

generally were also raised during the year to account for rapid inflation. The Food and Agriculture Act of 1977 required a midyear adjustment in the support price to reflect changes in the parity index during the first 6 months of each marketing year. This had the effect of raising the support prices in the middle of the marketing year to reflect increases in the index of prices paid by farmers. At the administration's request, the first step toward bringing supplies back into line with consumption was taken when legislation was enacted on March 31, 1981, which rescinded the scheduled April 1, 1981, increase in the support price. Figure 4 shows the effects on cow numbers of the income-enhancing features of the Food and Agriculture Act of 1977 and the various steps required in later years to bring the industry closer to market equilibrium.

The Agriculture and Food Act of 1981, passed at a time of large surpluses, used a set of triggers relating the minimum support level to the size of CCC purchases. This was a major departure from traditional price support policy under which price changes were tied directly to parity. As long as large CCC purchases continued, the support prices were specified in dollar terms with the 1981-82 price at the 1980-81 level of \$13.10 per cwt, which was 72.9 percent of parity in September 1981, and modest

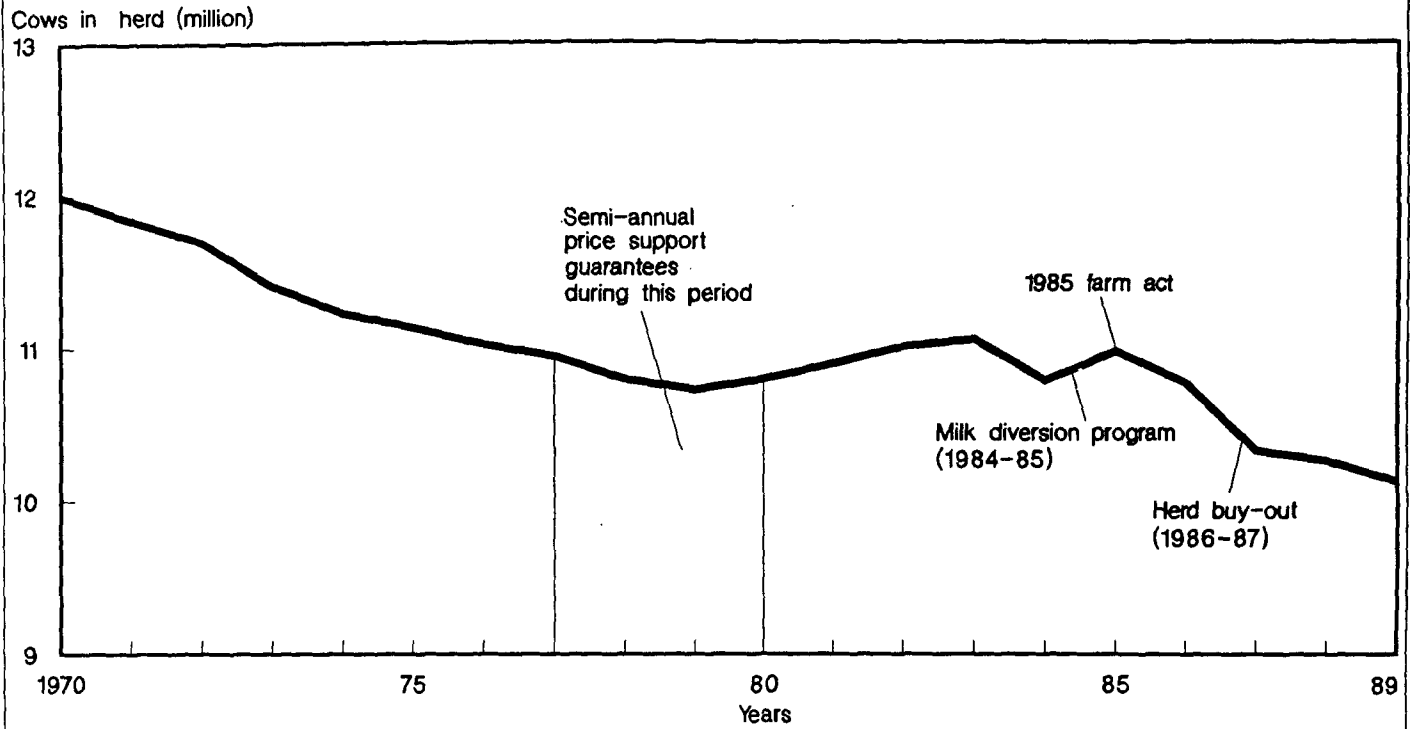
#### FEDERAL PRICE SUPPORT PURCHASES

The Federal Government supports milk prices through purchases of butter, nonfat dry milk, and cheddar cheese. The following example illustrates the connection between the prices USDA pays for these dairy products and the price support rate for milk, which was \$10.10 per hundredweight (cwt) effective January 1, 1990.

Smith and Jones are average dairy farmers living near Plainville, USA. Smith sells milk to the local processing plant that makes butter and nonfat dry milk. For each hundredweight (100 pounds) of milk he sells, the plant makes 4.48 pounds of butter and 8.13 pounds of nonfat dry milk. With the CCC prices of butter and nonfat dry milk set at \$1.0925 and 79 cents per pound, respectively, the products made from Smith's 100 pounds of milk are worth \$11.32. However, the plant's allowance for the cost of manufacturing these products is \$1.22 per cwt, leaving \$10.10 to Smith for his milk.

Jones sells milk to the cheese plant on the other side of town. For every hundredweight of milk purchased, the plant manufactures 10.1 pounds of cheese with some whey solids left over. The CCC pays about \$1.11 per pound for the cheese. The fat in the whey solids is worth 27 cents, making the market value of the products made from Jones' milk equal to \$11.47. Since the plant's allowance for manufacturing the cheese is \$1.37 per cwt, Jones receives \$10.10 per cwt for the milk.

Figure 4  
**Milk cow numbers affected by prices and policy actions**



increases thereafter. Only if surpluses declined to stated levels would supports at 70-75 percent of parity be required.

With continued surpluses, legislation was enacted in 1982 which froze support prices for 2 years and provided for deductions totaling \$1 per cwt from milk producers' marketing receipts to partially offset rising Government costs. The 1983 Dairy and Tobacco Adjustment Act lowered the minimum price support level from \$13.10 to \$12.60 effective December 1, 1983. It allowed for a further reduction in support of 50 cents per cwt on April 1, 1985, if net Government purchases in the succeeding 12 months were projected to be above 6 billion pounds milk equivalent. It further allowed the Secretary to reduce the support price another 50 cents on July 1, 1985, if net Government purchases in the succeeding 12 months were projected to be above 5 billion pounds. Alternatively, the Secretary had authority to increase the support levels by not less than 50 cents per cwt on July 1, 1985, if net Government purchases in the next succeeding 12 months were projected to be 5 billion pounds or less milk equivalent.

The 1983 Act also amended the 1949 Act to provide for a milk diversion program. For the period December 1, 1983, through March 31, 1985, a mandated assessment of 50 cents per cwt was made on all milk marketed for commercial use by U.S. producers in the 48 contiguous States. The funds collected were used to partially offset the cost of the program. Producers who elected to participate in the program and reduce their milk marketings

between 5 and 30 percent below their base period production were paid \$10 per cwt for these reductions. The 1983 Act also authorized a nonrefundable 15-cent-per-cwt assessment on milk marketed by producers to finance a dairy product research and promotion program.

The 1949 Act was again amended by the Food Security Act of 1985 authorizing a voluntary dairy termination program, also known as the whole-herd buyout, in which producers could submit competitive bids during the period of April 1, 1986, through September 31, 1987, to remove milk production for at least 5 years.

The 1985 Act continued the dairy support price of \$11.60 per cwt for milk containing 3.67-percent milkfat (originally established at this level on July 1, 1985) for calendar year 1986 and established the support price at \$11.35 per cwt for January 1 through September 30, 1987, and \$11.10 per cwt for October 1, 1987, through December 31, 1990.

Changes in dairy price supports on January 1, 1988, 1989, and 1990, were linked to projected annual Government purchases. The Secretary of Agriculture is to reduce the support price 50 cents per cwt if net price support purchases in any of these respective calendar years are projected to exceed 5 billion pounds milk equivalent or increase the support price 50 cents per cwt if net purchases are projected at not more than 2.5 billion pounds milk equivalent. Because it was estimated that net purchases would exceed 5 billion pounds in calendar year 1988, the support level was reduced to \$10.60 per cwt on January 1, 1988.

Other provisions of the 1985 Act included a 40-cent per cwt assessment on all milk marketed within the 48 contiguous States during April 1 through December 31, 1986, and 25 cents per cwt during January 1 through September 30, 1987. However, to reduce outlays required by the Balanced Budget and Emergency Deficit Control Act of 1985 (The Gramm-Rudman-Hollings Act), the Food Security Improvement Act of 1986 further amended the 1949 Act to provide an additional 12 cents per cwt deduction for the period April 1, 1986, through September 30, 1986. The Omnibus Budget Reconciliation Act of 1987 required a 2.5-cent per cwt assessment for calendar year 1988.

The 1985 Act required the Secretary to offer at least 1 million pounds of surplus nonfat dry milk on a bid basis for manufacture into casein <sup>1</sup>/<sub>1</sub>, and to establish a program to encourage additional exports of dairy products. To avoid burdensome supplies, the Secretary was also provided the option to establish a milk diversion or milk production termination program for calendar years 1988, 1989, or 1990.

---

<sup>1</sup>/ Due to the lack of interest on the part of the dairy industry, this program was discontinued in marketing year 1987-88. CCC accepted only one offer in 1986-87, totaling 79,926 pounds of nonfat dry milk.

The 1985 Act also legislated higher minimum Class I differentials in 35 of the 44 Federal milk orders that were operating in May 1986 (table 7). Most of these increases were in milk-deficit southern markets.

Drought relief legislation passed in mid-1988 prohibited any January 1, 1989, reduction in the support price. It also required a 50-cent increase on April 1, 1989, to be followed by a 50-cent reduction on July 1, 1989. The support price was reduced to \$10.10 per cwt on January 1, 1990. See the box for highlights of price support actions over the past two decades.

#### MAJOR PRICE SUPPORT ACTIONS, 1970-90

- 1970-72 Support prices set at levels above the minimum of 75 percent of parity.
- 1970 The Agricultural Act of 1970 suspended the obligation to support prices of farm-separated cream.
- 1973 The Agricultural and Consumer Protection Act of 1973 set a minimum support level of 80 percent of parity through March 1974.
- 1974-77 Support prices adjusted frequently because of rapid inflation. No support price lasted more than 9 months. Support prices set at 80 percent of current parity.
- 1977 The Food and Agriculture Act of 1977 set a minimum of 80 percent of parity. It also required that the support price be adjusted semi-annually to reflect changes in prices paid by farmers. These provisions were to be in effect for 2 years.
- 1979 The support price provisions of the 1977 Act were extended for 2 additional years.
- 1981-82 The support price was frozen at \$13.10 per cwt in effect since October 1, 1980.
- 1981-83 The Omnibus Budget Reconciliation Act of 1982 authorized a 50-cent deduction on all milk marketed that was first collected in April 1983. An additional 50-cent deduction, implemented on September 1, 1983, was refundable to producers who reduced marketings by a specified amount.
- 1984-85 The Dairy and Tobacco Adjustment Act of 1983 lowered the support price to \$12.60 effective December 1, 1983. A 50-cent deduction was continued through March 1985. A dairy diversion program, operated between January 1984 and March 1985, paid contracting producers \$10 per

Most of the legislative changes made during the early and mid-1980's were attempts to reduce the supply of excess milk and cut Government purchases and costs. In 1983, dairy farmers produced over 10 percent more milk than consumers were willing to buy at the supported prices. However, with strengthening international dairy product prices, the United States has become a significant participant in international markets and the persistent excess milk supply problem has been reduced. However, commercial export sales of manufactured dairy products by the United States will likely continue to be dependent on policy actions taken by both the United States and other countries, particularly the EC.

cwt for reductions from base milk marketings. The support price was reduced 50 cents on both April 1, 1985, and July 1, 1985, because purchases were projected to exceed trigger levels.

1986-90 The Food Security Act of 1985 set the support price at \$11.60 for calendar 1986, \$11.35 for January-September 1987, and \$11.10 thereafter. On January 1 of 1988, 1989, and 1990, the support price had to be adjusted by 50 cents if projected removals exceeded 5 billion pounds or were less than 2.5 billion pounds. The first such reduction was implemented on January 1, 1988. Deductions were set at 40 cents during April-December 1986 and at 25 cents during January-September 1987. Additional deductions, authorized to help reduce budget deficits, were 12 cents during April-September 1986 and 2.5 cents during calendar 1988.

A January 1, 1989, support price reduction was prohibited by drought relief legislation passed in mid-1988. It also required a 50-cent increase on April 1, 1989, followed by a 50-cent reduction on July 1, 1989. On January 1, 1990, the support price was reduced another 50 cents to \$10.10 per cwt.

The Food Security Act also authorized the dairy termination program. Producers whose bids were accepted agreed to slaughter or export all female dairy cattle, have no interest in milk production or dairy cattle for 5 years, and ensure that their facilities were not used for these purposes during that time. Those producers, who had marketed more than 12 billion pounds of milk during 1985, left the industry during April 1986-August 1987.

The act increased Class I differentials in most Federal milk marketing orders, effective May 1, 1986. These differentials were not to be altered for a period of 2 years. As of February 1990, the congressionally mandated differentials remained in place.

Table 7--Class I differentials under the 1985 Food Security Act 1/

Federal order	Differential		Increase
	Pre-Food Security Act	Food Security Act	
	<u>Dollars per cwt</u>		
New England	3.00	3.24	0.24
New York-New Jersey	2.84	3.14	.30
Middle Atlantic	2.78	3.03	.25
Georgia	2.30	3.08	.78
Alabama-West Florida	2.30	3.08	.78
Upper Florida	2.85	3.58	.73
Tampa Bay	2.95	3.88	.93
Southeastern Florida	3.15	4.18	1.03
Upper Michigan	1.35	1.35	0
Southern Michigan	1.60	1.75	.15
E. Ohio-W. Pennsylvania	1.85	2.00	.15
Ohio Valley	1.70	2.04	.34
Indiana	1.53	2.00	.47
Chicago	1.26	1.40	.14
Central Illinois	1.39	1.61	.22
Southern Illinois	1.53	1.92	.39
Louisville-Lexington-Evans	1.70	2.11	.41
Upper Midwest	1.12	1.20	.08
Eastern South Dakota	1.40	1.50	.10
Black Hills	1.95	2.05	.10
Iowa	1.40	1.55	.15
Nebraska-Western Iowa	1.60	1.75	.15
Kansas City	1.74	1.92	.18
Tennessee Valley	2.10	2.77	.67
Nashville	1.85	2.52	.67
Paducah	1.70	2.39	.69
Memphis	1.94	2.77	.83
Central Arkansas	1.94	2.77	.83
South West Plains	1.98	2.77	.79
Texas Panhandle	2.25	2.49	.24
Lubbock	2.42	2.49	.07
Texas	2.32	3.28	.96
Louisiana	2.47	3.28	.81
New Orleans-Mississippi	2.85	3.85	1.00
Eastern Colorado	2.30	2.73	.43
Western Colorado	2.00	2.00	0
S.W. Idaho-E. Oregon	1.50	1.50	0
Great Basin	1.90	1.90	0
Lake Mead	1.60	1.60	0
Central Arizona	2.52	2.52	0
Rio Grande Valley	2.35	2.35	0
Puget Sound-Inland	1.85	1.85	0
Oregon-Washington	1.95	1.95	0

1/ Increased differentials effective May 1, 1986. May be changed by normal procedures after May 1, 1988.

### Dairy Program Costs

Nominal costs for price supports ranged from \$69 million to \$612 million between 1952-53 and 1972-73, averaging \$325 million for the period (app. table 8). Over the 1970's, outlays fluctuated, with greater variability in milk production. Since 1979-80, program costs have exceeded \$1 billion in each year. In the 1982-83 marketing year, costs reached a record \$2.6 billion, about 13 percent of total cash receipts from farm marketings of milk and cream, or an average of about \$13,000 per commercial dairy farmer. Program costs for the 1988-89 marketing year were down to \$698 million or an average of around \$5,000 per commercial dairy farmer.

### Dairy Price Support Program Issues

Since 1981, three major departures from traditional dairy price support policy have occurred. First, price supports were removed from parity. Second, voluntary supply management provisions were added. Finally, changes in dairy price supports on January 1, 1988, 1989, and 1990 were linked to projected annual Government purchases. Provisions of the Food Security Act of 1985 expire on December 31, 1990. The issues of whether or not the Congress will continue the flexible dairy price support program provisions or continue the Secretary of Agriculture's authority to establish another milk diversion or dairy termination program are problematic. Also, the mechanism by which price support level changes are triggered will likely be under scrutiny. The amount of discretion the Secretary is given on establishing the relative prices of butterfat and solids-not-fat may also be an issue.

### The Federal Milk Marketing Order Program

The basic legislation of Federal milk marketing orders traces to the Agricultural Marketing Agreement Act of 1937 and to some extent the preceding Agricultural Adjustments Acts of 1933 and 1935. This basic legislation stemmed from the perceived need to provide milk producers some assistance in achieving and maintaining a degree of bargaining power over the prices they received for milk. The major objectives of the program, as stated in the 1937 Act, were: to establish and maintain orderly marketing conditions for agricultural commodities in interstate commerce; establish parity prices for farmers; protect the interest of the consumer; and avoid unreasonable fluctuations in supplies and prices.

Objectives, such as "orderly marketing," "parity prices," "interests of consumers," and "adequate supply," are general terms lacking specificity. The term "orderly marketing" is usually associated with stabilizing fluid milk prices, providing secure and dependable markets for individual Grade A farmers producing milk primarily for the fluid milk market, and improving the balance of market power between farmers and handlers. "Adequate supply" is usually associated with maintaining a reserve of Grade A milk for the fluid milk (beverage) market on a

seasonal, weekly, and daily basis that can be relied upon when the Grade A milk supply is short relative to fluid demand.

Minimum prices that must be paid by processors to dairy farmers or their cooperatives are set for Grade A (fluid grade) milk in markets where producers have elected to come under a Federal milk marketing order. The 41 Federal milk marketing orders operating on January 1, 1990, regulate the handling and pricing of about 70 percent of all milk sold to plants and dealers, and about 80 percent of the Grade A milk marketed in the United States (fig. 5). About 90 percent of the Nation's milk supply is Grade A and about 45 percent of all Grade A milk that is sold is used for fluid milk products (beverage milk). Federal orders regulate only Grade A milk (meeting the higher standard for fluid milk products).

Two major provisions of Federal milk orders are:

- o Classified pricing of milk according to use, and
- o Pooling or combining all revenue from the sale of regulated milk from which a single uniform or blend price is paid to producers.

Milk used for fluid products is designated Class I. Most orders have two other classes: Class II includes milk used for soft products including fluid cream, ice cream, cottage cheese, and yogurt; while Class III includes milk used for hard products including cheese, butter, and nonfat dry milk (fig. 6). Minimum class prices are established for all of the 41 Federal marketing orders on the basis of specified relationships to the average price of manufacturing grade milk in Minnesota and Wisconsin (M-W price), so they will automatically reflect changes in support prices when market prices are at or below support. With a few minor exceptions, Federal order prices for Grade A milk used in manufactured products are set at or near the M-W price base. Minimum prices for milk used in Class I (fluid milk products) are higher by fixed differentials unique to each Federal order.

Federal orders provide more equal treatment for producers and handlers (processors) who are similarly situated. For producers, marketwide pooling yields the same price to all producers at a given location. For handlers, classified pricing means the same price for milk in a given use at a given location.

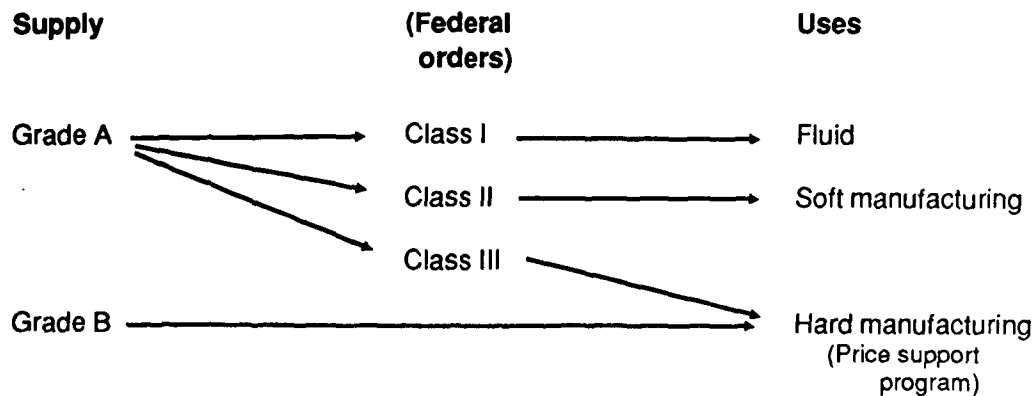
The costs of operating a fluid milk market must be covered somehow and the costs must come out of the returns from fluid use, since the value of surplus milk used in manufactured products is no higher than the value of manufacturing grade milk. The above is the economic rationale for market orders. In addition, Federal orders can be used to raise returns to producers, either all or those in certain regions. Raising prices and returns above cost-justified levels will increase production and surpluses, as we saw in the 1980's. Thus, either lower prices or supply control systems are needed to achieve a reasonable supply-demand balance.





Figure 6

**Milk quantity flows**



Since the 1950's, new interstate highways and improved transportation systems have allowed milk to be moved over longer distances. This has made fluid milk markets more interdependent and regional in nature. When Federal order pricing provisions were changed in the late 1960's to reflect this greater mobility, the Upper Midwest had the largest overall reserve supply of Grade A milk. Dairy farmers there produced more milk than could be consumed in the region. Over time, however, other areas of the country--such as southwest Missouri, Kentucky-Tennessee, and the Northeast--began developing Grade A milk supplies in excess of local fluid milk needs.

The 1985 Food Security Act legislated higher minimum Class I differentials in 35 of the 44 Federal milk orders that were operating in May 1986 (table 7). The higher Class I prices were raised the most in southern milk-deficit markets east of the Rockies. Until these changes became effective May 1, 1986, the basic structure of minimum Class I differentials, especially the portion designed to reflect transportation costs between markets, had remained unchanged since 1968.

The geographical structure of Class I differentials prior to May 1, 1986, corresponded closely to a basing point system with Eau Claire, WI, as the base. Moving from Eau Claire, minimum order Class I prices increased at a rate of about 15 cents per cwt per 100 miles, which was less than half of actual transportation costs since the increased fuel costs in the mid-1970's. Actual Class I prices paid by handlers usually exceed the minimum order prices in most markets by the amount of over-order payments negotiated between cooperatives and fluid milk processors. This price premium reflects the fine-tuning of prices to cover transportation costs not covered in Federal order minimum prices; additional costs of standardizing milk to a customers' needs in form, time, and place; and, in some cases, a pure negotiated price premium that may not be cost-related.

## Multiple Price Basing Points

Since the late 1960's and continuing through the 1980's, Eau Claire, WI, has been considered the focal point of Grade A milk supplies in excess of that area's needs for fluid consumption plus necessary Grade A reserves for weekly and seasonal needs throughout the United States. This area serves as a source of Grade A milk supplies for other fluid milk markets east of the Rockies. Milk prices to farmers in more distant markets are generally higher than in the price basing point area because of costs of transporting supplemental milk supplies from the base point area to these milk deficit areas.

Some studies have concluded that since the late 1960's several other areas have developed sufficient excess supplies of Grade A milk to also be considered price basing points or primary supply areas. Primary supply areas are defined as those capable of sustaining a manufactured dairy products industry after demands for fluid markets, including adequate Grade A reserves, are met.

A September 1988 USDA study (McDowell, Fleming, and Fallert) concluded that six regions having less than 60 percent Class I (fluid) use could serve as price-basing points along with the current Eau Claire, WI, basing point. Under this multiple basing point system, the regional price structure for producers, processors, and consumers changes substantially. Lowering effective Class I prices in the six additional basing points also significantly reduces effective Class I differentials in the remaining regions.

Establishing additional basing points allows deficit regions to import needed supplies from closer sources. Interregional shipments are reduced and milk available for manufacturing drops 2-3 percent nationally. Milk available for manufacturing drops the most in the Northeast and Southern Plains regions but rises in the Mid-Atlantic region, Lake States, and Northwest.

Federal orders do not directly determine or control the uses or movement of milk. Rather, processors direct milk flows to the uses based on known and anticipated orders from their customers for fluid milk products (mostly Class I). The prices processors must pay for milk going into different uses obviously influence the quantities used.

A continuing problem is the extent to which marketing order minimum prices should cover services that cooperatives or marketing agencies perform in seasonal, weekly, and daily balancing of milk supplies for fluid milk markets. In some areas, the costs of providing the services are covered by over-order payments negotiated primarily between cooperatives and proprietary handlers (fluid milk processors).

Many of the balancing functions, such as shifting milk among packaging plants as needs vary, or importing supplemental supplies from distant markets, are marketwide services performed to assure that milk will be available to meet fluid demand that

fluctuates daily and seasonally. They are performed mostly by large, full-service producer cooperatives. Under current Federal order provisions, marketwide pool revenues are distributed by paying each farmer delivering milk to a handler fully regulated in a market a weighted average or blend price. This price is also subject to location and butterfat adjustments, but without regard to who provides the marketwide balancing services. In some instances, this creates substantial inequity between members of a balancing cooperative and other producers. Over-order payments are generally needed to offset at least a portion of these added costs.

In earlier years, numerous barriers to movement of milk between areas were erected by sanitary regulations and product specifications of State and local health authorities and by other regulations. Almost all of these barriers to milk movement have been removed. Federal orders do not explicitly restrict the movement of milk, although order prices and provisions relating to unregulated raw milk may have some constraining effect.

### Federal Order Issues

The Federal Milk Marketing Order (FMMO) system was instituted to assure adequate supplies of high-quality milk (Grade A) to

#### **UNDERSTANDING MARKETING ORDER PRICING**

Federal milk marketing orders set the minimum prices that processors must pay for milk based on how it is used. However, those minimum prices are not paid directly to producers. Instead, receipts are pooled by a market administrator, and producers receive a weighted-average, or blend, price based on how the milk was used by processors during each month. To understand more clearly how orders work, consider this hypothetical Omaha order.

In this May 1989 example, there were three processing plants in the Omaha area regulated by the order. The cheese plant northwest of the city bought milk from dairyman Clark. Because it was regulated by the Omaha order, the plant had to pay the Class III price of \$11.10 per cwt for milk, the same amount that unregulated processors in Minnesota and Wisconsin paid for Grade B milk (the M-W price).

East of town, another processing plant manufacturing ice cream bought milk from Clark's neighbor, Thompson. Like the cheese plant, the ice cream manufacturer was regulated by the order. Since ice cream is a soft dairy product, the plant paid the Class II price of \$11.30 per cwt for milk. The price was calculated using a product price formula and usually ranges from 5 to 30 cents over the M-W price.

A fluid processor south of the city bought milk from Miller. The marketing order required the plant to pay the Class I price of

consumers at reasonable prices, improve dairy farmers' incomes, and provide stability and orderliness in fluid milk markets. However, some studies indicate that the system could be modified so that it is more competitive and so that it increases economic efficiency while maintaining market stability and reducing risk. Possible issues or areas of distortion include the overall Class I pricing structure, which may be contributing to unneeded pooling of Grade A milk, encouraging inefficient regional milk production, and discouraging the least cost shipment of milk. Other areas of interest may be pool plant performance standards, treatment of "other source" milk (down allocation and compensatory payments), especially for reconstitution, and the number and size of orders which can lead to artificial trade barriers or marketing inefficiencies. Classification and appropriate pricing of Class II products (fluid cream, ice cream, cottage cheese, and yogurt) may become an issue.

Emerging processing technologies such as reverse osmosis (RO), which remove water from milk and lower transportation, storage, and handling costs, may require changes in both the Class I pricing structure and market order provisions applied to milk-derived ingredients that are used in reconstituted milk. The current provisions often make traditional reconstituting

---

\$12.75 per cwt. This was the sum of the Class I differential of \$1.75 and the March M-W price of \$11.00 (there is a 2-month lag in this calculation).

Even though the producers sold to different types of plants, they all received the same price for their milk. The monthly blend price was calculated by multiplying the amounts used in each of the classes by their respective prices. Assume the cheese plant bought 80,000 cwt of milk, the ice cream plant purchased 12,000 cwt, and the fluid milk processor, 48,000 cwt. Thus, the total volume and value of milk purchased during May was:

Class III	\$11.10 x	80,000 cwt	=	\$888,000
Class II	\$11.30 x	12,000 cwt	=	136,000
Class I	\$12.75 x	<u>48,000</u> cwt	=	<u>612,000</u>
Totals		140,000 cwt		\$1,636,000

To calculate the blend price, total value is divided by total volume. Therefore, no matter where they sold their milk, Clark, Thompson, and Miller all received \$11.69 per cwt for the milk they sold during May.

In reality, most plants produce more than one product and over the year at least some milk must be sold to be used in beverage products or some bulk milk must be sold to fluid processing plants as Class I in order to qualify as a "pool plant" under a Federal order. In any event, this same pooling concept applies to both the costs of processors and the receipts of Grade A dairy farmers. "Pool plant" rules vary by individual Federal orders and months of the year.

---

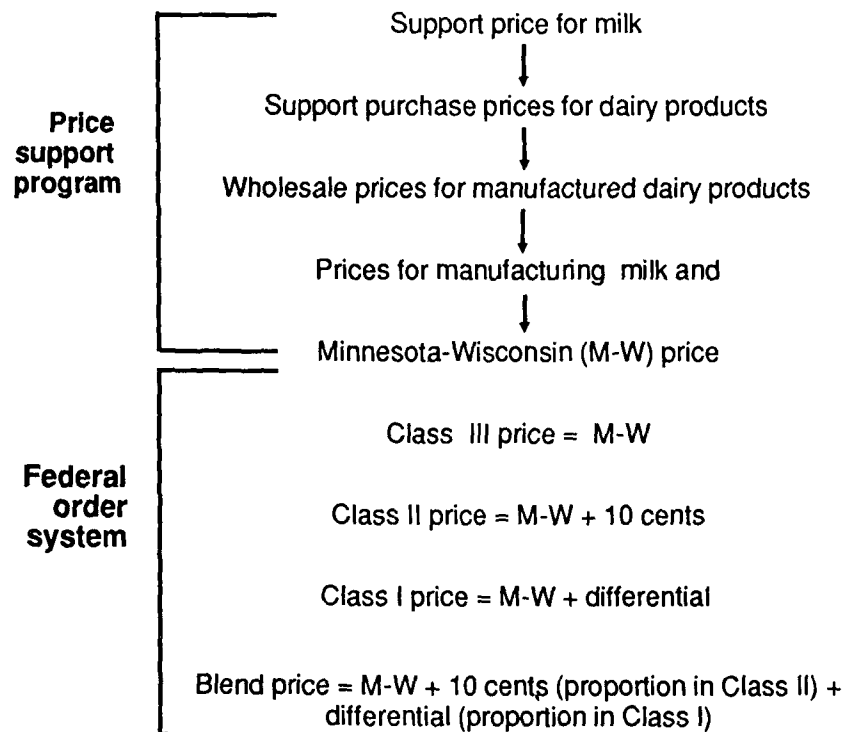
ingredients, nonfat dry or condensed milk, more costly than without regulation. The pricing and accounting provisions are intended to balance costs among handlers. They also keep unregulated reconstituted milk from displacing locally produced Grade A milk in higher valued uses, and thus lowering local producer blend prices. Establishing FMMO provisions to accommodate emerging technology and still provide for appropriate costs among handlers and equitable returns to producers in different regions while at the same time promoting overall economic efficiency and market stability will be a challenge for the 1990's.

### Relationship Among Programs

The Federal milk marketing order program and the price support program have become closely interrelated in recent years, principally through milk order class prices being based upon the M-W base price with Class II and Class I prices being set at given differentials above the M-W price (fig. 7). Since the M-W price reflects the market value of manufacturing grade milk, it tends to represent the supply/demand balance for the entire milk industry. When market prices are above the support level, the price support program is relatively inert. On the other hand, when milk prices fall to or below support level, the

Figure 7

### Price linkages between the price support program and Federal orders



CCC's offer to purchase butter, cheese, and nonfat dry milk tends to prevent further decline and undergirds the M-W price and thus all milk prices. In this situation, changes in the support price have a direct effect on all milk prices. The M-W price, as the prime mover of class prices in all Federal order markets, provides a coordinating link between the milk order and price support programs, assuring that minimum class prices will not continue rising at a time when increasing Government purchases might require a reduction in the support price. The main changes in class prices since 1968--except for the higher minimum Class I differentials legislated by the 1985 Food Security Act--have been through market and Government actions under the price support program as reflected in the price paid for manufacturing grade milk.

### **Effects of Dairy Programs**

Both the price support program and the Federal milk marketing order program could possibly improve the performance of the industry over a system devoid of Government involvement if these programs were used as price and market stabilizing mechanisms rather than for income enhancement. Both of these programs have been periodically used as income-enhancing tools, but in substantially varying degrees. Import restrictions, however, enhance prices and returns to dairy farmers and raise milk and dairy product prices to consumers.

Programs to enhance income may cause inefficient use of resources and, thus, represent net losses to society. There is also a redistribution of income among producers and from consumers and taxpayers to producers. The extent of this redistribution depends upon the degree of income enhancement and the program provisions used. The degree of price enhancement versus stability has usually been the result of policy or administrative decisions rather than being an integral feature or shortcoming of the programs themselves.

In general, these same observations apply to the costs and benefits of the Federal milk market order program. An important difference, however, is that many changes in milk market order provisions are, or can be, made through the public hearing process in which producers, fluid milk processors (handlers), and consumers all have an opportunity to present their respective positions on specific problems and issues.

Prior to the paid milk diversion program under the Dairy and Tobacco Adjustment Act of 1983, and the dairy termination program under the Food Security Act of 1985, there had been no supply control provisions in the dairy programs. Increased revenues to dairy producers through the programs were realized from higher milk prices to farmers which, in turn, increased milk production.

## Price Support Program

### Producers

The dairy price support program benefits producers by smoothing out price variations and providing a market for milk at an assured price. In most years, especially since 1979, dairy producers have benefited more from the higher price received for dairy products moving to the CCC under the price support program than they would have by relying solely on the commercial market. Price supports undergird all prices received by dairy farmers, both Grade B and Grade A producers.

Gruebele (1978) concluded that, during the 1950-75 period, elimination of the price support program for dairy products would likely have reduced the milk price to farmers by 7 percent and milk production by 1.8 percent. If price supports had been removed during the 1976-80 period and import restrictions had remained in effect, milk prices to farmers probably would have been 2.8 percent lower and production down 0.8 percent. Disregarding the effects of import quotas, he concluded that the price support program was more of a price-stabilizing than a price-enhancing policy except for isolated periods.

One example of a price-enhancing period in the 1980's appears to have been 1980-83 when the CCC purchased an average of 13.2 billion pounds (milk equivalent), or 10 percent of marketings. Given the lags in milk supply response, the actual price-enhancement probably began in the late 1970's. The effects of price enhancement in the early 1980's, and to a more limited extent in the mid-1980's, caused industry adjustment problems throughout the decade (fig. 4).

Since passage of the Agriculture and Food Act of 1981, dairy price support changes have not been tied directly to parity. This has resulted in a downward trend in dairy price supports from a high of \$13.49 per cwt in September 1981 to a low of \$10.10 in 1990. In conjunction with the milk diversion and dairy termination programs and a strengthening in international markets in mid-1988 through 1989, dairy price support purchases have declined, but are still substantial and of concern.

Increased returns to individual farmers from higher milk prices resulting from the dairy price support program depend on the volume of individual farm marketings. If a support price increase of 50 cents per cwt were to increase the farm price 50 cents per cwt, the annual gross revenue on a farm with 10 milk cows would be increased around \$725; for a farm with 500 milk cows, about \$36,000 a year. For a farm with 3,000 milk cows, gross revenue would increase about \$218,000.

Milk price enhancement and program benefits generally become capitalized into asset values such as dairy cow prices and the price of land suited to dairying. This increases milk production costs and makes the United States less competitive in world markets. Capitalization of current and expected program benefits



has varied effects on individual producers. It increases the wealth of established dairy farmers, but increases the costs of new entrants. For tenants and part-owners, program benefits can lead to higher rents, thus transferring program benefits from renters to landowners.

### Consumers

Program effects on consumers are measured by the changes in prices paid and quantities consumed that are attributable to the respective programs. Effects of the dairy price support program on consumers depend primarily upon the extent to which the program is used for producer income enhancement vs. price and income stability.

Consumers are less responsive to retail price changes of fluid milk products (beverage milk) than of processed dairy products (such as butter, nonfat dry milk, and cheese). Therefore, if the price support program boosts retail dairy prices by 10 percent, consumers reduce their fluid milk purchases about 2 percent while their fluid milk expenditures rise about 8 percent. With a 10-percent retail price increase, they reduce their manufactured products purchases about 7 percent while their expenditures rise only about 3 percent because of the much larger drop in the quantities purchased.

The price support program raises consumer prices through the Government's purchases of butter, nonfat dry milk, and cheese from processors at announced prices. The extent of dairy product price enhancement in the commercial market can be indirectly observed by the volume of dairy product purchases by the Government. As stated above, Gruebele estimated that the 1977 support price probably increased prices about 8 percent, which raised the retail price of a half-gallon of milk about 3 cents and cheese prices about 6 cents per pound. Even greater price enhancement during the 1979-83 period probably raised consumer prices two to three times this amount. But dairy price support reductions since the early 1980's have brought prices closer to market equilibrium, cut Government purchases and costs, and reduced consumer prices from levels they would have been without price support reductions.

The net effect of the price support program is that consumer prices probably average higher than they would without the program. However, dairy price supports set at market-clearing levels benefit consumers by assuring them of an adequate supply of milk and other dairy products at reasonable prices.

### Taxpayers

From 1966 through 1979, USDA purchases of dairy products on a milk equivalent basis averaged 3.3 percent of total milk marketed by farmers. Purchases were less than 1 percent of marketings in 1966 but reached 6.3 percent in 1971 (app. table 7). Over the 1980-89 period, however, purchases averaged about 8 percent of marketings and reached a record level of over 12 percent in 1983.

Nominal direct costs to taxpayers of the program averaged \$325 million per year from the 1952-53 through 1972-73 marketing years (app. table 8). However, since 1979-80, net program costs have exceeded \$1 billion each year until the 1988-89 marketing year when they dropped to \$698 million.

Net program costs reached a record \$2.6 billion in the 1982-83 marketing year, about 13 percent of total cash receipts from farm marketings of milk and cream, or an average of about \$13,000 per commercial dairy farmer. But since these expenditures were for processed dairy products, farmers did not receive the full benefit of these Government expenditures.

### Indirect

Over much of the period since the late 1970's, Government dairy programs have resulted in excess resources being used in milk production and processing. This implies a net loss in economic efficiency to the overall economy, provided these excess resources would have been used to produce nonsurplus products.

Excess milk production increases demand for both forage and feed concentrates. Feed grain producers benefit directly from increased grain demand and indirectly from forage production on lands that otherwise would be used to produce grain. During times of feed grain surpluses, the increased demand for feed by dairy farmers absorbs excess grain and thus reduces costs to taxpayers by lowering feed grain program costs. At other times, additional costs are imposed on other feed users.

Meat animal producers initially benefit from a buildup in milk production, as fewer milk cows are slaughtered. However, the larger milk cow herd eventually results in more cull cows and calves. The most dramatic impact on meat markets occurs when actions to correct the milk surplus cause a surge in dairy cow culling such as under the recent dairy termination program.

Dairy products comprise about 13 percent of the average consumer's food budget, and the quantities purchased are relatively unresponsive to price changes. Programs which raise retail dairy prices can lower consumer expenditures for other foods, adversely affecting suppliers of those products. Producers of substitute products (margarine, for example) benefit from higher dairy prices but may be affected by domestic donations of accumulated CCC stocks.

Since price support for milk is achieved only by purchases of storable milk products, price support policy significantly affects the manufactured dairy products industry. In 1983, Government purchases peaked and represented nearly one-third of total butter production, 70 percent of nonfat dry milk production, and over one-fourth of the American cheese production. Many manufacturing plants were probably operating beyond their optimal (low cost) capacity point in the flush milk production months of 1983. Some areas of the industry, which struggled to find plant capacity to process the large milk

supplies in the early 1980's, had excess capacity under the closer overall supply-demand balance in the late 1980's.

During the 1990's, there will continue to be dairy manufacturing capacity and structure adjustment problems because of milk production shifting to the Southwest and West out of the traditional milk production areas of the Upper Midwest, the central part of the country, and the Northeast. In addition, population is moving from the "frostbelt" to the "sunbelt." New manufactured dairy product plants and expanded capacity is coming on line in Texas and California at the same time that there is excess plant capacity in traditional dairy areas. This has generated pressures for higher over-order charges in Grade A supply plants for fluid milk markets as processing costs rise when manufacturing plants are underutilized.

In theory, fresh fluid milk products are generally considered to have first call on Grade A milk, the excess being available to produce manufactured dairy products. While fluid milk demand is relatively stable from year-to-year, it varies seasonally within the year just opposite of milk production. That is, fluid milk demand is lowest in the spring and summer when production is highest, and highest in the fall and winter when production is lowest. Thus, there is a need for substantial excess dairy product manufacturing capacity to meet the seasonal and annual fluctuations. These problems are compounded in the American cheese, butter, and nonfat dry milk industries since they must convert excess raw milk supplies into storable form. The regional shifts in milk supplies to the West and Southwest, along with the associated new manufacturing capacity in those areas, could compound excess capacity problems in other areas.

Federal dairy programs establish the overall price level for milk mostly through price supports but Federal orders can be used to raise prices further. Federal orders provide more equal treatment for producers and handlers (processors) who are similarly situated. For producers, marketwide pooling yields the same price to all producers at a given location. For handlers, classified pricing means the same price for milk in a given use at a given location.

#### **Federal Milk Marketing Orders**

About 90 percent of the total milk supply is fluid grade (Grade A) milk which meets the requirements of local and municipal health departments for use in fresh fluid milk products and is marketed primarily under Federal or State milk marketing orders. The remaining manufacturing grade (Grade B) milk can be used only in dairy products such as butter, nonfat dry milk, and cheese. About 45 percent of the fluid grade milk is sold as fresh fluid milk products and the remainder is processed into manufactured dairy products. Only Grade A milk is regulated under Federal milk marketing orders. On January 1, 1990, 41 orders regulated the handling and pricing of about 80 percent of the Grade A milk marketed domestically. Most of the remaining Grade A milk was regulated under State regulations (especially in California).

## Producers

Under classified pricing, producers receive a higher price for Grade A milk used in fluid milk products (beverage milk) than for Grade A milk used to produce manufactured dairy products. To the extent that Class I prices are established above cost-justified levels, Grade A dairy farmers receive more for their milk than they probably would in the absence of marketing orders.

Consumer purchases of fresh fluid milk products are less responsive to price changes than purchases of manufactured dairy products. Therefore, producer revenue can be increased by charging a higher price for milk used in fresh fluid milk products than for the same milk used to produce manufactured dairy products. There is special interest, then, in the justification (cost-related or otherwise) of the price differentials under milk orders between milk used for fluid purposes (Class I) and for milk used in manufactured dairy products (Classes II and III).

Price enhancement diminished from 1968 to 1981 as the minimum Class I differential remained constant while the manufacturing grade milk price tripled. The average minimum Federal order Class I differential in all markets declined from 33.4 percent of the average Federal order minimum Class I price in 1968 to 14.6 percent of the Class I price in 1983 when the Class I price peaked (table 8). The percentage began to increase in 1984 as Class I prices declined and received another boost in May 1986 when the 1985 Food Security Act legislated higher minimum Class I differentials in 35 of 44 Federal milk orders that were operating in May 1986. However, with strong international dairy product markets, the M-W price rose substantially in 1989 which again resulted in a reduction in the relationship between the Class I differential and the Class I price.

Price enhancement has been reduced even further over the years since costs of transporting milk and servicing the fluid milk market have increased, primarily due to energy costs and inflation. The transportation cost allowance for intermarket shipments built into the minimum Federal order price structure is substantially less than the actual cost of shipping raw milk.

In general, lowering or eliminating minimum Class I differentials would increase the M-W price and would have only a minor effect on the average U.S. milk price received by dairy farmers. However, the regional price effects would be substantial. Manufacturing grade milk producers and Grade A dairy farmers in regions such as the Lake States, Corn Belt, and Plains, with a high proportion of milk used in manufactured dairy products, would receive a higher price than under a continuation of current policy. Conversely, farmers in the Northeast, South, and Southwest would receive somewhat lower prices. The trend of pooling under marketing orders and moving toward one grade of milk (Grade A) would likely be slowed or possibly reversed.