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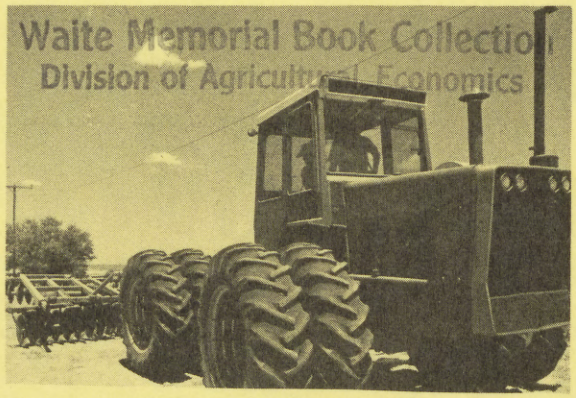

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The Current Dairy Industry Setting--
Evolving Problems and Issues

by

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ABSTRACT

The dairy industry has become concentrated in fewer and larger firms at the farm, processing, and distribution levels. Prices and terms of trade in the industry are undergirded by government milk pricing programs--primarily the price support program and the federal milk marketing order program. The goals and objectives of these programs are outlined and an evaluation is made of their performance. Emerging problems and issues resulting from price support levels, rapidly increasing energy costs, changing farm and market structure, improvements in transportation, and growth in cooperatives are enumerated.

Keywords: Dairy industry, regulation, milk marketing, market structure, pricing.

Preface

The Food and Agriculture Act of 1977 will expire in 1981. The new legislation will become the Nation's masterplan for agriculture until 1985. It could well influence the organization and operation of the food system for many years.

Along with the concern over price and income policy, several new issues have emerged since 1977. Of particular significance are such matters as inflation, energy, credit, conservation of our resource base, the increasing international role of U.S. agriculture, and the design and implementation of both domestic and international food assistance programs.

This report is a product of the ESS research agenda for the 1981 food and agriculture bill. It gives a general background and setting of the U.S. dairy industry as well as a description and evaluation of current dairy programs. Current and evolving problems and issues concerning dairy regulatory programs are also enumerated.

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THE CURRENT DAIRY INDUSTRY SETTING--EVOLVING PROBLEMS AND ISSUES

Introduction

Public agencies play an important role in the pricing of milk and airy products and most of the regulation at the federal level has volved from legislation enacted in the 1930's and 40's. A number of mendments to the basic legislation have been made over the years and it s likely that current legislation will again be evaluated in 1981.

The purpose of this paper is to give a general background and etting of the dairy industry; an overview of the goals and objectives of urrent dairy programs; an evaluation of dairy program performance; and n enumeration of current and evolving problems and issues. Another aper "Milk Pricing--Past, Present, the 80's" gives a synopsis of the ilk pricing system while a paper "Alternative Support Policies--An conomic Analysis" will evaluate the likely impact of alternative price upport levels and alternatives to the current dairy price support rogram.

Description of Industry and Trends

The dairy industry represents a major part of the U.S. food system. 1 1979 consumer expenditures for fluid milk and manufactured dairy oducts reached $34 billion and represented 12.7 percent of the onsumer's total food dollar. Dairy products contribute substantially to ie nutrition requirements of the American public.

There have been major shifts in the consumption of dairy products ver the past decade (figure 1).

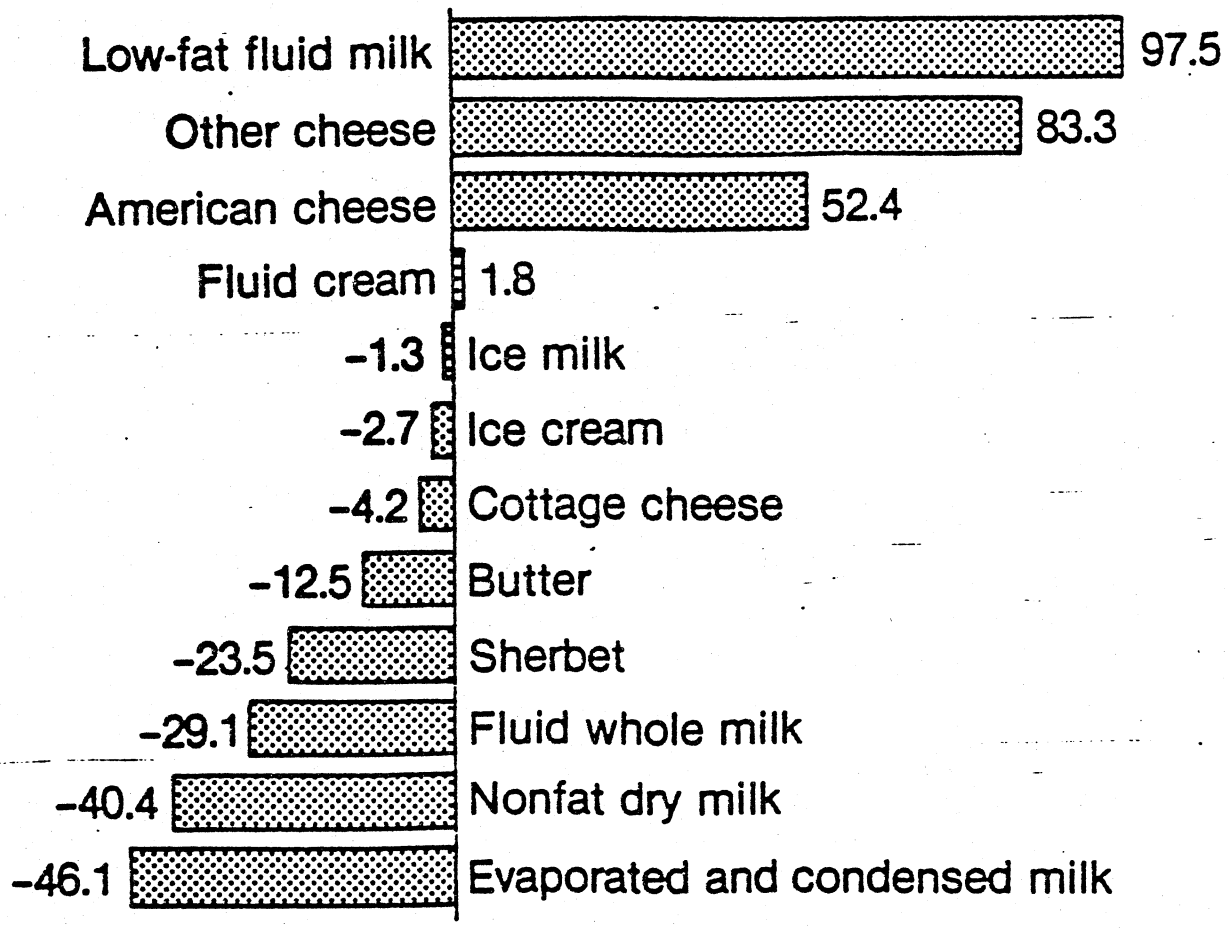
Sales have increased 52 percent for American cheese and 83 percent or other cheese from 1969 to 1979. Consumption of fluid milk has ifted to lowfat products. Evaporated and condensed milk sales declined percent over the same period. Total per capita civilian consumption all dairy products on a fat solids basis declined from 569 pounds in 69 to 561 pounds in 1979. Total milk production remained fairly stable er the past 4 decades, but began increasing in the fall of 1979 and is ojected to reach an all-time high of over 128 billion pounds in 1980. is is the largest on record, topping the previous high of 126.97 llion pounds in 1964 (figure 2). There are strong indications that lk production will be up substantially during the next few months and rplus dairy products will continue to be a problem.

The trend in production per cow has been up sharply for several cades. The only exception was in the early 1970's when escalating feed sts resulted in reduced concentrate feeding rates and production per w actually decreased in 1973 and rose only slightly in 1974 and 1975. e number of cows has historically shown a steady decline but has veled off and even risen in 1980--the first year-to-year increase since rch 1954. The man hours of labor required per cow has likewise clined pointing to important increases in productivity in dairy farming.

Supplies of milk and dairy products, after peaking in 1963, trended wnward through 1975, mainly due to lower milk production since imports

FIGURE 1

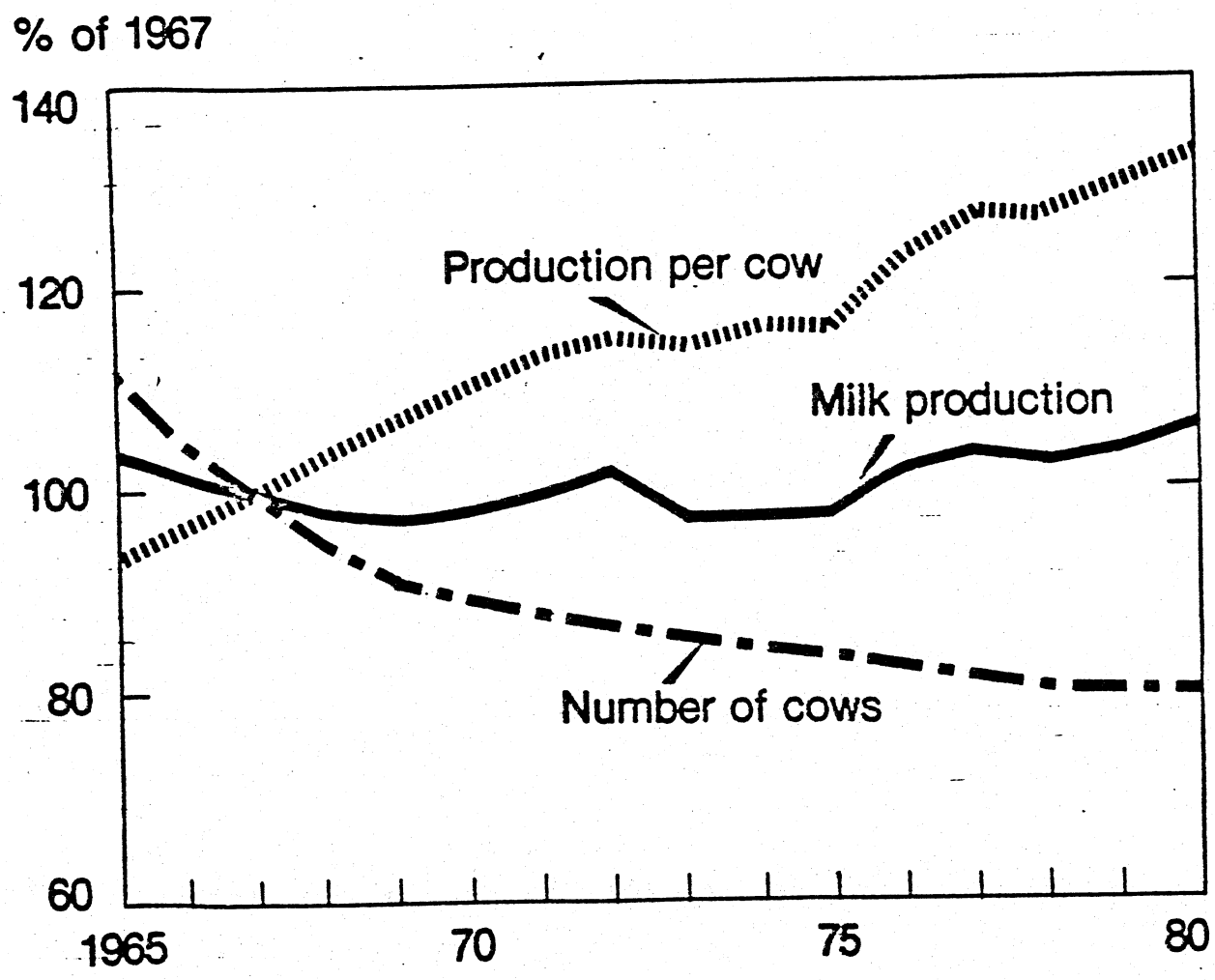
10-Year Change in per Capita Dairy Product Sales



Percentage change from 1969 to 1979.

FIGURE 2

Milk Production, Number of Cows, and Milk per Cow



remained at about 1.5 percent of domestic milk production. Domestic us also declined as Government donations were reduced. Dairy exports generally average around 1 percent of U.S. milk production. Thus, the increase in supplies since 1975 has not been matched by a corresponding rise in total use and has resulted in Government stocks increasing sharply (figure 3).

In 1979 there were an estimated 267,900 dairy herds in the United States. About half had less than 30 cows and accounted for about 12 percent of milk production. About 8 percent of the herds had 100 or mc cows but accounted for 36 percent of the milk production.

The Bottled Fluid Milk Processing Industry

Fluid milk distribution channels have changed drastically in recent years resulting in organizational adjustments by fluid milk processing firms. A major change has been the decline in home delivery of milk. November 1977, an estimated 95 percent of total fluid milk sales in federal milk order markets was non-home delivery, compared with 70 percent in 1963. Sales through supermarkets, convenience stores, specialty dairy stores, and drive-ins, characterize the current method: of merchandising fluid milk. To facilitate the flow of fluid milk products through this new distribution system, food chains have develo centralized milk procurement programs just as they had done previously for other food items.

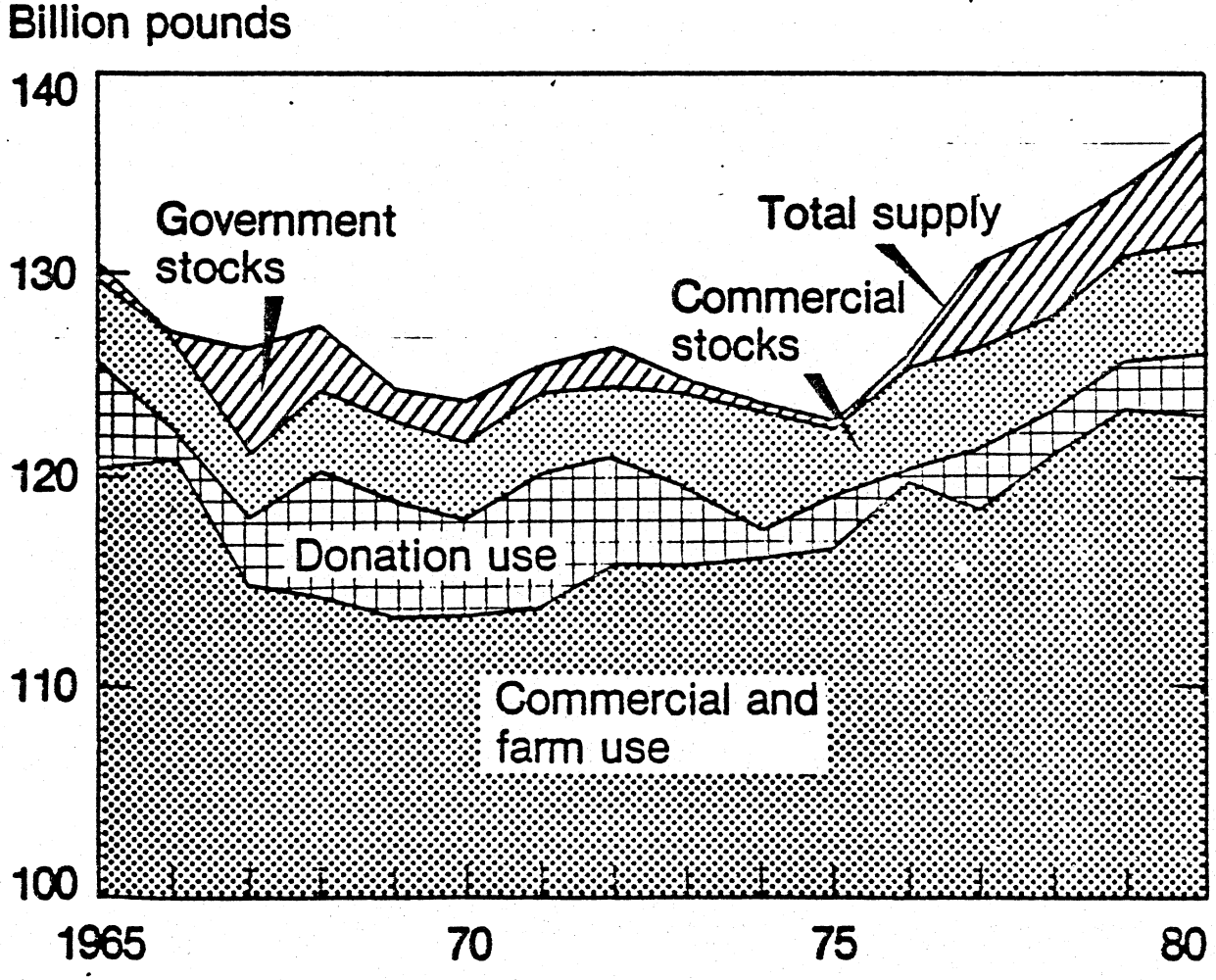
Trends in Market Structure--The number of fluid milk processing plants distributing milk in federal milk marketing orders decreased fr 1,283 in 1971 to 894 in 1978, a decline of 30 percent (table 1). Ther was a decline in the proportion of plants processing less than two million pounds monthly from 63 percent of the total in 1971 to 52 perc of the total in 1978. The number of plants in this size category declined 40 percent. This marked decline in the number of small plant resulted from firms going out of business, consolidations or mergers, an increased volume through internal growth that moved some plants int larger size category. In contrast, plants processing over 10 million pounds monthly increased from 5 percent to 11 percent of the total num of plants from 1971 to 1978, and the total number of plants in this gr increased 20 percent.

Average plant sales also varied substantially among types of firms local non-integrated firms had an average plant volume of 2.4 million pounds in December 1978, while the average plant volume for integrated supermarket firms selling primarily through their own outlets had an average plant volume of 9.9 million pounds.

Economies of Scale in Plant Operations--Coupled with the relatively stable total sales of beverage milk products is the pressure for firms increase plant volume due to economies of scale in milk processing. C summary of studies on economies of scale in plant operations reported cost per quart of 6.7, 3.7, and 2.4 cents for plants processing 6,000 quarts, 50,000 quarts, and 800,000 quarts per day, respectively (5). Obviously, small plants are at a distinct cost disadvantage relative t larger plants.

FIGURE 3

Milk Supply, Use, and Stocks



Stocks as of December 31. 1980 forecast.

Table 1. Size distribution of fluid milk processing plants, December 1971 and 1978 1/

December sales volume of packaged fluid milk products, thousand pounds	Plants in		Percent of total in		Percentage change, 1971 to 1978
	1971	1978	1971	1978	
	Number		- - - Percent - - -		
Less than 500	465	291	36	32	-37
500-999	159	85	13	9	-47
1,000-1,999	177	103	14	11	-42
2,000-2,999	106	77	8	9	-27
3,000-3,999	92	52	7	6	-43
4,000-4,999	61	54	5	6	-11
5,000-5,999	148	142	12	16	-4
10,000-14,999	41	50	3	6	+22
15,000-19,999	16	16	1	2	0
Greater than 19,999	18	24	1	3	+33
Total	1,283	894	100	100	-30

1/ Preliminary. Includes data from all plants pooled in all Federal milk marketi orders.

SOURCE: Richard F. Fallert and Harold W. Lough, "Changing Structure of the Fluid Milk Processing and Distribution System." Paper presented at the AAEA meetings at Champaign-Urbana, Illinois. July 1980.

The impacts of major structural adjustments in the fluid milk processing and distribution sector have fallen heaviest on small, independent fluid milk processors. Caught between fewer-but-larger firms in both the processing industry and among milk distributors, these traditional processors face stiff odds against survival in coming years.

Intergration Into Processing by Cooperatives--At the producer end of the marketing channel, farmer cooperatives have been getting into the business of milk processing and distribution. From 1971 to 1978 there was an increase of 2 percentage points in both number of plants and bottled sales volume by cooperative--a continuation of earlier reported trends. In 1978, cooperatives owned and operated 10 percent of the plants in the Federal order markets studied, and they accounted for 14 percent of total beverage milk sales.

The structure of the industry appears to balance in favor of continued integration into fluid milk processing by food chains, since they have ready access to consumers and an assured outlet for milk. At the other end of the marketing channel it appears that cooperatives will have control of most raw milk supplies and may continue to integrate forward into processing.

Manufactured Dairy Products Plants

In 1979, there were 895 dairy plants (down from 1,117 plants in 1975 and 6,776 in 1944) manufacturing milk into dairy products (table 2). For this period, the number of plants producing every dairy product declined except for plants producing Italian cheese. Improved transportation

Table 2--Number and sizes of manufacturing plants, 1944, 1975, and 1979, U.S.

Product	Number of plants			Average annual production per plant		
	1944	1975	1979	1944	1975	1979
				1,000 pounds		
Butter	4,015	366	276	400	2,679	3,567
American cheese	2,119	567	486	400	2,918	4,501
Evaporated milk	144	31	21	23,800	30,767	37,908
Nonfat dry milk	498	153	112	1,200	6,497	8,114
TOTAL	6,776	1,117	895			

technology and lower unit manufacturing costs in larger rather than in smaller plants have been the strong economic incentives behind the dramatic shifts in number and size of dairy manufacturing plants.

The number of butter manufacturing plants decreased from over 4,000 in 1944 to 366 in 1975 and 276 in 1979. Average output per plant increased from 0.4 million pounds annually in 1944 to 2.7 and 3.6 milli pounds in 1975 and 1979, respectively. Similar changes have occurred f most types of manufacturing plants.

Cooperatives

In 1973, producer cooperatives' sales accounted for 65 percent of t butter production, 85 percent of the dry milk products and 35 percent o the natural cheese production (6). At the same time they accounted fo only 12 percent of fluid milk products, 13 percent of cottage cheese a 5 percent of the ice cream. Cooperatives market less than 1 percent o total retail sales.

About one-third of all dairy cooperatives are small organizations that provide members a market outlet through the operations of a milk manufacturing plant. About 10 percent of the cooperatives primarily bottle and distribute fluid milk. About half of all dairy cooperative are local bargaining associations that do not operate milk processing manufacturing plants. The remaining 5 percent are full service milk marketing cooperatives that primarily sell raw whole milk often tailor to buyers' needs. They process surplus Grade A milk through their own milk manufacturing plants and some operate fluid milk bottling plants.

In 1950, there were 1,928 cooperatives operating in the United Sta that received more than 50 percent of their business from dairy products. This number declined to 1,100 in 1967 and about 600 remaine in 1973. Of the 600 dairy cooperatives, 291 operated processing and manufacturing plants; 130 operated only milk and cream receiving facilities; and 179 had no plant facilities at all (table 3).

Dairy Farm Income

Data in table 4 reveals that total operating income and expenses m than doubled over the ten-year period 1970 to 1979, but net operating income--in terms of 1967 dollars--averaged about $13,000 per year on Wisconsin farms with 41 cows and about $11,000 for New York farms with cows. Net operating income for Wisconsin farms--in terms of current dollars--trended upward over the ten-year period, but real net income remained fairly level during this same period except for 1979 when it increased substantially. Net operating income in terms of current dollars for the New York farm leveled off because New York farms purch most of their grain and other concentrates while Wisconsin farms tend raise their own grain.

Estimated net income for 1979 for Wisconsin farms--both in current and 1967 dollars--is the highest for the period under consideration. This also holds true for New York farms on the basis of current dolla but the first three years of the 1970's generated higher net income i

Table 3--Number of cooperatives and their share of U.S. market at supply, processing, and retail levels and for selected products, 1973

Marketing level and item	Number of Cooperatives 1964	Number of Cooperatives 1973	Cooperative share of U.S. market, 1973: All cooperatives	Four largest	Eight largest	Twenty largest
			percent			
Farm milk supply level						
Grade A	NA	370	81	31	41	54
Non-grade A	NA	328	55	NA[2/]	NA	NA
TOTAL		563[1/]	76			
Plant processing and manufacturing level	856	291	28	10	12	17
Selected products:						
Powder	212	62	85	46	57	72
Butter	740	207	66	34	41	51
Cheese	294	187	35	13	18	25
Cottage cheese	126	64	13	NA	NA	NA
Fluid products	215	85	12	4	6	9
Ice cream	143	60	5	NA	NA	NA
Retail level	NA	NA	less than 1			

1/ Number of cooperatives receiving milk directly from farmers. 135 cooperatives received both Grade A and non-grade A milk.

2/ NA means not available.

Source: George C. Tucker, William J. Monroe, and James B. Roof, Marketing Operations of Dairy Cooperatives,USDA, Farmer Cooperative Service, Research Report 38, June 1977.

Table 4--

Operating income, operating expenses, and net operating income on the basis of current and 1967 dollars for selected types of dairy farms in the States of Wisconsin and New York for the 1970 through 1979 period 1/

Items \ Year	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979
	Dollars									
	Wisconsin (41 cows)									
Total operating income	34,805	37,831	39,425	42,764	48,568	49,661	61,987	62,756	66,500	88,481
Total operating expenses	20,319	22,797	22,726	25,517	29,915	32,453	39,089	42,083	43,360	55,611
Net operating income (current dollars)	14,486	15,034	16,699	17,247	18,653	17,208	22,898	20,673	23,140	32,870
Net operating income (1967 dollars)	12,488	12,425	13,359	12,968	12,603	10,688	13,469	11,359	11,867	15,120
	New York (46 cows)									
Total operating income	40,000	42,680	42,031	48,552	53,620	55,299	64,661	63,318	73,533	88,171
Total operating expenses	22,619	26,453	26,406	35,106	39,133	41,639	46,427	48,257	55,835	65,603
Net operating income (current dollars)	17,381	16,227	15,625	13,446	14,487	13,660	18,234	15,061	17,698	22,568
Net operating income (1967 dollars)	14,984	13,411	12,500	10,110	9,789	8,484	10,726	8,275	9,076	10,381

1/ Source: "Wisconsin Farm Business Summaries" and "Dairy Farm Management Business Summaries" University of Wisconsin and Cornell University, respectively.

erms of 1967 dollars than in 1979. Net operating income includes a eturn to operator and family labor, management, and interest on equity. t is somewhat comparable to family income in other sectors of the conomy.

The Wisconsin farm is typical of the Minnesota-Wisconsin region, bout 260 acres of land with 197 acres of cropland. The New York farm is epresentative of most of the Northeast dairy regions and, to an extent, ther areas highly dependent on purchased feed concentrates. For a New ork farm milking 46 cows with about 200 acres in the farm 149 acres ould be in cropland.

Present Dairy Programs

The U.S. dairy industry is probably subjected to more government rticipation or regulation than any other domestic agricultural dustry, but is less regulated than the dairy industry in any other veloped country. The federal milk marketing order program, authorized the Agricultural Adjustment Act of 1937, and the price support program thorized by the Agricultural Act of 1949, are the two major domestic iry programs. Import quotas are also imposed by the federal government keep foreign imports of dairy products from intefering with the price pport program.

The mechanics of how the market order, price support and import otas operate are discussed in the following sections.

Federal Milk Marketing Order Program

The 47 Federal milk marketing orders operating January 1, 1980, gulate the handling and pricing of about 65 percent of all milk oduced in the United States and about 80 percent of all Grade A milk igure 4). Much of the remaining milk not regulated by federal orders priced under state regulation. All milk not of Grade A quality alled manufacturing or Grade B milk) is not regulated by federal milk ders.

Two major provisions of milk orders are:

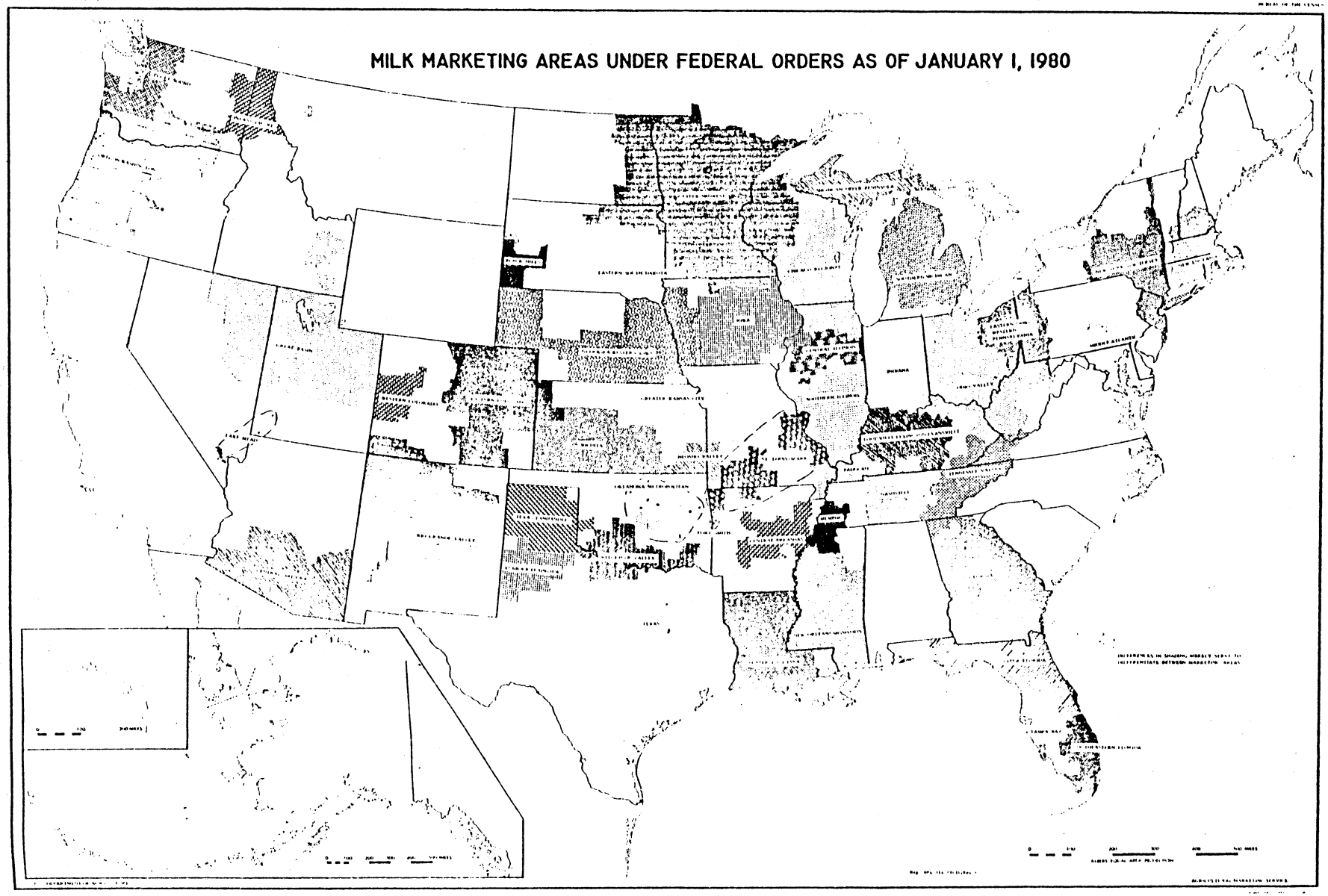
- Classified pricing of milk according to use and
- Pooling or combining all revenue from the sale of regulated milk from which a single uniform price is calculated.

This single uniform (blend) price is, then, the basis of prices paid Grade A dairy farmers.

Classified Pricing--Federal orders require handlers who buy Grade A lk from dairy farmers and who distribute it in the specified market der area to pay at least minimum milk prices depending on how the milk used. In most orders there are three classes of use:

- Class I milk--milk used in fluid milk products such as whole milk, skim milk, low-fat milk, and milk drinks;

FIGURE 4


MILK MARKETING AREAS UNDER FEDERAL ORDERS AS OF JANUARY 1, 1980

- Class II milk--milk used in soft manufactured products such as fluid cream products, cottage cheese, ice cream, and frozen desserts;

- Class III milk--milk used in hard manufactured products such as cheese, butter, and nonfat dry milk.

In federal orders, the price charged handlers for milk used to make Class III products (Class III price) is set equal to the average price that manufacturing plants pay per 100 pounds of Grade B milk (f.o.b. plant) in the Minnesota-Wisconsin area. 1/ A floor is placed under this price--and in turn all prices--as the government stands ready to purchase American cheese, butter, and nonfat dry milk in carlots at announced prices. These purchase prices are set at levels designed to enable manufacturers to pay farmers the announced support price for milk in surplus production periods. The price charged handlers for milk used in Class II products (Class II price) is set about 10 cents above the Class III price. It is representative of about 50 percent of the manufacturing grade milk sold in the U.S., and is the most widely used measure of milk values in the country.

A minimum price to be charged handlers for milk used in Class I products (Class I price) is determined in each federal order. This price is different in each order, while the Class II and Class III prices are about the same in all orders. The minimum Class I price for a given order is determined by adding a designated amount (Class I differential) to the Minnesota-Wisconsin (M-W) price. This differential is periodically reviewed in open market hearings, but no major changes have been made since 1968.

In federal orders east of the Rocky Mountains, the minimum Class I price per 100 pounds of milk is the M-W price plus 90 cents plus about 0.15 cents for each mile the specific order area is located from Eau Claire, Wisconsin. For example, the minimum Class I price in the Southeastern Florida market order is set $3.15 above the M-W price. (That $3.15 is 90 cents plus 0.15 cents times the approximate 1,500 miles the order is from Eau Claire, Wisconsin.) The minimum Class I prices set in some orders located in the Far West are less than those calculated with this formula. 2/

The actual price paid by handlers for milk used as fluid usually exceeds the federal order minimum price by an over-order payment. This payment reflects the fine tuning of federal order prices as milk is bought, sold and transported. It reflects a price incentive for manufacturing plants to ship milk above the amount needed to qualify for the market pool, cover transportation costs not covered in minimum

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1/ This price is commonly called the Minnesota-Wisconsin (M-W) price.
2/ Prices in this area reflect the fact that the Far West tends to be a milk surplus area, is geographically separated by the Rocky Mountains, and is generally not considered to be dependent upon milk supplies from the upper Midwest for fluid needs.

federal order prices and a negotiated premium bargained by farmers' cooperatives.

Pooling--A second major provision of federal orders requires that payments for regulated milk used in different classes be pooled. A uniform price, usually called the blend price, is then calculated for each order and used as a basis for paying Grade A dairy farmers associated with the respective order for their milk. An example illustrates the calculation of the blend price and the effect of pooli on milk prices received by farmers.

Assume a situation with two handlers selling milk in a market orde area. Table 5 shows (1) the prices the handlers are required to pay f the three use classes of milk, (2) the volume of milk each handler use in each class, (3) the payment obligation of each handler to the pool, and (4) the market total for the use classes and payment obligations.

Notice that even though the two handlers receive the same amount o milk, their utilization of that milk is different. Handler A used a larger proportion of milk in the higher priced Class I use (80 percent than did handler B (50 percent). Therefore, the average price paid by handler A was $12.62 per 100 pounds of milk received compared to $12.3 for handler B. If the federal order market uses an individual handler type of pool, handler A must pay selling farmers a minimum of $12.62, while handler B's minimum is only $12.34.

Most federal orders use a market-wide type of pool. This means th Class I utilization for the entire market (65 percent in this example) used for calculating a market-wide uniform (blend) price of $12.48

Table 5--Hypothetical example of pooling under federal milk marketing orders

Use	Price a/	Handler A		Handler B		Total market	
		Cwt.	Payment	Cwt.	Payment	Cwt.	Payment
Class I	$12.80	800	$10,240	500	$ 6,400	1,300	$16,640
Class II	11.96	50	598	100	1,196	500	1,794
Class III	11.86	150	1,779	400	4,744	550	6,523
Total	---	1,000	12,617	1,000	12,340	2,000	24,957
Average price	---	---	12.62	---	12.34	---	12.48

a/ These were the August 1980 Class I, II, and III prices in the Upper Midwest marketing area (Federal Order No. 68).

$24,957 ÷ 2,000). Individual handlers still pay the class prices ndicated in table 1; however, handler A pays $12.48 to farmers and 14 ents ($12.48 + $0.14 = $12.62) to a producers' settlement fund operated nder the federal milk marketing order. But handler B receives the 14 ents from the producers' settlement fund so, like handler A, handler B an also pay farmers $12.48 ($12.34 + $0.14). Under a market-wide type f pool, each handler is able to pay farmers the same price regardless of ow much milk is used to produce products allocated to different use lasses.

Other adjustments are made in the market-wide blend price before an ndividual farmer is paid for milk. The costs of certain market services uch as making butterfat tests can be deducted. This is a cost to armers. However, the cost of administering the federal order program itself is paid by the handlers and cannot be deducted from the blend rice.

The price received by individual farmers also reflects adjustments rom the uniform price for location and butterfat differentials. enerally, federal orders zone the milk supply area based on the nearest opulation centers. Dairy farmers delivering to plants located in the ore distant zones are paid less than farmers close to the central opulation centers. This is to reflect costs of transporting milk from he farm delivery plant into the central city. The farm to delivery lant transportation cost is paid by the farmer. The butterfat fferential adjusts an individual farmer's price to reflect the milk's utterfat content.

A cooperative association may also "repool" total returns for its mbers. This means that the milk price received by a farmer-member of he cooperative can also be influenced by the cooperative's policy on pooling and the allocation of certain charges and costs.

Farmers who produce Grade B (manufacturing grade) milk do not rticipate in the pricing and pooling provisions of federal milk rketing orders. Rather, Grade B farmers receive the going nufacturing milk price based on supply-demand conditions in the nufactured dairy products market. This is most significant for farmers Minnesota and Wisconsin because the two states account for about 55 rcent of the Grade B milk production in the country.

Federal orders can directly increase (decrease) the blend prices paid Grade A dairy farmers by increasing (decreasing) the differential tween Class I and Class III milk prices (Class I differential). ether these differentials also affect prices received by Grade B dairy rmers depends on whether the manufacturing milk price is at the vernment support price or above or below it. If the manufacturing ice is either above or below the support level, then an increase in the ass I price differentials tends to indirectly decrease the price ceived by Grade B farmers because of increased Grade A milk production d decreased fluid milk consumption./ These changes result in more Grade milk being used in manufactured dairy products thereby causing the nufacturing milk price to fall.

If the U.S. manufacturing milk price is at the support level, increasing the Class I price differential increases the amount of government purchases but does not affect prices received by Grade B farmers.

To establish a federal order, dairy farmers (directly or through their cooperative associations) petition the Secretary of Agriculture to regulate milk prices in a specific market area. The Secretary initiates a preliminary investigation on the need and feasibility for an order. If it is decided that an order may be needed, the Secretary sends out a notice for a public hearing to obtain views on the proposed order and specific provisions. Based on the evidence received at the hearing, a recommended decision and order is then issued for further discussion and comment by all interested individuals. A final decision or order is then voted on in a referendum of the producers selling milk in the marketing area. If the necessary two-thirds majority vote is obtained, then the marketing order takes effect.

The federal order is supervised by the Dairy Division, Agricultural Marketing Service, USDA, Washington, D.C. Each individual order is administered locally by a market administrator appointed by the Secretary of Agriculture.

The dairy price support program

The price support program supports the milk price received by farmers by offering to purchase butter, nonfat dry milk and American cheese in carload lots at announced support prices. These purchase prices are set at levels designed to enable manufacturers to pay farmers the announced support price for milk in surplus production periods.

The main features of the program are:

- It provides for minimum and maximum levels at which farm milk prices are to be supported--75 to 90 percent of parity. 3/ Since 1977 Congress has raised the minimum to 80 percent of parity and also provided for midyear increases to reflect the increases in the prices paid index during the semiannual period. Unless extended by new legisla the minimum support price will revert back to 75 percent of parity in October, 1981 and there will be no midyear adjustme after April 1981.

- It provides only general guidelines for determining the specific support level. These include "assure an adequate supply" of milk, reflect changes in production costs, and

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3/ Basically, parity is the calculated price which would give 100 pounds of milk the same purchasing power in terms of the things farmers buy as it did in 1910-1914. Parity also takes into account how the price of milk, during the most recent 10-year period, compared with other prices received by farmers.

assure a level of farm income adequate to maintain productive capacity sufficient to meet anticipated future needs.

- It specifies that the program shall be conducted through purchases of milk and milk products.

In addition, the level of price support must be announced at the beginning of the marketing year (October 1). The support price level may be raised during the marketing year, but it cannot drop below the level announced at the October 1 start of the year.

Setting Price Support Rates--Two complicated sets of calculations must be made by USDA in carrying out the program.

The parity objective is translated into a price per hundred pounds of manufacturing milk. For example, on September 30, 1980, it was announced that prices for the marketing year beginning October 1, 1980, would be supported at 80 percent of parity which was $13.10 per hundred pounds for manufacturing milk at the national average milkfat test of 3.67 percent. For milk of 3.5 percent milkfat content the support price is $12.80. The present support price for manufacturing milk is related to the purchasing power of milk during the 1910-14 base period, taking into account the relationship between dairy prices and other agricultural commodity prices over the past 10 years. The entire parity calculation method is spelled out by law and administrative procedures.

The support price of milk ($13.10 per hundred pounds in the following illustration) must be translated into buying prices for butter, nonfat dry milk, and cheese. The calculation considers the amount of products that can be produced from 100 pounds of milk and costs of processing it. The calculations for the marketing year beginning October 1, 1980, were as follows:

tter-nonfat dry milk calculations:

0 pounds of milk yields

4.48 lbs of butter @ $1.49 per lb.	$ 6.68
8.13 lbs of nonfat @ $ .94 per lb.	7.64
Total market value per 100 lbs of milk	$14.32
Plant margin allowance per 100 lbs of milk	1.22
Value above plant margin allowance	$13.10

eese calculations:

0 pounds of milk yields

10.1 lbs of cheese @ $1.395 per lb.	$14.10
Whey and whey fat value	.37
Total market value per 100 lbs of milk	$14.47
Plant margin allowance per 100 lbs. of milk	1.37
Value above plant margin allowance	13.10

The calculations for both cheese and butter-nonfat dry milk are designed to enable the plants to pay producers the $13.10 support price. However, they must achieve average levels of plant efficiency in both product yields and processing costs and, in addition, must be able to

sell these products at the announced wholesale prices if they are to h the necesssary funds available. It should be noted that individual plants are not required by law to pay producers the price support leve Rather, the method relies on competition between plants to lead to the desired average level of producers' pay price.

CCC Purchases and Costs--The amount of products removed from the market by CCC over the past 15 years equaled about 3.5 percent of the milk marketed by U.S. farmers (figure 5). However, there has been considerable year-to-year variation in the CCC removals which was generally associated with changes in the amount of milk produced. The peak in the 10 years prior to the 1979-80 marketing year came in 1971 when CCC purchased about 25 percent of U.S. butter production, over 30 percent of nonfat dry milk production, and about 6 percent of American cheese production. Overall, purchases in 1971 accounted for an equivalent of 6 percent of the milk marketed by farmers. Government purchases trended downward during the 1972-76 period reaching a low po over the past 10 years in 1976, when only about 1 percent of milk marketed by farmers was removed from the commercial market.

Increases in milk output during the 1976-77 marketing year without corresponding growth in commercial use, brought about much larger USDA purchases in 1977. Government buying slackened during 1978-79 as gain in commercial use resulted in a tighter supply-demand balance. Howeve due to a large increase in milk production and weakened demand, the Commodity Credit Corporation (CCC) removed 8.2 billion pounds, milk equivalent, from the market in the 1979-80 marketing year. This amou to more than 6 percent of the milkfat and solids-not-fat marketed--the largest since 1962.

CCC incurs certain costs in operating the program. The major cost the value of the price-supported commodities. In addition, there are storage, handling, and sometimes packaging costs. Offsetting somewhat are occasional sales of the commodities by CCC back to the trade or to other outlets when market prices rise to sell-back levels.

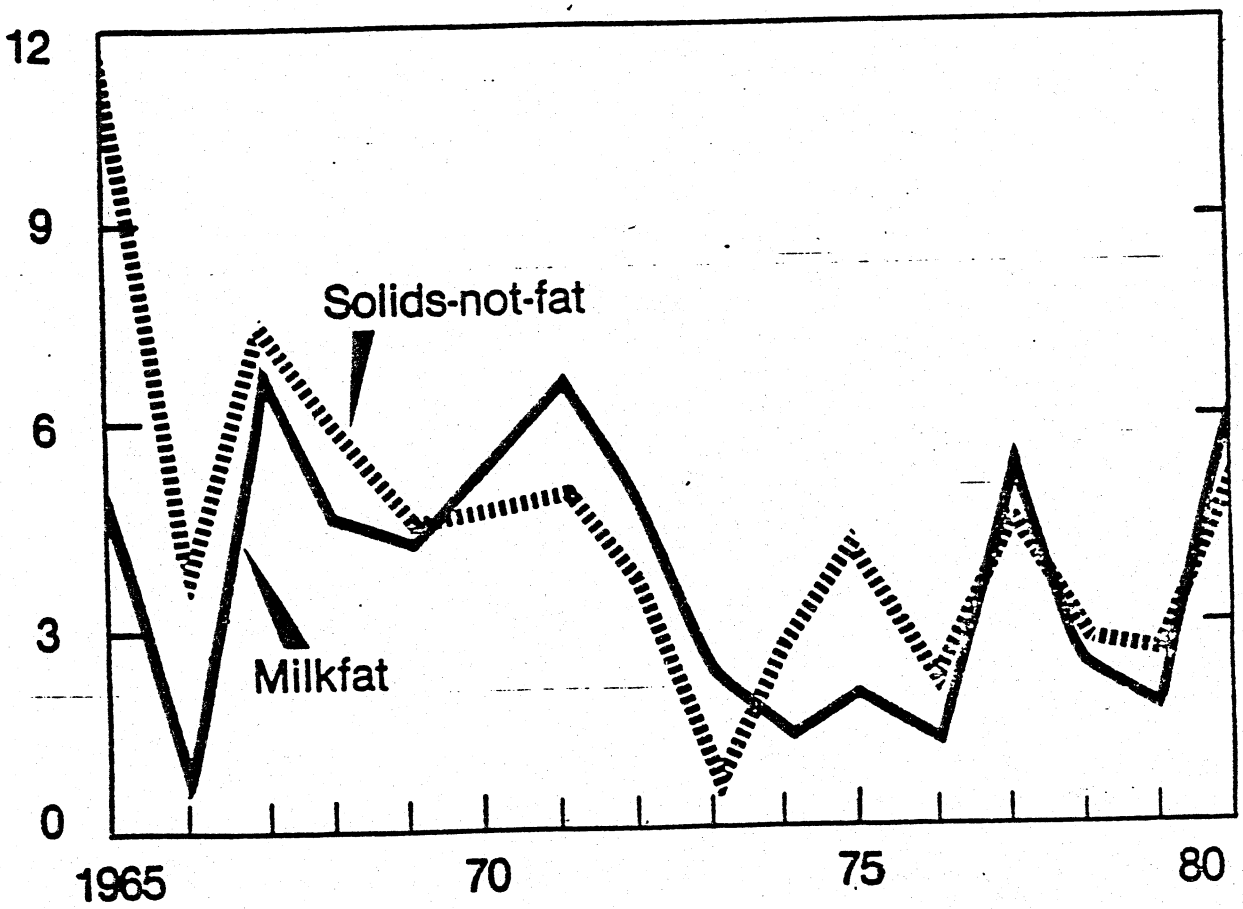
Net government expenditures on dairy support programs--CCC purcha less sales back to the industry for unrestricted use--have averaged al $320 million per year over the same 10 years. This does not include administrative costs. The high was $1.275 billion during the 1979-80 marketing year, and the low was about $71 million during the 1973-74 marketing year. Expenditures under the special milk program averaged about $100 million per year in addition to the price support programs The special milk program increases milk consumption by children in schools and child care centers.

Use of CCC Supplies--Having acquired stocks of butter, cheese, an nonfat dry milk, CCC must dispose of them in a useful manner. From t to time, CCC is able to sell back to the commercial trade when wholes prices rise above support prices by a specified amount. However, eve when these opportunities arise, only small quantities are involved. is mostly a matter of trying to channel products into consumption wit displacing regular commercial sales.

FIGURE 5

Milk Solids Removed from the Market by CCC Programs

% of marketings



Deliveries to the Commodity Credit Corporation (CCC) after domestic unrestricted sales. 1980 forecast.

The major outlet for CCC-owned butter and cheese is the school lu program. Other outlets include VA hospitals, but these are small compared to the school lunch program. In earlier years, the direct commodity distribution programs to needy people absorbed a considerab quantity of CCC dairy products. This program was largely discontinued favor of the food stamp program and no longer offers a significant ou for CCC stocks. Foreign donations of butter and cheese do not offer potential, although during periods of heavy surplus, CCC has converted butter to butter oil for foreign distribution.

Domestic outlets for CCC stocks of nonfat dry milk were also affe by the shift away from direct commodity distribution to the needy. T school lunch program is able to take only a limited amount of nonfat milk. CCC places major reliance on donations to foreign outlets as a means of disposing of nonfat dry milk. These are generally made unde the P.L. 480 program, but other means are also used.

U.S. Dairy Import Policy

The U.S restricts imports of dairy products through quotas on th quantity of specific dairy products. Countervailing duties are impos on dairy products from foreign countries that pay direct subsidies an undercut the U.S. price. The recent Multilateral Trade Negotiations signed by President Carter in July of 1979 put all dairy products und quota and eliminated non-quota cheeses that were imported at prices a a "price break" so that they were not considered to compete with U.S. dairy products.

Section 22 of the Agricultural Adjustment Act of 1933, as re-enac and amended, contains the authorization for import quotas on dairy products. This authorization was first implemented for specific dair products in 1953. Some quotas were used before 1953 during the Korea War, but no import controls for dairy products existed before 1950. of the quotas are allocated to individual importers and countries thr a licensing system; but some are on a first-come, first-served basis. Total annual U.S.-issued quotas equal about 1.3 billion pounds milk equivalent.

Quotas are legally justified in protecting the U.S. dairy price support program. Additional imports at a time when the government is purchasing dairy products would directly add to the quantity of dairy product purchases and the cost of the support program. The U.S. Government might be supporting world dairy prices unless some restrictions on imports were imposed.

Section 22 sets out the procedure by which import quotas can be changed, other than by new legislation. First, the Secretary of Agriculture is directed to advise the President whenever there is rea to believe that any dairy products are being imported so as to materi interfere with the dairy price support program. If the President agr with the Secretary, the President requests an investigation by the International Trade Commission (the old Tariff Commission) to determi whether or not the imports are interfering with the price support

ogram. This includes a public hearing. The findings and commendations are reported to the President, who can then determine the es or quotas to be levied. The additional fees may not exceed 50 rcent of the value of the product and the new quotas may not be less an 50 percent of the quantity imported during a previous representative riod. If the Secretary reports that a condition exists requiring ergency action, the President may act immediately without waiting for e International Trade Commission's report.

Conditions in 1973 and 1974 raised the question of whether increasing isting quotas and allowing more imports would materially interfere with e price support program since the dairy product markets were tight and rket prices exceeded the support prices. The decision was that they uld not interfere, and additional imports were authorized by the esident. Some dairy industry members also believed it was important r the dairy industry to keep a reasonable supply of dairy products on ocery store shelves so prices of milk and dairy products would not ach levels that would seriously curb consumption.

The timing of these increased import authorizations also became an sue. The lags in increased imports reaching the U.S. could destabilize ther than stabilize milk prices. Time is required for each of the llowing steps:

- recognizing the possible need for additional imports,
- determining the amount needed to avoid shortages except at unreasonably high prices,
- the investigation by the International Trade Commision as required by law,
- the final action by the President, and, then,
- the response by supplying countries and the actual time required to ship dairy products to the U.S.

The final butter and nonfat dry milk import authorizations in 1974 e after prices had started to fall, while the final cheese horization came at the time of peak cheese prices.

Over time new products have been imported creating the need to put tas on these new products. Presently casein, a milk derivative, is ined as an industrial product but has recently been used in some food ducts. Since it is not defined as a food product it is not subject to present dairy import quotas or tariffs.

ld Trade in Dairy Products

Except for 1973 and 1974 when dairy imports reached 3.3 and 2.5 cent of U.S. milk production, respectively, dairy imports have been ut 1.6 percent of U.S. milk production. About 55 percent of these orts were subject to quotas. From 1975 to 1977, the U.S. imported ut twice as much milk fat as it exported, but imported only one third much solids-not-fat as it exported.

About 2 to 3 percent of total world milk production is exported. Zealand accounts for about half of total world exports with Australia the six original countries in the European Community (France, Netherlands, Belgium, Luxembourg, West Germany, and Italy) accounting much of the rest. Great Britain is the largest importer and has traditionally absorbed much of New Zealand's exports. When Great Brit joined the Common Market, New Zealand was scheduled to be phased out supplier so New Zealand actively sought new markets. Australia was immediately excluded from the Great Britain market and its policy has been to reduce total milk production and the need for export markets.

Dairy surpluses continue to be a problem for the European economi community (EC) despite the EC's programs to reduce excessive milk production. The programs to reduce supply include an effort to encou the conversion of dairy enterprises to beef production and a milk producers' tax that was increased this year. A supplementary produce tax will be imposed in 1981.

Goals and Objectives of Dairy Programs

The Secretary of Agriculture is responsible for both the price support and federal milk marketing order program but the two programs administered by separate agencies within the Department of Agricultur Both programs affect milk prices and decisions made in administering program can affect the operation of the other. However, the programs quite separate as indicated by the types of decisions made in each. Under the price support program the overall level of all milk prices be maintained by Government purchasing excess dairy products that wil not clear the market at the support price. An increase in the suppor price increases the milk price received by all farmers an equal amoun

Federal milk orders build on the overall price of milk by setting price of milk used for fluid above the Minnesota-Wisconsin (M-W) price--the basic mover of all prices. The additional revenue from th sales of the higher priced Class I milk is pooled and distributed onl Grade A dairy farmers supplying the market. An important objective i provide the economic incentive for enough dairy farmers to produce mi eligible (Grade A) to be used as fluid. Excess Grade A milk of cours could be diverted into the manufacturing market at the same price as received by Grade B dairy farmers. Pricing decisions under federal m orders then involve determining the relative price of milk used for different purposes (classified pricing according tc use).

The goals of the two programs are summarized in the following sections:

4/ The milk order program is administered by the Agricultural Marke Serivce (AMS) and the price support program is administered by the Agricultural Stabilization and Conservation Service (ASCS).

Goals of the Dairy Price Support Program

Stabilizing milk prices is the major purpose of the support program. The price support program stabilizes the overall level of milk prices through the government dairy product purchase activity and through resale to the industry should milk prices rise above the support price. This short-run stability of prices then dampens the wider fluctuations in milk prices that would occur without the program.

The goal of enhancing returns to dairy farmers can only be pursued in the short-run. Whenever government purchases of surplus dairy products increase, the political pressures also increase on the Secretary of Agriculture to keep the support price near the minimum specified in the program. When this has been done, government purchases have declined reflecting a better market supply-demand balance. Because dairy farmers are free to produce any amount of milk they wish at going prices, the support price must be adjusted toward a longer-term supply-demand equilibrium to avoid chronic surpluses. This means that permanently enhancing producer returns is a less important objective of the support program than achieving greater price stability.

Goals of Federal Milk Orders

The major goals commonly ascribed to federal milk marketing orders as presently administered are reflected in the following list: 5/ (a) to promote orderly marketing conditions for milk produced by Grade A farmers; (b) to set minimum prices consistent with supply and demand conditions and to assure consumers an adequate supply of fluid milk year-round; (c) to administer and supervise the terms of trade in deficit milk markets in such a manner as to equalize the market power of buyers and sellers and promote constructive competition; (d) to improve the income situation for Grade A dairy farmers.

An overriding objective is that milk orders are to be administered so as to be in the public interest. The above goals lack clarity in meaning by using terms such as "orderly marketing" and "adequate supply." More precisely defined terms would be helpful in providing a better understanding of what milk orders are to accomplish.

The term "orderly marketing" usually is associated with stabilizing fluid milk prices, providing secure and dependable markets for individual Grade A dairy farmers producing milk primarily for the fluid market, and promoting constructive competition by improving the balance of market power between farmers and handlers. "Adequate supply" is usually associated with maintaining a reserve of Grade A milk on a seasonal,

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5/ Sections 601, 602 and 698c(18) of the Agricultural Agreement Act of 1937, as amended (USDA 1971), contain the specific statements on the objectives of the orders as stated by Congress. Also, a 1962 report to the Secretary of Agriculture by the Federal Milk Order Study Committee (USDA 1962, pp. 12-13) outlined the Committee's views on the major objectives of milk orders.

weekly and daily basis that can be drawn from when the Grade A milk supply is tight relative to fluid demand. Such a reserve would elimina unusually high prices and possible shortages.

The economic rationale on how the classified pricing and pooling regulations of milk orders serve to achieve the goals of milk orders is discussed in the following sections.

Stabilize Fluid Milk Prices--Classified pricing can provide an economic incentive for farmers in the aggregate to produce more Grade milk than is actually needed for fluid use plus an adequate reserve. This eliminates the probable wide fluctuations in the fluid milk price relative to the M-W price due to seasonal and other unsynchronized variations in supply of Grade A milk and fluid demand. This approach stabilizing fluid milk prices works only if a secondary market exists the Grade A milk not needed to meet fluid demand.

Market Security--Pooling the returns from the sale of all Grade A milk reduces the concern of farmers as to whether their specific milk used in fluid products at the higher Class I price or in manufactured products at the lower Class III price. Farmers are paid on the basis a market average price regardless of how their specific milk is used. Without pooling, an individual farmer or his cooperative association would be under economic pressure to sell as much of his or its own mil as possible in the higher-valued fluid market. Strong competition for the fluid market likely would develop as long as farmers could realize higher price in that market. Some Grade A farmers probably would be dropped from the Grade A milk market during the season of highest milk production when Grade A milk supply exceeded fluid use. This would le the farmer seeking an alternative manufacturing market outlet for the extremely perishable milk. Switching back and forth from the fluid to manufacturing market may be difficult and at times results in distress milk prices and even uncertainty as to whether an outlet exists.

The classified pricing and pooling regulations of milk orders, the reduce the need for "switching" outlets and provide Grade A dairy farm with more secure markets.

Balancing Market Power--For a long time the dairy industry was characterized by many small dairy farmers selling milk to a relatively few large handlers. Minimum Class I prices under milk orders protect dairy farmers from the effects of possible price wars or other price-cutting activities by handlers. Such supervision of the terms o trade is more likely to promote constructive competition for a commod as perishable as milk.

Increase Farm Income--Classified pricing that charges a higher pri for fluid milk with a relatively more inelastic demand is a form of price discrimination. Returns to Grade A dairy farmers are increased charging a higher price for milk used in the relatively inelastic flui market than in the manufacturing market.

To summarize, a major objective of federal orders is to stabilize Grade A milk prices. This price stability is quite different from th

stability of overall milk prices provided by the support program. The order program, by providing a reserve of milk eligible for fluid use, reduces the chances that the Grade A milk supply might be short relative to fluid demand causing the price of available Grade A milk to rise relative to the manufacturing milk price.

Joint Goals of Price Support and Federal Milk Marketing Order Programs

Both the price support and milk orders can be used for short periods to increase farmers' returns. However, in the case of market orders a farmer must sell Grade A milk to share in the higher priced fluid sales. Decisions on setting Class I prices can also impact the amount of purchases under the price support program.

Evaluation of Dairy Programs

The dairy programs have a far-reaching impact on farmers, handlers and consumers. They involve trade-offs between Grade A and B dairy farmers, between farmers in different regions of the country and between farmers and consumers. In a real sense an evaluation of the programs is complex and can be viewed differently by different groups. The programs are discussed in terms of their impact on stabilizing milk prices, level of milk prices, net farm income, distribution of benefits among farmers, technological innovation, industry efficiency, and government costs.

Performance of the Price Support Program

The dairy price support program benefits are distributed on the basis of the amount of milk produced. The distribution of dairy farms by herd size varies causing the distribution of benefits to vary. In 1979 about 50 percent of the dairy farms received about 12 percent of an increase in total returns resulting from increasing the support price. On the other extreme only 8 percent of the farms received 36 percent of the benefits. An increase in support price of 50 cents per hundredweight would have increased annual gross farm sales about $350 per farm for 50 percent of the farms but increased gross farm sales $12,500 per farm for about 8 percent of the farms. This type of distribution of benefits is characteristic of any program that directly influences prices.

A number of programs could be used to support milk prices but each affects money transfers among dairy farmers, consumers of dairy products and taxpayers. The present purchase program costs consumers more but taxpayers less than if payments were made to dairy farmers when market clearing prices fall below a desired (target) support price.

A supply control program using sales quotas would take away part of a farmer's freedom to make production decisions and tend to freeze existing patterns of production unless quotas were transferable among farmers. Consumers would pay prices similar to those under the present program but taxpayers' cost would be less.

As a way of supporting prices received by farmers, the program has generally worked quite well. However, with the rapid inflation of recent years, the performance has not been as good as in earlier years when prices were more stable.

Some strengths of the price support program are said to be:

- the price objectives under the program are generally reached with a fair amount of precision;
- it is less disturbing to commercial interests than other programs might be because it operates through established market channels and agencies;
- it is a price stabilizing as well as a price support program. Stable prices are more conducive to effective planning by dairy farmers than are widely fluctuating prices and generally more acceptable to consumers.

For relatively short periods of time the manufacturing milk price has fallen short of the support price, usually just after an increase in the support price. However, during the April to December 80 period the manufacturing milk price again fell short of the support level by an average of 44 cents per hundredweight. The price support program includes "make allowances" of sufficient size for processors of cheese and butter and nonfat dry milk to cover their costs and still pay farmers the designated support price. One concern is whether sufficient motivation exists for the industry to reduce processing costs to the maximum extent possible.

Some of the weaknesses of the program are:

- the higher consumer prices necessitated under the program have caused consumers to purchase fewer dairy products;
- the program uses tax dollars and at times, as in the 1979-80 marketing year, has been quite costly;
- disposing of surplus stocks in a useful way has become increasingly difficult.

Performance of the Market Order Program

Several dimensions of performance indicate that market orders have not excessively increased milk prices. However, the rapid increase in the amount of Grade A milk surplus to the fluid market suggests that the Class I differentials used to set Class I prices above the manufacturing price have been higher than needed. It can be argued that it is not costless to have more Grade A milk produced than needed for fluid uses and a Grade A price stabilizing reserve. Questions of equity involving the remaining Grade B milk producers arise when large surpluses of Grade A milk develop in federal order markets. This means that fluid milk prices have probably been somewhat higher and manufacturing milk prices have been somewhat lower as a result of the milk order program.

The following dimensions of performance provide little evidence that milk prices have been increased more than needed:

1) During the 1969 to 1975 period consumer milk prices in 17 major U.S. cities covered by federal milk orders increased by 70.5 percent. This equaled the percentage increase in the consumer price index for this period. Therefore the real increase in consumer milk prices in the 17 cities was negligible over this period.

2) Class I (fluid) prices increased moderately over the 1965 to 1975 period--rising at about the same rate as the wholesale price index for all farm products.

3) The average Class I differential has been maintained at about $2.10 per hundredweight since 1968.

4) The Class I differentials for markets distant from the Upper Midwest have not been increased to reflect transportation costs for whole milk.

5) The Class III price in federal orders has been priced at levels which give most regulated handlers little incentive to purchase milk solely for manufacturing purposes.

6) Federal orders, as presently written, do little to insulate Class I, Class II, Class III, farmer blend prices and consumer milk prices from the price variation which originates with changes in manufacturing milk prices. The variation in federal order prices was twice as great during the more recent price volatile 1973 to 1975 period than during the relatively stable 1965 to 1972 period.

7) The orders have improved performance by preventing price cuts made at wholesale and retail during price wars from being passed back to farmers and by helping to eliminate extreme variation in prices of supplemental fluid milk.

8) The seasonality of U.S milk production in the largely pre-federal order period of 1930 to 1939 was about 160 percent higher than in the federal order markets during the 1965 to 1975 period. Also, seasonality of federal order milk receipts for 1965 to 1975 was about 43 percent lower than in nonfederal order markets during this same period.

A stable situation prevailed when the federal order for the Chicago market was voted out for the period May, 1966 to June, 1968. However, developments following the termination of the Mississippi order in 1973 suggest that destabilizing factors still persist in fluid milk markets and emerge in the absence of the orders.

The large quantities of Grade A milk that are surplus to the fluid market suggest that Class I prices may have been higher than needed to provide orderly marketing. Lower Class I differentials probably would provide a net social gain and, in that sense, be in the public interest.

Economic Implications of Milk Orders

Well-developed economic principles of milk marketing provide a framework from which many of the economic implications of milk orders are derived. Particularly useful studies for analyzing the implications of milk orders are provided by Bressler, Harris, and Kessel.

Seven major implications are identified in the following sections. They are not mutually exclusive, nor are they all-encompassing, but they are considered separately for discussion purposes.

Loss of Grade B Market

Grade A milk production has increased substantially over time despite relatively small increases in the amount of milk used as a fluid beverage. Grade A milk not used for fluid under federal milk orders but diverted into manufacturing uses increased from about 24.3 billion pounds in 1967 to about 37 billion pounds in 1979. This increase has come about as a result of both expanded milk production by existing Grade A farmers and conversion by other farmers from Grade B to Grade A milk production. The conversion has been especially dramatic in Minnesota and Wisconsin where about 55 percent of the remaining Grade B milk is produced. In 1979, 68 percent of the milk produced in Wisconsin was Grade A, compared with only 44 percent in 1967. In Minnesota, the proportion of Grade A milk increased from 19 percent in 1967 to 55 percent in 1979. All milk in the United States will become eligible for fluid use (Grade A) if these trends continue, despite the fact that less than half of the milk will likely be used for fluid.

Why are farmers converting from Grade B to Grade A milk production when essentially all the additional Grade A milk is diverted and used in the lower-priced manufacturing market? There are many contributing factors, but one essential factor is that a farmer can obtain a higher price for Grade A than for Grade B milk. A logical assumption is that unless a farmer receives or expects to receive a higher price for Grade A than for Grade B milk, he will not be willing to incur the added cost or inconvenience of the higher farm sanitary standards of Grade A milk production. The blend price advantage over the manufacturing milk price can provide the economic incentive for a farmer to convert from Grade B to Grade A production (only Grade A milk producers can participate in a milk order pool.) This is how classified pricing and pooling generate the necessary reserve of Grade A milk which is one aspect of orderly marketing. But if Class I price differentials in milk orders can be set at levels to provide a necessary reserve they can also be set at levels which result in excess reserves. Harris recognized this by pointing out that if classified pricing were used to achieve only market stability and security, that there would be no tendency toward expansion of supplies beyond the effective demand requirement of the market.

Geographical Price Structure

Setting minimum Class I differentials in order markets east of the Rocky Mountains according to how far the market is located from Eau Claire, Wisconsin, ignores the possibility that there may be pockets of

excess milk in other areas sufficient to justify alternative basing points. Single base point pricing may lead to geographically distorted prices which can encourage milk production in relatively high cost production areas, and in areas where it may not be needed.

Preliminary research indicates that this pricing plan distorts the price so as to favor milk production in the Northeast, South, and West over the Lake States, Corn Belt, and Plains. However, additional research is needed to evaluate the exact magnitude of the distortion--if any--and the implications of following alternative policy options.

Impact on Manufacturing Milk Market

Class I differentials substantially above cost justified levels encourage additional Grade A milk production. They also discourage fluid milk consumption by increasing fluid milk prices. The combined impact is to increase the amount of Grade A milk that must be used to make additional manufactured products to be sold in the manufactured dairy product market. These additional manufactured dairy products tend to reduce the manufacturing milk price. The actual impact on the manufacturing milk price (Class III price) depends on whether the market price is at or above the manufacturing milk support price. If the market price is the same as the support price, the government, under the price support program, will purchase the added dairy products resulting from the higher Class I differentials. If the market price is above the manufacturing support price, then the added dairy products would tend to lower manufacturing milk prices.

Sharing Class I Sales

Grade A dairy farmers receive higher milk prices as a result of classified pricing and pooling under milk orders. Because relatively high Class I differentials under milk orders can indirectly reduce manufacturing milk prices, most Grade B farmers are worse off, or at best no better off, as a result of them. It is true, however, that many Grade B farmers, by converting to Grade A milk production, can also benefit. However, this is a forced situation because the only alternatives to converting to Grade A milk are to accept the manufacturing grade price for their milk or quit dairy farming altogether.

Because fluid milk markets do not benefit Grade B farmers, pursuing the goal of classified pricing to increase the income of Grade A farmers raises an equity question: Can classified pricing legitimately be used to enhance farm income when all dairy farmers do not benefit?

Incentives for Milk Movement

Once a cooperative or proprietary handler which is manufacturing dairy products ships enough milk to qualify as a pool handler, the incentive to ship additional Grade A milk to the fluid market is greatly diminished. If it does ship additional milk to the fluid market, it will not be in a position to pay its producers any more for their milk because of the marketwide pooling provisions unless over-order charges are made over and above market servicing costs. There is an actual disadvantage

in shipping milk to the fluid market since the cooperatives and proprietary handlers that have manufacturing facilities would want the largest volume of milk possible to lower unit costs in their own manufacturing operations. Negotiated Class I prices above federal order minimums help provide the incentive for such firms to "give up" the milk in their own manufacturing operations and ship it to the fluid market. This phenomenon suggests that increasing minimum Class I differentials under market orders may not always be the proper approach to get milk to move to the fluid market.

This situation can create a need to go further distances from the central market to obtain enough milk for fluid demand even though closer supplies exist and are being used for manufacturing. To the extent that this phenomenon exists, fluid handlers need to bring milk for fluid use from more distant areas than likely would be the case without regulation. Many factors influence the manner in which cooperatives serve the fluid market; only general forces and implications are pointed out here.

Alternatives to Fresh Fluid Milk Products

The present order program assumes that fluid milk demand must be met with fresh whole milk. As discussed, a reserve of Grade A milk would be needed under this assumption to balance seasonal and day-to-day variations in supply and demand and thereby stabilize prices.

However, for some time it has been technically possible to commercially recombine nonfat dry milk and water into a fluid beverage milk. This reconstituted product could then be blended with fresh whole milk to meet fluid demand. In effect, this would provide a storable reserve rather than a fresh fluid milk reserve. Currently all milk products used for fluid consumption are priced at the Class I level, the highest-priced class under federal milk orders.

A petition has been submitted by the Community Nutrition Institute, a processor and three individual consumers asking for a public hearing to consider removing commercially reconstituted milk from the Class I pricing provisions of all federal milk marketing orders. In response to the petition, USDA asked for public comments on whether a hearing should be held and also invited the public to submit any additional proposals that might be appropriate, considering the possible economic impacts of the proposal. At the same time USDA initiated a study to determine the potential impact of the proposal on dairy farmers, consumers and milk handlers. The preliminary impact statement is currently being evaluated by the general public and interested parties have been invited to evaluate the impact statement and provide USDA with comments. The preliminary impact study does not recommend whether a hearing should be held.

With rapidly increasing energy costs, milk assembly, processing, and distribution costs have gone up accordingly. Since milk is 87 percent water, much of the energy used in the dairy industry is in transporting, cooling, pasteurizing, or removing the water portion of raw milk. Numerous forces will be emerging for adapting the dairy industry to the

rapidly changing cost structure. Some processes or technologies--in addition to reconstituted milk--that will likely be evaluated to accommodate the changing cost structure are ultra-high temperature (UHT) sterilized milk, ultra filtration, reverse osmosis, or frozen concentration processes for removing water or separating milk into components.

Component pricing systems may need to be studied as a means of accommodating these potential changes and for the purpose of equitable distribution of costs and returns. Pressures already exist for minimizing duplication of hauling routes in milk assembly. These same forces will encourage efficiency in milk processing and distribution--and will likely accelerate the trend toward fewer and larger firms in all segments of the industry.

Emerging Issues

Rapidly increasing energy costs; changing structure at the farm, processing, and distribution levels; improvements in transportation, and growth in cooperatives are among many factors that are impacting the U.S. dairy industry. Many issues are emerging as the industry adjusts to these changes. Some of the issues are broad and center on whether each or any of the dairy programs are needed--or need modification--given the many changes. In addition, some problems and issues exist relative to current programs.

Are the programs needed?--Some of the broad issues are:

1. Have government costs under the price support program become so burdensome as to threaten the program or provide reason for serious consideration of alternative programs such as a direct payment program or supply control program?

2. Are import quotas needed to protect the dairy industry and to what extent are dairy product prices increased due to import quotas?

3. Have cooperatives developed to the point where milk orders are no longer needed?

4. What parts of the order program may not be needed such as regulation of Class I prices, regulation of reconstituted milk?

Issues existing or evolving within the present programs are:

1. Is there a need for changing the parity standard in price support calculations by moving toward:

   a) cost of production
   b) a more dairy specific index
   c) a more automatic support price trigger mechanism
   d) some combination of these?

2. What will be the impact of changes in distribution outlets for CCC purchased dairy products?

3. What will be the impact of rising energy costs on the location, structure, and functions of the dairy processing industry?

4. What is the impact of the level and structure of minimum Class I prices set under milk marketing orders on the location of milk production and the manufactured dairy products industry?

5. Is there a need for restructuring Class I prices, including an evaluation of the rationale for establishing Class I prices?

6. Since federal order prices no longer reflect transportation costs, what, if anything, should be done relative to:

a) transportation allowances within orders
b) intramarket prices
c) intermarket prices

7. What will be the extent of consumer pressure on the level and structure of Class I prices?

8. What will be the inpact of the eventual loss of the separate manufactured milk market, and how will the basic formula and Class I prices then be established?

9. What would be the effects of alternative pricing and allocation provisions on reconstituted milk and other forms of milk ingredients?

10. What will be the impacts of relatively high dairy product prices on the inroads of imitation and substitute products?

11. What will be the impacts of other evolving issues such as:

a) environmental laws--farm point and processing wastes
b) price reporting issues
c) packaging and labeling issues, and
d) sanitary regulations?

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App. Table 1--Manufacturing milk: Comparisons of announced support prices and U.S. average market prices paid to producers, marketing years, 1960-80 1/

Marketing year beginning in: 2/	Date effective 3/	Manufacturing milk				
		Support level		Average market level		
		Percentage of parity equivalent 4/	Price per 100 pounds	Price per 100 pounds	As a percentage of parity equivalent: In month prior to marketing year	As a percentage of parity equivalent: Average during marketing year
		Percent	- - Dollars - -		- - Percent - -	
1960		76	3.06			
	9/17/60	80	3.22			
	3/10/61	85	3.40	3.31	83	83
1961		83	3.40	3.38	83	82
1962 5/		75	3.11	3.19	76	76
1963		75	3.14	3.24	77	77
1964		75	3.15	3.30	77	78
1965		75	3.24	3.45	80	79
1966		78	3.50			
	6/30/66	89.5	4.00	4.11	92	90
1967		87	4.00	4.07	88	87
1968		89.4	4.28	4.30	90	87
1969		83	4.28	4.55	88	86
1970		85	4.66	4.76	87	85
1971		85	4.93	4.91	85	82
1972		79	4.93	5.22	84	80
1973	3/15/73	75	5.29			
	8/10/73	80	5.61	6.95	99	91
1974		81	6.57			
	1/04/75	89	7.24	6.87	85	78
1975		79	7.24			
	10/02/75	84	7.71	8.12	89	84
1976		80	8.13			
	10/01/76	81	8.26	8.52	84	82
1977 6/		82	9.00	7/8.77	80	80
1977		82	9.00			
	4/1/78	86	9.43	9.30	85	79
1978		80	9.87			
	4/1/79	87	10.76	10.86	88	80
1979		80	11.49			
	4/1/80	87	12.36	11.75	82	76
1980		80	13.10			

1/ See DS-372, October 1978, table 1 for 1949-59. 2/ Start of marketing year April 1, 1960-77, October 1, 1977 to present. 3/ If other than start of year. 4/ Except as noted, this is the actual percentage of the parity equivalent price published in month before the marketing year. In some cases the announced percentages, based on forward estimates of parity, were slightly different. 5/ Beginning November 1962, parity equivalent is based on prices for all manufacturing grade milk instead of the "3-product" price for American cheese, evaporated milk, and the butter-nonfat dry milk combination used before. 6/ April-September transition period. 7/ Adjusted to annual average fat test.

SOURCE: Dairy Situation, DS-382, October 1980.

App. Table 2--Net government expenditures on dairy support and related programs, fiscal years, 1950-80

Year beginning July 1	Net support purchases 1/	Military milk 2/	Section 32 3/	Section 709 4/	Section 4(a) 4/	Export assistance 5/	Total (excluding special milk)	Special milk program 6/
	Million dollars							
1949-50	170.5	---	17.6	---	---	---	188.1	---
1950-51	7/-49.1	---	8/-.9	---	---	---	7/-50.0	---
1951-52	1.6	---	7.5	---	---	---	9.1	---
1952-53	274.9	---	25.1	---	---	---	300.0	---
1953-54	400.4	---	74.0	---	---	---	474.4	---
1954-55	228.7	4.3	24.4	---	---	---	257.4	22.2
1955-56	237.9	7.3	39.0	---	---	---	284.2	48.2
1956-57	239.1	16.4	75.6	---	---	---	331.1	61.0
1957-58	205.9	30.4	123.7	---	---	---	360.0	66.7
1958-59	102.1	23.0	106.2	---	---	---	231.3	74.7
1959-60	159.5	23.6	35.1	---	---	---	218.2	81.2
1960-61	173.9	25.3	82.1	---	---	---	281.3	87.0
1961-62	539.0	25.9	47.1	---	---	---	612.0	91.7
1962-63	454.0	24.8	---	---	---	6.7	485.5	93.7
1963-64	311.7	26.5	4.4	---	---	36.5	379.1	97.1
1964-65	157.2	26.2	105.6	---	---	44.7	333.7	86.5
1965-66	26.1	---	38.7	---	---	3.8	68.6	97.0
1966-67	283.9	---	.9	14.2	---	18.4	317.4	96.1
1967-68	357.1	---	---	---	---	7.1	364.2	103.1
1968-69	268.8	---	45.4	---	---	13.1	327.3	101.9
1969-70	168.6	---	107.1	7.8	---	7.4	290.9	102.9
1970-71	315.4	---	91.6	3.2	---	11.6	421.8	91.8
1971-72	267.0	---	63.9	---	---	7.3	338.2	93.6
1972-73	135.8	---	15.4	0.1	---	1.5	152.8	90.8
1973-74	31.4	---	10.8	13.7	15.0	---	70.9	50.2
1974-75	485.8	---	6.5	---	3.8	---	496.1	122.9
1975-76	69.6	---	4.1	---	2.8	---	76.5	144.0
Transition quarter*	43.5	---	1.0	---	---	---	44.5	25.5
1976-77	709.8	---	---	---	4.5	---	714.3	109.7
1977-78	446.4	---	---	---	5.0	---	451.4	137.8
1978-79	244.3	---	---	---	6.3	---	250.6	134.1
1979-80	1,294.0	---	---	---	5.8	---	1,229.8	156.8

1/ CCC support purchases and related costs (for processing, packaging, transporting and storing) of dairy products, less proceeds from sales to commercial buyers for domestic use and for export, U.S. military agencies, foreign government and private welfare agencies, and Section 32 programs.

2/ CCC reimbursements to U.S. military agencies, Veterans' Administration and other participants.

3/ Expenditures of Section 32 funds to buy dairy products in the market and from CCC for school lunch and welfare uses.

4/ Purchases of dairy products at market prices under Sec. 709 of the Food and Agriculture Act of 1965 and under Sec. 4(a) of the Agriculture and Consumer Protection Act of 1973, for domestic school lunch and welfare uses.

5/ Value of Payment-in-kind certificates issued by CCC on exports of nonfat dry milk, butter and other high-milkfat products, and CCC cost of exports under Title I, P.L. 480 of dairy products not originating in CCC stocks.

6/ Expenditures under the program to increase milk consumption by children in schools, child-care centers, and similar institutions.

7/ Net receipt due to sales exceeding purchases.

8/ Receipt due to adjustment.

* Start of fiscal year moved to October 1 in 1976.

SOURCE: Agricultural Stabilization and Conservation Service, USDA.

Also, see Dairy Situation, DS-383, December 1980.

App. Table 3 --Dairy products under price support programs, USDA purchase price per pound, 1970-80 1/

Effective date of change	Butter		Nonfat dry milk, extra grade	Natural Cheddar cheese, Grade A or higher
	Grade A or higher			
	Chicago	New York	Spray	
	Cents			
4/01/70	2/69.846	70.75	27.20	52.00
4/01/71	67.784	68.75	31.70	54.75
4/01/72	67.708	68.75	31.70	54.75
4/15/73	60.922	62.00	37.50	62.00
8/10/73	60.922	62.00	41.40	65.00
4/01/74	60.570	62.00	56.60	70.75
1/04/75	68.070	69.50	60.60	77.25
4/01/75	69.193	70.75	60.60	79.25
10/2/75	79.693	81.25	62.40	85.00
4/01/76	85.817	87.75	62.40	90.50
10/01/76	90.817	92.75	62.40	92.50
4/01/77 4/	100.710	102.75	68.00	3/98.00
4/01/78	106.710	108.75	71.00	3/103.25
10/01/78	111.300	113.50	73.75	3/106.00
4/01/79	121.800	124.00	79.00	3/116.00
10/01/79	131.330	134.00	84.00	3/124.00
4/01/80	140.580	143.25	89.50	3/132.50
10/01/80	149.000	152.00	94.00	3/139.50

1/ Prices for bulk containers--butter, 64 and 68-pound packages; nonfat dry milk, nonfortified in 50-pound bags; and cheese, mostly in 40 and 60-pound blocks. See DS-325, May 1969, table 6 for 1949-61 data and DS-372, October 1978 table 2 for 1962-69. 2/ Prices varied slightly during the year due to changes in freight rates. 3/ 3 cents less for barrel cheese. 4/ Remain in effect at the start of the marketing year beginning 10/1/77.

Table 3 --Computations of parity equivalents for manufacturing milk, per 100 pounds, marketing years, 1970-80 1/

Marketing year beginning in: 2/	Base period 3/		Ratio	Adjusted base price 6/	Parity 4/		
	All milk wholesale	Manufacturing grade milk 5/			Index (1910-14=100)	Prices	
						All milk wholesale	Equivalent of manufacturing milk
	- - Dollars - -		Percent	Dollars		- - - Dollars - - -	
1970	4.57	3.65	79.9	1.78	386	6.87	5.49
1971	4.73	3.79	80.3	1.79	405	7.21	5.79
1972	4.89	3.94	80.6	1.82	423	7.70	6.21
1973	5.09	4.13	81.1	1.83	473	8.64	7.01
1974	5.39	4.43	82.2	1.80	549	9.88	8.12
1975	5.81	4.83	83.1	1.80	612	11.00	9.14
1976	6.26	5.26	84.0	1.82	664	12.10	10.16
1977 7/	6.75	5.72	84.7	1.88	685	12.90	10.93
1978	7.22	6.18	85.6	1.90	756	14.40	12.33
1979	7.74	6.73	87.0	1.91	862	16.50	14.36
1980	8.40	7.39	88.0	1.91	972	18.60	16.37

1/ See DS-325, May 1969, table 7 for 1948-61 and DS-372, October 1978 table 3 for 1962-69. 2/ Marketing year began on April 1 until shifted to October 1 in 1977. 3/ For the 10 calendar years immediately preceding. 4/ From issues of Agricultural Prices immediately preceding start of marketing year. 5/ Prior to November 1962, the "3-product" price series was used. 6/ 120-month average of farm prices for all wholesale milk divided by 120-month average of the Index of Prices Received by Farmers (both adjusted for supplemental payments), ending with December of previous year. Actual price received during 1910-14 was $1.61. 7/ Computations were identical on both April 1 and October 1.

App. Table 4 --Milk production and factors affecting supply, United States, selected years, 1955-80

Year	Milk cattle on farms, January 1 1/			Milk cows on farms, average during year	Milk production		Average prices received by farmers per 100 pounds		
	Milk cows and heifers that have calved	Milk cow replacements; heifers 500 pounds and over			Per cow	Total	All milk, wholesale	Milk eligilbe for fluid market	Milk, manufacturing grade
		Total	Per 100 cows						
	Thou.	Thou.	No.	Thou.	Lb.	Mil. lb.	Dol.	Dol.	Dol.
1955	21,320	6,832	32.0	21,044	5,842	122,945	4.01	4.50	3.15
1960	17,650	5,686	32.2	17,515	7,029	123,109	4.21	4.69	3.25
1965	15,380	4,780	31.1	14,953	8,305	124,180	4.23	4.63	3.34
1966	14,490	4,450	30.7	14,071	8,522	119,912	4.81	5.17	3.97
1967	13,725	4,215	30.7	13,415	8,851	118,732	5.02	5.43	4.06
1968	13,115	4,080	31.1	12,832	9,135	117,225	5.24	5.67	4.22
1969	12,550	3,990	31.8	12,307	9,434	116,108	5.49	5.87	4.45
1970	12,091	3,880	32.1	12,000	9,751	117,007	5.71	6.05	4.70
1971	11,909	3,843	32.3	11,839	10,015	118,566	5.87	6.19	4.86
1972	11,776	3,828	32.5	11,700	10,259	120,025	6.07	6.38	5.08
1973	11,622	3,872	33.3	11,413	10,119	115,491	7.14	7.42	6.20
1974	11,297	3,941	34.9	11,230	10,293	115,586	8.33	8.66	7.13
1975	11,220	4,087	36.4	11,143	10,350	115,334	8.75	9.02	7.63
1976	11,087	3,958	35.7	11,055	10,879	120,269	9.66	9.93	8.56
1977	11,035	3,888	35.2	10,974	11,181	122,696	9.72	9.96	8.70
1978	10,939	3,896	35.6	10,841	11,218	121,609	10.60	10.80	9.65
1979	10,839	3,936	36.3	10,777	11,471	123,623	12.00	12.20	11.10
1980 2/	10,810	4,166	38.5	**10,832**	**11,827**	**128,109**	* 12.95	* 13.12	* 11.97

Year	Dairy ration cost		Milk cow cost		Grain and other concentrates fed to milk cows 3/			Dairy pasture feed conditions as percent of normal	Alfalfa hay prices	
	Value per 100 pounds	Milk-feed price ratio 4/	Price received per head	Milk required to buy a cow	Total fed	Per cow	Per 100 pounds of milk produced		Received by farmers per ton	Paid by farmers per ton
	Dol.	Lb.	Dol.	Cwt.	Thou. tons	Lb.	Lb.	Pct.	Dol.	Dol.
1955	3.16		146	36	18,664	1,758	30.1	77	22.00	33.70
1960	2.92		223	53	19,821	2,259	32.2	82	21.00	31.60
1961	2.92		224	53	20,916	2,404	33.2	84	21.00	30.90
1962	2.95		221	54	21,617	2,533	34.3	80	21.40	30.60
1963	3.04		215	52	21,858	2,646	35.1	73	23.50	32.90
1964	3.03		209	50	22,464	2,800	35.9	73	24.00	32.60
1965	3.03	1.18	212	50	22,827	2,953	36.7	80	25.00	33.00
1966	3.15	1.30	246	51	22,569	3,000	37.6	78	24.70	33.40
1967	3.23	1.35	260	52	22,790	3,374	38.3	80	23.60	34.08
1968	3.10	1.47	274	52	22,886	3,519	39.1	83	23.00	32.94
1969	3.15	1.54	300	55	23,615	3,726	40.7	82	23.90	34.08
1970	3.28	1.53	332	58	24,870	3,979	42.4	81	24.70	34.69
1971	3.44	1.49	358	61	25,107	4,070	42.4	79	27.10	37.57
1972	3.52	1.52	397	65	25,162	4,298	41.9	80	31.45	40.15
1973	4.88	1.28	496	69	25,042	4,389	43.4	83	41.55	51.65
1974	6.23	1.22	500	60	24,586	4,384	42.6	75	52.58	63.58
1975	6.25	1.31	412	47	24,274	4,357	42.1	79	54.38	66.18
1976	6.30	1.37	477	49	25,083	4,545	41.7	70	60.81	72.16
1977	6.20	1.39	504	52	25,518	4,709	42.1	72	60.57	74.25
1978	6.08	1.53	675	64	26,082	4,806	42.8	76	52.25	5/
1979	6.68	1.54	1,040	87	---	---	---	82	60.67	5/
1980 2/	7.18	* 1.49	* 1,181	91	---	---	---	* 71	71.99	5/

1/ Prior to 1965, estimated by Livestock Section, ERS.
2/ Preliminary.
3/ On farms where milk or cream was sold. Beginning 1966, data are for all farms where milk was produced.
4/ Pounds of 16 percent protein ration equal in value to 1 pound of milk.
5/ Discontinued series.
* Simple average excluding December 1980.

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App. Table 5--Milk equivalent: Domestic civilian disappearance, commercial and noncommercial sources, total and per capita, United States, 1955, 1960, and 1965-80

Year	Civilian disappearance					Total military utilization 2/	Consumption excluding donations from USDA supplies		
	Consumed on farms 1/	USDA donations to civilian channels	National School Lunch and Special Milk Programs	Commercial sources	All sources		Civilian	Military	Total
	Million pounds								
1955	11,359	3,102	1,394	98,697	114,552	3,329	111,450	2,627	114,077
1960	6,610	2,040	2,455	105,259	116,364	2,532	114,324	2,228	116,552
1965	3,913	3,593	3,215	107,978	118,699	2,819	115,106	2,387	117,493
1966	3,492	1,129	3,311	108,804	116,736	2,376	115,607	2,376	117,983
1967	3,152	3,113	3,338	103,812	113,415	2,117	110,302	2,117	112,419
1968	2,841	4,114	3,376	103,332	113,663	3,295	109,549	2,186	111,735
1969	2,570	4,545	3,435	102,682	113,232	2,696	108,687	2,051	110,738
1970	2,306	4,187	3,462	103,257	113,212	2,419	109,025	1,788	110,813
1971	2,117	4,526	3,494	103,782	113,919	2,031	109,393	1,608	111,001
1972	1,914	3,906	3,500	106,563	115,883	1,671	111,977	1,258	113,235
1973	1,766	3,521	3,500	106,721	115,508	1,257	111,987	1,257	113,244
1974	1,643	1,459	3,500	107,376	113,978	1,137	112,519	1,137	113,656
1975	1,505	2,296	3,500	108,057	115,358	1,075	113,062	1,075	114,137
1976	1,404	478	3,500	111,362	116,744	1,013	116,266	1,013	117,279
1977	1,295	2,986	3,500	110,452	118,213	996	115,227	996	116,223
1978	1,174	2,275	3,500	113,413	120,362	977	118,087	977	119,064
1979	1,044	2,310	3,500	115,753	122,607	977	120,297	977	121,274
1980 3/	1,000	2,766	3,500	115,513	122,779	977	120,013	977	120,990

Year	Per capita civilian disappearance 4/					Civilian consumption excluding donations from USDA supplies
	Consumed on farms 1/	USDA donations to civilian channels	National School Lunch and Special Milk Programs	Commercial sources	All sources	
	Pounds					
1955	70	19	9	608	706	687
1960	37	11	14	591	653	642
1965	20	19	17	564	620	601
1966	18	6	17	563	604	598
1967	16	16	17	532	581	565
1968	14	21	17	525	577	556
1969	13	23	17	516	569	546
1970	11	21	17	512	562	541
1971	10	22	17	508	558	536
1972	9	19	17	516	561	542
1973	8	17	17	513	555	538
1974	8	7	17	512	544	537
1975	7	11	17	511	546	535
1976	7	2	16	523	548	546
1977	6	14	16	514	551	537
1978	5	11	16	524	556	545
1979	5	11	16	530	561	551
1980 3/	5	13	16	524	557	544

1/ Includes a small amount of farm-churned butter sold. 2/ Includes any quantities used by military in civilian feeding programs abroad. 3/ Preliminary. 4/ Aggregate in each category divided by total civilian population.

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