programs that allowed producers to voluntarily cut supplies in exchange for incentives. In July 2003, a private voluntary supply management program was initiated by the National Milk Producers Federation. The Cooperatives Working Together, or CWT, program periodically solicits bids from eligible dairy farmers (those paying an assessment) representing how much per hundredweight of base production they are willing to accept to slaughter their dairy herds. Through the end of 2009, there have been nine CWT herd retirement rounds and participating producers are currently signed up through the end of 2010 to pay an assessment of 10 cents per cwt of milk marketed.

Historical Review

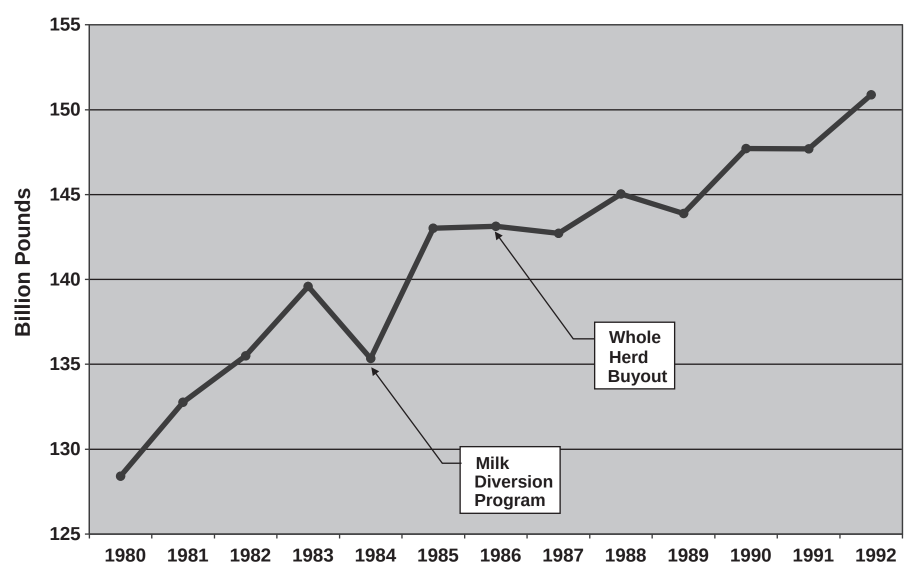
Voluntary supply management involves a "carrot" approach to keeping supply in line with consumption in order to achieve satisfactory farm-level prices. In a generic sense, voluntary supply management programs pay producers to cut back production or go out of business. Willing producers participate; others are not obligated to.

Prior to the 21st century, voluntary supply management had been used only twice in the U.S dairy sector, both within a short period of time in the mid-1980s. This period was characterized by massive overproduction of milk, which resulted in government purchase costs under the dairy price support program in excess of $2 billion per year.

To help reduce the milk supply, Congress authorized the Milk Diversion Program in 1983. Under this program, dairy farmers who agreed to reduce their milk marketings by 5 to 30 percent from their base level were paid $10 per hundredweight on the reduced marketings. The program was funded in part by assessments on all milk producers and in part by government funds.

The Milk Diversion Program cut milk production sharply in 1984, but it had no long-term effect—U.S. milk production in 1985 was about 3 billion pounds more than the level in 1983. The 38,000 dairy farmers who participated in the program culled cows to meet the required short-term cut in production, but in many cases the culled cows were replaced by heifers with superior genetic potential as soon as the program expired. There are at least two lessons to be learned from the failure of the Milk Diversion Program. First, the $10 per hundredweight payment was probably too high compared to the fixed cost of producing milk,

U. S. Milk Production



making the program attractive to savvy milk producers who knew how to “beat the system.”Second, the time period for reducing milk marketings was too short, making it easy to hold back higher-producing replacements for the cows culled to meet the marketing restriction.

Still facing a major milk surplus problem, Congress authorized the Dairy Termination Program (Whole Herd Buyout) in the Food Security Act of 1985. The USDA accepted bids from dairy farmers who were willing to slaughter or export all female dairy cattle and remain out of the dairy business for at least 5 years.

The USDA was able to sign up dairy producers totaling about 12 billion pounds of milk marketings by accepting all bids made by producers of $22.50 per cwt or less. Those producers whose bids were accepted had to dispose of all dairy cattle over an 18 month period during 1986 and 1987 and remain out of dairying for five years. Direct payments to participants totaled $1.8 billion over the fiscal 1986 through fiscal 1991 period.

Compared to the Milk Diversion Program, the whole herd buyout was successful in moderating production trends. However, the induced slaughter of dairy cows was credited for negatively affected beef markets, raising the ire of cattle producers and leading to cries of, “never again.”

The use of refundable assessments has been the most recent voluntary supply management option used in the U.S. dairy industry. The milk assessments that dairy producers faced during the early 1990s were put in place to reduce government spending on dairy programs. These assessments were not debated as a voluntary supply management proposal. Yet, when Congress allowed these assessments to be refunded to producers who did not increase their milk marketings, producers had to make a choice each year about whether to increase their milk production or hold milk production flat and receive a check reimbursing their assessment.

The first assessment program that allowed for the refund of producer assessments arose out of the 1982 Omnibus Reconciliation Act. The act collected two separate 50 cent assessments. The first 50 cent assessment was not refundable while the second 50 cent assessment was refundable to producers who reduced their marketings at least 8.4 percent below their base marketings.

The 1990 Omnibus Budget Reconciliation Act required that all milk marketed in the U.S. be assessed 5 cents per hundredweight in 1991 and a minimum of 11.25 cents per hundredweight over 1992-1995. Those producers who held milk marketings flat relative to the previous year were eligible for a refund of the assessments they paid the following year. The assessment rate was then increased during the 1992-1995 period to result in a net assessment of 11.25 cents per hundredweight to be collected. Refunds of dairy assessments in fiscal 1996 reached $82.039 million, the last full fiscal year of the program. Assessments collected in fiscal 1995 totaled $225 million.

The Current Program: Cooperatives Working Together (CWT)

The objective of the government-sponsored voluntary supply management programs was to enhance and stabilize farm-level milk prices by controlling the amount of milk marketed. Recently, an industry-sponsored voluntary milk supply management program was initiated to achieve similar objectives by using some of the same techniques.

The program, labeled CWT for Cooperatives Working Together, was designed and is managed by the National Milk Producers Federation, a trade association of dairy cooperatives. Members of participating dairy cooperatives and, if they choose, independent dairy farmers fund the program through an assessment of ten cents per hundredweight of milk marketed (the original program had a five cent assessment that increased to the current ten cent level in July 2006). Participation in the CWT has ranged between 67 and 74 percent of all milk marketed in the U.S. The early CWT press releases suggest the program collected a little less than $60 million annually when there was a five cent assessment. Moving to the ten cent assessment reduced program participation, but a general increase in milk production suggests that funds have roughly doubled with the increase in the assessment.

CWT has used two methods of voluntary supply management: herd retirement and dairy export incentives.[1] Under herd retirement, bids are accepted from dairy farmers who are willing to slaughter their milking herd. Export incentives provide participating cooperatives subsidies on exports of butter and cheese. There is some flexibility in the operation of CWT program since the CWT committee has the ability to adjust the operation of these two programs or add new programs as it chooses.

CWT programs are only available to those producers and cooperatives who participate by paying the CWT assessment. The CWT program is a federation of co-operatives and producers formed in accordance with the Capper-Volstead Act and acts in association for the specific purpose of achieving strong and stable milk prices.

The CWT Herd Retirement Program

The herd retirement program has been the most heavily used part of the CWT programs. Roughly 90 percent of the funds have been used for herd retirement. CWT has had nine herd retirement "rounds" to date. The inaugural herd retirement in late 2003 removed 32,724 cows from 299 dairy farms (see figure below for a history of CWT herd retirements). In total, the herd retirement program has removed over 475,000 cows through 2009.

Herds accepted in any CWT herd retirement round go through an audit process that includes examining current milk production relative to the previous year to ensure that the herd has not seen significant changes in production prior to be accepted. Once that audit process is successfully completed, the dry and milking cows are CWT tagged and the producer is responsible to send these animals to slaughter in the next 15 days. Once the tags are returned to CWT, the producer will receive his/her check.

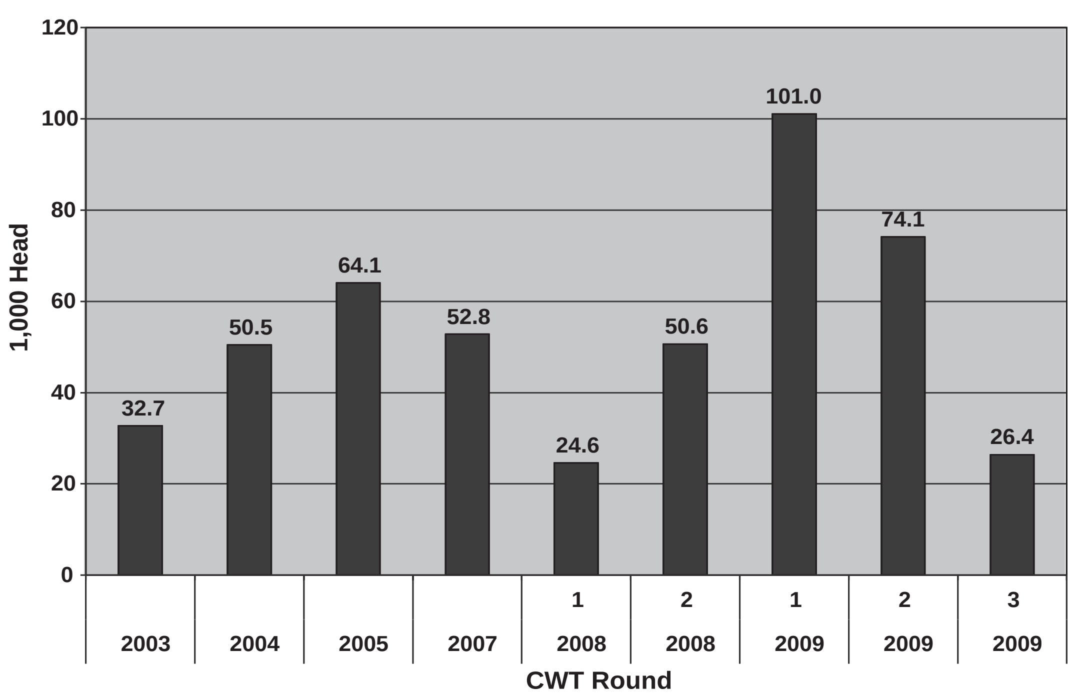
CWT has a general set of guidelines that are used in determining when to hold a herd retirement. They include the: 1) all-milk price, 2) cost of milk production, 3) milk-feed price ratio, 4) dairy cow numbers, 5) milk production, and 6) dairy cow culling.

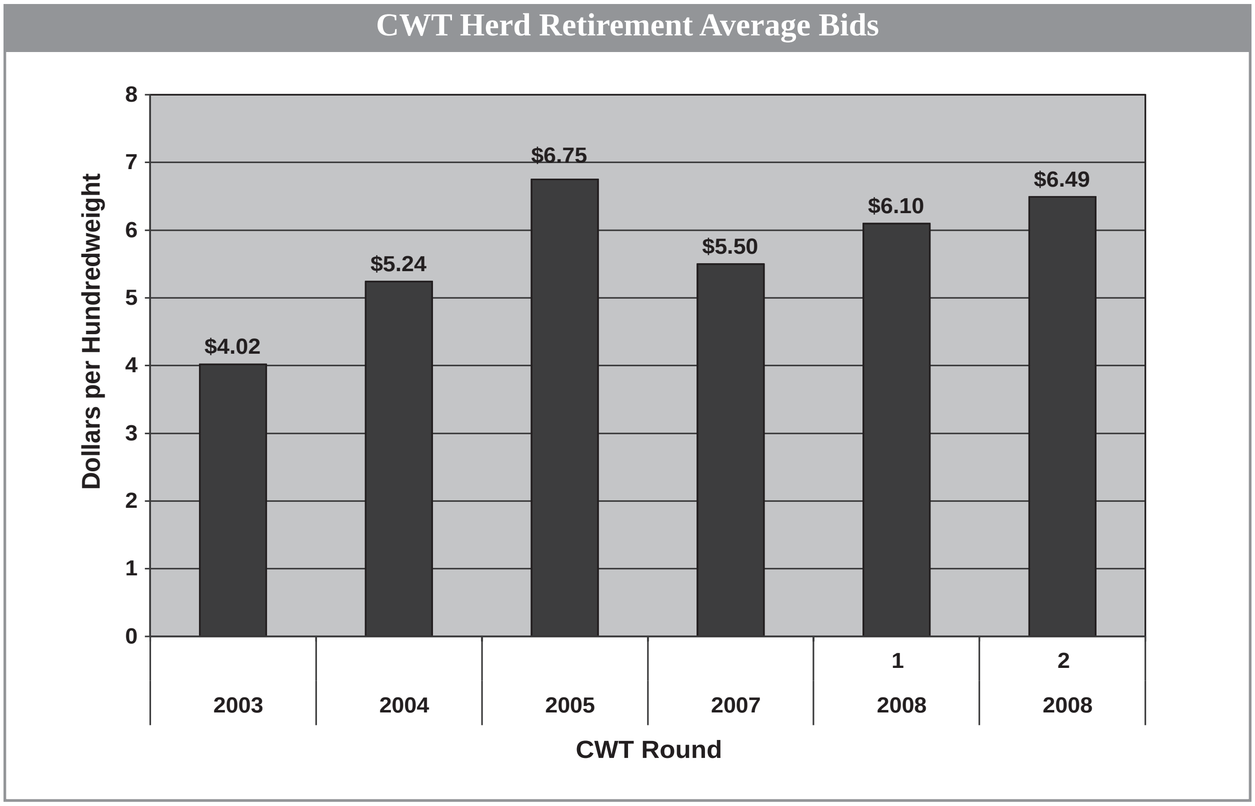
Beginning in 2008, the herd retirement program was expanded to allow producers to bid their bred heifers in addition to their milk cow herd. To date, just over 4,500 bred heifers have been removed through slaughter.

The herd retirement program was ramped up significantly in late 2008 as the serious decline in milk prices was becoming reality for the industry. In fact, over 50 percent of the cows bought in herd retirements occurred in the last four herd retirements that occurred in a span of about 12 months.

Current discussion of CWT has focused on how to make the herd retirement program more effective. As CWT looks to maximize return on participating producers' assessment, new program features continue to be examined. Ideas like partial herd retirements have recently surfaced.

CWT Herd Retirement Levels





When CWT announces a herd retirement event, CWT participants can offer a bid to the program to remove their current milking herd. CWT then selects bids based primarily on the level of bids. In the original herd retirement rules, regional safeguards were included to ensure a balanced approach to removing cows. This tended to cause average bids across regions to vary when the safeguard level was triggered Regional safeguards have been lifted in recent herd retirements. In general, the level of average bids has varied with economic conditions. In tough economic times, average bids tended to be lower than in strong financial times. Note from the figure below that 2005 had the highest average bid of $6.75 per cwt. In the most recent rounds, CWT imposed a cap on bids of $5.25 per cwt.

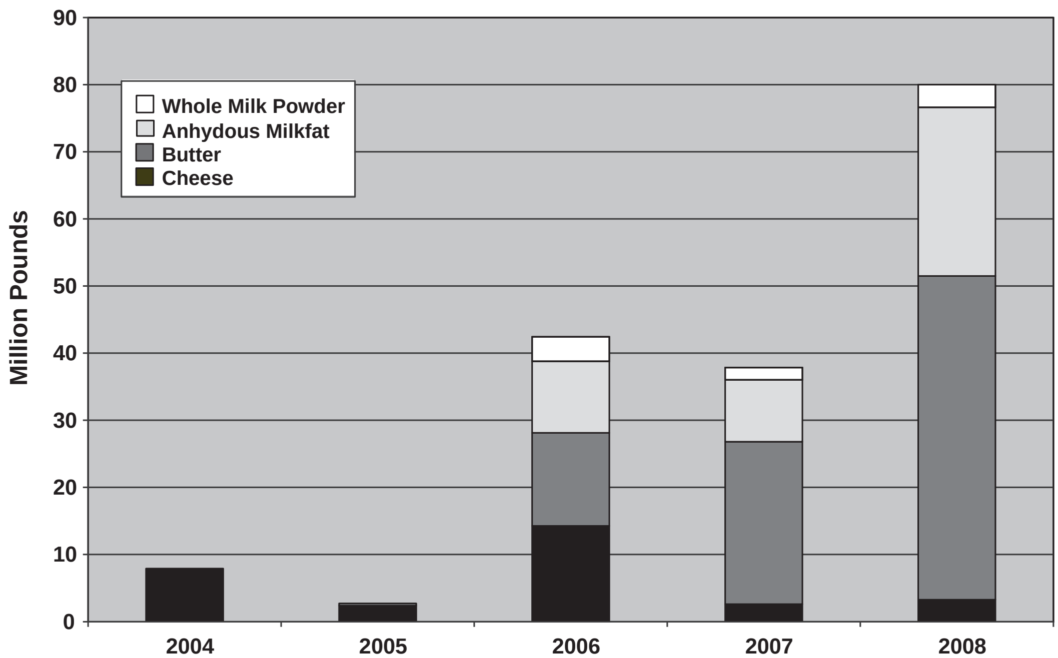
The CWT Export Assistance Program

The export assistance program was included in the CWT original program detail announcement on July 11, 2003. In November 2003, an export assistance announcement was made where CWT made $20 million available for export assistance and announced that the program was expected to move 30 million pounds of cheese and 10 million pounds of butter overseas. To avoid conflict with significant volumes of nonfat dry milk that could be moved under the Dairy Export Incentive Program (DEIP), CWT has not offered export assistance to nonfat dry milk.The November 2003 export assistance announcement suggested that the export assistance program would kick in when cheese prices were l ess than $1.30 per pound and when butter prices fell below $1.10 per pound.

The total volume of dairy products exported with CWT export assistance remained below 10 million pounds annually until 2006 when slightly more than 40 million pounds moved under the program. In 2004, CWT raised the triggers for export assistance to $1.40 per pound for cheese and $1.30 per pound for butter. By 2008, CWT had removed specific triggers for the operation of the export assistance program.

Note from the figure below that 2008 has been the largest year for use of CWT export assistance with 80 million pounds of products exported with assistance. In 2008, the difference between world prices and domestic prices reduced the level of per unit assistance required, making the program less expensive to operate. With the collapse of world prices in 2009, export assistance was not used. In March 2010, CWT announced the use of export assistance for cheddar cheese.

CWT Export Assistance Levels



Issues Regarding the Operation of the CWT Program

As with any program that has operated in agricultural markets, there have been critics of the CWT program and the associated benefits and costs to the U.S. dairy industry. There are several features involved in operating the CWT program that can influence the effects the program can have on the marketplace. Some of the criticism can be tackled head on while other criticism remains impossible to answer with certainty given CWT effects happen simultaneously with everything else happening in the industry.

The herd retirement program has had critics that feel significant producer cheating has occurred. Moving of milking cows in the night or construction of a CWT herd retirement operation are examples of these criticisms. However, the stories of these kinds of activities often greatly exaggerate what has happened in reality. CWT has a formal audit process that takes place for each operation that bids into a herd retirement to ensure compliance with the program. Additional guidelines have been incorporated through time that has minimized the ability to take advantage of the system. Cheating in any program can never be eliminated but the guidelines used by CWT make this a rare problem.

Perhaps a more important issue to the CWT herd retirement program is whether the program has bought cows that were going to leave regardless of the whether they were taken out in a herd retirement event or not. This is often described as “buying air” since the production was going to leave anyway. It is impossible to know which or how many dairy farmers who bid into a herd retirement would have done so in the absence of the program. It is clear that CWT bought and removed cows that were contributing to current milk supplies. By buying these cows, they were removed from production instead of being sold to another dairy farmer who continued to milk them. So regardless of producer intent, CWT herd retirement removed milk supplies more quickly than would have occurred otherwise.

The CWT program does not require producers to stay out of production when they participate in a herd retirement round; only that they sell all of their milking cows. If producers have interest in multiple operations, they must offer cows from all of the operations if they wish to participate. Rule changes in 2009 require producers to stay out of production for twelve months to receive their full payment. Specifically, producers are paid 90 percent of their bid when accepted but the last 10 percent plus interest is paid twelve months later when it is verified that the producer and the producer's operation still remains out of milking. But this CWT feature is less restrictive than many of the government voluntary supply management programs used in the past. Consequently, bids under CWT have fallen well below the average $15 bid accepted under the whole herd buyout program of the 1980s, which has been the only other program that directly targeted cow removal. This aspect of the program has led to discussion about how quickly CWT herd retirement producers are returning to production. CWT surveyed producers who participated in the 2007 herd retirement program and found that 88 percent of those who returned a survey did not plan to return to production. Many of the respondents cited economic conditions as the reason for exiting with only eight percent wanting to start a new herd and one percent of respondents indicating that they wanted to relocate the dairy.

Perhaps more important to the magnitude of the effects of a herd retirement program is how producers not participating respond. If these producers are interested in expanding their operation, they may time their expansion to coincide with a herd retirement round, anticipating higher milk prices from the herd retirement. Current economic conditions facing the industry and the availability of dairy heifers are important determinants of the magnitude of this effect. Other things held constant, the less anticipated a CWT herd retirement round, the less likely non-participants are to ramp up cow numbers and thereby offset the CWT program effect.

Many participating dairy producers have voiced concern regarding those producers who are not contributing to the CWT program but still benefit from it through the participation of others. The CWT program saw participation reach 74 percent around 2006 but then decline to below 70 percent today. Declining participation reduces total funding for CWT and diminishes its impact. How to increase participation and funding appears to be the largest issue the CWT program will need to address in the near term.

CWT herd retirements have little long-term effect on milk supplies. The general economic conditions facing the dairy industry will determine milk supplies. However, CWT can significantly influence short-run milk supplies in periods of low economic returns. If CWT herd retirements end, the industry will return to the same level of milk supplies in three to five years that would have occurred in absence of the program. As a result, herd retirements can have significant effects on the path towards long-run milk prices. Analysis conducted by Brown for the CWT program shows that the effects of an individual herd retirement are completely gone after about three years. Yet the combination of all herd retirement events has provided an increase in 2009 U.S. all milk prices of over $1.50 per cwt.

CWT export assistance moves certain dairy products out of domestic markets and into world markets. That reduces available supplies of these dairy products and raises their prices. How much depends on the elasticity of domestic demand for these products. The more inelastic the demand the larger the price increase.

The market psychology of the export assistance program may have also benefited dairy prices. The market price for cheese stayed slightly above CWT trigger levels during some periods of the programs operation. Further longer term help to producer returns can occur if export assistance helps companies develop new longer term markets for U.S. dairy products. The USDEC involvement in export assistance may prove helpful in developing new markets for U.S. dairy products over the long term. Brown's analysis suggests that the 80 million pounds of dairy products that received export assistance in 2008 increased U.S. all milk prices by about $0.10 per cwt in that year.

Endnotes

[1] Initially, CWT also included a milk production reduction incentive program that, like the Milk Diversion Program, paid producers for cutting production below a base level. This program was used only once since there was limited interest with only 514 bids submitted and 77 bids accepted for the program in 2003.

Mandatory Milk Supply Management

The dairy industry works within a market economy governed by the laws of supply and demand. This means that market forces interact within the confines of dairy market regulations to influence the level of farm milk prices, milk production and milk and dairy product consumption. When milk production increases faster than consumption, the laws of supply and demand imply that the market price of milk will fall. As prices fall, some dairy farmers may leave the dairy industry. Simultaneously, consumption increases as wholesale and retail prices of milk and dairy products slowly decrease. These forces continue until a milk price is determined that balances milk production and consumption, plus any quantity purchased by the existing federal dairy price support program.

Since the mid-1990's, support prices established under the federal price support program have been at a level that provides a very limited safety net to farm milk prices. The result has been increased volatility of farm milk prices. When farm milk prices are relatively high expansions and new entrants increase the size of the nation's dairy herd and total milk production, putting downward pressure on farm milk prices. Falling farm milk prices lead to unfavorable producer returns, causing some producers to exit dairying and reducing cow numbers and milk production. Dairy producers struggle with managing the risk associated with these volatile milk prices. When milk prices are low dairy producers are under financial stress and experience loss of equity in their operation. When milk prices improve it takes a period of time to recover and build back lost equity. These ups and downs have turned attention to some type of supply management program that will reduce price volatility and prevent the very low milk prices that cause costly disinvestment.

Public policy issues

Supply management can be defined as a national program that regulates the level of milk production to match the demand for milk and dairy products at an acceptable farm milk price level. Supply programs may be either voluntary or mandatory. Voluntary supply management, like the Milk Diversion and Whole-Herd Buyout programs of the mid-1980's, typically offer a carrot to encourage participation. Mandatory supply management uses a stick—penalties for failing to adhere to production limits. Mandatory supply management programs for dairy in the U.S. have long been discussed and debated, but have never come close to being adopted. But with increased milk price volatility and a sustained period of very low prices, interest in adopting some type of mandatory supply management program has increased.

On the surface, a mandatory supply management program may look rather simple. Some central authority calculates the anticipated level of consumption at a specified milk price and then makes sure the amount of milk marketed matches consumption at this price. However, implementing such a program within a dairy industry comprised of about 70,000 commercial dairy farmers would be a formidable endeavor. In particular, with differences in milk production costs among regions of the U.S. and among individual farmers within a region, deciding on an appropriate farm milk price target would be contentious. And determining the amount of milk production that matches domestic consumption and export sales at the target price would be an enormous challenge.

Because the goal of mandatory supply management is to restrict milk production to maintain farm milk prices above where they would otherwise be, the right to deliver milk to the market becomes a valuable possession. Some method must be developed to allocate these rights to current or would-be dairy producers. As domestic consumption and/or dairy exports grow, questions emerge regarding how this growth should be allocated between current producers and new entrants to the industry. Should these market rights, defined as a base or quota milk volume, be held by individual dairy producers or owned by the government and allocated through a government agency? Should the marketing right be freely transferable from one dairy producer to another or should the right be tied to the dairy farm? Should the marketing right be on volume of milk or volume of milk components marketed?

Mandatory supply management programs can have structural consequences. The implementation of mandatory supply management by allocating bases/quotas to existing dairy producers has the effect of stabilizing the current human and physical capital base, technology practices, and location of milk production. The tendency of mandatory supply management programs is to freeze the structure of dairy farms and regional milk production. How bases/quota is transferred determines how quickly this structure may change. If bases/quotas are freely transferable and not tied to a specific dairy facility, structural changes would be quicker than those tied to a facility or region of the U.S.

History of milk supply management

Mandatory milk supply management programs have been widely discussed and several related bills have been introduced in Congress. None of these bills has passed. Voluntary supply management programs have been implemented, but only temporarily. The Milk Diversion Program operated from January 1, 1984 through May 31, 1985. Under this program dairy producers who voluntarily reduced their milk marketings from the previous years by 10 to 30 percent were paid $10 per hundredweight for the reduced marketings. Then from April 1, 1986 through August 31, 1987 the Dairy Termination program was in effect. Dairy farmers submitted bids for agreeing to slaughter or export their entire herd of milk cows and replacement heifers and to remain out of dairying for the next five years.

The depressed milk prices experienced in 2009 again motivated industry support for some type of milk supply management program. Proposals for both voluntary and mandatory programs are being discussed, with some proposals drafted into bill form and introduced to Congress. Whether there will be sufficient Congressional support and support by dairy farmers to put a supply management program in place is uncertain. In the past, dairy farmer interest in supply management has dwindled if milk prices improve during Congressional debate on supply management proposals.

Concerns and issues with mandatory supply management

Maintaining a milk price and/or reducing price volatility different from what normal market forces would dictate requires careful management of milk supply. A number of decisions need to be made by a central authority, most likely the US Department of Agriculture with the possibility of input from an industry advisory committee. Concerns and issues that need to be considered include the following:

• ***Facilitating change:*** Dairy markets need to be allowed to evolve and change. Successful supply management programs need to contain a mechanism to allow for milk production capacity to adjust as domestic consumption and dairy exports change. USDA must forecast the amount of milk production needed for domestic consumption and exports at least annually and adjust quotas accordingly. In addition, the target milk price under the program needs to be adjusted from time to time to reflect changes in milk production costs.

• ***Transferability:*** The need to transfer bases and quotas arises when supply controls are in place for more than a year or two as some producers exit the industry, some want to expand milk production and others want to enter the industry. The options for transfer include letting existing dairy producers sell and transfer their base and quota to the highest bidder, perhaps through an organized auction market, having the bases and quota owned and controlled by the government, or a combination of these two options. Allowing dairy producers to be free to sell and transfer bases and quotas could lead to a concentration of allowable milk production among a small number of relatively large dairy operations and making it extremely difficult for new producers to enter dairying. Politics is likely to enter into a system where the government controls all transfers. A combination of these options could allow producers to transfer a portion of their base and quota with the government controlling and transferring the remaining portion to other dairy producers and to new producers.

Quotas used by some countries also restrict geographic transfers. For example, the EU prohibits the transfer of quotas between countries. Similarly, Canada restricts transfer between provinces. Such restrictions prevent milk production to move to areas of growing demand or lower milk production cost

• ***Capitalization of quota values:*** Because supply management programs are designed to elevate milk prices or keep them from falling, the first dairy producers to receive quota “rights to produce” stand to receive a significant windfall gain. If quotas are allowed to be transferred, their value will eventually rise to the value of benefits accruing over time. This is true whether quotas are tied to farms, cows or just pieces of paper. This capitalization makes it difficult for new producers to purchase enough quota to enter dairying and increases the cost of dairy expansion by existing producers. Only a government-owned and controlled quota transfer system could eliminate or reduce this capitalization issue. It is doubtful that this much government control would be acceptable to dairy producers.

• ***The penalty for over quota production:*** To ensure the mandatory supply management holds milk production to the level necessary to achieve a higher milk price, there needs to be a penalty for producing and marketing milk in excess of quota. This most likely would involve a two-tier pricing system that has a relatively high price for quota milk and a low milk price for over quota milk that is below the variable cost of production. But with significant differences in milk production costs among individual dairy producers and regions of the U.S., getting a consensus on what is an acceptable price for quota milk and the penalty for over quota milk may be difficult.

• ***Demand impacts:*** If supply management increases average farm milk prices, then, average prices for milk and dairy products to consumers will also be higher. While the demand for milk and dairy products is inelastic, consumers do respond to prices and higher prices mean lower consumption of milk and dairy products. The decision on the level of farm milk price to maintain must take into consideration the impact on consumption.

• ***Imports and exports:*** The decision on the level of farm milk prices to maintain under supply management also needs to take into account the impact on dairy imports and dairy exports. A farm price that is too high may attract additional imports or require tightened import restrictions. U.S. dairy products could become less competitive in international markets, reducing export potential.

Endnotes

[1]Wholesale and retail prices don't necessarily change by the relative same amount as the farm milk price changes.

Federal Milk Marketing Orders

This paper is lengthier than the other papers in this series because the issues are more complicated. Federal milk marketing orders have evolved over 75 years. Over that time, there have been numerous changes in pricing rules and other regulations to conform to changes in the dairy industry. Changes in federal orders have frequently been controversial, often because of their disparate regional effects.

We begin this paper with a general discussion of how federal orders work. We then move to some aspects of orders that have generated recent controversy: methods of setting minimum prices for milk used for manufacturing and for moving other milk prices; level and regional pattern of Class I milk prices; number of classes and dairy products within classes; and regulations related to pooling.

We stress at the outset that our description of federal milk marketing order pricing is simplified and abbreviated. Readers looking for more detail should refer to:

Jesse, Ed, and Bob Cropp, Basic Milk Pricing Concepts for Dairy Farmers, Bul. No. A3379, Cooperative Extension, University of Wisconsin-Extension, Sept. 2008.

Milk Pricing Under Federal Milk Marketing Orders

Federal milk marketing orders regulate the pricing of about 65 percent of the Grade A milk produced in the United States.[1] Most of the remaining Grade A milk is regulated by state marketing orders, the largest of which is California's state order that prices about 21 percent of U.S milk. Federal orders require milk plants, called handlers, to pay no less than specified minimum prices for milk and milk components according to how their milk receipts are used; that is, what products they make. This is called classified pricing. Producers—who are not regulated under orders—are guaranteed minimum prices that represent weighted average values of the handler prices. This is called market-wide pooling.

Classified pricing

Federal orders define four classes of milk, from highest to lowest value in most cases:

1. Class I milk is used for beverage products. These products include whole, low-fat and skim milk, chocolate and other flavored milk, liquid buttermilk and eggnog.

2. Class II milk is used for soft manufactured products like ice cream and other frozen desserts, cottage cheese and cream products.

3. Class III milk is used for manufacture hard cheeses and cream cheese.

4. Class IV milk is used to make butter and dry milk products, principally nonfat dry milk.

USDA announces monthly minimum handler pay prices for each of the four classes of milk. according to a predefined schedule. Monthly prices for Classes III, Class IV, and the butterfat portion of Class II are announced on the Friday on or before the 5th of the month following the month to which they apply. For example, March 2010 prices were announced on Friday, April 2.

Based on the argument that Class I milk products and most Class II milk products move through the marketing system within a few days of processing, the minimum Class I price and the minimum skim milk price for Class II are announced earlier than the Class III and IV prices. They are announced by USDA on the Friday on or before the 23rd of the month before the month to which they apply. This "early warning" is designed to allow processors to alter price sheets to retailers and other distributors before the new prices become effective. For example, the March 2010 prices were announced on Friday, February 19.

The following table details the Class price announcement dates for the month of March 2010.

The Class prices are based on product price formulas that relate milk component values to: (1) the wholesale prices of dairy products manufactured from the milk components, (2) the yield of the finished product in terms of the milk components used to make them, and (3) assumed manufacturing costs, or make allowances. The volume of components per 100 pounds

USDA Announced Class Prices for March 2010

February 2010

Sun.	*Mon*	*Tues.*	*Wed.*	*Thurs.*	*Fri.*	*Sat.*
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	**19***	20
21	22	23	24	25	26	27
28						

***Class I price and Class II skim milk price announced**

April 2010

Sun.	*Mon.*	*Tues.*	*Wed.*	*Thurs.*	*Fri.*	*Sat.*
				1	**2***	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	

***Class III and IV prices and Class II butterfat price announced**

of milk at standard composition is then multiplied by the component values to derive the Class III and Class IV prices per hundredweight. The formula-based procedure for setting minimum class prices was implemented January 2000.

Formulas tie all federal order milk prices directly and mechanically to wholesale prices for four dairy products: Grade AA butter, cheddar cheese, nonfat dry milk and dry whey. The wholesale prices used in the formulas are collected from sellers of these products and reported weekly by the National Agricultural Statistics Service (NASS). Reported prices are for products that have been priced and shipped. Prices based on long term contracts—that is, sales for which the selling price was set (and not adjusted) 30 or more days before the transaction was completed—are not included.

Details of the current pricing formulas for the four milk classes follow.

Class IV price

The Class IV price is linked to the values of nonfat milk solids and butterfat. Nonfat solids make up nonfat dry milk, and butterfat is the principal constituent of butter. Thus, the Class IV price is determined through formulas tying butterfat and nonfat solids prices to butter and nonfat dry milk prices.

Class IV Butterfat Price/lb =

(NASS monthly AA butter price/lb - 0.1202) X 1.20

The value, 0.1202, is the butter "make allowance," USDA's estimate of the cost of manufacturing a pound of butter. The value, 1.20, is the assumed pounds of butter made from one pound of butterfat.

Class IV Nonfat Solids Price/lb =

(NASS monthly nonfat dry milk price/lb - 0.1570) X 0.99

The nonfat dry milk make allowance is $0.1570 and the assumed yield of nonfat dry milk per pound of nonfat milk solids is 0.99.

Class IV Skim Milk Price/cwt =

9.0 X Nonfat Solids Price/lb

The assumption here is that 100 pounds of skim milk contains 9.0 pounds of nonfat milk solids.

Class IV Price/cwt =

3.5 X Butterfat Price/lb + 0.965 X Class IV Skim Milk Price/cwt

The Class IV price per hundredweight is the combined value of 3.5 pounds of butterfat and 96.5 pounds of skim milk.

Class III Price

The Class III price is the value per hundredweight of milk represented by the value of butterfat in butter and in cheese, the value of protein in cheese and the value of other (nonfat, non-protein) solids in whey.[2] Accordingly, three related product price formulas link the butterfat price to butter prices, the protein price to cheese and butterfat prices, and the other solids price to dry whey prices. The Class III Butterfat Price/lb is the same as that derived in the Class IV price formula.

Class III Other Solids Price/lb =

(NASS monthly dry whey price/lb – 0.1956) X 1.03

The dry whey make allowance is about 4 cents per pound higher than the make allowance for nonfat dry milk in the Class IV formula. The assumed yield of dry whey per pound of other solids is 0.4 pounds more than the yield of nonfat dry milk per pound of nonfat milk solids.

Class III Protein Price/lb =

(NASS monthly cheese price/lb – 0.1682) X 1.383 + {[(NASS monthly cheese price/lb – 0.1682) X 1.572] – 0.9X butterfat price/lb} X 1.17

The first part of this complex equation is the net value of protein in cheese–making (cheese price less make allowance times pounds of cheese per pound of protein. The NASS cheese price is a weighted average price for 40-pound blocks and 500-pound barrels of cheddar cheese with weights based on relative sales. The 500-pound barrel price is adjusted to represent 38 percent moisture content and 3 cents is added to reflect a lower assumed make cost for barrel versus block cheddar cheese.

The second part of the protein price equation attempts to account for the value of butterfat in cheese in excess of the value of butterfat in butter. It recognizes that protein has value in cheese over and above its direct contribution to the cheese itself. That added value is attributable to the fact that the casein in protein allows retention of butterfat in cheese. In other words, cheese cannot be made from protein by itself. The 1.572 factor in the second part of the equation is the assumed pounds of cheese made from one pound of butterfat, holding everything else constant.

Class III Skim Milk Price/cwt =

3.1 X protein price + 5.9 X other solids price

The composition of skim milk is assumed to be 3.1 percent true protein and 5.9 percent other nonfat/non-protein solids.

Class III Price/cwt =

3.5 X Butterfat price/lb + 0.965 X Class III skim milk price/cwt

The Class III price formula accounts for all of the value of a hundredweight of milk testing 3.5 percent butterfat, 2.99 percent true protein (3.1 X 0.965) and 5.69 percent other solids (5.9 X 0.965) that is used to make cheese and whey.

Class II Price

Class I and Class II skim milk component values are advanced-priced. The pricing formulas are exactly the same as used for Class III and Class IV component values, but the wholesale prices used in the formulas are from a different and shorter time period. Advanced wholesale product prices are for the first two weeks of the month previous to the month to which the Class I and Class II skim milk price apply.

The Class II skim milk price per hundredweight is derived as follows:

Class II Skim Milk Price/cwt =

Advanced Class IV skim milk price/cwt + $0.70

The advanced Class IV skim milk price calculation is identical to that shown for the Class IV skim milk price except that the NASS advanced nonfat dry milk prices are used rather than the monthly prices.

Class II Butterfat Price/lb =

Class III/IV butterfat price + $0.007

Class II butterfat is NOT advanced-priced. It is the monthly Class III/IV butterfat price per pound plus 1/100 times the per hundredweight differential added to the Class II skim milk price. This equalizes the added value (over Class IV) of Class II skim milk and butterfat.

Class II Price/cwt =

3.5 X Class II butterfat price/lb + 0.965 X Class II advanced skim milk price/cwt

That is, the Class II price consists of the combined value of 3.5 pounds of butterfat and 96.5 pounds of skim milk.

Class I Price

Both the skim milk and butterfat portions of the Class I price are advanced priced and related pricing formulas use NASS advanced (2-week) wholesale product prices instead of the monthly NASS prices used in Class III and Class IV formulas.

Class I Skim Milk Price/cwt =

Higher of Advanced Class III or advanced Class IV skim milk price/cwt + Class I differential

Class I Butterfat Price/lb =

Advanced Class III/IV Butterfat Price/lb + Class I differential/100

The "mover" of Class I skim milk prices is the higher of the advanced Class IV or Class III skim milk price. Class I differentials are specified for each county within a federal milk marketing order marketing area. In general, differentials within orders decrease with distance from the major consumption location within the order marketing area. Differentials range from a low of $1.60 per hundredweight for some North Dakota counties to a high of $6.00 for some Florida counties.

Pooling

Pooling is accomplished under federal orders by obligating each regulated handler to account for milk receipts according to how the milk was utilized within each of the four classes. Handlers pay into or draw from a producer settlement fund depending on the value of their milk receipts priced at order minimum prices relative to the market-wide average value (often called uniform price or blend price). Basically, a Class I bottler would pay into the pool the difference between the higher-valued Class I milk and the market-wide average value. A Class III handler (e.g., a cheese plant—called a supply plant under the order) would draw out of the pool the difference between the market-wide average price and the lower Class III price. Each handler (the exception being dairy cooperatives) is obligated to pay producers no less than the federal order market-wide uniform price.

A handler's obligation under the pooling concept is as follows:

Class I obligation =
Class I skim milk price at location[3] X skim milk pounds
+ Class I butterfat price at location X butterfat pounds

Class II obligation =
Class II nonfat solids price X nonfat solids pounds
+ Class II butterfat price X butterfat pounds

Class III obligation =
Protein price X protein pounds
+ Other solids price X other solids pounds
+ Class III/IV Butterfat price X butterfat pounds

Class IV obligation =
Nonfat solids price X nonfat solids pounds
+ Class III/IV Butterfat price X butterfat pounds

The following items are deducted from the gross value of each handler's milk based on the obligation's noted above to derive the "net" handler obligation to the pool:

• Producer price differential (for orders using multiple component pricing)

• Butterfat, Protein and Other Solids value at minimum component prices

• Producer location adjustment

• Somatic cell count adjustment value (in some orders)

If the results of subtracting these deductions from gross milk value is positive (which is normally the case for a Class I handler), the handler pays the difference into the producer settlement fund. If the result is negative (as it normally would be for a Class III handler), the handler draws the difference from the fund.

The *producer price differential* (often abbreviated, PPD) applies to the federal orders that pay producers on the basis of milk components marketed—pounds of butterfat, protein and other solids.[4] For these orders the handler is obligated to pay producers the Class III values per pound of butterfat, protein and other solids marketed by the producer. The PPD is a measure of how much the average market-wide value of handler receipts exceeds the average value if all milk were priced at Class III.

The PPD can be approximated by adding the differences between the Class III price and the Class I, Class II and Class IV prices multiplied by the respective percent utilization of milk in the entire pool as Class I, II and IV. For example, in January 2010 the Class III price was $14.50. An estimate of the PPD in January 2010 for the Upper Midwest order would be calculated as follow

($16.83 Class I - $14.50) X 13.0% Class I = $0.3029

($15.22 Class II - $14.50) X 2.6% Class II = $0.0187

($13.85 Class IV - $14.50) X 2.0% Class IV = ($0.0130)

January PPD = $0.3086

The actual PPD will differ from this sum due to other adjustments in the order pool including transportation credits, assembly credits and producer milk somatic cell count adjustment.

The *producer location adjustment* accounts for differences in the Class I differential at the receiving plant (plant where milk is processed) and the differential at the location of the supply plant (plant that supplies raw milk) for interplant milk shipments.

The *somatic cell value* relates to price adjustments for quality at the producer level for milk used in Class II, III and IV. Quality is measured by somatic cell count of producer milk relative to a base level of 350,000 cells per ml. Since somatic cell count affects cheese yield, a rate per 1,000 cell count above or below the base is derived by multiplying the cheese price used in the protein price formula by 0.0005.[5]

Handlers' producer settlement fund payments may be adjusted by transportation credits and assembly credits. Transportation credits apply to actual shipments of milk for Class I use from supply plants to distributing plants to partially defray the cost of moving the milk to the Class I market. Distributing plants are primarily engaged in processing packaged fluid milk products. Supply plants are primarily engaged in manufacturing dairy products, shipping milk to distributing plants on an "as needed" basis and to meet minimum shipping requirements under the applicable order. Assembly credits are paid to pool plants (distributing plants, supply plants, and cooperatives) on producer milk that is used for Class I purposes. Assembly credits provide an additional incentive to "give up" milk for Class I use that may otherwise be destined for manufacturing. Transportation and assembly credits are only paid to handlers on actual movements of milk to Class I use and are subtracted from the total pool proceeds in the process of calculating the PPD. In other words, the total Class I value is reduced by the amount of these credits.

The producer settlement fund accounting is illustrated in the table below for two handlers using actual Upper Midwest Order January 2010 component prices, Class I differential and PPD. Both handlers have January milk receipts of 200,000,000 pounds of milk with a milk composition of 3.7 percent butterfat, 3.08 percent protein and 5.7 percent other solids.

Illustration of Producer Settlement Fund Obligations

Class of milk, deductions and milk components		***Rate per pound***	***Handler 1***		***Handler 2***	
			Pounds	***Value***	***Pounds***	***Value***
Class I:	Skim milk	$0.1162	128,050,000	$14,879,410	3,940,000	$457,828
	Butterfat	$1.5874	1,950,000	$3,095,430	600,000	$952,440
Class II:	Nonfat solids	$1.1689	2,724,000	$3,184,084	908,000	$1,061,361
	Butterfat	$1.4475	3,990,000	$5,775,525	1,330,000	$1,925,175
Class III:	Protein	$2.7916	616,000	$1,719,626	4,312,000	$12,037,379
	Other solids	$0.1946	1,140,000	$221,844	7,980,000	$1,552,908
	Butterfat	$1.4405	740,000	$1,065,970	5,180,000	$7,461,790
Class IV:	Nonfat solids	$1.0148	1,880,000	$1,907,824	940,000	$953,912
	Butterfat	$1.4405	720,000	$1,037,160	290,000	$417,745
Total value for Handler				**$32,886,873**		**$26,820,538**
Less: deductions from the pool						
	•PPD	$0.0026	200,000,000	$520,000	200,000,000	$520,000
	•Protein value	$2.7916	6,160,000	$17,196,256	6,160,00	$17,196,256
	•Other solids value	$0.1946	11,400,000	$2,218,440	11,400,000	$2,218,440
	•Butterfat value	$1.4405	7,400,000	$10,659,700	7,400,000	$10,659,700
Total deductions				**$30,594,396**		**$30,594,396**
Net to/from the pool				**$2,292,477**		**($3,773,858)**

Handler 1 has milk utilization of 65 percent Class I, 15 percent Class II, 10 percent Class III and 10 percent Class IV. Handler 2 has milk utilization of 20 percent Class I, 5 percent Class II, 70 percent Class III and 5 percent Class IV. Both Handlers receive milk that has an average somatic cell count of 350,000, so the somatic cell adjustment is zero.

Handler 1, primarily a bottling plant, has a positive net pool obligation of $2,292,477 and pays that amount into the producer settlement fund. Handler 2, primarily a cheese plant, has a negative pool obligation of ($3,773,858) and draws that amount from the producer settlement fund.[6]

The Class I price and the Class II skim milk price are announced about 10 days before the first of the month to which they apply whereas Class III and Class IV prices are announced a few days after the first of the month to which they apply. Because of this roughly six week time difference, the Class III price occasionally ends up higher than the Class I price when there is a large and rapid increase in either the Class III or Class IV price. This "price inversion" results in a negative PPD and reverses the normal pool obligations of distributing plants and supply plants—Class III handlers pay into the fund and Class I handlers draw from the fund. To avoid making producer settlement fund payments, many supply plants "depooled" (became unregulated plants) in months when the PPD was negative, causing considerable market disruption. Recent USDA decisions have tightened rules for pooling and de-pooling.

Producer prices

With federal order pooling, producers receive a common price for their milk regardless of how their milk is used. Minimum pay prices to producers will differ among plants within an order only according to milk composition, milk quality (in orders with a somatic cell count adjustment), and the location of the receiving plant.

In the six orders using multiple component pricing, handlers must pay producers at least the following gross amount:

Individual Producer Total Gross Milk Payment, Multiple Component Pricing Orders =

Pounds of butterfat marketed X the butterfat price per pound

+ Pounds of protein marketed X the protein price per pound

+ Pounds of other solids marketed X the other solids price per pound

+ Producer price differential X hundredweights of milk marketed

+/- Somatic cell adjustment per hundredweight of milk marketed (if applicable)

In the four federal orders that use fat/skim milk pricing, handlers must pay producers at least the following gross amount:

Individual Producer Total Gross Milk Payment, Fat/Skim Orders =

Hundredweights of skim milk marketed X uniform skim milk price

+ Pounds of butterfat marketed X uniform butterfat price

+/- Hundredweights of milk marketed X plant location adjustment

The uniform skim milk price is the weighted average skim milk price from each of the four classes of milk as calculated from the formulas detailed earlier. The uniform butterfat price is the weighted average butterfat price from the four classes of milk as calculated from the formulas. The plant location adjustment may be positive or negative depending upon the location of the milk plant.

Summary

Ten federal milk marketing orders regulate the pricing of about 65 percent of the Grade A milk marketed by producers in the United States. Six of these orders pay producers on the basis of milk components marketed—butterfat, protein and other solids—and four pay producers using fat/skim milk pricing. In both forms of payment, milk component, skim milk, and standardized whole milk values are determined from formulas that link these values directly to wholesale prices for four dairy products: Grade AA butter, cheddar cheese, nonfat dry milk and dry whey. Wholesale prices used in the formulas are collected from sellers and reported weekly by the National Agricultural Statistics Service (NASS). Based on these pricing formulas, USDA announces monthly minimum handler pay prices for four use classes of milk. Handlers are obligated to a federal order pool for the value of the milk they received based on use class and class prices. In turn, regulated handlers (except dairy cooperatives) are required to pay producers no less than the announced federal order prices for milk and milk components.

Setting and Moving Class Prices

Historical review

During the 1940's and 1950's, individual federal milk marketing orders used several different methods to establish minimum class prices. Most orders then had three classes: Class III (which included all milk used to make nonperishable manufactured dairy products), Class II (perishable or fresh products) and Class I (beverage milk). Besides serving as the minimum price for milk used for manufacturing, the Class III price often served as the base price for Class II and Class I prices.

Economic formulas were used in most orders to determine the base price. These formulas included factors that reflected general economic conditions such as inflation, wholesale prices, and wage rates; supply conditions such as feed costs, prices received for all farm products, farm wage rates, and stock levels of dairy products; and demand conditions such as Class I sales, inflation rate, and consumer income. These factors were weighted to determine an index for making monthly adjustments in the base price. Other orders used selling prices of dairy products such as butter and cheese in product formulas to calculate the base price. Because different methods were used to set minimum prices for milk used to make manufactured dairy products, prices varied considerably among federal orders.

By the early 1960's, this uncoordinated pricing system began to exhibit problems. Improved transportation systems meant that nonfat dry milk, butter and cheese could be economically transported across the country. Using a host of different economic index formulas or product formulas resulted in serious price alignment problems. Midwest manufacturing plants complained that "surplus" Grade A milk not needed for Class I purposes was being priced lower in the Northeast, placing them at a competitive disadvantage in selling their manufactured dairy products in what was increasingly a national market.

The need for uniformity and consistency in federal milk order pricing provisions was emphasized through a series of federal order hearings. USDA concluded that in order to achieve competitive equity, surplus milk had to be priced uniformly among orders and these prices had to be aligned with competitive pay prices being paid for the majority of the unregulated manufacturing grade milk (Grade B) in the United States. USDA determined that these objectives could best be achieved by using the reported Minnesota-Wisconsin Grade B milk price (M-W price) as the uniform Class III price. Most of the milk produced in Minnesota and Wisconsin was Grade B and these two states accounted for the majority of U.S production of Grade B milk. Manufacturing plants in these two states competed aggressively for Grade B milk supplies. Further, since Minnesota and Wisconsin represented the major reserve supply area for Grade A milk for Class I use, national milk supply and demand conditions were reflected in the M-W price.

To achieve orderly marketing, USDA deemed it necessary to tie federal order Class II and Class I prices to the Class III price in a consistent fashion across orders. So not only did the M-W price become the common price for Grade A milk used for manufactured dairy products, it also became the mover of both Class II and Class I prices. The M-W price was first used for setting minimum prices paid by regulated milk plants (handlers) in the Chicago Regional marketing order in 1961 and was gradually adopted by other federal orders during the remainder of the 1960's.

The M-W price was computed by the National Agricultural Statistics Service (NASS). It was reported on or before the 5th of each month and applied to Grade B milk delivered during the previous month. Derivation of the M-W price involved a two-stage process involving two different surveys of manufacturing milk plants that purchased Grade B milk in Minnesota and Wisconsin. In the first stage, base month prices were estimated from a summary of monthly reports from a sample of manufacturing milk plants located in the two states. The plants reported after the end of the month to which the base month estimate applied. Hence the base month price was after-the-fact. It represented an estimate of what plants actually paid for Grade B milk. The base month price was reported by NASS by the fifth of the month two months after the month to which it applied. For example, the base price for a September M-W would be released on or before October 5, and represent the estimated plant pay prices for August.

In the second stage of the M-W price derivation process, NASS surveyed a sub-sample of Minnesota and Wisconsin Grade B plants. These plants reported actual pay prices for the first half of the month and estimated pay prices for the second half of the month to which the M-W price applied. NASS used this information to calculate an estimate of the change in the Grade B prices from the base month to the current month. The change in price was added to (subtracted from) the base month price to create the M-W price.

By the late 1980's, the M-W price had become an increasingly unreliable indicator of national supply and demand conditions for milk used for manufacturing for several reasons. Competition for Grade B milk in Minnesota and Wisconsin had substantially diminished with steady declines in Grade B milk production and the number of plants buying Grade B milk. Total milk production in both states had also fallen, resulting in excess manufacturing plant capacity and the use of various competitive plant premiums and farm-to-plant hauling subsidies in an attempt to keep plants full. Multiple component pricing was becoming more common. And the Upper Midwest region (primarily Minnesota and Wisconsin) was no longer the only area having reserve Grade A milk supplies.

A federal order hearing was held in 1992 to explore alternatives to the M-W price. Proposals for other competitive pay prices and well as product price formulas were offered. USDA recommended that the M-W price be replaced by the Basic Formula Price (BFP). The BFP retained the base-month price from the M-W price, but replaced the change in the base-month price with a change in value of manufactured products generated by a product price formula. Specifically, the base month change was the weighted percentage change in butter, nonfat dry milk, dry buttermilk and cheese prices. The prices used in the product price formula were monthly average prices as reported by Dairy Market News and the weights were based on milk use in Minnesota and Wisconsin. The BFP went into effect on June 1, 1995.

Federal order reform was later mandated by the Federal Agriculture Improvement and Reform Act of 1996. Among other things the Act required USDA to conduct a study on replacing the BFP. The study analyzed several alternatives including another competitive pay price series (NASS at this time was collecting and reporting A/B competitive pay prices), economic formulas and product price formulas.

USDA ultimately recommended using product price formulas that included make allowances and product yield factors to calculate the minimum monthly prices for Class III and Class IV. These formulas replaced the BFP in January 2000. While the make allowances and yield factors have changed over time, product price formulas as described earlier continue to be used today.

Shortly after their adoption, USDA called a hearing to consider adjustments to the Class III and Class IV product price formulas to conform to a Congressional mandate. Resulting amendments were minor except for a proposed separation of Class III and Class IV butterfat prices, which was enjoined by a federal court before implemented. In Late 2001, USDA issued a recommended decision to address the injunction. The department scrapped the separate butterfat classes and made some smaller changes in the formulas that became effective two years later.

USDA held another hearing in 2007 to address concerns of manufacturing milk plants that make allowances were not reflecting increased energy-related costs. Based on this hearing, higher make allowances were implemented July 1, 2008.

Product price formula Issues

Do Class III/IV prices reflect national supply and demand conditions and plant operating costs for manufacturing use milk? When federal milk orders used competitive pay prices (the M-W price and the BFP), minimum class prices were tied to competitively-determined prices paid by milk plants for manufacturing milk. There was a certain sense of confidence associated with that linkage, as competition for the milk supply tended to dictate plant margins, profitability and viability. Efficient plants making the right products attracted milk away from plants that were less-efficient or making products with weak demand. This confidence has waned since 2000 when federal orders implemented product price formulas. Formulas derive milk component values and milk prices through mathematical equations that employ assumed yields and manufacturing costs. Milk plants differ significantly with respect to manufacturing costs and efficiency. Manufacturing costs can quickly change with changes in energy, labor and other costs. The fixed manufacturing costs in the formulas can only change through a lengthy administrative process. Plants cannot offset higher manufacturing costs by increasing their selling price of cheese, butter or nonfat dry milk—any price increases are immediately reflected in higher NASS product prices and elevate minimum pay prices for Class III and Class IV milk through the formulas.

Do formulas use the right dairy products? Cheddar cheese, butter, nonfat dry milk and dry whey prices are used in the current product price formulas.

Do the prices of these products accurately reflect the value of milk for Class III and Class IV uses? Cheddar cheese only represents 32 percent of total cheese production. Not all cheese plants process whey or make and sell dry whey. Increasingly larger volumes of whey are being processed into value-added products such as whey protein concentrates and whey protein isolates. The prices of these value-added products don't necessarily move in concert with dry whey prices. Dry whey is used to derive the other solids price in the Class III formula. When dry whey prices increased dramatically in 2007, a higher other solids price was responsible for a large part of the elevated Class III price. As a result, many cheese plants experienced unfavorable operating margins. A similar situation is occurring with nonfat dry milk. During 2007-2008 the U.S. experienced expanding exports of skim milk powder. Skim milk powder has a different composition than nonfat dry milk and prices are influenced by different factors. But nonfat dry milk is used to derive the nonfat solids price in the Class IV formula.

Are product prices representative? Product price formulas require reliable and representative market prices for dairy products in order to derive accurate component values. Butter and cheese prices are tied strongly to wholesale prices on the Chicago Mercantile Exchange (CME). But largely because of concerns over the thinness of the CME cheese and butter markets (few traders and a small percentage of the dairy product actually traded), prices reported by NASS are used instead. NASS collects actual sales prices from reporting plants, but does not include contract sales with prices longer than 30 days.

Despite criticism of the CME butter and cheese markets, the industry uses CME prices as formal or informal references in establishing actual selling prices for the vast majority of transactions. This raises important questions. Do CME prices accurately reflect broad market conditions or are they subject to manipulation? Should the prices in forward pricing contracts be included in NASS reporting? Since NASS reported prices lag CME and actual selling prices, would using CME prices in formulas yield Class III and Class IV values more responsive to rapidly-changing market conditions? Would some other reported prices—such as futures market prices—better reflect dairy product values?

Alternatives to current product price formulas

The inherent problems and issues with the current product price formulas have spurred interest in exploring a different means for establishing minimum Class III and Class IV prices and moving prices for Class II and Class III. Some alternatives to consider include:

• ***Amend current product price formulas:*** Consideration could be given to including other products in the formulas, such mozzarella cheese and whey protein concentrates. However, these products are not as standardized as is cheddar cheese or dry whey. Also, manufacturing cost could be adjusted more quickly by indexing input costs such as energy and labor in the formulas. But the issue of differences in costs and efficiencies among plants remains.

• ***Use economic index formulas:***: As noted earlier, economic index formulas were widely used in setting minimum federal order prices during the 1940's and 1950's. Economic formulas can consider a large number of factors reflecting general economic conditions and supply and demand for milk and dairy products. But assigning appropriate weights to factors is an issue and it is uncertain whether prices resulting from economic formulas would adequately reflect dairy product market conditions and allow these markets to clear.

• ***Include milk production costs when setting prices:*** Dairy producers argue that federal order prices ought to reflect the cost to produce milk. Changing federal order prices to reflect changes in milk production costs would reduce the price risk now faced by dairy producers. This could very well spur expanded milk production beyond market needs and increase government cost under the dairy products price support program, or necessitate some type of government supply management. Further, milk production costs vary considerably among dairy producers within and across regions. Using an average cost of production would favor low cost producers and regions and could still be judged inadequate by producers in high cost regions.

• ***Return to a competitive pay price:*** With practically all of the nation's milk production Grade A, there is not enough Grade B milk to base a competitive pay price. Not all Grade A milk is regulated under orders, but unregulated Grade A milk may not be produced in areas of strong plant competition for milk. Areas where most of the regulated Grade A milk is used to make manufactured dairy products and sufficient plant competition exist could be considered for determining a competitive Grade A pay price. Regulated manufacturing milk plants could be exempted from paying minimum Class III and Class IV prices. The actual pay price by these exempt plants could then be used as the competitive pay prices for setting the minimum Class III and Class IV prices and moving Class I and Class II. To be feasible, this option would need to include some provision for exempt manufacturing plants to share in the federal order pool.

• ***Pool differentials/no minimum Class III and Class IV price:*** Under this option there would be no established monthly minimum plant pay prices for Class III and Class IV milk. Milk plants would pay whatever market competition dictated and report Class III and Class IV milk volumes to the federal order pool. Milk plants with Class I and Class II milk would pay into the federal order pool the respective Class I and Class II differentials on Class I and Class II milk volumes. The sum of this Class I and Class II differential revenue would be divided by the total volume of milk in the pool to determine a market wide uniform Class I/II value per hundredweight to be paid to dairy producers. Under competition the low cost and more efficient plants would most likely drive actual pay prices. Without announced minimum prices for Class I and Class II milk, dairy cooperatives could find it more difficult to negotiate over order premiums. The cost of raw milk to competing Class I bottlers could also differ among bottlers.

• *Set prices through Federal order hearings:* Federal order prices could be determined by having USDA periodically hold hearings and issue minimum prices based on the hearing record. Hearings could be time consuming and costly for regulated handlers. Further, unless hearings were held frequently, established minimum prices could become quickly out of date.

Setting Class I differentials

Historical review

The following criteria have been used in the past to establish Class I differentials:

• The additional cost of meeting Grade A (versus Grade B) standards.[7]

• Costs of transporting milk from areas of production to areas of consumption.

• Cost of producing milk in the supply area.

• Supply and demand for milk, including the cost of alternative supplies.

Class I differentials are set for each federal order and aligned between orders. Within a market area differentials decrease with distance from a major consumption location. This is to partially account for the cost of moving milk to the consumption location. Alignment of Class I differentials between federal orders was intended to assure orderly movement of milk from reserve areas to deficit areas when needed.

By the early 1960's it was recognized that improved transportation and packaging technology had made markets for manufacturing dairy products national in scope. Federal orders were gradually amended to use the same minimum price for manufacturing use milk—Class III—in all orders and to use the Class III price to move the Class I price. The Minnesota-Wisconsin (M-W) Grade B price series was initially adopted to serve this purpose.

Over time, Class I differentials were set to establish Eau Claire, Wisconsin, as a single basing point to align Class I prices among orders east of the Rocky Mountains. In the 1960s, Wisconsin and Minnesota were the principal source of reserve Grade A milk when need to provide supplemental milk for fluid use in other markets. Class I differentials increased about 15 cents per hundredweight per 100 miles with distance from Eau Claire, which was roughly equivalent to hauling costs for bulk milk shipments. These differentials remained unchanged from 1968 to 1985 despite increases in transportation costs. The rationale for keeping differentials constant was that Federal order prices were minimum prices, and dairy cooperatives could negotiate premiums to cover the added cost of transporting milk. Further, less and less reserve Grade A milk from the Upper Midwest was needed to supply distant markets.

In 1985, Congress passed legislation that increased differentials for federal order markets distant from the Upper Midwest. By the late 1980s, milk production in the traditional dairy states like Minnesota and Wisconsin was stabilizing or declining while milk production in some other states with much higher Class I differentials, for example Texas, was increasing. Reserve supplies of milk for Class I use outside of the Upper Midwest were also increasing.

The Upper Midwest charged that higher Class I differentials were encouraging expanded milk production not needed for Class I. The excess milk was being allocated to manufactured dairy products, lowering market prices and producer milk prices in areas where the majority of milk was used to make manufactured dairy products. In 1990, USDA held a national federal order hearing to review Class I pricing. USDA's decision was to retain existing Class I differentials. A suit challenging the legality of Class I differentials was filed by the Minnesota Milk Producers Association in early 1990. The suit was ultimately dismissed in 1999 after several appeals, reversals, and remands.

The Federal Agricultural Improvement and Reform Act of 1996 mandated federal order reform including a review of the structure of Class I differentials. After extensive study, USDA issued a final rule for a much flatter Class I price structure. The final rule was approved by producers in an August 1999 referendum. However, before the modified price surface could be implemented, Congress intervened, passing legislation that required USDA to adopt a price surface more similar to the status quo.

A federal order hearing was held in May 2007 to consider proposals to raise Class I differentials in three deficit federal orders—Florida, Southeast and Appalachian. Justification for the increases was to attract and allocate Grade A milk to Class I needs. USDA issued an interim final rule granting the proposed increases in March, 2008. These increases changed the alignment of Class prices in adjoining orders, leading to requests for hearings to increase Class I differentials in these orders as well.

Issues with Class I differentials

Existing Class I differentials range from $1.60 per hundredweight in parts of the Upper Midwest order to $6.00 for Miami. Considering the availability of milk supplies nationally and the ability to transport raw milk as well as packaged beverage milk products, the rationale for these differentials can be questioned on several grounds:

• ***Adequacy of milk supplies for Class I needs:*** In 2009, Class I utilization for the 10 existing orders averaged 37 percent with a high of 86 percent for the Florida order to a low of 14 percent for the Upper Midwest order. Only three of the 10 orders—Florida, Appalachian and Southeast—have insufficient local supplies of milk to meet Class I needs year-round. There are considerable seasonal differences in the adequacy of local milk supplies in these three markets, with major shortages in mid-summer and early fall and excess supplies during the winter and spring. But regardless of season, the national supply of Grade A milk to meet fluid needs is more than ample. The issue here is whether the geographical structure of Class I prices should encourage an adequate supply of fluid milk at the local level or at the national level.

• ***Preference for local milk:*** Related to the issue above is whether consumers prefer local milk to milk acquired from distant markets and what cost they are willing to bear to promote local self-sufficiency in fluid milk. Contrary to the early days of federal orders, modern transportation and packaging methods allow raw milk and packaged beverage milk to be transported long distances without negatively affecting milk quality. This calls into question the need to have local milk supplies to assure wholesome fluid milk products. And even if local supplies are judged to be preferable, it is doubtful that Class I differentials in seasonally-deficit milk markets can be increased enough to achieve year-round self-sufficiency without encountering serious inefficiencies. Year-round self-sufficiency would require higher costs to either transport milk out of the market during seasonal surplus periods or to construct and operate manufacturing plants to handle the seasonal surplus locally. Rather than increasing Class I differentials to induce high-cost local production, would obtaining milk from reserve markets be a better option?

• ***Single basing point:*** The Upper Midwest is no longer the major source of reserve Grade A milk. The related question is why Class I differentials should increase with distance from the Upper Midwest to reflect the cost of transporting raw milk that is seldom if ever transported. Should multiple basing points be established to reflect the location of other reserve supplies?

• ***Allocating Grade A supplies to Class I use:*** Grade A milk supplies are more than adequate for Class I needs and Class I differentials result in Class I typically being the highest class price. Nevertheless, Class I needs are not always readily satisfied, even in low Class I utilization markets. Regulated manufacturing plants within in an order market area are often reluctant to give up milk to Class I bottlers. This problem is most serious during summer and fall months, when milk production is seasonally low and manufacturing plants need to build inventory of butter and cheese for fall and early winter sales. Plus operating a plant at significantly less than capacity increases average manufacturing costs. Increasing Class I differentials is not likely to remedy this problem. Other means need to be considered such as imposing shipping requirements on supply plant to meet Class I needs, implementing market administrator "call" provisions to require supply plants to ship milk when needed, providing adequate transportation allowances for transporting milk to bottlers and compensating supply plants for the cost of operating at reduced capacity. Similar means need to be considered for allocating reserve milk supplies to deficit markets.

• ***Negotiated over order premiums***: Federal order prices are minimum prices and not always effective prices. This allows for dairy cooperatives supplying fluid milk plants to negotiate premiums that reflect market conditions and compensate for costs associated with transporting milk, balancing functions and other market wide services. The vast majority of Grade A milk is marketed by dairy cooperatives. The question is, do higher Class I differentials reduce the ability of dairy cooperatives to negotiate premiums, and if so, would raising differentials reduce their ability to perform market-wide services that enhance the ability of federal orders to meet their stated objectives?

Number of Milk Classes

As part of federal milk marketing order reform mandated by the 1996 Farm Bill, federal orders established four uniform classes of milk use. Dairy products within each of the four use classes were defined identically across all federal orders. The appropriateness of this four class system is now being questioned. A key question relates to the relative price elasticity of demand for various dairy products. The assumption that demand for beverage milk is more inelastic that the demand for manufactured dairy products is the basis for price discrimination—setting a higher minimum price for milk assigned to beverage use. Is that assumption still valid? Another issue is what products to use in setting classified prices in pricing formulas. Hundreds of cheese varieties are made today, yet only cheddar cheese is considered in establishing the minimum Class III price. Modern technology allows milk components to be separated into refined components for a variety of uses in milk products and other food products. Some argue that there ought to be more classes to reflect this much broader use of milk and milk components. Others argue that there is already too much difficulty and controversy over how to establish minimum prices for the four classes currently used, and any expansion of classes would only make matters worse. It would be extremely difficult, if not impossible to establish separate classes for all of the possible uses of milk and setting the appropriate minimum pay price for each class. Attempting to do so may be over-regulation of milk pricing. Some are suggesting a better approach may be to return to the two class system, one for beverage use milk and one for milk used for all types of manufactured dairy products including existing Class II products.

Historical review of multiple classes

While it was institutionalized with federal and state milk marketing orders, classified pricing pre-dates orders. In the 1920's, some dairy cooperatives implemented a two class pricing system in an attempt to reduce the seasonal swings in milk prices. A higher price was negotiated for milk used for beverage purposes and a lower price for milk used to manufacturing dairy products, primarily cheese and butter. With beverage milk having a more inelastic demand than manufactured dairy products the average milk price was higher under this two class system than under flat pricing. However, dairy cooperatives lacking sufficient market share of raw milk had limited success in holding all milk plants to a two price system. Dairy cooperatives as well as milk plants in general supported the passage of the Agricultural Marketing Agreement Act of 1937 which authorized federal milk marketing orders.

Initially, federal orders used a two class system, one for beverage use milk (Class I) and another for all manufacturing use milk (Class II), with Class I priced higher than Class II. Factors justifying the higher Class I price were: beverage milk has a more inelastic demand than manufactured dairy products so charging a higher price benefits producers through price discrimination; milk for beverage use must be Grade A, so producers should be compensated for the higher cost to produce Grade A versus Grade B milk; and producers should be compensated for the higher cost of transporting Grade A milk to city bottling plants rather than to the corner creamery or cheese factory.

Later, a third class was added for milk used to manufacture soft products such as ice cream, cream products, cottage cheese and condensed milk products. This was justified on grounds that soft products were more perishable than other manufactured dairy products. Until the early 1990s, most federal orders used the three class system with Class I being beverage milk products, Class II soft manufactured products, and Class III cheese, butter and nonfat dry milk.

The three class system work fairly well for more than 30 years. But by 1993, there was agitation in some federal orders to include a fourth class—Class III-A—for milk used to make butter and nonfat dry milk. Proponents argued that butter-powder plants could not afford to pay as much for milk as cheese plants because of chronically lower market returns for butter and nonfat dry milk. In addition, dairy cooperatives provided a market-wide service of balancing the Class I milk supply by operating butter-powder plants to absorb milk on days that bottlers did not operate and to adjust for seasonal milk supply-demand imbalances. This balancing service benefited all producers but at a cost to members of the cooperatives because the butter-powder plants had to operate at widely-fluctuating levels of full capacity. Class III-A was deemed a way for all producers within the federal order to share balancing costs. Federal order reform effective January 1, 2000 continued the four class system with Class IV replacing Class III-A.

During most of the time the federal order three class system was in place, the monthly minimum Class III price and the mover of the Class I and Class II prices were set using a competitive pay price—the Minnesota-Wisconsin Manufacturing Grade Milk Price, or M-W. The M-W was calculated by USDA as an average of Grade B producer milk prices paid by butter-powder and cheese plants located in the two states. Under this system plant competition helped to assure that milk used in Class III moved to its highest and best use. If cheese generated higher returns that did butter-powder production, more milk would be allocated to cheese and vice versa. This changed with the 1993 implementation of a fourth class, Class III-A in some orders. With two classes for manufacturing use milk, Class III and Class III-A, coupled with market-wide pooling there was less incentive for manufacturing milk plants to allocate milk to the highest and best use. For example, from 1993 to 1995 U.S. milk production grew 3.1 percent. But nonfat dry milk production grew by 29 percent and government stocks of nonfat dry milk under the federal dairy prices support program increased by 419 percent.

Federal order reform in 2000 implemented the four class system for all federal milk marketing orders. Further the competitive pay price series for setting the minimum Class III and Class IV prices and movers of Class II and Class I was replaced with product price formulas having fixed make allowances and product yields. Product price formulas appear to have further reduced the incentive to move milk between Class III and Class IV. Even though butter-powder prices may be depressed relative to cheese prices, there is little incentive to allocate more milk to cheese as long as butter-powder plants are profitable with the fixed make allowances.

Issues with the four class system

Enhancing dairy producer revenue: Classified pricing is price discrimination that is assumed to enhance dairy producer revenue. In order for price discrimination to benefit producers, the price elasticity of demand for the dairy products in the different classes of milk must be different and the price for the class containing the products with the most inelastic demand must be higher. Historical studies documented that beverage milk products in Class I had a more inelastic demand than manufactured products like butter and cheese. Thus producer revenue would be enhanced with Class I having the highest minimum price. While beverage milk demand may still be more inelastic than, say, demand for cheese, it may be less inelastic today and the differences in elasticity between beverage milk and cheese may also be less.[8] Elasticity values need to be frequently re-evaluated to ensure that relative federal order prices benefit producers.

It is questionable whether having a separate Class II for soft manufactured products adds much to producer revenue. Class II is priced just $0.70 per hundredweight above an advanced Class IV price. For 2009, Class II utilizations ranged from a low of 4 percent for the Upper Midwest Order to a high of 20 percent for the Northeast Order with a weighted average of 12 percent for all 10 orders.

Improving dairy price stability: One objective of federal milk marketing orders is to help stabilize producer milk prices. However, having three separate classes for manufactured products along with using market-wide pooling and product price formulas with fixed make allowances and yields and may actually add to price instability. Separate classes for milk used for manufacturing may also slow the recovery from low producer pay prices. Because of fixed manufacturing allowances, there is little incentive for some plants to allocate milk quickly to the highest and best use. Product price formulas may hinder the ability and incentive of manufacturing milk plants to attract more milk during periods of higher product prices. For example, when cheese prices strengthen relative to butter and nonfat dry milk prices the product price formula uses the higher cheese price resulting in a higher cost of milk to the cheese plant with the net effect of no improvement in plant margin. Likewise the butter-powder plant can optimize plant margins by operating at near full plant capacity and therefore has little incentive to release milk to a cheese plant.

Effectiveness of the federal dairy product price support program: Having one manufacturing class for butter and nonfat dry milk and another for cheese may lessen the effectiveness of the Dairy Product Price Support Program discussed earlier. For example, with product price formulas the cheese plant has a fixed make allowance (plant margin) regardless of the price of cheese. And with market-wide pooling the cheese plant is able to compete with the butter-powder plant for raw milk. The combining of Class III and IV into one manufacturing class may increase the competition for milk used for butter and nonfat dry milk versus cheese, thus making the dairy product support program more effective. The CCC purchase price for cheese may return the cheese plant a better margin than the market price for cheese, enabling the plant to better compete with a butter-powder plant for raw milk.

Is a separate Class IV needed for balancing? The argument in 1993 for establishing a Class III-A for butter and nonfat dry milk was partly one of compensating dairy cooperatives for balancing the Class I market. Compared to making cheese, surplus milk can more readily be manufactured into nonfat dry milk for longer term storage. There is a cost to dairy cooperatives to perform this balancing function yet all dairy producers within the given federal order market benefit. With a separate Class III-A and now Class IV, all producers within the federal order market share in the cost of this balancing. However, a better alternative than having two separate classes for hard manufactured products may be for the federal order to provide market-wide service payments out of the federal order pool to compensate dairy cooperatives for balancing. Dairy cooperatives also can and do negotiate over order premiums. These premiums are in part compensation for balancing and other services.

Establishing appropriate minimum class prices: If milk is to be effectively allocated to its highest and best use, having appropriate minimum class prices is critical. As noted above, the method of establishing minimum prices for Class III and Class IV has been controversial. With more manufacturing classes, problems could be amplified.

To illustrate, consider the calculation of the Class III price. The Class III price is the sum of three milk component values using USDA-NASS monthly average product prices in the product price formulas: (1) the butterfat price per pound based on the Grade AA butter price; (2) the protein price per pound based on cheddar cheese 40-pound block and barrel prices and the Grade AA butter price; (3) the other solids price based on the price of dry whey. Many questions can be raised about this method of deriving a minimum Class III price. Protein is based solely on the price of cheddar cheese, but hundreds of cheese varieties are made. The other solids price is based solely on the dry whey price, yet many cheese plants don't make dry whey. In addition, modern technology allows for the separation and fractionation of milk components into various milk proteins and protein isolates having different uses and values. Consequently, expanding the number of manufacturing classes to reflect this multitude of uses and attempting to develop appropriate product price formulas for each class would be a seemingly impossible task. Furthermore, additional manufacturing classes would not assure milk is better-allocated to the highest and best use.

Combining all milk used to make manufactured dairy products into one class does not make establishing an appropriate minimum price for the combined class easy. One approach may be to use a weighted average of several product price formulas. A better approach to consider would be replacing product price formulas with a competitive pay price series derived from a survey of actual raw milk pay prices from milk plants manufacturing a wide array of dairy products.

Dairy product innovation: Some argue that the existing four class system in federal marketing orders curtails dairy product innovation. This issue pertains both to how milk is classified as Class I and the three classes for milk used for manufactured products. For example, innovators may be reluctant to use milk proteins for a new beverage product if the new product will be classified as Class I. This could make the product more costly than using vegetable proteins as an alternative. Deriving a minimum pay price for each separate manufacturing use of milk may have similar effect, especially if the correct milk products or milk components are not considered. Milk component values do not always move together. For example, in 2007 the price of dry whey increased substantially relative to prices for whey protein concentrates. Since only dry whey is used in the Class III calculation, milk plants making whey protein concentrates were at a competitive disadvantage to those making dry whey. Perhaps this problem could be minimized by a change in the Class III product price formula. But federal milk marketing orders disincentives to dairy product innovation can best be eliminated by having one manufacturing milk class and using some type of competitive pay price to set the minimum class price.

Pooling

Pooling issues have been frequent topics of discussion, especially since federal order reform was implemented in January 2000. Particularly controversial are depooling and distant pooling, both of which affect federal order producer prices. Numerous questions have been raised related to what is pooling, which producers are eligible to share in federal order pools, what is a pool milk plant, how do regulated manufacturing milk plants decide to pool or depool, and how does pooling affect producer pay prices, in particular the producer price differential (PPD) and the uniform price.

The terms pool, pooled and pooling have several meanings within federal orders, which leads to some confusion. Pooling refers to both milk and money. A federal order milk pool refers to the amount of milk eligible to share in the federal order money pool. A federal order money pool is the amount of money generated by applying minimum federal order Class prices to the amount of milk used in each Class within an order.

Each federal order has a marketing area. A marketing area is defined as a geographical area where fluid milk plants compete for sales of Class I milk.[9] The marketing area is not where milk is produced; it is where fluid milk is sold. Pooling involves the association of both locally produced milk (milk produced within the market area) and more distant milk with pool plants.

Three types of milk handlers can be designated pool plants under an order:

1) Distributing plants: Plants that process, package and sell beverage milk products within the designated marketing area. Distributing plants may procure milk directly from producers or obtain milk from supply plants and cooperatives.

2) Supply plants: Plants that supply raw Grade A milk to distributing plants. These are manufacturing milk plants, like cheese plants, that procure milk directly from producers or obtain milk from cooperatives. While engaged primarily in manufacturing, supply plants help assure an adequate supply of milk for fluid purposes by carrying a fluid milk reserves. Supply plants also provide a balancing service by manufacturing milk that is not needed for fluid purposes on days when bottling plants are not operating and handling seasonal surpluses.

3) Dairy cooperatives: Some dairy cooperatives bottle milk and others have manufacturing facilities. Other cooperatives are involved in exclusively in representing their members in negotiations with proprietary firms. Dairy cooperatives, like other handlers are obligated to the federal order pool for the established minimum prices. But, cooperatives are not obligated to pay their member-producers the order minimum producer prices. Cooperatives often “reblend” the proceeds from milk sales across two or more federal order markets and pay their members prices in different regions that reflect different competitive conditions.

Whether or not a milk plant or dairy cooperative is a pool plant, i.e., a regulated handler under a specific federal order, hinges on whether the plant meets the order’s performance requirements. Performance requirements for distributing plants are different from those applying to supply plants and cooperatives. For distributing plants, performance requirements pertain to the percentage of the plant’s packaged milk that is distributed within the marketing area. If the distributing plant meets the required minimum distribution percentage under the order, it is pooled—there is no choice in the matter. Pooling is required because federal orders assure that all fluid milk handlers have the same minimum cost of raw Grade A milk to prevent one handler from gaining a competitive advantage over another in processing and selling packaged milk within the market area.

For supply plants and dairy cooperatives, performance requirements are called shipping requirements, and relate to the percentage of their milk receipts that must be shipped to a distributing plants. But, unlike distributing plants, supply plants and cooperatives can decide whether they wish to meet the shipping requirements or not. The minimum shipping percentages required of supply plants or cooperatives vary by federal milk order. Shipping requirements depend upon the local supply of milk in relation to Class I milk needs. In federal milk orders with relatively high Class I utilization, like the Southeast, Appalachian and Florida orders, the shipping requirements are higher than orders with relatively low Class I utilization, like the Upper Midwest order.

Shipping requirements also may vary by months of the year. In the South and Southeast milk production is very seasonal, with production dropping off substantially during summer and fall to the point that locally produced milk is short of meeting Class I needs and some distant milk must be purchased by distributing plants. Shipping requirements are higher during those months.

The incentive for supply plants and dairy cooperatives to meet shipping requirements and become pooled under a given order is sharing in the order's money pool. Each regulated handler is obligated to pay the established monthly minimum prices for the four classes of milk according to their milk receipts for the month, which makes up the federal order money pool. The federal order money pool is divided by the federal order milk pool to derive a weighted average value of milk for the entire order, called uniform price. All pool handlers within the order pay producers this same uniform price.

Producers affiliated with pooled handlers individually receive this uniform price (adjusted for milk composition and quality), regardless of how their milk handler uses the producers' milk (i.e., to which Class their milk is assigned. This is possible through the use of a producer settlement fund. The federal order market administrator calculates the weighted average value of milk for each pooled plant, applying the minimum class prices to the volume of milk used by the handler in each class. If a handler's weighted average milk value is greater than the uniform price for the entire order (usually a Class I bottler), then the handler will pay the difference into a producer settlement fund, that is the difference multiplied by the handler's producer deliveries for the month. If the handler's weighted average milk value is less than the uniform price for the entire order (usually a manufacturing plant such as a cheese plant), then the handler draws out of the producer settlement fund the difference times its producer deliveries.

Eligibility to receive this pool draw is the primary reason that cheese plants seek pool status under the order. These plants are interested in making cheese, not supplying milk for Class I use. But their limited commitment to service the Class I market and the associated pool draw provides them with revenue to pay their producers beyond what they receive from selling cheese and whey.

Issues with pooling

Major pooling issues concern what milk can or must be pooled, both locally produced milk and distant milk, and depooling.

Pooling locally produced milk. A major objective of federal milk marketing orders is to assure consumers of an adequate supply of Grade A milk for beverage use. When federal orders were initially implemented, the majority of milk produced was Grade B, which was not eligible for use in packaged fluid milk products. Grade A milk received a premium above Grade B. Through time, the differences between Grade B and Grade A standards narrowed. In the 1950's, the movement from can-shipped milk to bulk milk tanks on the farm often required modernization of the milk house which helped Grade B producers to meet Grade A standards. With premiums paid for Grade A milk, the narrowing of Grade B and Grade A standards and conversion to bulk tanks, more and more of the milk production became Grade A. Today, 97 percent of nation's milk production is Grade A and eligible to be pooled under a federal milk order. But, of the 10 existing federal orders only three—the Appalachian, Southeast and Florida orders—have Class I utilization of 65 percent or higher with an average of 37 percent across all 10 orders. In six of the federal orders Class III utilization exceeds or is close to the Class I utilization. In general there is more Grade A milk pooled under federal orders than what is required to meet Class I needs and having a reasonable Grade A reserve. As more and more Grade A milk became pooled under a federal order the Class I utilization declined lowering the uniform price paid to producers associated with a regulated handler.

Producers under federal milk marketing orders are dairy farmers who are eligible to share in federal order money pool. To be designed as a producer under an order a percentage of the producer's milk must be delivered to an order distributing pool plant. As more Grade A milk became pooled under a federal milk order, both the performance requirements and shipping requirements were lowered since a smaller percentage of producers' Grade A milk was required to meet Class I needs. Today, with almost all milk Grade A, this required delivery percentage has been lowered to the point where low Class I utilization federal milk orders like the Upper Midwest require that just one day per year of a producer's milk production be delivered to an order pool distributing plant to meet qualification requirements. This is often called "touching base". After touching base, the pool plant may thereafter divert the producer's milk to a non-pool plant (i.e., a milk plant that is not regulated by the order) and the producer continues to remain eligible to share in the federal order money pool.

Unrestricted pooling is inefficient in that it involves expensive transportation of milk simply to meet order performance standards. But at the same time, unrestricted pooling is equitable in the sense of allowing any Grade A milk plant to become a pool plant. The question becomes whether all manufacturing milk plants purchasing Grade A milk from producers should be eligible to pool under a federal milk order. If not, then what criteria should be used to establish pooling eligibility—location of potential supply plants relative to distributing plants, plant size, products manufactured? Whatever criteria is used, efficiency gains would come at the expense of equity losses.

Producer-Handler Exemptions. Another local pooling issue relates to the treatment of producer-handlers, dairy producers who process and sell packaged fluid milk. Federal orders have historically not required producer handlers to account to the pool for Class I sales provided that all of their sales come from milk produced on the farm.

Until recently, producer-handlers were mostly dairy farmers with on-farm sales or limited local distribution. Hence, their exemption had little impact on the size of the money pool for the markets in which they operated. However, some larger producer-handlers began to show up, some with herds holding thousands of cows. Class I sales from these operations displaced large volumes of sales from regulated distributing plants, significantly cutting market Class I utilization and producer revenue. Large sales of packaged fluid milk products in California by an Arizona producer-handler exempt under the Arizona-Las Vegas order led Congress to pass a law in 2006 (PL 109-215) that forced regulation of the operation. At about the same time, USDA issued a final rule that set a 3 million pound per month limit for exemption of producer-handlers in the Arizona-Las Vegas and Pacific Northwest orders. And in March 2010, USDA extended the limit to all federal orders.

At issue here is what constitutes closing a loophole that allows evasion of legitimate federal order payments and results in unfair competition versus imposing unfair restrictions on dairy farmers' entrepreneurialism. The USDA cap still exempts producer-handlers with dairy herds smaller than about 1,500 cows, a large majority of existing dairy farms. And most farms with herds larger than the cap are not and have no interest in becoming a producer-handler. Hence, the cap would appear to be minimally restrictive.

Pooling distant milk. Dairy cooperatives often pool milk under more than one federal milk order. Distant pooling—pooling milk under orders outside their area of procurement—is advantageous to a cooperative if the difference in the PPDs between the two orders is more than enough to offset the hauling costs necessary to meet the order's touch base producer qualification standard. With the one-time touch base producer qualification provision of the Upper Midwest order, it was economically advantageous for dairy cooperatives and other plants located well outside the order marketing area to affiliate producers and their milk and pool on the Upper Midwest order. During the 2000 – 2003 period, cooperatives operating cheese plants as far away as Idaho pooled some of their member-producer milk on the Upper Midwest order. Once the one day touch base qualification was met, the milk volume from these producers was priced under the Upper Midwest order even though no actual shipments subsequently occurred.

The pool qualification of the distant milk could be through an Upper Midwest distributing plant. It could also be through a supply plant or dairy cooperative that had sufficient "cushion" in meeting the shipping requirements of the Upper Midwest order—that is, a pool plant that shipped more than the minimum required shipping percentage to a distributing plant. The plant that qualified the distant milk would receive a fee for providing qualification.

The effect of distant pooling is to reduce the value of the PPD in the receiving market. This occurs because the milk pool is increased more than the money pool. In 2003, distant milk from Idaho equaled 10.6 percent of total producer receipts in the Upper Midwest order. The Western order was terminated effective April 1, 2004. This raised concern that even more Idaho milk would be pooled on the Upper Midwest order. Upper Midwest dairy cooperatives requested a federal order hearing to tighten pooling requirements. The Central and Mideast orders followed with hearings in response to large quantities of milk from Minnesota and Wisconsin being pooled on these orders, reducing Class I utilization and their PPD.

As a result of these hearings, federal orders were amended to tighten pooling requirements. This was primarily accomplished by requiring that pooled milk could not be diverted for manufacturing to non-pool plants located outside of the marketing area. While this does not prohibit the pooling of distant milk on the order, it substantially weakens the incentive to do so because more distant milk would incur transportation costs.

Depooling: Since Class I milk and Class II skim milk are advanced priced, elapse about six weeks between the time these prices are announced and when the Class III and Class IV prices are announced. If the price of cheese during that six week period increases enough to raise the Class III price by more than the federal order Class I differential, then the Class III price will exceed the Class I price. This yields a negative PPD. Pooled cheese plants, if staying pooled, would pay into the producer settlement fund the difference between their higher weighted average milk value and the uniform price for the order rather than drawing from the producer settlement fund. But when this happens, many cheese plants can and do elect to depool from the order, effectively becoming an unregulated plant for the month. This causes higher volume milk receipts in the order to decline, making the negative PPD even more negative. Taking the higher-priced Class III milk out of the milk pool substantially reduces the money pool and the weighted average value of the milk that remains pooled—the lower priced Class I milk is now a greater percentage of the smaller pooled milk volume. The largest recorded negative PPD in the Upper Midwest order was $4.11 in April 2004. The two-week average cheese price used in deriving the April 2004 Class I skim milk price was $1.4582 per pound. The four-week average cheese price used in deriving the Class III price was $2.0520 per pound. So between the times the Class I price was announced and the Class III price announced, the cheese price increased $0.5938 per pound. This resulted in the April 2004 Class I price (announced on March 19th) of $15.44 per hundredweight and the April Class III price (announced on April 30th) of $19.66 per hundredweight. Because of this price inversion, most of the Class III milk on the Upper Midwest order was depooled as cheese plants avoided producer settlement fund payments.

While negative PPDs have periodically occurred since then, they have not been as large. For the Upper Midwest order negative PDDs occurred one month during 2005, one month during 2007, and 5 months during 2008. These negative PPDs ranged from $0.04 to $0.46 per hundredweight.

While there is still an incentive for cheese plants to depool when PPDs are negative, federal order amendments have reduced the incentive. Some amendments prohibited “in and out” pooling. If a pool plant (cheese plant) decides to depool during one month, they can no longer re-pool the following month, but rather have to stay depooled for a period of time. The Upper Midwest order used a different approach. It limits pooled milk in any month to a specified percentage of pooled milk in the previous month. So if a plant depooled in one month, it could only partially repool in the subsequent months.

A possible effect of restricting depooling is that cheese plants might decide to permanently disaffiliate from the order. In that case, the reserve supply of Grade A milk for Class I use would shrink and shipping requirements for remaining pooled supply plants and cooperatives would need to be increased.

Restricting depooling deals with the symptoms of the problem rather than the cause. The problem is price inversion caused by the combination of volatile cheese prices and advanced Class I pricing. Federal orders cannot address cheese price volatility, but they could be altered to eliminate advanced Class I pricing. If advanced pricing is retained and product price formulas continue to be used to derive the Class I mover, then using CME cheese prices rather than announced NASS cheese prices would reduce the likelihood of price inversion. NASS prices are highly correlated with CME prices lagged about two weeks. The California milk pricing system uses CME prices for butter and cheese in its pricing formulas. Resistance to using CME prices in federal order formulas would come from those concerned about the thinness of the CME spot markets.

Endnotes

[1] About 3 percent of U.S. milk production is Grade B, which can only be used for manufactured dairy products. Grade B milk is not covered by Federal orders. Subsequent reference to “milk” is Grade A milk.

[2] Other solids are milk solids other than protein and butterfat and consist primarily of lactose.

[3] The term, “at location,” means where the plant is situated within the marketing area of the order; that is, the Class I price applying to the county where the plant is located.

[4] Four federal orders—Appalachia, Arizona, Florida and Southeast—pay producers under fat/skim milk pricing.

[5] Of the six federal milk marketing orders that pay producers on the basis of milk components, four—Midest, Upper Midwest, Central, and Southwest—apply a somatic cell count adjustment.

[6] The pool does not balance because the combined utilization if the two handlers does not match utilization of milk as reflected by the producer price differential.

[7] Grade A and Grade B quality standards are currently nearly identical. The small amount of remaining Grade B milk comes mainly from producers who are unable to meet physical standards such as cooling requirements (e.g., Amish farmers who do not use mechanical refrigeration) or well location, or from producers who ship their milk to cheese factories that are not regulated under federal orders and are indifferent with respect to grade as long as the milk meets quality standards

[8] Some recent studies have estimated price elasticities of demand for manufactured dairy products lower (in absolute value) than the price elasticity of demand for fluid milk products. See, for example Chouinard, Hayley H., David E. Davis, Jeffrey T. LaFrance, and Jeffrey M. Perloff, Milk Marketing Order Winners and Losers, Applied Economics Perspectives and Policy 32 (1), Spring 2010.

[9] With modern transportation and packaging it sis difficult to determine where one market ends and another starts. In general, a fluid milk plant is regulated by the order in which it has the largest percentage of its fluid milk sales.

U.S. Dairy Trade Policy

Exports of dairy products have come to represent an important market for U.S. dairy farmers. In 2008, the milk equivalent of exports represented nearly 11 percent of U.S. milk production. Large exports in 2007 and 2008 were a major factor underlying high farm-level milk prices in those years, and the drop in exports in 2009 was a major reason milk prices collapsed. This recent export experience demonstrates the opportunities afforded by serving export markets but also the potential price volatility in those markets.

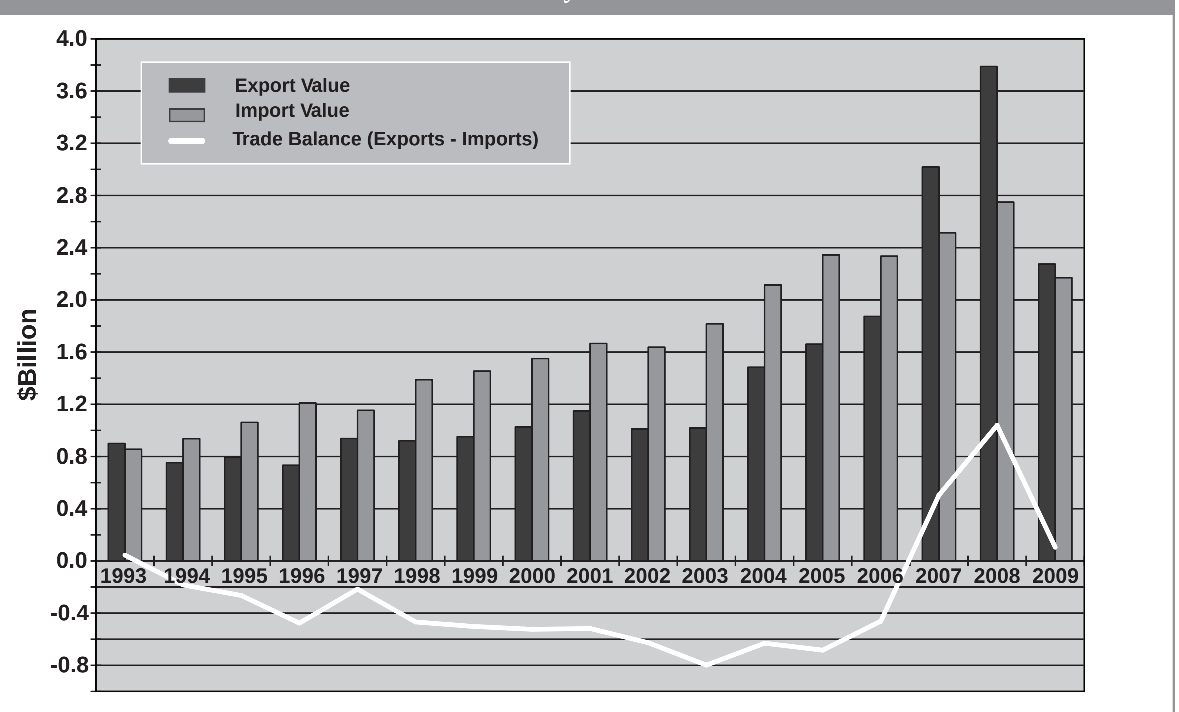
The U.S. has been a net exporter of dairy products for many years on a volume basis but usually a net importer on a value basis until 2007. This discrepancy is due to differences in the composition of exports and imports. U.S. imports are largely in the form of higher-valued cheese, milk protein concentrate and casein products while the bulk of U.S. dairy exports are lower-valued nonfat dry milk and whey products. Milk protein concentrate imports have generated vociferous complaints from dairy farmers because they are not subject to tariff rate quotas and substitute for domestic milk protein in a large number of dairy and food manufacturing applications.

As a member of the World Trade Organization (WTO) the United States is subject to rules and restrictions relating to market access, export subsidies, and domestic agricultural programs that may distort world trade. A new world trade pact—the Doha WTO Round—has been in the process of negotiation since 2001. While negotiations are currently stalled, progress to date suggests that a completed round will yield more dairy trade opportunities for the United States but, at the same time, provide more open access to dairy imports and limit options available for supporting milk prices and dairy farmer income.

Historical Review[1]

U.S. dairy export value was essentially stagnant from 1993 through 2003 at about $1 billion. Over the same period, the value of dairy imports about doubled, resulting in an increasing dairy trade deficit measured by value. Export growth exceeded import growth from 2004 through 2006, narrowing the trade gap, and in 2007, the U.S. became a large net exporter of dairy products. The trade surplus was even larger in 2008 before collapsing world markets sharply cut the value of both imports and exports in 2009.

U.S. Dairy Trade



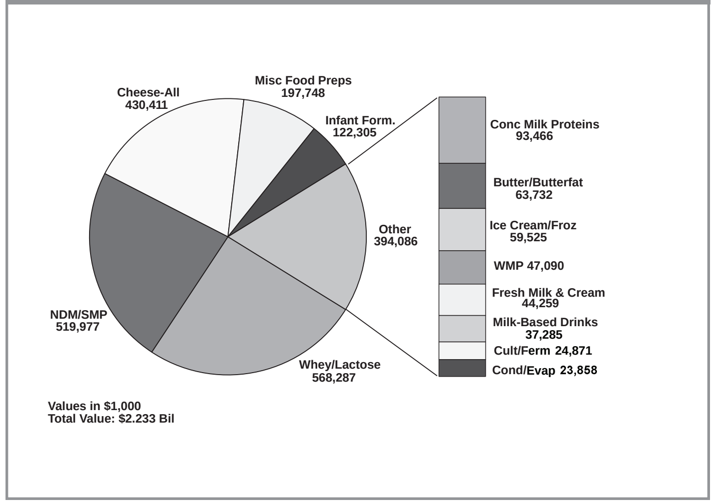
The U.S. exports a wide variety of dairy products, but three—nonfat dry milk/skim milk powder, dry whey products and cheese—accounted for about 70 percent of total export value in 2009.

U.S. dairy products were shipped to 153 countries in 2009. The biggest customers are next door. Mexico is our largest foreign market, and its share of total exports has grown steadily since implementation of the North American Free Trade Agreement (NAFTA) in 1995. Canada accounted for 16.5 percent of 2009 dairy export value. Other important buyers are East Asia (primarily Japan, China and Korea) and six Southeast Asian countries.

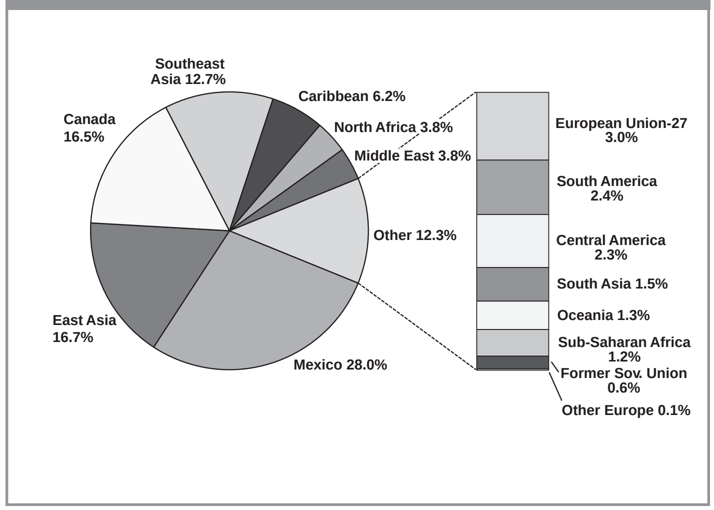
U.S. imports of dairy products are also diverse, but cheese has long been the largest import item. Cheese accounted for 43 percent of 2009 dairy import value. Concentrated milk protein imports followed cheese in importance with, a combined 30 percent of import value.

The U.S. imported dairy products from 88 countries in 2009. Imports were dominated by the EU (principally cheese) Oceania, Canada and Mexico. Italy, France and the Netherlands accounted for about 60 percent of the value of imports from the EU.

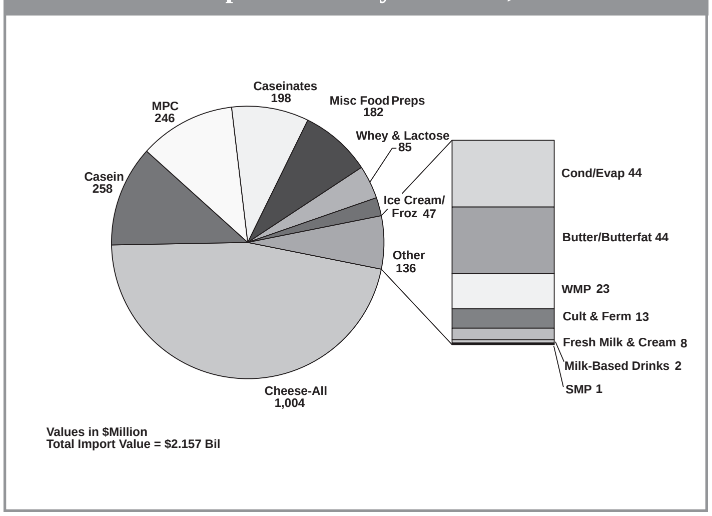
U.S. Exports of Dairy Products, 2009



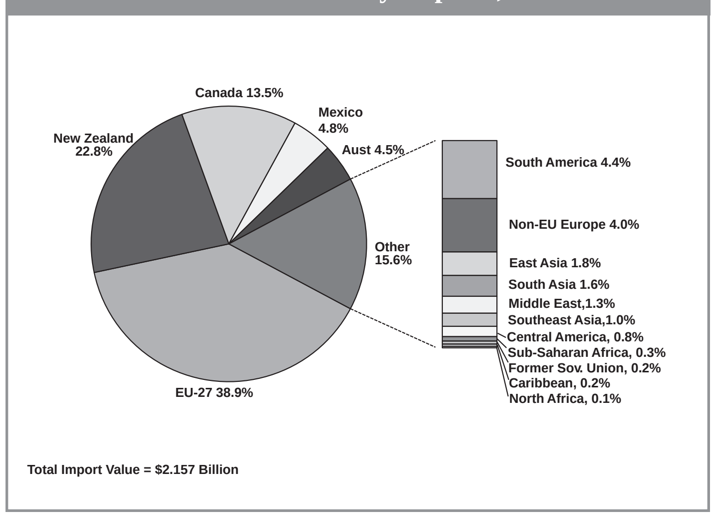
Destination of U.S. Dairy Exports, 2009



U.S. Imports of Dairy Products, 2009



Source of U.S. Dairy Imports, 2009



Dairy Trade Issues

World Trade Organization Issues

The current WTO round was formally initiated with a declaration in November 2001 during a ministerial meeting held in Doha, Qatar. The agricultural negotiations had started months earlier under the Agreement on Agriculture. Since the Doha declaration, ministerials have been held in Cancun in 2003, Geneva in 2004 and Hong Kong in 2005.

There are three "pillars" included in the WTO agricultural negotiations:

• ***Market Access.*** Prior to the Uruguay Round Agricultural Agreement (URAA) many agricultural product imports were restricted by quotas or other types of non-tariff instruments. The Uruguay round converted all non-tariff barriers into tariff equivalents in a process called "tariffication." This process attempted to create a tariff that would leave the ratio of the internal price to world price unchanged from what existed under the non-tariff instrument. Besides the conversion of non-tariff barriers, the URAA ensured that access to markets did not decline under tariffication by the introduction of tariff-rate quotas (TRQs) that had a lower in-quota tariff rate. The tariffs established under the URAA were then cut on average by 36 percent (at least 15 percent for each product) over five years (1995-2000) for developed countries and by 24 percent (at least 10 percent for each product) over ten years (1995-2004) for developing countries. Least developed countries were not required to make tariff cuts under the URAA. There were special safeguard provisions in the URAA that allowed governments to take action in cases of rapidly declining prices or surges in imports. The URAA set the stage for future trade rounds to deal more easily with market access issues since market access became increasingly transparent with non-tariff barriers removed.

Although agricultural products are now only protected by tariffs in most cases, many tariffs remain at levels that are high enough to prevent meaningful market access. The numerous proposals on market access reform under the Doha round have called for further reductions in tariffs in an effort to achieve greater progress in expanding agricultural trade. Early in the Doha round, some countries proposed that cuts in tariffs should not be from the URAA bound rates but from applied tariff rates, the rate countries actually impose on goods. In many cases, the applied rates are well below their respective bound rates, so there is no additional market access opportunity until the bound rate is reduced to below the applied rate. There are many other issues related to tariff reductions that range from domestic food security to tariff escalation that occurs in an attempt to protect processing industries. There have been many different proposals offered to cut tariffs. They all differ in the degree in which they attempt to equalize tariffs over time. The Swiss formula, for example, provides for a narrow range of final tariffs and a maximum final tariff rate. The latest Doha proposals have looked at bands that cut the largest tariffs by the largest percentage and smaller tariffs by a smaller percentage in an attempt to harmonize rates. Further market access issues identified in the Doha round include tariff quotas, tariff quota administration, special safeguards and state trading enterprises.

Under most Doha proposals, additional market access for most U.S. dairy product markets will occur. This additional access will tend to lower U.S. prices. Perhaps more important will be reductions in U.S. tariffs that will allow products like butter to flow more easily into the U.S. when domestic prices are high relative to world prices. This will tend to cut the extreme peaks in U.S. prices that have characterized butter markets over the past few years as tariffs have been high enough to essentially keep over-TRQ imports from entering the U.S.

There is considerable evidence that additional global market access achieved by a successful Doha round agreement would increase world dairy prices to levels closer to current U.S. prices. This would minimize the negative effects of expanded market access to the U.S. dairy sector and could even cause U.S. milk prices to increase because of expanded export opportunities could outweigh additional market access.

• ***Export Subsidies.*** Existing WTO rules prohibit export subsidies on agricultural products unless they are specified in a country's commitment list. Subsidies on eligible products were required to be cut from base period (1986-1990) levels in both volume and value terms. Developed countries were required to cut the value by 36 percent and the volume by 24 percent in equal increments over the 1995 to 2000 period. Developing countries were required to cut the value by 24 percent and the volume by 14 percent in equal increments over the 1995 to 2004 period. Least developed countries were not required to make any cuts. There are 25 WTO members who are able to use export subsidies, but only for products on their commitment lists.

An interim agreement in the Doha round of WTO negotiations calls for the elimination of all export subsidies, including export credit programs, by 2013. Subsequent proposals have sought a large cut in export subsidies early in the agreement period, followed by an adjustment period before elimination of all subsidies. Other proposals would allow greater flexibility in the use of export subsidies for developing countries. Smaller developing countries who import much of their food are seeking less aggressive cuts to subsidies, fearing that large reductions could affect food costs for their consumers. Although there is general agreement to continue to promote food aid for humanitarian purposes, there are concerns about how to properly discipline food aid so that it is not used by countries to primarily rid themselves of burdensome surpluses. The role of state trading enterprises and differences that exist relative to private companies is also a point of contention under the export subsidy debate.

Proposals under consideration would make the Dairy Export Incentive Program (DEIP) less important to the U.S. dairy industry. Current levels of dairy products that can be exported under the DEIP are: butter and butteroil, 21,097 metric tons; skim milk powder, 68,201 metric tons; and cheese, 3,030 metric tons. Annual DEIP commitments begin on a July 1 year. With further cuts in allowable DEIP exports, the Commodity Credit Corporation (CCC) would likely purchase more nonfat dry milk during periods of surplus production.

The larger issue under the export subsidy pillar for the U.S. dairy industry is not the reduction in the DEIP, but the likely effect on dairy product prices of fewer subsidized exports from other countries. World dairy prices should rise as a result of cutting export subsidies. Analysis conducted by FAPRI examining the U.S. proposal of October 2005 suggested that the cut in EU subsidized exports would be large enough to increase world dairy prices to U.S. levels. This would limit the downside negative effects of changes in U.S. domestic support and market access for dairy products. Without export subsidy reductions, the U.S. proposal would be negative for the U.S. dairy industry.

• ***Domestic support.*** The main issue surrounding domestic support programs is their tendency to stimulate domestic production. This can squeeze out imports and provide motivation for a country to use export subsidies to move excess product offshore, lowering world prices. The WTO Uruguay Round made a distinction between domestic support policies that stimulate production and distort trade and programs that have only minimal effects on trade. This categorization resulted in the creation of colored “boxes” to represent the different types of domestic support. Using a traffic light analogy, the green box is used for domestic support that has minimal trade effects and can be used freely. Examples of programs that fall into this category are: research, infrastructure and payments to farmers that do not stimulate production. Domestic support that has a direct effect on production and trade was put into an amber box and was to be cut under existing WTO rules. Payments made to farmers that required limiting production to be eligible were defined to fall within the blue box and did not require reductions. Rules were put in place that countries must use to calculate a value of the total domestic support each country provides producers that includes direct support, input subsidies and revenue transfers from consumers to producers. This calculation became a country’s aggregate measure of support (AMS). Each country had to calculate its base period (1986-1998) AMS and agree to make cuts from that base period level. Developed countries had to cut their AMS by 20 percent over the 1995-2000 period while developing countries had to cut their AMS by 13 percent over the 1995-2004 period. For the U.S., the base period AMS was $23.9 billion and the required 20 percent URAA reduction resulted in an AMS ceiling in 2000 of $19.1 billion. There are 34 WTO members who have commitments to reduce amber box spending in the URAA. The remaining WTO members must keep domestic support within 5 percent of the value of production (10 percent for developing countries).

There have been several proposals in the Doha round for reforms to domestic support. In nearly all cases, the proposals have focused on further reductions or outright elimination of amber box spending. A U.S. proposal called for a 60 percent cut in domestic support which results in an AMS ceiling for the United States below $8 billion. Other issues continue to be debated regarding matters like de minimis rules and further refinement of both the green and blue box definitions. Some countries worry about box shifting as countries reduce amber box spending but offset that decline with green box or blue box spending.

The AMS calculation for just the dairy price support program in the Uruguay Round was more than $4.5 billion. The prospect of Doha Round-related cuts in amber box spending was the primary reason that the method of supporting milk prices was altered in the 2008 Farm Bill (see paper on the Dairy Product Price Support Program).

The Northeast Interstate Dairy Compact was included in the U.S. domestic support notifications and suggests that new compact-like programs will also fall into the amber box. The Milk Income Loss Contract (MILC) program is also included in the U.S. AMS notifications beginning in 2002. In 2002, the dairy AMS level jumped to $6.3 billion with the addition of MILC spending.

MPC Imports

Milk Protein Concentrate (MPC) is a non-fat, high-protein milk powder that is made by ultrafiltration and drying of skim milk. It has similar uses to nonfat dry milk (NDM), which is typically produced by spray-drying skim milk, but has a higher protein content—40 to 90 percent compared to 34 to 36 percent for NDM. Because of its higher protein and correspondingly lower lactose relative to NDM, the use of MPC to "standardize" cheese milk (optimize the fat-to-casein ratio) enhances both the economics and the technical efficiency of cheesemaking. MPC can only be used in making cheeses and cheese foods that do not have a U.S. Food and Drug Administration (FDA) standard of identity. But MPC is also an ingredient in a wide array of other food products such as frozen deserts, bakery and confectionery products, sports and nutrition drinks and bars (energy bars), and nutrition supplements.

Until recently, there was no MPC produced in the United States, and production remains limited because of a lack of incentives. The Dairy Product Price Support Program sets an intervention price for NDM that generally makes it more profitable to manufacture NDM than MPC. There is only a token tariff (0.17 cents per pound) on imported MPC. Consequently, as the demand for MPC has increased because of its functionality and low price per unit of protein relative to NDM, U.S. imports have also increased. The U.S. imported less than 10 million pounds of MPC in the early 1990's. Imports in 2005 were 172 million pounds valued at $223 million, comprising nearly 10 percent of the total value of U.S. dairy imports. Since then, imports have receded, partly in response to growing domestic production. In 2009, MPC import volume was 114 million pounds while domestic production was 92 million pounds.

To the extent that they substitute for each other, imported MPC has caused displacement of domestically-produced NDM. Displacement is hard to measure because of the lack of hard evidence on substitutability in many applications, especially newer products that have always used MPC. UW research estimated that the maximum displacement ranged from 80 to 430 million pounds of NDM annually between 1997 and 2002. Government purchases of NDM exceeded its estimated displacement by MPC in each of these years. In other words, the government would have purchased NDM under the support program even if there had been no MPC imports. Consequently, the producer price effect was minimal. Large U.S. exports of NDM in response to strong world market prices starting in 2004 resulted in no government purchases, and expanded MPC imports were used to supplement NDM supplies.

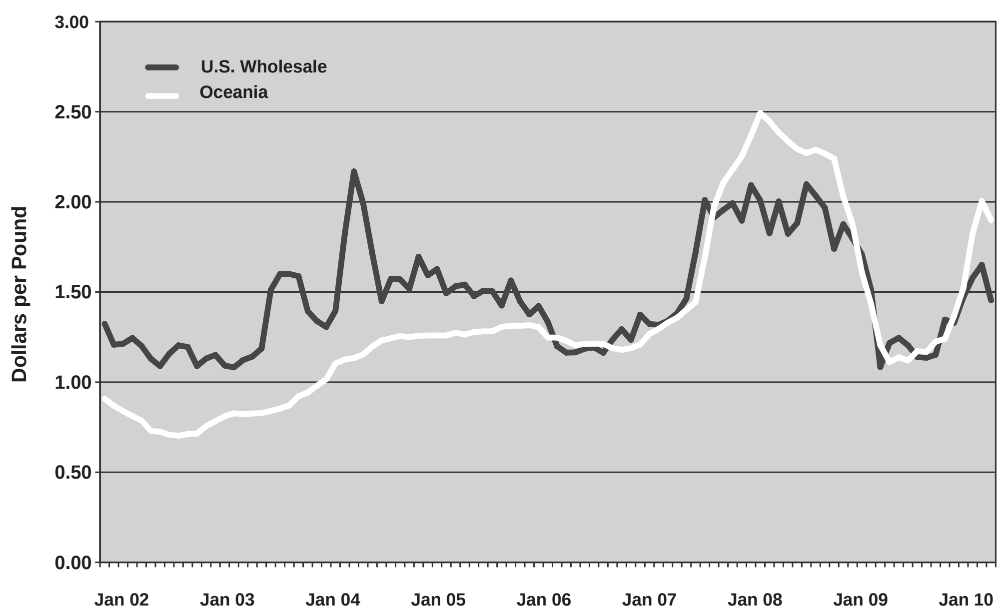
Under WTO rules, the U.S. has limited flexibility in applying new tariffs and must compensate countries that would be penalized by expanding tariffs beyond what were agreed to under the Uruguay round. The nature of compensation is subject to negotiation. It could be a cash settlement for lost exports. More likely, it would involve raising tariff-rate quotas or lowering the over-quota tariff on other dairy products the country exported to the U.S. This would probably be cheese, which is a major export item for most countries that export MPC to the U.S.

Future Role of the United States in International Dairy Trade

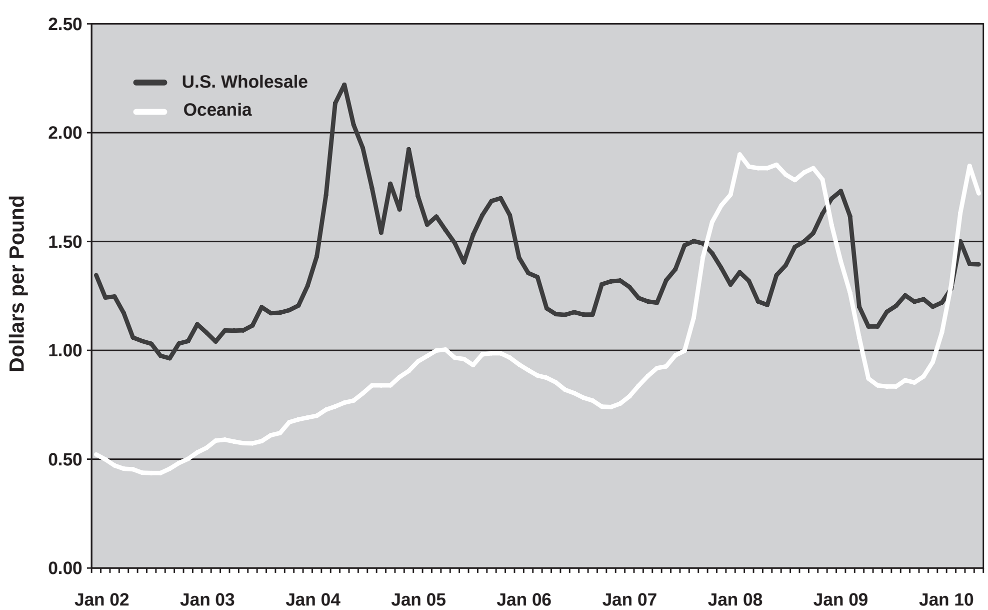
The United States substantially increased its role in world dairy markets over the last decade, but it is uncertain whether that will continue. Despite growth in exports, international sales remain an auxiliary enterprise for most U.S. dairy companies. Dairy farmers in the United States are ambivalent about expanded global trade, focusing their attention more on restricting U.S. imports than on increasing exports. Both milk producers and manufacturers are apprehensive about the price volatility associated with world markets.

The graphs of cheese, butter and nonfat dry milk prices below highlight the role that the U.S. has played in global dairy markets. In the early 2000s, domestic dairy product prices remained above world prices as a result of large import tariffs and the dairy price support program. With the rapid increase in world dairy prices that began during 2007, the U.S. found itself in a competitive position and willing to commercially ship product into world markets. The question the dairy industry must decide is one of leaving current domestic programs intact and only using world markets when prices rise above domestic prices plus transportation or adjusting programs to the point that the U.S. becomes consistent suppliers

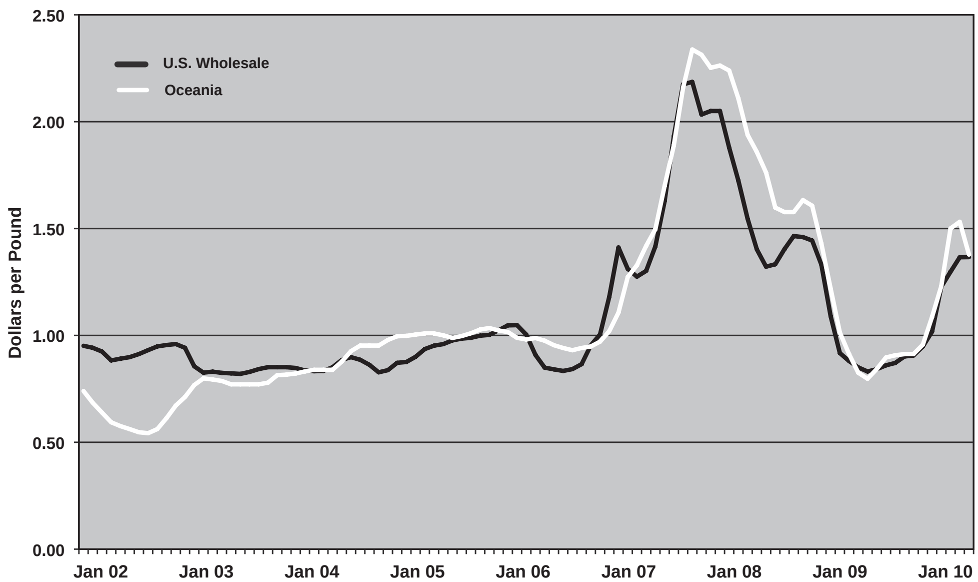
Cheese Prices



Butter Prices



Nonfat Dry Milk Prices



to other countries even in periods of low world prices.

Becoming consistent suppliers may allow for much large markets to be built than would be the case of using world markets to move products only when global prices are high. This is not a simple question to answer and depends greatly on the global outlook for dairy demand.

One issue that must be included in deciding this strategy is exchange rates. The U.S. dollar has depreciated against many currencies for much of the 2000s which has made U.S. products cheaper in other countries' currencies. Although most experts do not expect the U.S. dollar to strengthen in the next decade, if it were to strengthen it could jeopardize the U.S. position in world dairy markets.

A New View Regarding Choices for the U.S. Industry

The Innovation Center for U.S. Dairy (IC) recently commissioned a major study to sort through U.S. dairy trade challenges and opportunities. A task force consisting of IC board members actively engaged in dairy exports was named to direct the study and Bain & Company was contracted to conduct interviews with a broad range of dairy sector stakeholders and perform other analyses. The related report, entitled, The Impact of Globalization on the U.S. Dairy Industry: Threats, Opportunities, and Implications, was released October 2009.

IC traced the following likely future scenario with respect to world dairy trade and implications for the U.S.:

• World demand for dairy products will grow rapidly, primarily as a result of strong economic growth in East and Southeast Asia, the Middle East, and Northern Africa. Internal milk production in these countries cannot keep pace with increased demand.

• The resulting net demand growth will exceed the potential milk supply growth in traditional low-cost dairy exporting countries (New Zealand and Australia) despite higher world prices, resulting in a "latent demand gap" forecast at 7 billion pounds milk equivalent by 2013.

• The U.S. has the opportunity not only to help fill this global demand gap, but also to benefit from displacing imports with internal sources of product.

• To fully exploit this opportunity, U.S. exporters would need to be consistent suppliers of high-quality products in the form demanded by importers. Federal dairy policy changes would be necessary as well.

• The window of opportunity afforded by the latent demand gap may be limited if non-traditional dairy exporters—notably Brazil and Ukraine—successfully deal with existing constraints to expanded production. But by committing to exports now, U.S. firms may be able to thwart this new competition.

IC identified four strategic options for the U.S. to pursue: Fortress USA, the status quo, consistent exporter status, and global dairy player.

The Fortress USA option—exclusive focus on the domestic market—was deemed infeasible because it would require higher trade barriers and some form of supply control to match domestic supply with demand at acceptable farm-level milk prices. Restricting market access would violate existing WTO commitments and a completed Doha round agreement will likely further expand market access. Adoption of a strong form of supply control was considered a political long shot.

Maintaining the status quo is the easiest option because no changes are necessary and industry stakeholders have become comfortable operating within the current system. But the status quo would marginalize the U.S. role in world markets and run the risk of increasing dairy imports and displacement of dairy ingredients by non-dairy substitutes.

The global dairy player option would essentially adopt the strategy employed by export-oriented countries like New Zealand and Ireland, where major dairy companies (e.g., Fonterra in New Zealand, and Glanbia in Ireland) focus almost exclusively on export sales. These companies have developed extensive trading relationships with importing countries and have established elaborate networks of joint ventures and direct foreign investments to source supplies outside their headquarter countries. While seen as a possible longer-term goal, the IC concluded that seeking global player status was premature.

The recommended IC option for the U.S. dairy industry was the consistent exporter status. This would involve an industry commitment to enhance dairy companies' trading skills and to manufacture products aligned with foreign buyers' needs. It would also require altering federal programs and regulations that impede dairy exports and improving tools to manage price risk.

More specifically, achieving consistent exporter status would require that importers perceive the U.S as a consistently reliable supplier of consistently high-quality dairy products manufactured to their specifications and meeting the changing demands of their consumers. Whether U.S. dairy companies are willing to commit to the related changes in their business practices is not clear. Even if they were, the presence of the Dairy Product Price Support program stands in the way of the U.S. being perceived as a reliable supplier, since the Commodity Credit Corporation may periodically represent a more lucrative sales outlet for NDM, butter, and cheese than foreign buyers. The IC report also suggested that existing FDA standards of identity could also stand in way of U.S. companies being able to make the right products to meet export demand.

Recognizing the potential risks associated with world market price volatility, the IC report recommended strengthening price risk management tools available to dairy farmers and manufacturers. While it did not identify methods of doing this, the report was critical of the Federal Milk Marketing Order system for increasing price volatility by limiting the development of forward contracting and use of dairy futures markets.

It is important to point out that the Innovation Center globalization task force members represented major cooperative and proprietary manufacturers of cheese, butter and NDM, which, along with whey products derived from cheese production, are the principal U.S. dairy export items. Whether dairy farmers would have come up with the same conclusions and recommendations is an open question.

Regardless of the feasibility or the overall dairy industry acceptance of the IC strategy, the report provides a useful starting point for discussing the future U.S. role in international dairy trade and how to support that role.

Endnotes

[1] Trade data for the charts here are drawn from the USDA-FAS Global Agricultural Trade System.

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Dairy Policy Analysis Alliance

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