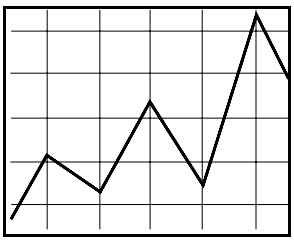
MARKETING AND POLICY BRIEFING PAPER



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RETHINKING DAIRYLAND

Chapter 3

The Effects of Federal Dairy Programs on the Competitiveness of Dairying in Wisconsin[1]

This is the third in a series of brief reports that document the current state of the Wisconsin dairy industry and evaluate factors that will influence its evolution.

This installment addresses the Dairy Price Support Program and Federal Milk Marketing Orders, which are the primary methods of direct federal intervention in dairy markets. These longstanding programs are described and evaluated, both generally and more narrowly from the perspective of their effects on Wisconsin dairy farmers and processors. We end the paper by offering a set of policy guidelines that, in our judgment, would promote market orientation and enhance the competitive environment for Wisconsin dairying.

Dairy Price Supports

Method of Operation

The Federal Dairy Price Support Program (DPSP) has been used continuously since 1949 to place a flexible floor under the price of milk used to produce non-perishable manufactured dairy products. Unlike most federal agricultural programs, the DPSP functions in the background of markets for milk and dairy products – producers do not receive "green checks," but they indirectly benefit from the program when milk supply and demand are out of balance.

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The DPSP operates through a standing offer by USDA's Commodity Credit Corporation (CCC) to purchase unlimited quantities of three dairy products – butter, nonfat dry milk, and cheddar cheese – at announced purchase prices. The *milk* support price, currently $9.90 per hundredweight for milk of average butterfat test (3.67 percent) and $9.80 for milk testing 3.5 percent, is specified in federal legislation. The purchase prices for eligible *products* are calculated by USDA using assumed yields of products per hundredweight of milk and manufacturing or "make" allowances reflecting processing costs.

In theory, the resulting purchase prices provide reasonably efficient plants making the eligible products with enough money to pay farmers the announced support price. In practice, manufacturing milk prices sometimes fall under the announced support price.[2] This is mainly because products sold to the CCC must meet special packaging and inspection requirements, which raises the cost of selling to the CCC relative to other buyers.

Depending on how far prices fall, the CCC may eventually represent a more lucrative market than commercial outlets for some plants.

Because of inter-plant competition for the supply of milk for manufacturing, the impact of the DPSP extends to markets beyond those for the products purchased by the CCC. For example, if cheddar cheese plants are able to pay their patrons the support price because of their ability to sell cheddar cheese to the CCC, then mozzarella plants will need to match that price in order to retain their milk supply.

As surpluses ease and prices improve, the CCC may sell products purchased under the support program at not less than 110 percent of the purchase price. These sales are referred to as unrestricted sales. Besides making unrestricted sales, the CCC makes surplus dairy products available for use in several domestic and foreign food programs. However, 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.

Major Effects on Interregional Competition

From its inception in 1949 until the mid 1970s, the DPSP operated essentially as a buffer stock/price stabilization program. From 1949 until 1981, the support price was based upon a parity formula.[3] Congress gave USDA discretion in establishing the support price between 75 and 90 percent of parity to conform to supply and demand conditions, and

[2] In 2000, the Class III milk price was less than $9.80 for seven months, falling as much as $1.23 below support in November. This unusually large variance was generally attributed to a shortage of USDA cheese inspectors and a related inability of cheese plants to sell cheese to the CCC. The Class III price was below $9.80 in July (-47 cents) and August (-26 cents) of 2002.

[3] Parity is a (variously-defined) ratio of farm price and farm cost indices. It was used in price support programs purportedly to maintain the purchasing power of farm commodities.

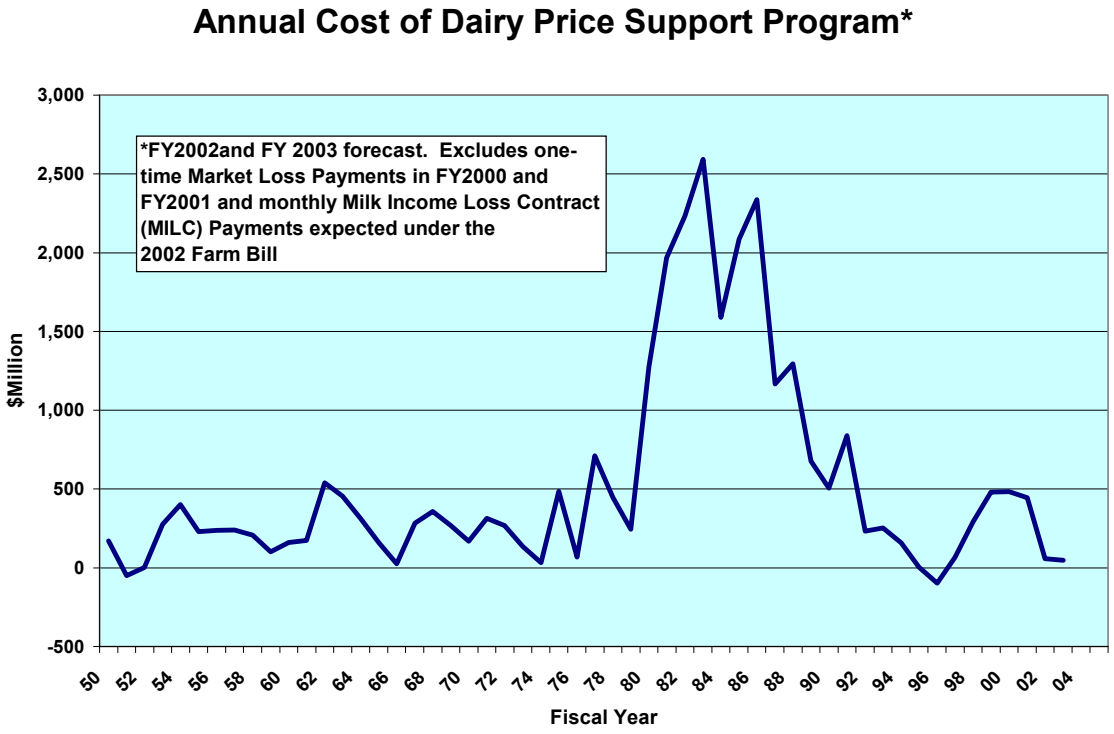
changes were infrequent and small. Excess supplies of cheese, butter, and nonfat dry milk were removed from the market when milk supplies were burdensome, usually during the spring milk flush. Accumulated stocks were placed back on the commercial market through unrestricted CCC sales when milk supplies tightened and prices rose in the fall. Government stock management kept milk prices from both falling as low or rising as high as they otherwise would have. Manufacturing milk prices were very stable within a few cents per hundredweight of the support price.

As part of the 1977 farm bill, Congress raised the support price to 80 percent of "parity" and mandated semiannual adjustments. USDA lost its ability to fine tune the support price. Rapid inflation caused large semiannual increases in the support price. High support prices combined with swift adoption of cost-reducing dairy technology elevated dairy farm profit margins and stimulated large increases in supply.

In 1981, Congress recognized the serious supply-demand imbalance caused by the 1977 Farm Bill and began a series of corrective actions that lasted until 1990. These actions included decoupling the support price from parity and tying it to actual or projected program costs, dairy farmer assessments (milk taxes) to offset DPSP expenditures, and voluntary supply control programs (Milk Diversion Program and Whole-Herd Buyout).

These corrective actions were mostly too little and came too late.[4] The damage from high price supports without accompanying supply controls had already been done. From a national dairy perspective, the damage was twofold: (1) Large surpluses – CCC costs reached as high as $2.6 billion in 1983, and (2) badly-distorted markets for dairy products – annual CCC purchases of butter and cheddar cheese were as much as one-third of total production, and 70 percent for nonfat dry milk.

[4] An exception is the Whole-Herd Buyout (Dairy Termination Program) in 1986-87, which required participating dairy farmers to slaughter of dairy cows and remain out of dairy farming for at least five years. The buyout was followed by a severe drought in 1988, bringing milk supply in line with demand for the first time in more than 10 years.



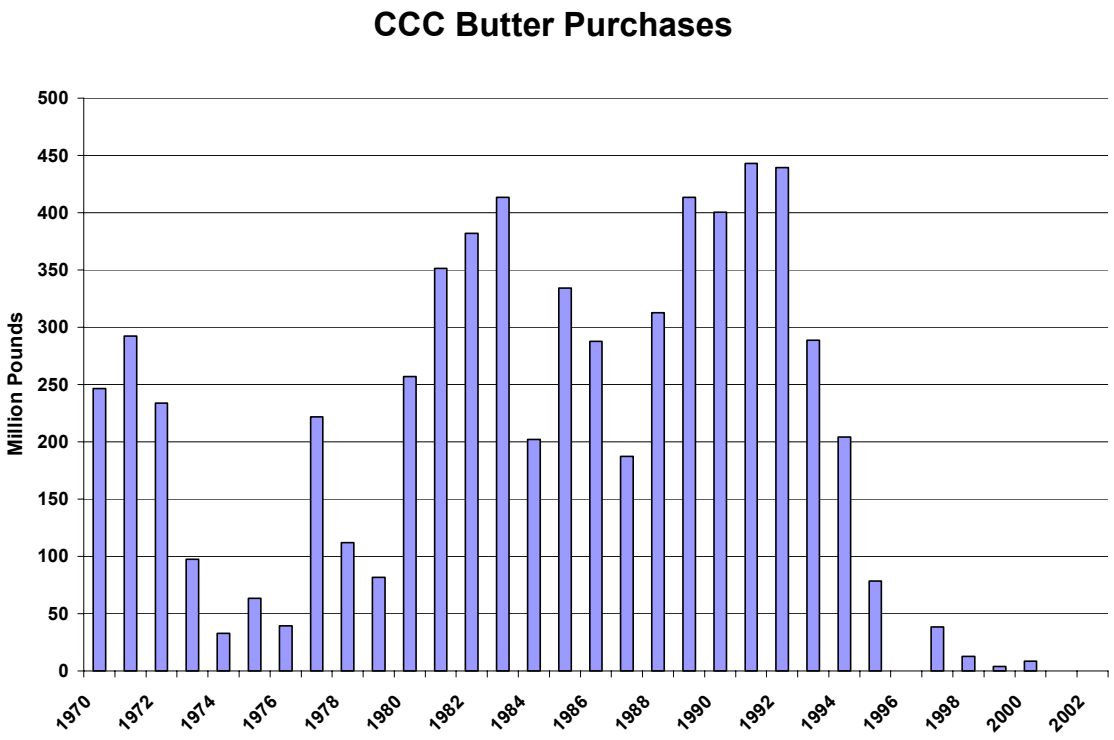
From a Wisconsin perspective, further damage was in stimulating the rapid development of the California dairy industry. In 1975, California had 800,000 dairy cows, 50,000 fewer than in 1953. By 1990, cow numbers in California had risen to 1,135,000 and milk production was double the 1975 level. Expansion of dairy in California was induced not only by the high and predictable support price for milk, but also by the ready market for manufactured dairy products in the form of the CCC. Substantial investment in California butter-powder manufacturing capacity was encouraged by predictable CCC prices along with profitable manufacturing allowances offered by the California state milk pricing program.

When the support price had been reduced to $10.10 in 1990, it was below the full cost of production for most dairy farms. Consequently, the support price no longer consistently drove market prices. Further, farm level milk prices became highly volatile and uncertain, subjecting dairy farmers to considerable milk price risk.

But product price distortions continued. During the early 1990s, the CCC purchased 30-40 percent of all butter produced in the U.S., fictitiously encouraging investment in butter plants and sending faulty economic signals to producers to increase butterfat production. This situation was eventually corrected by altering the relative prices of butter and nonfat dry milk in the CCC price calculations – lowering the butter price and raising the nonfat

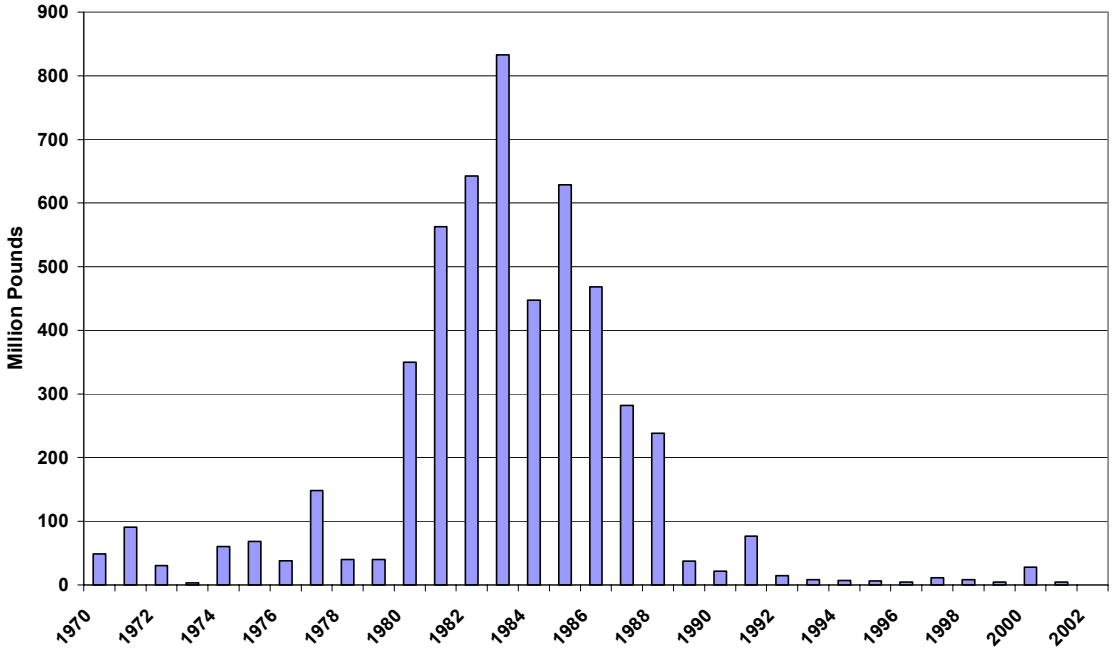
dry milk price.[5] But the reverse problem emerged in the late 1990s when the CCC began purchasing as much as half of total nonfat dry milk production. This had especially serious consequences for Wisconsin given the manner in which federal milk order prices for Class I (fluid) milk were set beginning in 2000 (see discussion on federal orders).

While distortions existed between butter and nonfat dry milk support prices, market prices for cheese since 1990 have been above the relatively low support price for cheese most of the time. Consequently, very little cheese has been purchased by the CCC under the support program. Since Wisconsin utilizes nearly 90 percent of its milk for cheese and produces very little nonfat dry milk, Wisconsin has not depended upon the government for a market outlet for its milk production. But, since almost 75 percent of the nonfat dry milk is produced in the West (California with about 50 percent), the West continues to rely on government sales for a significant share of its milk production.

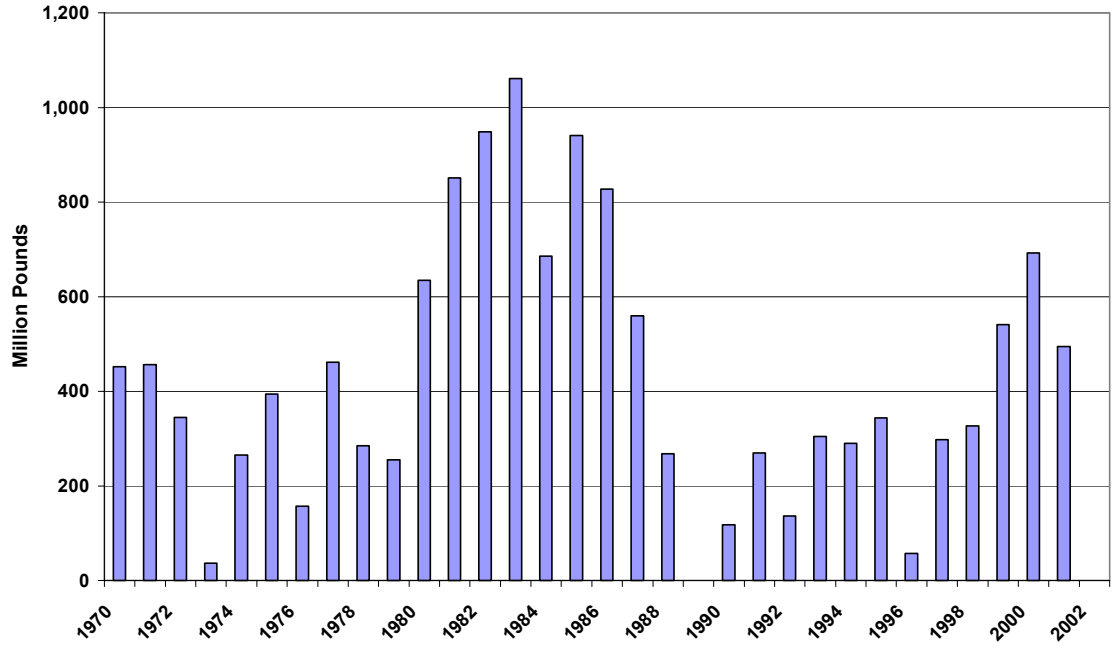


[5] Changes in relative CCC purchase prices for butter and nonfat dry milk are called "butter-powder tilts." Under the assumption that butter and nonfat dry milk are joint products, USDA can lower the price of one product and increase the price of the other to achieve the same net value of butter and nonfat dry milk in a hundredweight of milk. Current legislation authorizes the Secretary of Agriculture to use tilts as necessary (up to twice per year) to minimize CCC purchase prices. If one product is being purchased in volume by the CCC and the other is not, USDA lowers the purchase price of the product being purchased. The last tilt was in May 2001, when the purchase price for nonfat dry milk (unfortified) was reduced from $1.0032 to $.90 per pound and the purchase price for butter was raised from $.6558 to $.8548 per pound. For further information, see Jesse and Cropp, *The Butter-Powder Tilt*, Marketing and policy Briefing Paper No. 72, Department of Agricultural and Applied Economics, University of Wisconsin-Madison/Extension, June 2001.

CCC Cheese Purchases



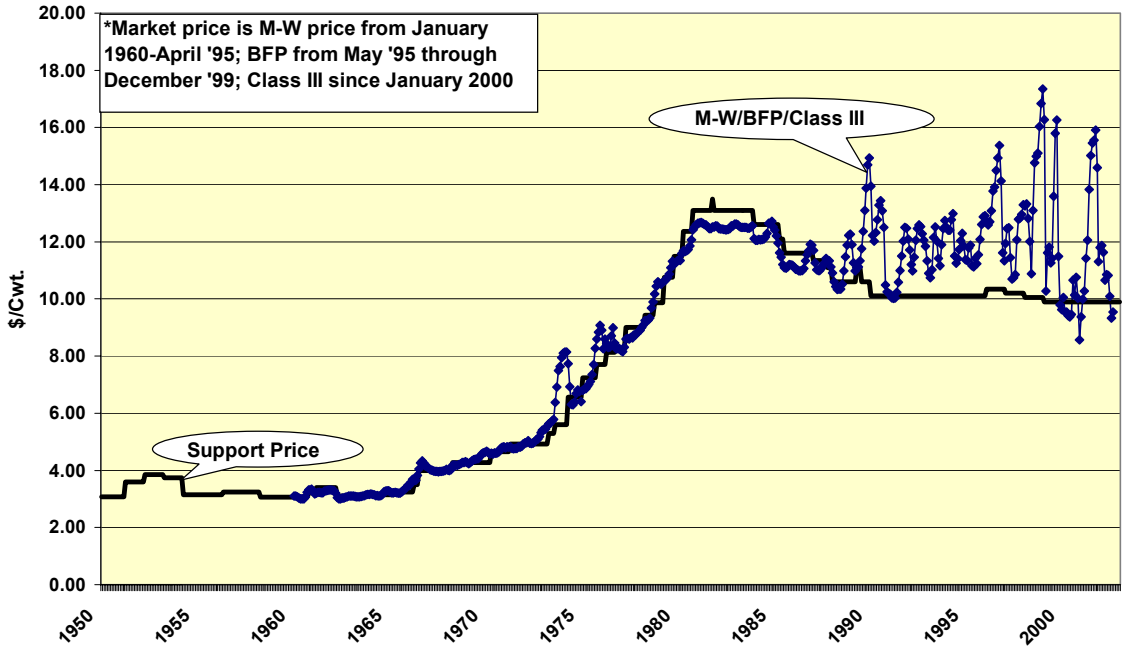
CCC Nonfat Dry Milk Purchases



Lessons from more than 50 years of experience stress the need for *flexibility* and *market orientation* in administering the dairy price support program. The Secretary of Agriculture must have discretion to alter the support level to prevent milk surpluses and to change relative product prices when market distortions are apparent.

The support program can be and has been used effectively to establish a safety net. But, without supply management, it cannot be used to keep prices above market-clearing levels. If supporting dairy farmer income rather than maintaining a safety net is the political goal, then direct payments distort markets less than raising support prices.[6]

Market Price* Versus Support Price



Effects of Terminating Dairy Price Supports

In the 1996 Farm Bill, the DPSP was slated for termination on December 31, 1999. Subsequent legislation retained the program with a support price of $9.90 per hundredweight, and the 2002 Farm Bill extended the DPSP until December 31, 2007.

[6] But direct payments can also distort economic incentives. See Jesse and Cropp, Dairy Title: Farm Security and Rural Investment Act of 2002, Marketing and policy Briefing Paper No. 76, Department of Agricultural and Applied Economics, University of Wisconsin-Madison/Extension, May 2002.

So while questions of whether the DPSP operates to the net benefit of Wisconsin farmers may be moot for the present, they still need to be asked: Does the dairy price support program contribute positively to the competitiveness of Wisconsin's dairy sector? How would Wisconsin be affected by elimination of the program?

On average, the DPSP serves to elevate milk prices nationally by cutting price troughs. And by elevating average prices, the program increases milk supply above what it otherwise would be. So termination would have the opposite effects – prices would be lower on average and milk supply would be less.

To measure the price and supply effect of the DPSP, we used an interregional competition model to simulate what would happen if the program were terminated. The model generates results for 12 regions conforming roughly to the current alignment of federal milk marketing order areas plus California. Initial conditions were based on 2000, when farm milk prices and commodity prices were historically low.[7] The CCC bought large quantities of nonfat dry milk in 2000, but only a small volume of cheese and no butter. The 2000 base was altered slightly by incorporating the butter-powder tilt that was implemented in May 2001. In other words, the base solution replicates 2000 conditions except that CCC purchase prices for butter and nonfat dry milk are mid-2001 values. This puts the CCC purchase price for nonfat dry milk closer to market-clearing levels than actually existed in 2000. In order to compare apples with apples, all model results are compared with the base simulation, not actual 2000 values

Depending on assumptions pertaining to farm-level supply response, the model suggests that terminating the DPSP in 2000 would have reduced the national average farm milk price $0.42-0.70 per hundredweight. U.S. milk production would have been 3-4 billion pounds less because of lower prices, and milk revenues would have lower by $1.1-1.6 billion.

Farm milk prices are projected to fall in all regions with termination of price supports, even in regions where manufacturing is not significant. In the Upper Midwest, farm prices drop by about the national average $0.41-0.57 per hundredweight. Losses are larger in the Southeast and most of the West and smaller in the Northeast and California.

Among product markets, terminating supports has the largest effect on markets for butter and nonfat dry milk. Without the CCC to buy powder, its wholesale price drops to equivalent world market levels. This causes nonfat dry milk production to drop by nearly 1/3. Milk is diverted to production of higher-valued products, mainly cheese, lowering cheese prices by about 5 percent. Butter production is sharply lower because of lower production of nonfat dry milk, which is a principal joint product with nonfat dry milk.[8]

[7] Since cheese and nonfat dry milk prices were already at or close to CCC purchase prices, using 2000 as a base in the simulations magnifies the price impact of terminating the support program.

[8] While butter is jointly produced with nonfat dry milk, most butter manufactured in the U.S. comes from cream skimmed from milk destined for lower-fat fluid products and low-fat cheeses.

Lower cheese and nonfat dry milk prices result in lower federal milk marketing order formula values for fluid milk and soft manufacturing products.

Besides its effect on milk price levels, the DPSP also promotes price stability by limiting down-side price movements. That stability would be lost if the program were terminated. However, the stability provided by the current program is minimal, as evidenced by the volatility in milk prices since 1990. The support price is low compared to recent average price levels and milk production costs. Thus, the likelihood of milk prices falling to support is smaller than it was prior to the mid-1980s. And with the exception of nonfat dry milk, government-held stocks of dairy products are too small to buffer up-side price movements.

The effect of any instability caused by terminating the DPSP would likely be ameliorated by the further development of private storage capacity to replace government storage. Futures markets for manufactured dairy products would likely see expanded use without the DPSP.

The market for nonfat dry milk would be especially disrupted in the short term if the DPSP were eliminated. Many specialized butter-powder operations would fold or convert to cheese production, putting downward pressure on cheese prices. Balancing costs for cooperatives servicing fluid handlers would be higher because variable milk volume is more costly in cheese production than in butter/powder production.

After initial adjustments, manufactured product prices would better reflect commercial demand than currently. The spread between butter and powder prices would likely widen. Use of nonfat dry milk to standardize cheese milk would increase and could increase butter prices relative to cheese prices. Lower powder prices would encourage "reverse substitution" of powder for milk protein concentrates in some applications.

In the long-run, would Wisconsin be better off without the Dairy Price Support Program? The answer is, probably not. The answer would have been different 20 years ago, when the support program was being used for price enhancement and promoting dairy investment in the West. It might be different in the future if the Secretary of Agriculture fails to use butter-powder tilts to maintain a rational economic relationship between product prices.

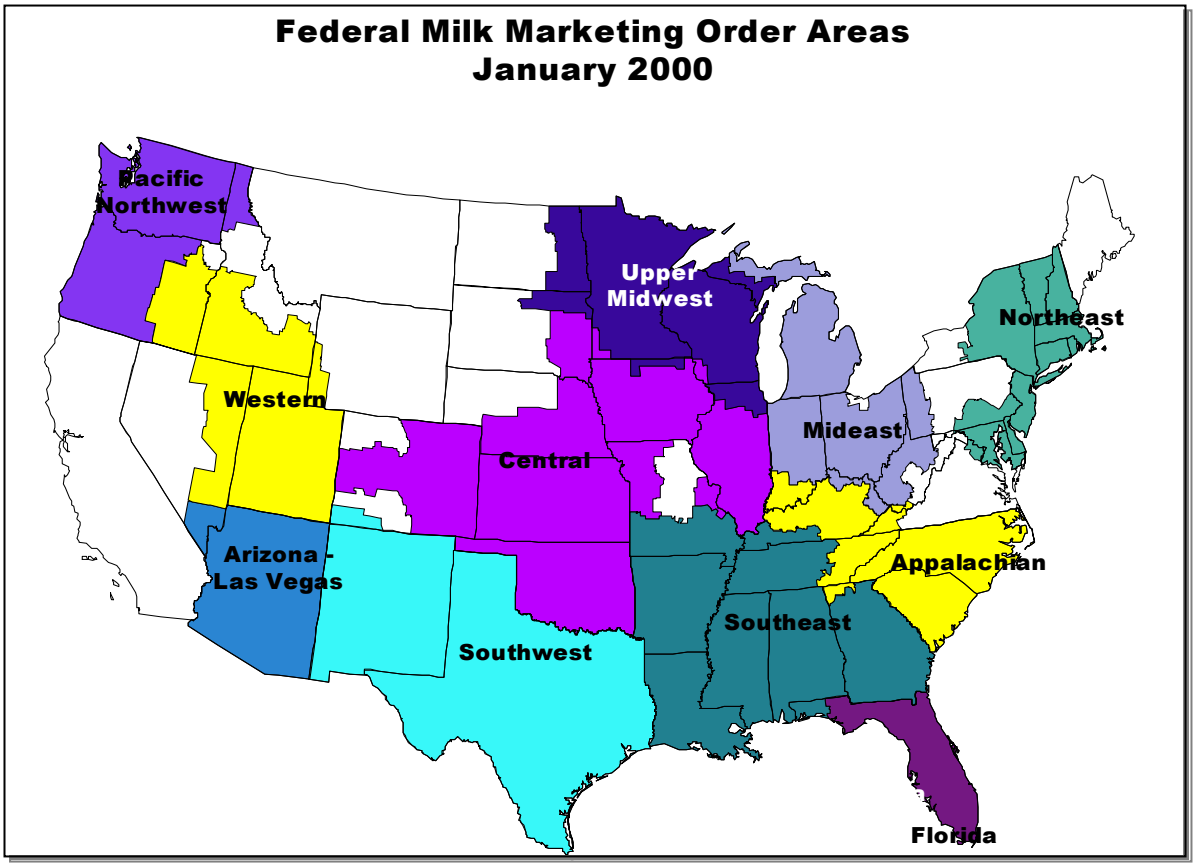
But as currently authorized under the Farm Security and Rural Investment Act of 2002, the Dairy Price Support Program represents a reasonable safety net for dairy farmers in Wisconsin and elsewhere. The current level of support is low enough so that it does not artificially enhance milk prices. At the same time, it is high enough to prevent price catastrophes and industry over-adjustment. The regional effects are fairly uniform, as evidenced by the simulated effects of terminating price supports. If tilts are used as authorized, price supports are not likely to artificially prop federal order prices.

Federal Milk Marketing Orders

Method of Operation

Federal milk marketing orders regulate dairy plants (handlers) that market Grade A milk. Grade A milk is produced under monitored dairy farm sanitary conditions that qualify the milk for use in fluid dairy products. While Grade A milk is *eligible* for use in fluid products, most is used to produce manufactured products. Grade B milk, which is not regulated by federal orders, can only be used to make certain manufactured dairy products. About 98 percent of U.S. milk and 94 percent of Wisconsin milk is Grade A.

There are 11 federal milk orders covering most of the United States. The major exception is the state of California. California has its own state milk pricing program, which operates much like federal orders. Each order covers a specific geographical region, known as a marketing area, corresponding to a common distribution area for fluid milk.



Milk orders use *classified pricing* to establish minimum prices for milk and milk components to be paid by milk plants and *market-wide pooling* to establish minimum pay prices for dairy farmers. Classified pricing means that handlers pay different prices for milk

depending on how it is used. The orders uniformly define four classes of milk: Class I is milk used for beverage or fluid purposes. Class II is milk used for designated perishable dairy products like cottage cheese, yogurt, and ice cream. Class III is milk used for "hard" cheeses. Class IV is milk used to make butter and nonfat dry milk.

Under milk order regulations, minimum class prices for milk and milk components are announced each month. Regulated handlers cannot pay less than the announced prices. The minimum class prices are derived mathematically using a set of formulas that tie the class prices to market prices for four manufactured products: cheddar cheese, butter, nonfat dry milk, and dry whey.

The derivation process is complex. To calculate the four monthly Class prices for both skim milk and butterfat, monthly and "advanced" prices are calculated for four milk components (butterfat, protein, nonfat solids, and other (nonfat/non-protein) solids). We will summarize the derivation process by noting that:

- The advanced and monthly Class IV prices are linked to the prices of butter and nonfat dry milk.

- The advanced and monthly Class III prices are linked to the prices of butter, cheddar cheese, and dry whey.

- The Class II skim milk price per hundredweight is the *advanced* Class IV skim milk price plus 70 cents per hundredweight. The Class II butterfat price per pound is the *monthly* Class III/IV butterfat price plus 0.7 cents ($0.007) per pound.

- The Class I skim milk price per hundredweight is the higher of the *advanced* Class III or Class IV skim milk price plus a market specific Class I differential. The Class I butterfat price per pound is the *advanced* Class III/IV butterfat price plus the market-specific Class I differential divided by 100.

Class IV, Class III and Class II prices are the same in all markets. Class I prices vary by market according to the market-specific Class I differentials.

Federal orders differ not only with respect to Class I differentials, but also with respect to utilization of milk, the amount of milk pooled, and the average size of producers. Utilization of milk in Class I varied in 2000 from a low of 17.5 percent in the Upper Midwest to a high of 88 percent in Florida. The Upper Midwest had the highest Class III utilization and the lowest Class II and Class IV utilization.

The Northeast and Upper Midwest orders are the largest, each pooling nearly 24 billion pounds of milk in 2000. The Florida and Arizona-Las Vegas orders pool only about 3 billion pounds annually. Producers affiliated with the Arizona-Las Vegas order numbered 122 in 2000 and produced an average 70,000 pounds of milk per day. This contrasts with more than 19,000 producers delivering 3,350 pounds per day in the Upper Midwest.

Federal Milk Marketing Order Statistics, 2000

Federal Milk Order Marketing Area	*No. of Producers*	*Daily Deliveries*	*Total Deliveries*	*Utilization by Class*			
				Class I	*Class II*	*Class III*	*Class IV*
		Lbs.	Mil #	%			
Northeast	17,279	3,799	23,970	43.86	17.40	29.02	9.73
Appalachian	4,213	4,107	6,318	68.75	14.07	6.42	10.77
Southeast	5,066	4,055	7,487	65.01	10.70	16.32	7.97
Florida	305	26,186	2,867	88.09	6.75	2.22	2.93
Mideast	10,030	3,877	14,181	47.36	14.95	31.40	6.29
Upper Midwest	19,147	3,347	23,415	17.47	3.55	78.14	0.83
Central	10,709	4,119	16,037	30.40	7.43	58.57	3.59
Southwest	930	25,867	8,712	45.57	9.01	38.29	7.13
Arizona-Las Vegas	122	69,946	3,110	31.30	4.46	36.10	28.14
Western	743	14,987	4,048	25.05	9.01	57.33	8.62
Pacific Northwest	1,047	17,886	6,776	30.99	6.87	34.67	27.47
All Markets Combined	69,590	4,590	116,920	39.33	10.22	42.69	7.75

Source: Dairy Division, Agricultural Marketing Service, U.S. Department of Agriculture

The *pooling* part of federal milk orders refers to how dairy farmers are paid. Dairy farmers marketing their milk through regulated handlers receive, as a minimum price, the pooled, or weighted average value of all milk in the marketing area based on the class prices and utilization. Stated simply, all revenues from milk sales valued at the minimum class prices are summed across all regulated handlers in the marketing area and the resulting total value is divided by producer deliveries to determine value per hundredweight.

Seven of the eleven orders use *multiple component pricing* (MCP) in paying farmers. Under MCP, farmers are paid for pounds of butterfat, protein, and other solids at the Class III values for these components. Four of the seven MCP orders also add or subtract a somatic cell count adjustment per hundredweight of milk, which is based on the value of cheese. In addition to MCP payments, farmers in MCP markets also receive a *producer price differential* (PPD) expressed on a per hundredweight basis. The PPD represents the

difference between the pool value per hundredweight (denoted the uniform price) and the Class III value.[9]

The four federal orders that do not use MCP are characterized by relatively high utilization of milk for Class I. In these orders, farmers are paid for milk on the basis of the pooled values of skim milk and butterfat.

The reconciliation between a handler's obligation based on its utilization of milk and its obligation based on the uniform price is through a *producer settlement fund.* The producer settlement fund balances handlers' pool obligations and what they must pay to producers. Handlers who use most of their milk for Class I products have a pool obligation per hundredweight of milk that is higher than the uniform price and pay into the producer settlement fund. Handlers who use all or most of their milk for Class III purposes have a pool obligation that is less than the uniform price and draw from the producer settlement fund. This pool draw is particularly important to cheese makers. It allows them to pay their producers more than what they could if their revenue were derived entirely from cheese sales. Because of the pool draw, cheese makers in areas with high Class I use are not penalized by high uniform federal order prices.

Uniform federal order prices vary across markets mainly due to (1) Class I differentials and (2) Class I utilization. Class I differentials are established for each county and range from $1.60 to $4.30 per hundredweight. The differentials apply to the county where the receiving milk plant milk plant is located, not where the dairy producer is located. Class I utilization ranges from less than 20 percent to almost 90 percent. In general, Class I utilization is highest in the southeastern U.S. and lowest in the Midwest and Northwest.

Producer price differentials provide a rough measure of how much Class I sales in a market contribute to the uniform price received by farmers. For 2001, PPDs (actual and imputed) ranged from $0.64 per hundredweight in the Upper Midwest (17.6 percent Class I Utilization/$1.80 base Class I differential) to $4.66 in Florida (88 percent Class I utilization/$4.00 base Class I differential.[10]

[9] Calculating the PPD actually involves several other adjustments for various pool payments and deductions. Depending on net adjustments, the PPD may be higher or lower than the difference between the uniform price and the Class III price.

[10] The imputed PPD in Florida exceeds the highest Class I differential in the Florida market because of relatively high utilization in Classes II and IV, which were both priced higher than Class III in 2001.

Federal Milk Marketing Order Prices and Class I Utilization, 2001

Federal Milk Order Marketing Area	*Principal Pricing Point/Major City*	*Class I Differential**	*Class I Utilization*	*Uniform Price*	*Producer Price Differential*
		$/Cwt.	**Percent**	**$/Cwt.**	**$/Cwt.**
Northeast	Suffolk Co., MA/Boston	3.25	43.86	15.68	2.56
Appalachian**	Mecklenburg, Co., NC/Charlotte	3.10	68.75	16.31	3.21
Southeast**	Fulton Co., GA/Atlanta	3.10	65.01	16.07	2.97
Florida**	Hillsborough, Co., FL/Tampa	4.00	88.09	17.76	4.66
Mideast	Cuyahoga Co., OH/Cleveland	2.00	47.36	14.58	1.38
Upper Midwest	Cook Co., IL/Chicago	1.80	17.47	13.70	0.64
Central	Jackson Co., MO/Kansas City	2.00	30.40	14.21	1.05
Southwest	Dallas Co., TX/Dallas	3.00	45.57	15.48	2.35
Arizona-Las Vegas**	Maricopa Co., AZ/Phoenix	2.35	31.30	14.43	1.33
Western	Salt Lake Co., UT/Salt Lake City	1.90	25.05	14.16	0.87
Pacific Northwest	King Co., WA/Seattle	1.90	30.99	14.32	1.13
All Markets Combined			39.33	14.90	1.51

*Class I differentials at other locations in the marketing area may be higher or lower than the Class I differential at the principal pricing point.
**Markets use skim milk-butterfat pricing and do not report a PPD. The imputed PPD value shown is the difference between the order uniform price and the annual average Class III price for 2001.

Major Effects on Interregional Competition

Federal orders have been used to price Grade A milk in the United States for more than 60 years. Enabling legislation followed a long period of disruptive pricing practices in the fluid milk industry. Processors often expanded and contracted their procurement areas in accordance with counter-cyclical seasonal milk production and consumption patterns. Producers, especially those on the fringes of city milk-sheds, would be enticed by relatively high prices to supply milk to fluid bottlers during deficit periods, only to be cut off during periods of ample milk supplies. Retail price wars often resulted in volatile and unprofitable farm milk prices. Cooperative efforts to bring about stability in prices and market access were frustrated by a lack of bargaining power vis a vis large processors and by free riders, dairy farmers who benefited from the cooperative's efforts by remaining outside the cooperative.

Federal orders achieved more "orderly marketing" through classified pricing and pooling provisions. Minimum prices prevented processors from passing the effects of their price wars on to farmers. Producers supplying the fluid market received the same price (adjusted for location and composition), whether their milk was consistently needed to meet fluid needs or needed only during periods of short supply.

Federal milk marketing orders have continued to promote equity and stability in fluid milk markets. Dairy farmers have unquestionably benefited from reduced market risks. They have also achieved some degree of income enhancement, since order pricing capitalizes on the difference in elasticity of demand between fluid and manufactured milk products through price discrimination. Following initial opposition, handlers have generally become supporters of orders because they ensure equal raw product costs among competitors.

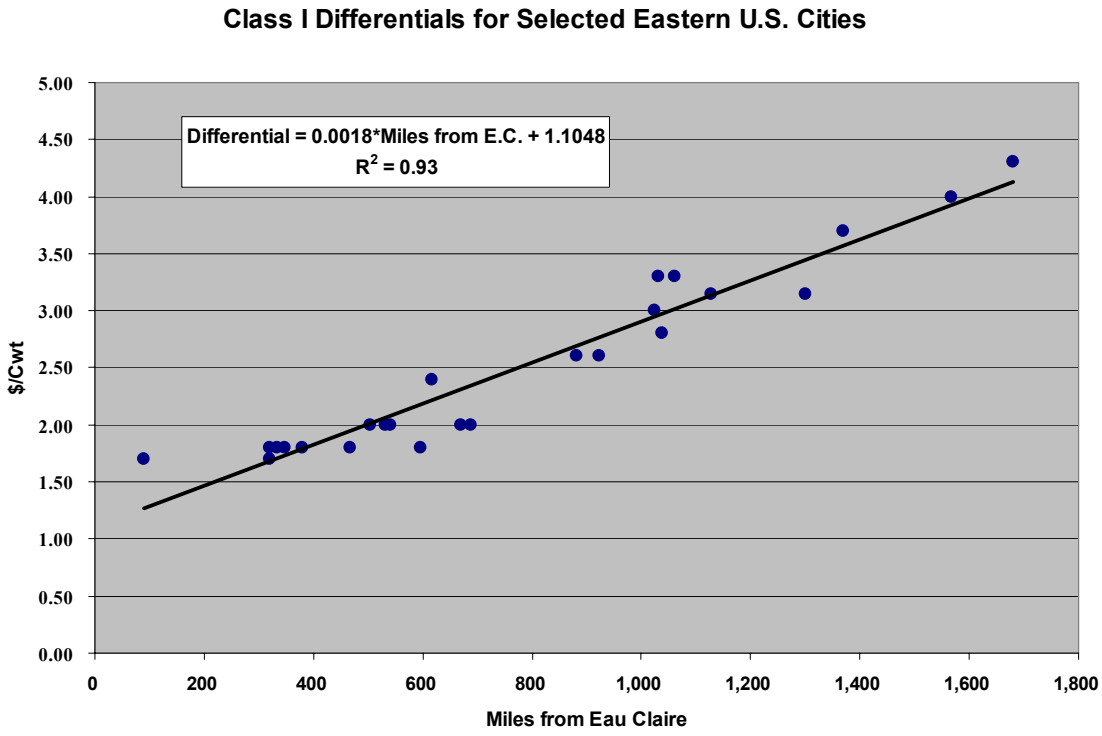
Despite widespread industry support, there is growing concern that milk marketing orders have not evolved to conform to changes in milk production and marketing practices. Orders induce and perpetuate inefficient milk production, procurement, and distribution patterns. Orders bestow differential benefits on some producers and impose related costs on others. By creating haves and have nots, orders create political supporters and opponents. The administration of federal orders in recent years has reflected political pressure more than economic rationale.

Criticism of federal orders stems mainly from methods used to establish minimum prices for Class I, or fluid milk. These methods include using single basing point pricing to set differentials and using the higher of advanced Class III or Class IV skim milk prices to set the Class I mover.

Single Basing Point Pricing

For markets east of the Rocky Mountains, the Class I differentials reflect a system of *single basing point pricing* – Class I differentials increase in a linear fashion with distance from the Upper Midwest.[11] Currently, differentials increase at the rate of about 18 cents per hundredweight per100 miles distance from Eau Claire.

[11] Class I differentials in western markets do not follow the single basing point pattern. They appear to be set in reference to local supply and demand conditions.



Single basing point pricing was adopted during the 1960s, when the Minnesota-Wisconsin price series gradually replaced local supply-demand adjusters as the Class I price "mover" in federal order markets. With markets using a common Class I price mover, Class I prices needed to be geographically aligned in a manner than encouraged efficient milk movements. USDA justified using the Upper Midwest as a pricing base on grounds that the Upper Midwest had a large reserve supply of Grade A milk. So while deficit markets would acquire milk from the closest market that had excess supplies, markets that gave up milk for fluid purposes would ultimately have to replace that milk from the Upper Midwest.

This logic may have made sense in the 1960s, even though single basing point pricing ignored the fact that many markets distant from the Upper Midwest were amply supplied with milk and never had to procure supplementary supplies.[12] With the passage of time, however, the assumption that the Upper Midwest was the sole source of supplementary milk supplies became increasingly invalid. In fact, single basing point pricing created high producer milk prices that not only encouraged local self-sufficiency in fluid milk, but also induced expansion of manufacturing milk production in many areas. The single basing point concept actually created new fluid milk supply sources, but it was not altered to attract milk from these areas to deficit regions.

The situation was exacerbated in 1986 when, as part of the 1985 Farm Bill, Class I differentials were increased in many regions that were experiencing lower relative costs of milk production and already expanding milk production. This contrary action yielded producer

[12] For example, northeastern markets were at no time short of milk for fluid purposes. But these markets enjoyed the benefit of Class I differentials that assumed they regularly moved milk from the Upper Midwest.

prices that enhanced excess profitability and created even stronger incentives to expand production. Because Class I prices were raised by the increase in Class I differentials, fluid milk consumption generally declined in markets that were granted large increases in Class I differentials. Consequently, the volume of milk utilized for manufactured dairy products increased even more than milk production increased.

Since Class I differentials were fixed, the only restraint on milk production in this situation was an erosion of the weighted average milk price through a reduction in Class I utilization. Additional Grade A milk production not used in Class I did reduce Class I utilization and uniform prices in many markets where Class I differentials were increased. But at the same time, the added production augmented the national supply of milk for manufacturing, reducing manufacturing milk prices.

Balancing local supply and demand by reducing prices for milk used for manufacturing is particularly punitive to producers in Wisconsin. That is because Class I differentials in Wisconsin are among the lowest in the U.S. because of its vicinity to the Upper Midwest basing point and because most of the Grade A milk in Wisconsin is utilized for making cheese. Consequently, a reduction in Class III prices more directly affects the uniform federal order price applicable to Wisconsin.

The effect of single basing point pricing on prices of milk used for manufacturing was mirrored by the Northeast Interstate Dairy Compact, which expired in 2001 – fluid milk prices higher than can be justified by market conditions lead to induced production of milk for manufacturing. Since the area covered by the Northeast Compact was small, the effects were minimal. But proposed expansion of the compact region would likely have significantly increased the supply of milk for cheese to the detriment of Wisconsin and other major cheese states.

The Class I Price Mover

Class I prices represent, in part, added costs and value associated with providing milk for fluid markets versus milk for manufacturing. The theory is that manufactured milk prices reflect national supply and demand conditions and the differential reflects marginal Class I value in specific local markets. So Class I prices are moved by manufacturing milk values.

From the mid-1960s until 1995, the mover for Class I prices was the Minnesota-Wisconsin Manufacturing Grade Price Series (M-W price), which was an estimate of what Grade B milk plants paid for milk in the two states. During the life of the M-W price, an estimated 75-95 percent of Grade B milk in Minnesota and Wisconsin was used to make cheese. In May 1995, the M-W Price was replaced as the Class I mover by the Basic Formula Price (BFP). The BFP was based on the M-W price, but modified by month-to-month changes in prices for cheddar cheese and nonfat dry milk weighted by the relative proportion of milk in Minnesota and Wisconsin used for these products. The cheese weight typically exceeded 95 percent, so the mover remained closely tied to cheese prices.

In January 2000, the Class I price mover was changed to the higher of the advanced Class III or Class IV skim milk price. Since the Class IV skim milk price is tied exclusively to the price of nonfat dry milk, this change allowed for Class I prices to be disassociated from cheese prices for the first time since adoption of the M-W price as the mover.

Since the volume of milk used to make nonfat dry milk is less than 1/5 the volume used to make cheese, it would be irrational to consistently use Class IV to move Class I. Use of the higher of mover was intended to give an infrequent, temporary "bump" to Class I prices when nonfat dry milk was in relatively tight supply compared to cheese. When the mover change was adopted, nonfat dry milk prices had been resting at the CCC purchase price for nearly a year, and CCC stocks were building rapidly. Few saw the possibility of Class IV being the mover except under those rare occasions when cheese prices were severely depressed.

Contrary to expectations, Class IV was the Class I price mover every month from January 2000 until August 2001. This occurred for two reasons. First, cheese prices were depressed during all of 2000 and the early part of 2001. Second, butter prices were high relative to cheese prices. The Class III pricing formula involves a negative relationship between butter prices and the Class III skim milk price – higher butter prices depress the Class III skim milk price, making it more likely that Class IV will be the higher of mover.[13]

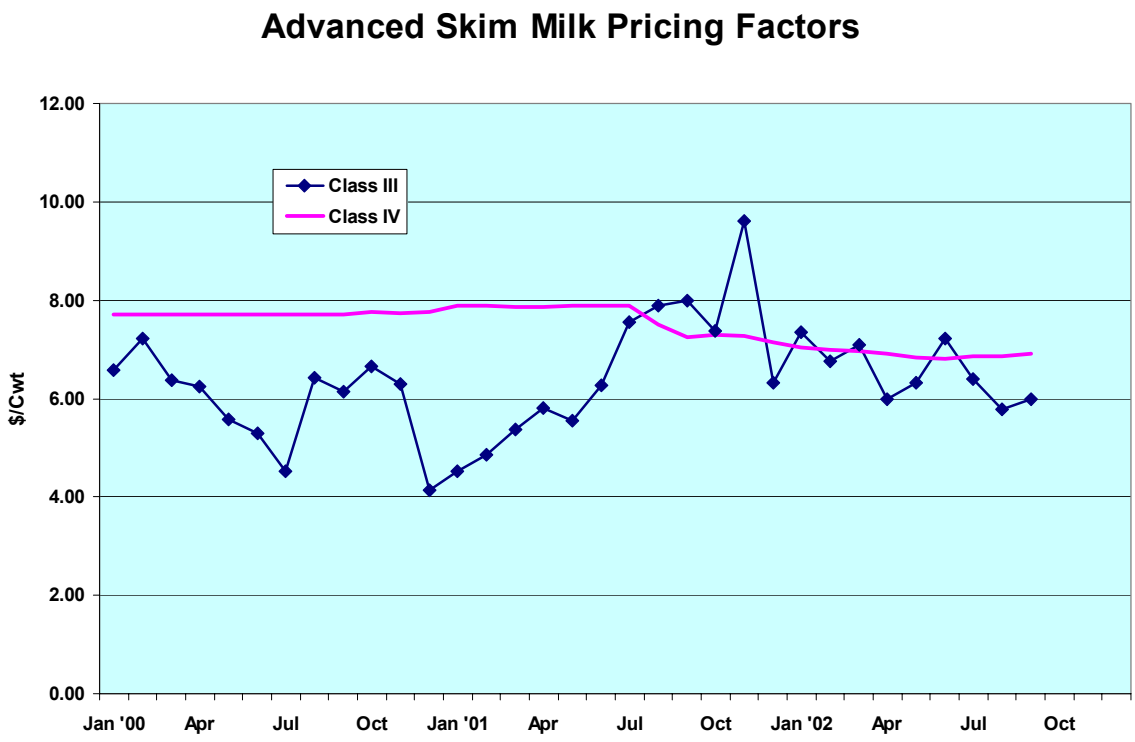
The effect of Class IV consistently moving Class I prices was to widen the difference between Class I prices and Class III prices beyond what is indicated by the Class I differential. In 2000, the advanced Class IV skim milk price exceeded the Class III skim milk price by an average $1.76 per hundredweight. In effect, the Class I differential was elevated by $1.76 measured relative to using a cheese-based mover.

These higher effective Class I differentials created sharply conflicting market signals to dairy farmers in 2000. Using the higher of the advanced Class IV or Class III skim milk price de-coupled the Class I (and Class II) segments of the dairy industry from the cheese market. Dairy producers in high Class I markets were substantially isolated from milk surpluses and low cheese prices. The burden of milk surpluses fell predominately on Class III use markets. Thus, producers in all regions of the country did not receive the same price signal from the marketplace to reduce milk production. This slowed necessary milk supply adjustments and prolonged the period of low milk prices.

The butter-powder tilt implemented May 2001 partially reduced the problem of the higher of mover. Nonfat dry milk prices fell, lowering the advanced Class IV skim milk value. Since the tilt, Class III and Class IV have shared about equal time as the Class I mover. A second tilt is expected shortly because of large surpluses of nonfat dry milk. This will make it even less likely that Class IV would move Class I except when cheese prices were very low.

[13] In October 2001, USDA issued a preliminary decision to alter the protein price formula in a manner that would eliminate the negative effect of the butter price on the Class III skim milk price. A final decision has not yet been issued.

Many dairy leaders, especially those representing dairy farmers in high Class I utilization markets, strongly opposed the May 2002 tilt. This opposition may be understandable from the parochial standpoint of wanting to insulate some farmers from the effects of low cheese prices. But federal milk marketing orders are not designed to be used as a price support mechanism. And they certainly should not be used to provide differential levels of support to various regions depending on their milk utilization.



The Effect of Terminating Orders

Because of low Class I utilization and low Class I prices, Wisconsin would appear to have little to lose from terminating orders and, perhaps, much to gain. Without marketing orders, fluid milk prices would be expected to fall, reducing farm milk prices and stimulating fluid milk consumption in areas where orders are currently propping Class I prices above competitive levels. The combined effect of less farm milk in response to lower farm prices and more milk consumed as fluid would be a reduction in milk for manufacturing and a corresponding increase in price. Manufacturing regions would be expected to gain and fluid regions would likely lose.

We simulated the effects of eliminating both federal orders and the similar California state pricing and pooling plan using the interregional competition model noted earlier. The same base for comparison was used – 2000 conditions except for post-tilt CCC purchase prices for butter and nonfat dry milk. A number of scenarios with respect to supply response and

arbitrary minimum prices for fluid milk were simulated and compared with the adjusted 2000 base.

The simulated effect of terminating marketing orders is small in the aggregate; U.S. average prices are about 5-10 cents per hundredweight lower, and milk production is reduced by less than 1 percent. As expected, the effects vary across regions. In general, regions with high Class I use show farm price reductions, as fluid milk prices fall from order minimum prices. Regions where manufacturing is important tend to show price gains, as expanded fluid milk consumption pulls milk from manufacturing uses and raises prices for hard dairy products.

Fluid milk prices fall by around 3 percent on average with order termination. Prices for products designated Class II (soft manufacturing and frozen) fall by about 7 percent. Cheese prices increase 5-7 percent. Butter prices fall 4-5 percent with larger production, as more cream is generated from expanded fluid milk sales.[14] There is little change in production or prices for nonfat dry milk

The Upper Midwest shows modest farm milk price gains of about 20 cents per hundredweight with termination of marketing orders, comparable to other major manufacturing regions. This is a much smaller effect than measured from earlier simulations using the interregional competition model, which showed farm milk price gains of 8-10 percent for the Upper Midwest region. This diminished effect is partly due to using 2000 as the base year. Milk was in surplus in 2000, so the simulated impact of the reduced supply of milk for manufacturing was less than in years when milk supply and demand were in closer balance.

The small impact of terminating orders on the Upper Midwest is also attributable to the base solution incorporating the liberalized pooling rules that became effective with federal order reform implemented in January 2000. Under the new rules, regulated handlers in the Upper Midwest order affiliate large numbers of producers and volumes of milk with other orders that have higher Class I prices and higher Class I utilization. Only a fraction of the milk pooled on other orders has to be physically transported to qualify for pooling. So the plants receive the full benefit of a higher producer price differential without incurring hauling costs on the associated pooled volume of milk. These net benefits, included in the base model solution, disappear when federal orders are terminated.

Besides the effect on milk and dairy product prices and production, terminating federal orders would yield other outcomes that are more difficult to quantify. Farm milk prices might be more unstable without orders. In Wisconsin, competition between fluid processors and cheese plants could cause prices to be higher in the fall (when fluid demand is seasonally high and milk production is seasonally low) and lower in the spring (when "giving up" cheese milk for fluid use is less costly).

Both the level and stability of farm milk prices would depend on the ability of dairy cooperatives to maintain classified pricing without orders. In Wisconsin, cooperatives

[14] The average butterfat content of U.S. fluid milk is less than 2 percent. So conversion of 100 pounds of milk to fluid yields about 1.7 pounds of butterfat for use in other dairy products.

operating through a federation are able to negotiate fluid milk prices significantly higher than order minimum prices for Class I and Class II milk. How much that ability is related to the existence of order price floors is unknown. But since much of the over-order premium consists of service costs (e.g., balancing, or accommodating bottling schedules), it is unlikely that premiums would be markedly smaller without orders.

Orders use mandatory reporting and auditing to assure accurate accounting of milk and milk component use and enforce timely and complete payments by handlers. Orders collect and disseminate comprehensive market information. Some of these market service functions would be lost if orders were terminated. Others would be picked up by the private sector, but at a cost to dairy farmers.

On net, would Wisconsin benefit from terminating federal marketing orders? The answer is, "it's hard to say." There is no question that federal orders created and continue to maintain regional and product class milk price differences that are not consistent with what would be observed in a competitive market. Federal orders promoted regional shifts in milk production during the late 1970s and 1980s. Orders continue to define fluid milk markets as local in nature when, in fact, fluid milk does not need to be produced locally in light of contemporary processing, packaging, and distribution technology.

But competition has operated both within and outside the orders to mitigate the effect of these pricing distortions. For example, low Class I differentials in Wisconsin are augmented by large over-order Class I price premiums negotiated by cooperatives. Cooperative premiums are relatively low in other markets and nonexistent in some. This tends to equilibrate *effective* Class I prices, even though the order *minimum* prices may be distorted. Similarly, liberal pooling has tended to increase Class I use and producer returns in Wisconsin while decreasing them in destination markets.[15] This serves to equalize uniform prices across markets with similar production characteristics.

The ground rules set by orders are, in many cases, being superceded by forces of competition – the invisible hand is alive and operating. This by no means suggests that order reforms should not be aggressively pursued. The pricing system needs to reflect current market conditions, not political interests. But while terminating federal orders would promote market orientation, it would not result in huge price gains to Wisconsin, guaranteeing the prosperity or even viability of the state's dairy industry. Wisconsin needs to look at what it can do for itself in order to ensure its long term wellbeing.

[15]Several federal order hearings have been held to review pooling requirements in specific orders. Administrative decisions from these hearings will limit distant pooling.

A Blueprint for Federal Policy Changes

Federal agricultural programs have influenced regional competitiveness in dairying by differentially affecting farm level profitability. Dairy price supports and federal milk marketing order have affected dairy product and farm milk prices. Federal commodity programs for grain and oilseeds have affected dairy feed costs (see Appendix). These programs have enormous support among farmers and their elected federal legislators because they bestow large federal payments and more indirect benefits on farmer-voters. They have created production and marketing inefficiencies and distorted regional production incentives, but they have proven largely immune to changes that would alter the regional distribution of benefits.

Despite repeated frustration, the Wisconsin Congressional delegation has been aggressive in seeking changes in federal dairy policies and has shown modest success. Former Congressman Steve Gunderson was instrumental in forcing federal order consolidation and obligating USDA to rethink the structure of Class I differentials in the 1996 farm bill. Senators Kohl and Feingold and several Wisconsin House delegates played an active role in ending the Northeast Interstate Dairy Compact, which threatened to further Balkanize the dairy industry. Though it comes hard, change is possible.

In defining a blueprint for change from the perspective of Wisconsin, the fundamental objective is simple: eliminate or at least minimize artificial (non-market) milk production incentives. For the future viability of its dairy industry, it is essential that Wisconsin be permitted to exploit its natural competitive advantages in producing milk. That means market orientation. Market orientation will not guarantee the state's dairy sector will grow or even stabilize. But it will allow economic forces to determine its fate, and there is good evidence that economic forces will treat Wisconsin dairy farmers and processors more favorably than political forces.

Elements of the blueprint for change include:

- Ensure that the dairy price support program is used to provide a safety net and not to consistently raise prices above market-clearing levels. If there is reason to provide income support to dairy farmers, direct payments are preferable to elevated support prices.[16] If supply management is used, avoid programs that unduly penalize dairy farmers who want to modernize or expand their facilities or that confine benefits to those who plan to exit in a few years.

[16] While direct payments do not distort markets in the same way as elevated support prices, they can lead to expanded milk supply if they are perceived by dairy farmers as part of the market price for milk and if the payments provide more than safety net price protection. Dairy Market Loss Payments under the newly-enacted 2002 farm bill will expand milk supply and reduce market prices.

- Prevent CCC purchase prices from distorting market-based allocation of milk to dairy products. If the dairy price support is to be effective as a safety net, then there will be periodic purchases of one or more of the eligible dairy products. But when the CCC becomes the primary market outlet for a product for an extended period, processors are receiving bad signals and milk is being inefficiently allocated. Large government stocks of nonfat dry milk combined with butter prices above support should trigger butter-powder tilts. Large CCC cheese purchases along with no purchases of butter and powder require a reduction in the cheese purchase price relative to butter and powder.

- Maintain minimum fluid milk prices at levels that:

  - Encourage fluid milk consumption. Per capita consumption of beverage milk continues to slide. Administered minimum prices higher than can be justified by costs of supplying fluid milk can contribute to this problem by reducing consumer sales and stifling development of new beverage products. Taxing fluid milk consumers to raise farm milk prices is a short-sighted strategy.

  - Minimize the cost of providing fluid milk to deficit markets. Setting minimum prices at levels that promote year-round local fluid milk self-sufficiency is inefficient relative to setting prices that result in a combination of local production and shipments from other markets.

  - Recognize the national scope of fluid milk markets. Policies need to recognize that dairy products – including fluid milk – trade in national markets. The concept of a local milkshed became obsolete when grocery chains began to maintain national distribution systems for both perishable and nonperishable items.

  - Allow competitive forces to determine effective prices. Administered federal order prices are designated as minimum prices. If the cost of supplying fluid milk relative to supplying manufacturing markets is greater than the Class I differential, then cooperatives can and do obtain premiums to cover the difference and raise the effective Class I price to a competitive level. If the differential exceeds the marginal cost of supplying fluid milk, then the Class I price cannot fall to the competitive level and will encourage excess milk production.

  - Are tied closely to the competitively-determined prices for milk used for manufacturing. Class I milk prices are administered prices and do not reflect supply and demand for fluid milk. Their only link to national supply and demand conditions is through the Class I price mover. So if the price mover is divorced from national market conditions, so too will be the Class I price. The Class IV skim milk price is based exclusively on the price of nonfat dry milk. When the price of nonfat dry milk is the CCC purchase price, it is not related to the marketplace.

- Do not encourage excess production of milk for manufacturing. Dairy farmers respond to average milk prices, which are a function of federal order class prices and utilization by class. If Class I prices are too high compared to what would prevail under competitive conditions, then fluid milk consumption is too low and milk production is too high. The result is too much milk for manufacturing purposes. This lowers farm milk prices everywhere, but especially in regions that are heavily dependent on manufacturing.

- Prevent subsidization of dairy feed costs. The need for market orientation applies to feed prices as well as milk prices. Cheap feed means cheap milk. Incentives to plant feed grains and oilseeds should be based on expected market returns, not on government payments tied directly to levels of production (e.g., market loss payments, loan deficiency payments). If income support to crop farmers is deemed appropriate, eligibility should not be linked to current production.

Appendix

Federal Feed Grain and Soybean Programs

Federal programs for major grains and oilseeds have evolved over time from price and income support programs to exclusively income support mechanisms. From the late 1970's through early 1990's, producers received *income support* in the form of deficiency payments. These payments were based on the difference between some target price and the loan rate for a given program crop. To receive deficiency payments, producers had to establish crop base acres, and commit to protecting these bases by planting only the associated program crop on them. This often included keeping some base acres out of production altogether (Acreage Reduction Programs), and did not allow base acres for one crop to be planted to another program crop.

Price support was maintained through the loan rate program. The loan rate was an established price below the target price. When the market price approached the loan rate, producers could deliver their crop into the loan program, and receive the equivalent of the loan rate. If prices later rose, they could pay off their loan, redeem the crop, and sell at the higher market price. If prices did not rise over the loan period, the producer forfeited the crop to the government and did not pay back the loan. The government would then market the crop once prices rose above a certain trigger.[17]

The 1996 "Freedom to Farm" Agricultural Act eliminated the old deficiency payments associated with target prices, and restructured the loan program to encourage farmers to sell their crop in the cash market regardless of price. Farmers who sold their crop for a price below the loan rate could then receive a *loan deficiency payment* to make up the difference between the market price and the loan rate. In addition to loan deficiency payments (not to be confused with the old deficiency payments tied to target prices) the 1996 legislation introduced other direct payments in the form of *transition payments* (AMTA) and *market loss payments*, and eliminated base acreage management as condition of eligibility for receiving payments. Farmers were eligible for program benefits regardless of how they allocated their acres among crops, and except for those enrolled in the Conservation Reserve Program, there was no requirement to take acres out of production when grain stocks were high.

Despite early arguments that the "Freedom to Farm" act would increase farmers' incentives to respond to market signals, the effect of the legislation has been a continued de-coupling of planting decisions from market incentives. The 1996 farm program continued to encourage planting decisions that are contrary to economic logic. In a true market environment, low corn and soybean prices would induce producers to cut back production of corn and soybeans, substituting more profitable crops or leaving their land lay idle. But the guarantee of loan deficiency payments and the virtual promise of market loss payments have provided a strong incentive to continue to plant program crops, even though expected market returns are less than full costs of production and, for many

[17] While the basic grain program provisions did not change much over this time period, individual target prices, loan rates, and specific base acre management options did change from farm bill to farm bill.

growers, less than variable costs. Grain and soybean producers are not producing with the expectation of profitable market prices; they are producing in order to receive auxiliary payments associated with production.

This same incentive existed to some extent under older farm legislation. But two things generally prevented stock buildups and related depressed prices. First, when stocks became burdensome, the government would absorb excess production through the old nonrecourse loan program and hold it off the market until prices recovered. That meant stocks available to trade in the cash market were only a part of total physical stocks. This government activity artificially constrained the supply and propped prices. Under the current program, the government does not control any of the tradable supply – the entire stock of any grain is available to the cash market regardless of price or stocks levels.

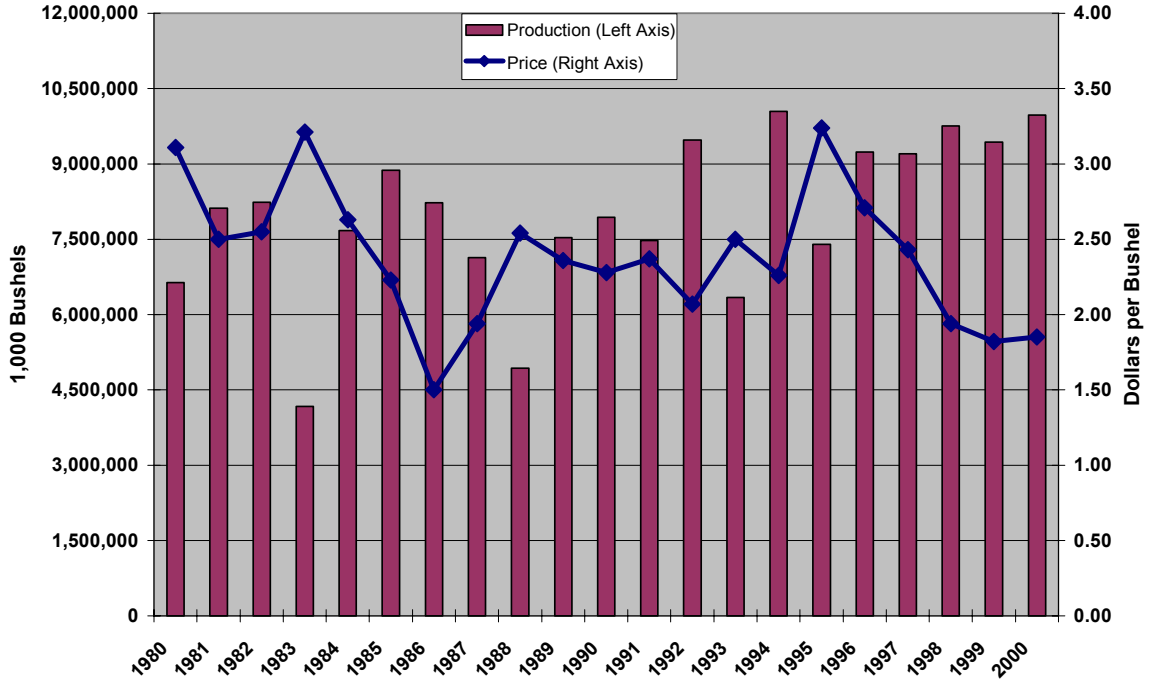
Second, until 1996, the US experienced a significant production problem (i.e., drought) with almost predictable regularity. As a result, total demand was greater than current production in some years, and the government could release stocks that had been accumulated during periods of low prices. Since 1996, however, the combination of supplies always being on the market and no significant crop disasters has resulted in a chronic surplus of grain and soybeans. Crop prices have been consistently depressed.

Corn production since 1998 has been near record high while season-average prices have been under $2 per bushel. Soybean production set records in 4 of the last 5 crop years. Soybean prices over this time have consistently been under $5 per bushel. USDA's estimates of national average costs of production for corn and soybeans in 2000 were $2.72 and $6.19 per bushel, respectively.

Federal feed grain and soybean payments have a spillover effect on the dairy sector. Low feed prices generally create low milk prices. Dairy farmers respond to low unit concentrate costs by feeding more concentrates and increasing milk production per cow.

While low feed prices since 1996 have generally contributed to lower milk prices, there is no strong evidence that dairy production regions have been differentially affected. Market prices below costs of production might, on the surface, appear to benefit dairy farmers who buy all their feed and penalize those who grow their own. But dairy farmers who produce their own feed grains and soybeans are eligible to receive direct payments. Even corn harvested for silage qualifies for some benefits.

U.S. Corn Production and Season Average Prices



U.S. Soybean Production and Season-Average Prices