

VOLUNTARY MILK SUPPLY MANAGEMENT

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What is a Voluntary Milk Supply Management Program?

Voluntary production control programs are designed to maintain a balance between milk production and consumption by regulating milk production through voluntary participation in a government program. Success in striking a balance between production and consumption using a voluntary program depends on the attractiveness of the incentive to participate, and the consequences of non-participation. If the consequences for not participating are so severe that participation is clearly the most economical choice for most folks, the program essentially becomes mandatory even if a signup is required.

Voluntary supply control programs in agriculture have been used extensively since the 1960s. To qualify for deficiency payments, loan rates, or the farmer-owned grain reserve, grain farmers have been required to set aside land from production in most years since 1978. For dairy, a simple voluntary supply control program was first authorized by the Omnibus Budget Reconciliation Act of 1982. Producers could receive a refund of a second 50¢/cwt assessment if they reduced their milk marketings by a specified amount below their base. A more sophisticated program, the Milk Diversion Program (MDP) of the Dairy Production Stabilization Act of 1983, provided payments for a 15-month period (January 1, 1984 through March 31, 1985) to those producers who contracted with USDA to reduce their marketings from five to 30 percent below their base.

The Dairy Termination Program (buyout or DTP) authorized in the 1985 Food Security Act (FSA) provided payments to the dairy producer who withdrew from milk production for five years and agreed to slaughter or export his or her entire dairy herd. The FSA also gave discretionary authority to the Secretary of Agriculture to implement a Milk Diversion Program or a Dairy Termination Program in 1988, 1989, or 1990 if CCC purchases were projected to be more than five billion pounds of milkfat equivalent.

The 1990 Omnibus Budget Reconciliation Act provided for another refundable dairy assessment program. The program is effective for a five-year period, 1991-1995.

Alternative Voluntary Supply Management Programs

Alternatives that provide some type of economic inducement to control production for dairy farmers include incentives to reduce milk marketings, to cull cows or dairy heifers, or to retire the entire farm and individual producer from dairying, either permanently or for a stipulated period of time. A discussion of these alternatives follows, with examples illustrated in Table 1.

Table 1. Examples of Voluntary Milk Supply Management Programs

Type	Example
Refundable Assessment	1982 Omnibus Budget Reconciliation Act 1990 Omnibus Budget Reconciliation Act (Dairy Collection Plan)
Milk Diversion Program	1983 Dairy Production Stabilization Act (Milk Diversion Program)
Whole Farm or Dairy Retirement	1985 Food Security Act (Dairy Termination Program)
Class I Base Plan	1965 Food and Agriculture Act and extended in 1973 and 1977, 1969 Gonsalves Milk Pooling Act (passed in 1967)
Cull Cow or Heifer Program	never used in U.S.

Refundable Assessments: Under refundable assessment programs, all dairy producers are assessed so much per hundredweight on all milk marketed. At the end of the assessment period, normally one year, those producers who reduced or have not increased their milk marketings from a base period may apply for a refund of the assessments. The refund provisions may influence some producers not to increase their milk marketings. The economic gains from not increasing milk marketings for these producers need to be greater than returns from expanding milk marketings.

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The 1982 Omnibus Budget Reconciliation Act was the first refundable assessment program used for dairy. Under the act, the Secretary of Agriculture was permitted to make two deductions of 50 cents per hundredweight each during each fiscal year between 1982 and 1985. The first assessment was non-refundable, but the second assessment would be fully refunded to producers whose marketings were at least 8.4% below their base period marketings.

The second refundable assessment program for dairy was provided by the 1990 Omnibus Budget Reconciliation Act. The act provided for assessments on all milk marketings of five cents per hundredweight during 1991, and a minimum of 11.25 cents per hundredweight for the period of 1992-1995. Producers who do not market more milk than what was marketed in the previous year may request a refund of the current year's assessment after the close of the year (January-March 15). On the following May 1, the 11.25 cents per hundredweight assessment is adjusted upward for the remaining eight months of the year by an amount necessary to collect the dollar value of these refunds. This is an annual procedure for the 1992-1995 period.

Approximately a third of the dairy producers were eligible and applied for a refund of 1991 assessments. The refunds totaled \$23.164 million. The act required that any refunds in one year had to be recovered in new assessments the next; in essence, this means that farmers who increased sales had to pay higher assessments so that the total assessment revenue goal was met. Hence, on May 1, 1992, the Secretary increased the assessment of 11.25 cents per hundredweight for the remaining eight months of 1992 by 2.4 cents, to 13.65 cents per hundredweight.

Assessment programs have been used in the past to generate revenue and offset government costs. It is probably safe to say that provisions to refund assessments were made more out of a sense of fairness than to explicitly affect production decisions. Nevertheless, the refundable assessment approach could be used to more aggressively affect the production decisions of individual farmers.

Milk Diversion Program: Generically, a program like the Milk Diversion Program uses incentive payments to encourage dairymen to reduce or not increase their milk marketings relative to a base. Reduction, if needed, can be achieved through cow culling, lower production per cow, or increased farm use of milk. Current marketings are measured against a quota determined from a producer's historical base, such as the average milk marketed during the past two or three years.

The 1984-85 Milk Diversion Program (MDP) offered direct payments to those producers who agreed to reduce their marketings from five percent to 30 percent below their established base, for a 15-month period (January 1, 1984 - March 31, 1985). The base was either an individual producer's annual average 1981-82 marketings or 1982 marketings. In return for their reductions, participants were paid \$10 per

hundredweight on all "diverted" milk, i.e., the difference between their base and actual milk sales during the program period.

Almost 38,000 producers signed contracts to reduce milk marketings under the MDP. Participants appeared to fall primarily into two categories: those with current production already below their base and those whose fixed costs were low relative to their total costs.

The MDP invited what has come to be known as "selling air," i.e., farmers could cash in on reductions made in between the time of the base-forming period and the time the MDP actually took effect, without making cuts in their current production. Based on 1983 milk production (before the MDP began) the average participant had already achieved 20 to 25 percent of his contracted reduction from his 1981-82 base marketings. Of course, this made it easier to achieve the required marketings for 1984.

The factor of fixed cost vs. variable cost has implications for how attractive such a program can be. For farmers whose costs mostly went up and down with production, they could cut production and cut cost. For farmers who had high fixed costs, say for example high debt payments, cutting production didn't help cut costs as much. Farmers whose fixed costs were low relative to their total costs were penalized less for operating at less than full capacity. Hence, their incentive to participate, or the attractiveness of the \$10 per hundredweight diversion payment, was greater.

In regions where a relatively large share of milk production costs are tied to land, capital investments, and family labor, such as the traditional milk producing regions of the Upper Midwest and Northeast, participation in the MDP was quite low. In some regions, such as the Far West, purchased feed and hired labor are a relatively large share of production costs, but apparent cost incentives were often offset by the fact that many producers in this area had expanded too much to be able to afford to cut back below their base production.

To encourage producer participation, diversion payments need to be relatively high, at least enough to cover the net return and fixed costs associated with the "diverted" milk. For the same per hundredweight payment, producers who purchase most of their feed and use hired help, for example, will typically find it more profitable to participate than producers who raise most of their feed and provide their own labor.

Because it is usually not very difficult for a participant in such programs to increase production in a relatively short period of time after the program expires, supplies are likely to rebound almost immediately after the program is terminated. This is what happened with the MDP. The program was in effect from January 1, 1984 through March 31, 1985. Milk production declined from 139.7 billion pounds for 1983 to 135.5 billion pounds for 1984. A new production record was set in 1985 at 143.1 billion pounds.

Whole Farm Retirement or Dairy Termination Program:

The Conservation Reserve Program (CRP) has been used to take highly erodible cropland out of production. The Food Security Act of 1985 included provisions for enrolling farmers with highly erodible cropland on a bid basis. In essence, participating farmers rent their land to the government. This land would be ineligible for farming for ten years. Program participants receive annual rental payments.

A voluntary supply control program could also provide payments for the complete retirement of milk producing farms. Moreover, one likely condition for whole farm retirement would obligate the retired unit to remain out of dairy production for a given number of years, perhaps forever. Hence, a major advantage of whole farm retirement programs over a milk diversion program is that the entire dairy production unit is eliminated and has a harder time coming back.

The Dairy Termination Program (DTP) authorized under the Food Security Act of 1985 was a specific type of retirement program. Although whole farm retirement was not required, the DTP took dairy cattle and milking facilities out of production. The program provided payments to farmers who voluntarily agreed to cease producing milk for five years. Farmers were invited to submit bids on how much the government would have to pay them to quit producing milk over this five-year period. The program objective was to sign up farmers whose sales equalled milk marketings of 12 billion pounds, about 8.7 percent of the U.S. total. This was achieved by the USDA's acceptance of 13,988 of the 39,534 bids from producers. All farmers bidding \$22.50 per hundredweight or less were accepted. Those farmers with accepted bids were required to dispose of all dairy cattle by either slaughter or export during the period between April 1, 1986 through September 30, 1987 and to remain out of dairying for five years. The dairy facilities also could not be used for dairying during the five-year period.

The proportion of producers submitting bids varied substantially from a low of 7.6 percent in Nevada to a high of 46.8 percent in Wisconsin.¹ Average bids ranged from \$45.92 per hundredweight in New Mexico to \$124.72 in Wisconsin.² In general, the percentage of producers submitting bids was lowest in the Northeastern states and highest in the Northern Plains, Appalachian and Southeastern states. Submitted bid levels were lowest in the New England, Delta, Mountain and Pacific states and the highest in the Middle Atlantic and Lake States.

Kaiser and Lee analyzed the key factors determining the bid decisions under the DTP.³ In general, producers in states with lower profits in dairying, higher levels of farm debt, higher paying nonfarm jobs, younger dairy farmers, a higher

proportion of USDA assigned base relative to actual marketings, and a larger proportion of producers who participated in the MDP were more likely to submit bids in the DTP than producers in states where the opposite was true. Furthermore, producers in states that had relatively less farm debt, lower unemployment rates, higher proportion of variable costs to dairy sales and greater participation in the MDP submitted lower average bids than those in states with opposite conditions. As a result, states having a higher percentage of milk production enrolled in the DTP were characterized as having lower profitability in milk production, larger relative levels of farm debt, higher paying nonfarm jobs, smaller historical increases in milk production, and higher assigned contract bases relative to actual marketings than states where the opposite was true.

Whole herd buyout programs should be more effective in reducing production than milk diversion programs because it is difficult and costly for participants to return to milk production after being completely out of dairying for a lengthy period. It is not known how many DTP participants resumed dairying after their five-year commitment expired, but it does not appear to have been a prominent or noticeable factor in national markets.

The March 31, 1988 report by the National Commission on Dairy Policy recommended that standby production control authority should be permanently available when acceptable price changes alone will not balance supply and demand.³ Under their plan, the Secretary of Agriculture would have authority or be required if CCC purchases exceed a specified level, to implement one of two production control programs: a dairy termination program operating under the general guidelines authorized in the Food Security Act of 1985, or a two-tier pricing program. If a DTP is implemented, the report recommended that the Secretary of Agriculture should accept bids in each state at levels assuring that a uniform percentage of production capacity is reduced in each state, that adverse effects of cattle slaughter on the beef cattle industry are minimized, and that participants are prohibited from reinvesting in the milk production industry in ways that circumvent the program's intent.

Other possible implementation provisions for another DTP include the consideration of the adequacy of regional grade A milk supplies to meet fluid requirements and the giving of priority to dairy operations having relatively more replacement heifers. Milk buyers, including cooperatives, in deficit fluid milk areas strongly object to voluntary programs that reduce their milk supplies. Accepting bids from operations with relatively more replacement heifers would have a greater long-term impact on further increases in milk production.

¹ USDA, AMS, Dairy Division, Dairy Market News, Vol. No. 53, Report No. 14, 4/4/86, p. 8.

² Kaiser, Harry M. and Lee, David R., "An Aggregate Analysis of Bid Decisions for the Dairy Termination Program," North Central Journal of Agricultural Economics, Vol. 9, no. 2, July 1987, pp. 259-69.

³ Report and Recommendations, National Commission on Dairy Policy, Washington, DC, March 31, 1988, pp. 45-48.

Class I Base Plans: Legislation for federal milk marketing orders was amended in 1965 to allow the use of class I base plans upon a two-thirds vote of affected producers. (Bloc voting on the part of cooperatives was not allowed.) These plans were a way of pooling the proceeds of the entire market according to an individual's "share" of the class I market. In a sense, they involved two-tiered pricing at the farm level corresponding to classified pricing at the market level. Producers received a base or quota corresponding to their share of market class I sales plus a necessary reserve. Average milk production for the three most recent years was used to calculate a producer's base. Deliveries within quota received the base price; over-quota deliveries received the class III (manufacturing or surplus price).

Class I base plans had the structure of a voluntary supply management program but did not have much effect on production for two reasons. First, the over-quota price was not low enough to discourage many farmers. Second, the revolving base built in a certain amount of growth. That is, each year a producer's base was recalculated by dropping the most distant year's production and adding the most recent year's production. Also, new producers were assigned a partial class I base. The effect of this plan was more to reward producers who had been in the market and increased their output little by giving them a slightly higher blend price, but the lower blend for new or expanding producers didn't discourage production much.

Although this plan did not reduce or control production, the way it was set up offers some insights. For example, class I bases were freely transferrable. Producers wishing to expand or increase their average price could purchase additional quotas from other producers. In some instances, base was exchanged through livestock auction markets. The common market price for additional base was \$8 to \$11 per hundredweight, with some prices reported as high as \$20.⁴ Purchasing base was an additional cost of entry for new producers as well as an added cost of expansion for existing producers.

The 1981 farm bill did not extend authorization for class I base plans, mainly due to lack of interest. Only one order was using a class I base plan before 1981 (Georgia), and only one other order (Puget Sound) had previously established a plan. Also, class I base plans were not an effective incentive to reduce milk production. The price for over-quota marketings by a producer was still higher than variable costs, and in some cases, higher than full costs of production.

California Program: The State of California has its own milk pricing system. The California Milk Pooling Program includes a quota feature, but like the old federal order class I base plan, it does more to determine a producer's share of the marketwide pool (price) than it does to limit or control production.

The California legislature passed enabling legislation in 1969. Legislation mandated a milk pooling program having certain basic elements. Specific features of the program, then and now, are approved through a statewide referendum of dairy farmers. When the program was first instituted, producers were assigned a production base and a quota according to their milk shipments in a base period covering 1966 and 1967. New producers obtain quota and existing base holders add to their quota by purchasing it. Quota becomes available as farmers choose to sell it, often at the farmer's retirement. The state may create new quota or retire existing quota.

Under California's classified pricing and pooling, a statewide quota blend price is calculated in a fashion like that used in federal orders (see Leaflet O-1 for a brief discussion of federal order pricing). The quota blend price is calculated from the pooled revenue of milk used in the four use classes prescribed under their pricing system. All of the state's class 1 milk is assigned to the quota pool first. Next the class 2 milk is assigned, followed by class 3 and then class 4 as needed, until the milk assigned to the pool equals the amount of quota milk. In this way, the quota blend is a blend of the highest possible class use values, given the class prices, the amount of milk used in each class, and the total amount of quota. The over-quota price is based on the classified revenues not assigned to the quota milk.

To be precise, the California plan requires more detailed explanation than we have room for here (see Leaflet O-10), but the basic implication is as follows. The quota price is significantly higher than the over-quota price. The over-quota price is typically very close to the lowest use value (class 4) price. Each producer receives an average of the quota and over-quota price, depending on how much his/her milk sales exceeded his/her quota. Farmers whose sales are less than or equal to their quota receive the full quota price. Farmers who have no quota receive only the over-quota price. Any combination in between is possible, and in fact the full range exists among California producers.

As with the old federal order class I base plans, the California program does not directly limit milk production and the price disincentive represented by the lower, over-quota price has not been low enough to stop production growth. In fact, some California producers have no quota and hence sell all their milk at the over-quota price. Thus, although the California program has many of the features of a supply control program, it is not operated so as to significantly control production. Rather, it is operated as a way to allocate the statewide pool of revenues obtained from the sale of milk under a classified pricing system.

Cull Cow Programs: Milk production may be reduced through incentive payments to producers to cull more cows than they would normally. For example, a producer could be paid some sum by the USDA for each additional cow culled.

⁴ Correspondence with AMS, USDA

Two major concerns have been expressed about a cull cow program. First, what is additional culling? Would producers report the culling of beef cows as well as dairy cows? Are the cows culled in addition to normal culling? Clearly, a large-scale cull cow program would be difficult to monitor and verify. Second, will additional culling depress market prices for beef (and hog) producers? About 25 percent of the beef supply comes from dairy cattle, and about 35 to 38 million head of beef are slaughtered annually. Two or three million more cull dairy cows added to this total could depress beef prices in the short run.

The National Cattlemen's Association has strongly opposed a new DTP for this reason, arguing that the additional milk cows sold under the DTP resulted in short-run depressed cattle prices. However, in the long run a reduced dairy herd eventually leads to fewer culled dairy cows and fewer dairy bull calves to be fed out as dairy beef. Moreover, most any program to reduce milk supplies, even price cuts, will result in cow culling. The seasonal pattern and speed of culling is probably a legitimate issue.

Another factor to be considered is that cow cull programs do not guarantee that milk production will be reduced, nor do they measure producer performance relative to milk production. It is simply assumed that increased culling will lead to lower production. The remaining better cows and better managed cows could still produce more milk. This happened with many participants in the Milk Diversion Program. It is a result that is also similar to what often occurs with acreage reduction programs and the production of feed and food grains.

As a result of these concerns, a cull cow program has never been implemented.

Heifer Incentive Programs: As with a cow culling program, milk production may be reduced over time with incentive payments to producers for selling dairy heifers or heifer calves. Fewer replacement heifers would eventually lead to a smaller dairy cow herd. Two related objections to heifer incentive programs are put forward. First, these programs are in conflict with sound dairy herd management, which encourages the regular replacement of old stock with new stock. Dairy farmers should breed for genetic improvement. Genetically improved heifers should be used to replace older and poorer performing milk cows. Second, dairy farmers may select lower quality sires with which to breed their cows because heifer calves may be slaughtered under the heifer incentive program anyway. A case could develop where cows are bred simply to create heifers to be sold under the program. Like the cull cow program, a heifer incentive program has never been implemented, and there are no

indications that such a program will receive serious consideration in the future.

Consequences of Voluntary Controls

Voluntary supply control programs can be devised to achieve significant reductions in total milk marketings in times of surplus. This would result in higher prices to dairymen as well as reduced costs to the government. A drawback to voluntary programs is the cost of buying reduced production. Yet, it may be less expensive for the government to pay dairymen not to market surplus milk than to purchase and store surplus dairy products. For example, a \$10 per hundredweight per year diversion payment for reduced marketings under the MDP or \$22.50 per hundredweight over five years under the DTP may cost the government less than purchasing and storing dairy product surpluses. Obviously, the specifics of a new program could be redesigned, but it appears that the MDP was not particularly cost effective (due to the problem of "buying air"), but the DTP was very cost effective.

An advantage of voluntary programs is that they place fewer restrictions on individual producers. However, if producer incentives are adequate, voluntary production control programs can be an effective way to adjust milk supplies.

Another advantage of voluntary production control programs is that they are more likely to be temporary than permanent. As a result, these programs do not inherit the problem of capitalizing the right to produce milk into the cost of production as do some mandatory programs.

One potential problem with any production control program is that they may cause geographic milk shortages. For example, producer participation in both the 1984-85 MDP and the 1986-87 DTP was greatest in the southern part of the United States. Producers in the South have a higher variable cost of production relative to price, making participation attractive. As a result, a very tight fluid milk supply developed in the South during the summer and fall. Fluid milk from outside the area was purchased at relatively higher prices to meet the needs of fluid milk processors. Thus, a voluntary supply reduction program could shift milk production in ways contrary to basic, underlying economic forces. The MDP and DTP made it difficult for some high fluid milk utilization markets to obtain sufficient supplies of grade A milk for beverage needs. Higher consumer prices for beverage milk in these markets would also result. Provisions of voluntary programs could, however, be structured to eliminate or reduce this potential problem by adding selection or participation criteria beyond just taking the lowest bid or offering the same price incentive.