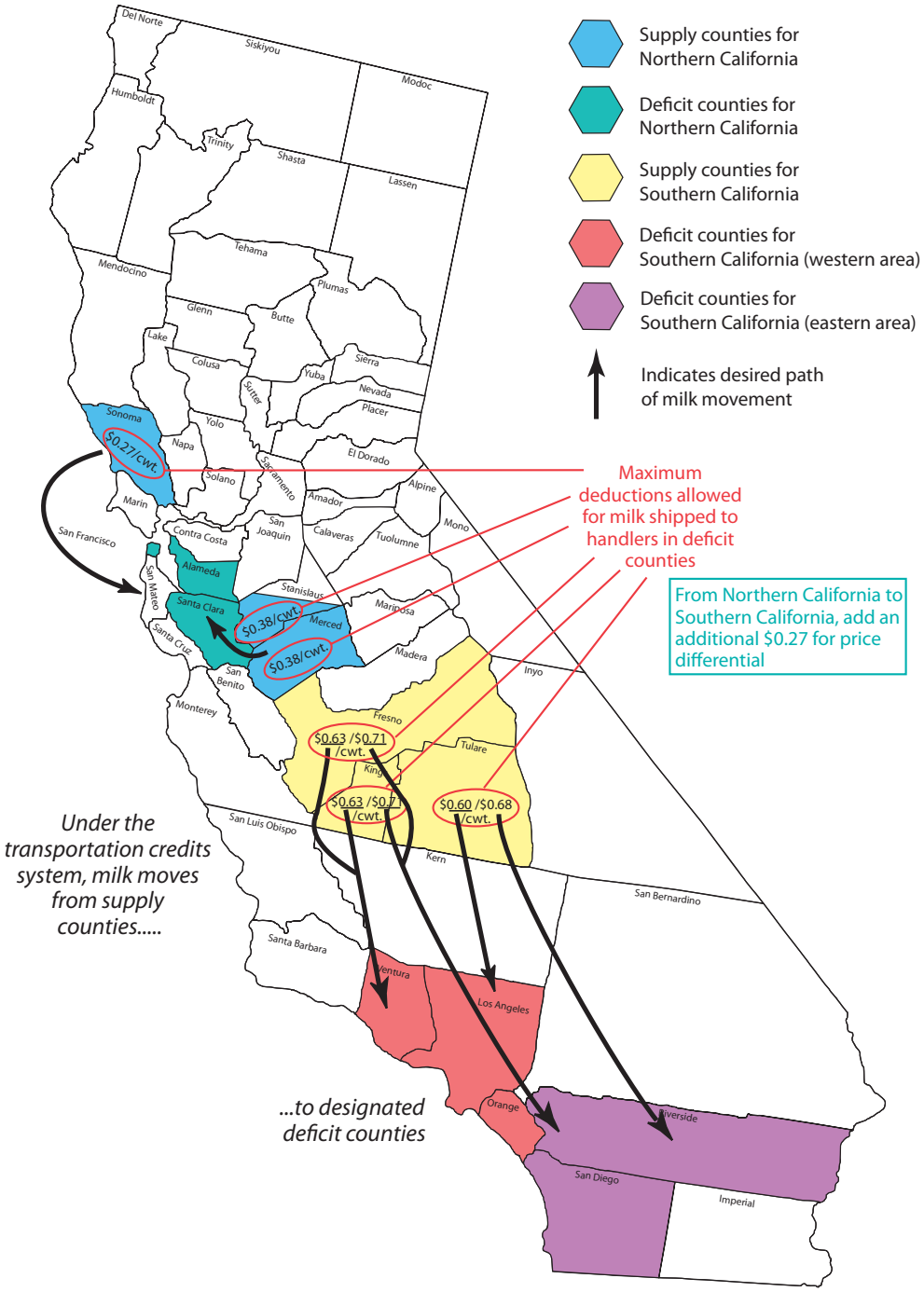
Options to Facilitate Orderly Movement of Milk to California's Fluid Markets



California Department of Food and Agriculture
Dairy Marketing Branch
1220 N Street, Sacramento, CA 95814
Phone (916) 341-5988 / Fax (916) 341-6697
Website: http://www.cdfa.ca.gov/dairy
Email: dairy@cdfa.ca.gov

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Introduction

The Milk Pooling Plan, which instituted statewide pooling in 1969, fundamentally changed the means of distributing revenues from milk sales to dairy farmers. Prior to 1969 with individual plant pools, producers competed for contracts with Class 1 plants. In contrast to current pooling regulations, no mechanism existed to compel producers to share the higher revenues from these sales with other producers. The Milk Pooling Plan introduced the concept of equitable producer prices by sharing of pooling revenues from milk sales among all producers in the state. However because statewide pooling eliminated direct contractual arrangements between producers and plants, pooling also removed the incentive for producers to ship milk to fluid plants.

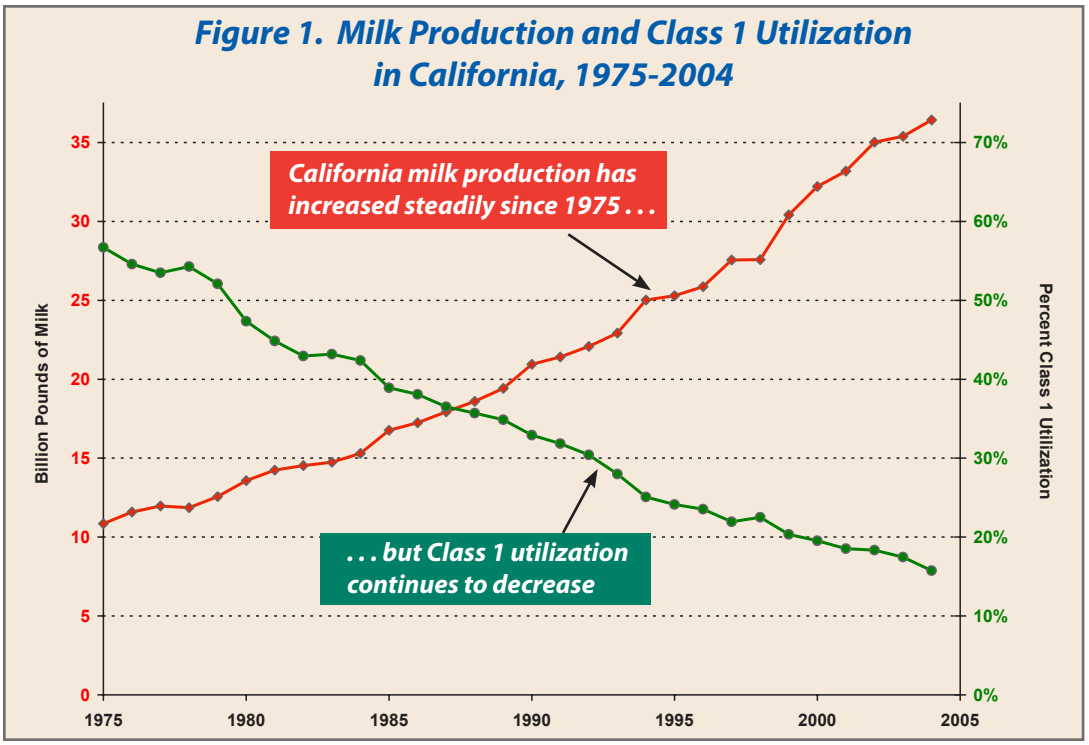
Because producers locate in rural areas for the most part, under statewide pooling, producers have been inclined to minimize hauling costs by shipping milk to local plants, which tend to be manufacturing plants. These changing milk movement patterns can force fluid milk plants to develop milk shipment incentives, usually through "over order payments,"[1] to attract adequate milk supplies. The potential need for bottling plants to offer premiums to obtain milk appears to run counter to intuition because Class 1 (fluid) utilization in California has decreased significantly even as California's milk supply has continued to grow (Figure 1). During months of low milk production, a fluid plant's task of attracting an adequate milk supply can become even more difficult. This paper reviews the current regulatory methods used to encourage milk shipments to fluid milk plants and explores some possible alternative procedures.

Background

The basic purpose of the Stabilization and Marketing Plans is to promote and encourage the intelligent production and orderly marketing of milk, primarily through establishing minimum prices. Underlying this purpose is a more specific goal to minimize economic disruptions and waste in the production and marketing of milk. This goal is achieved primarily through the establishment of minimum prices paid by processors to dairy farmers based on all relevant economic factors. Minimum farm prices tend to ensure an adequate and continuous supply of milk, at prices to consumers that are fair and reasonable.

In 1965, legislation was enacted which authorized the establishment of Milk Pooling Plans. Four year later, the creation of the Milk Pooling Plan fundamentally altered the means of distributing milk sales revenues to dairy farmers. Prior to 1969, the revenues producers received were largely dependent upon the receiving processors' utilization of the producers' milk (individual plant pools). Producers received the highest prices for milk used in Class 1 products, with lower prices for manufactured products. During the late 1960s, producers could increase their incomes by obtaining the Class 1 contracts and terminating their lower–valued contracts with manufacturing plants. Market instability plagued this system because a large number of dairy producers competed fiercely for the limited number of highly coveted Class 1 contracts. A system was needed to reduce the instability in milk markets both by removing dairy producers' incentive to obtain Class 1 contracts by any means possible and by removing the fluid processors ability to play one producer against another.

Figure 1. Milk Production and Class 1 Utilization in California, 1975-2004



A statewide milk pooling plan distributes milk sales revenues equitably among producers within a prescribed geographic area (the entire state in the case of California). A fundamental tenet of a milk pooling plan is that it makes no difference whether or not a producer has a Class 1 contract because the plan pools all revenues and redistributes them according to the payout mechanism specified. The California statewide pooling system uses a two–tiered pricing mechanism. "Overbase" is the basic pool price. "Quota" is an entitlement that allows a producer to receive a price that is $1.43 to $1.70 per hundredweight higher than the overbase price, depending on ranch location (see discussion of regional quota adjusters on page 6).

Adopting statewide pooling of milk sale revenues required concessions by dairy producers. In particular, dairy producers pledged that enough milk would be available to satisfy the higher value Class 1 market in exchange for the right to pool statewide all milk sale revenues. Nevertheless, an unintended consequence of instituting the Milk Pooling Plan was the removal of the primary economic incentive for producers to market their milk to a fluid plant. A variety of mechanisms have been made effective to ensure a predictable and sustainable flow of milk to fluid processing plants.

Mechanisms Currently Used to Encourage Shipments to Fluid Milk Plants

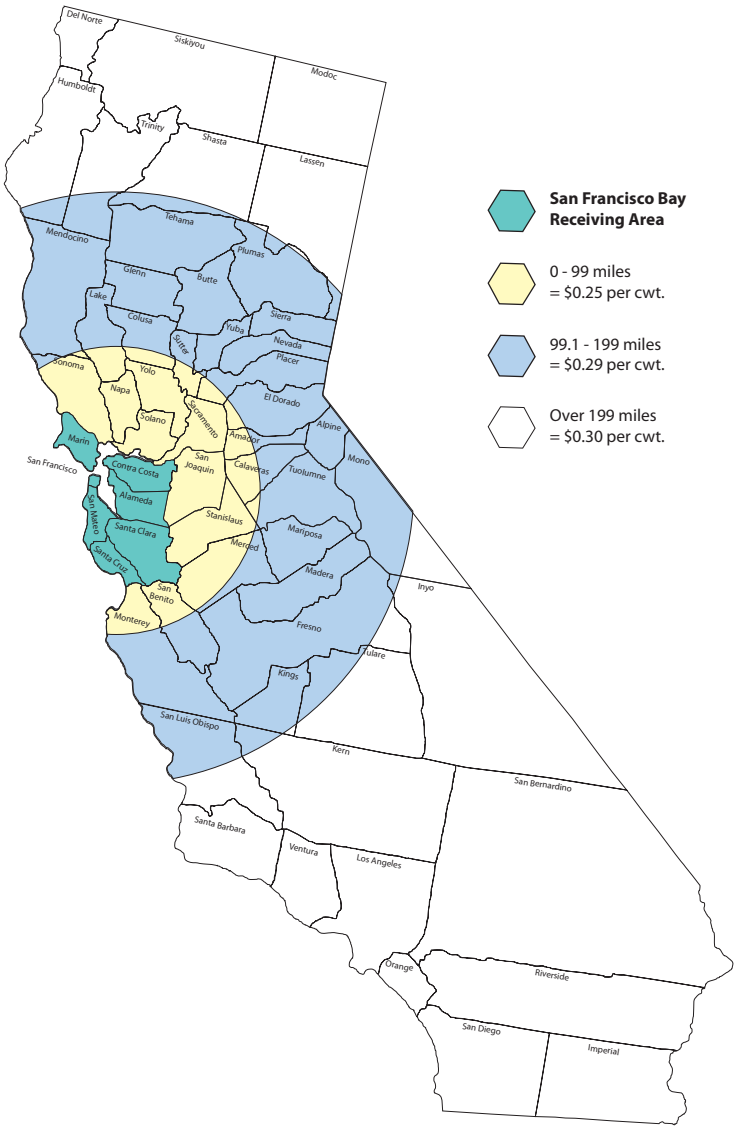
Basic Statewide Pool Requirements

The Milk Pooling Plan requires producers to ship milk to a pool plant if the producer wishes to participate in the statewide pool and receive pool prices. In addition, the pool plant must have direct or indirect Class 1 or mandatory Class 2 usage each month. Neither statute nor the Pooling Plan, however, specifies a minimum quantity of milk processed as Class 1 or mandatory Class 2[2] to qualify the plant.

Transportation Allowances

In June 1983, a system of "transportation allowances" and "regional quota adjusters" (RQA) replaced the old system of "location differentials."[3] Transportation allowances partially compensate producers for the cost of hauling milk from a producer's ranch to qualified plants. These allowances apply to all market (Grade A) milk moving from dairy farms to plants in qualifying areas that process more than 50 percent of the milk received into Class 1, Class 2, and/or Class 3 products (Figures 2, 3, 4, and 5). In addition, cooperative organizations receive transportation allowances on shipments to their plants if the plant is located in a deficit area and if the plant supplies 40 percent of its receipts for Class 1 usage.

Figure 2
Transportation Allowance System in California
Linear Distances from San Leandro



Transportation Credits

In 1981, transportation credits were introduced to reduce the cost of interplant shipments. At one time, marketing areas were more numerous, and differences in hundredweight prices among milk marketing areas were sufficient to cover the cost of moving milk from one processing plant to another. With marketing area consolidation, however, these price differences were no longer capable of covering the cost of interplant shipments. Transportation credits offset some of the cost of hauling milk assigned to Class 1 usage, but only from plants in designated supply counties to plants in designated deficit counties (Figure 6).

Figure 3
Transportation Allowance System in California
Linear Distances from Vallejo

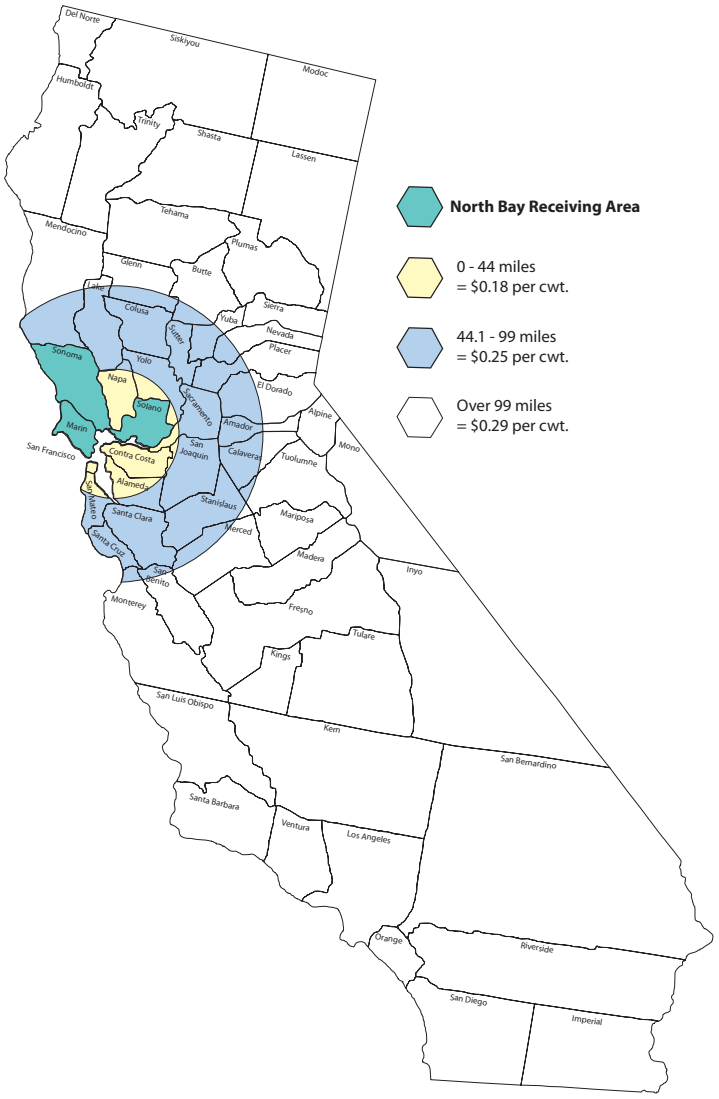
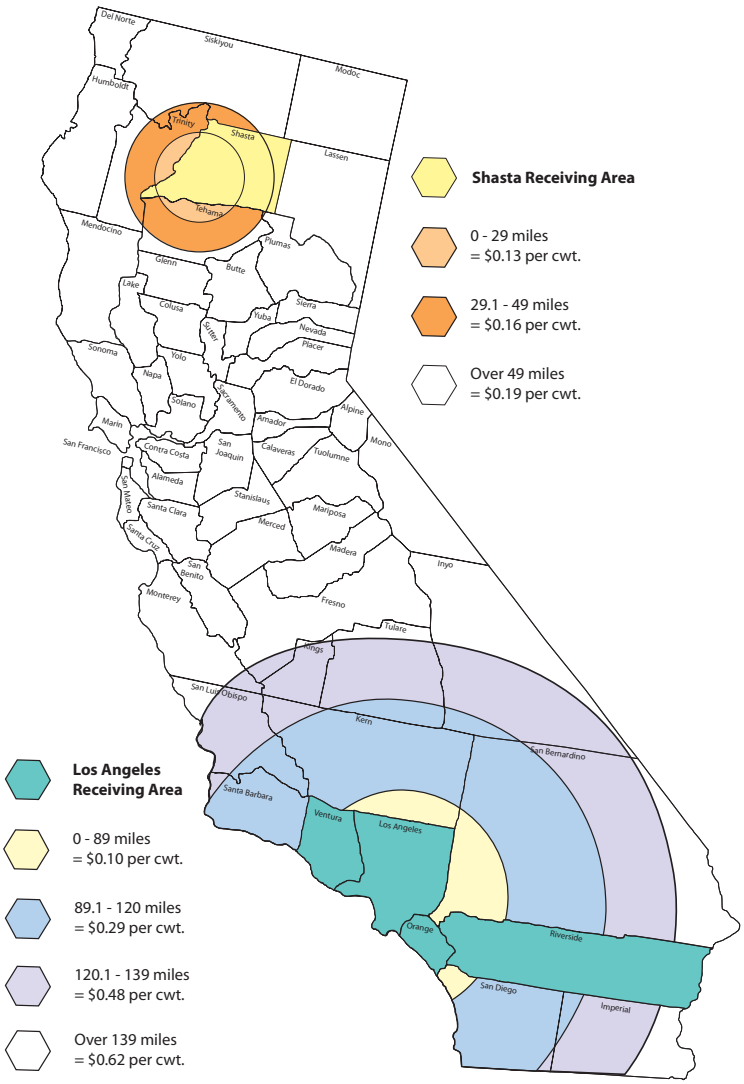


Figure 4
Transportation Allowance System in California
Linear Distances from Redding and Los Angeles



Call Provisions

Milk movement requirements, commonly referred to as "call provisions", were instituted in 1979. They function by bestowing a ranking system for quota milk use when insufficient milk supplies are available to meet the demand for fluid milk. Basically, call provisions require that manufacturing plants participating in the pool (i.e., plants receiving milk entitled to the quota price) must make a portion of the milk received available to plants processing Class 1 dairy products upon request. Call provisions allow fluid plants to request milk from manufacturing plants, thus lessening the impact of producer shipment decisions. In other words, it does not matter to which plant a producer ships milk; call provisions give qualifying Class 1 plants the ability to obtain milk from manufacturing plants when needed. The diversion of milk to a fluid milk plant, however, will reduce a manufacturing plant's processing volume and may reduce the plant's efficiency. When fixed operating costs must be allocated to a decreased manufacturing volume, the manufacturing plant may require high "give up charges"[4] on milk diverted to a fluid plant.

Each year prior to August 1, the Department assesses market conditions for fluid milk. If conditions warrant,

Figure 5
Transportation Allowance System in California
Linear Distances from Sacramento and San Diego

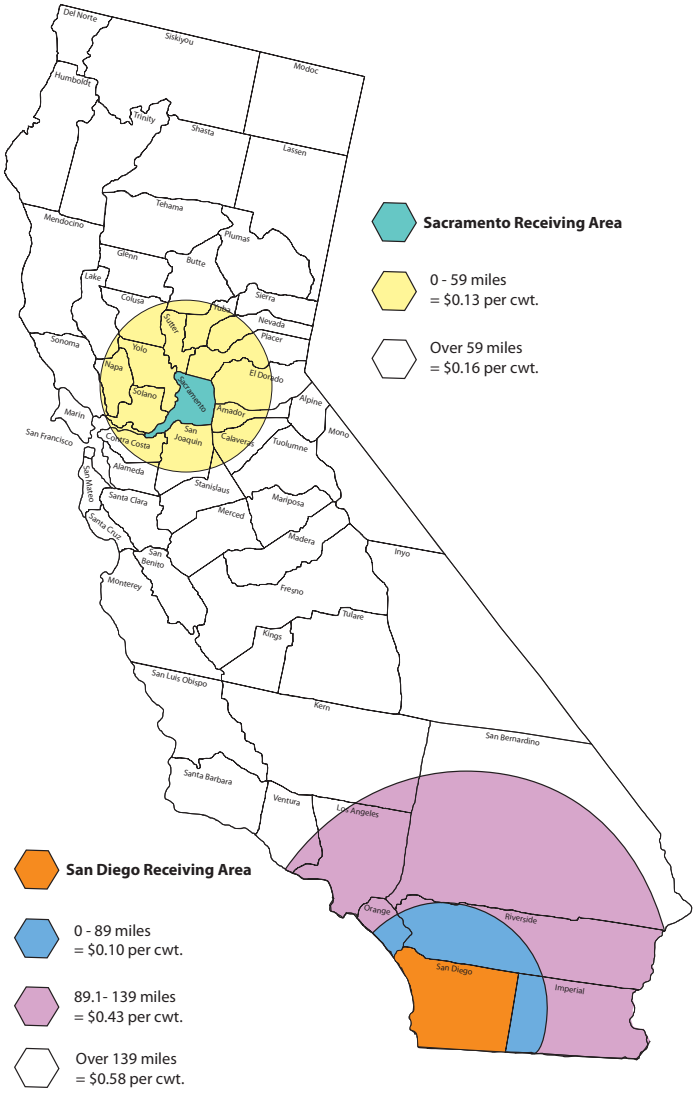
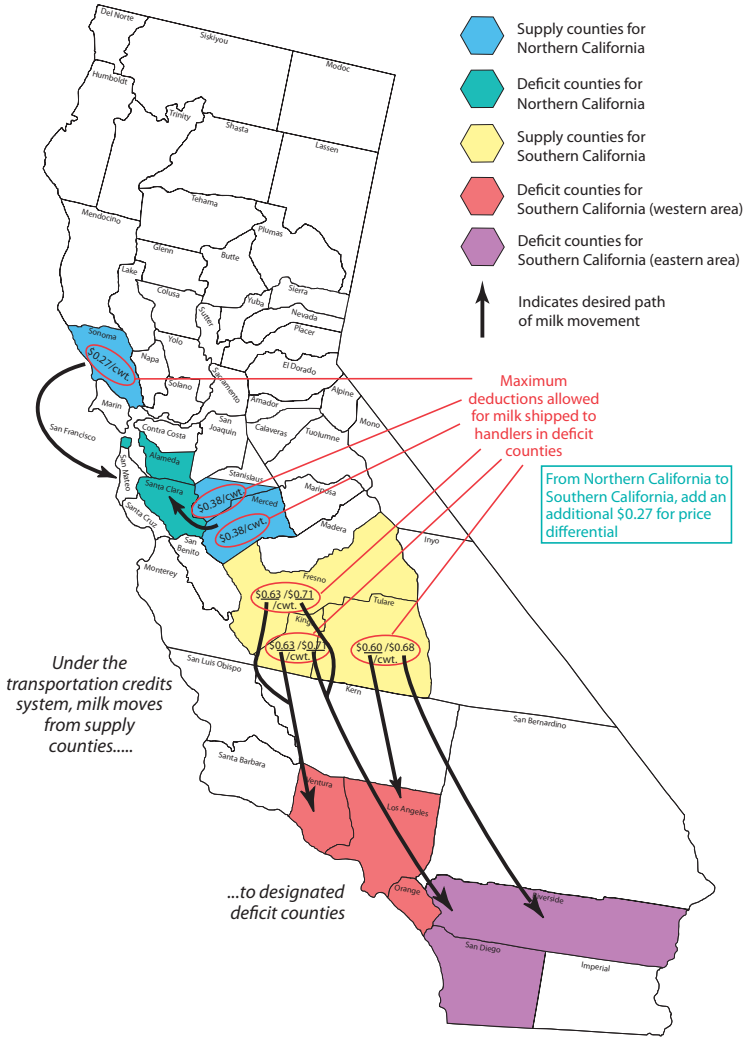


Figure 6
Transportation Credit System in California



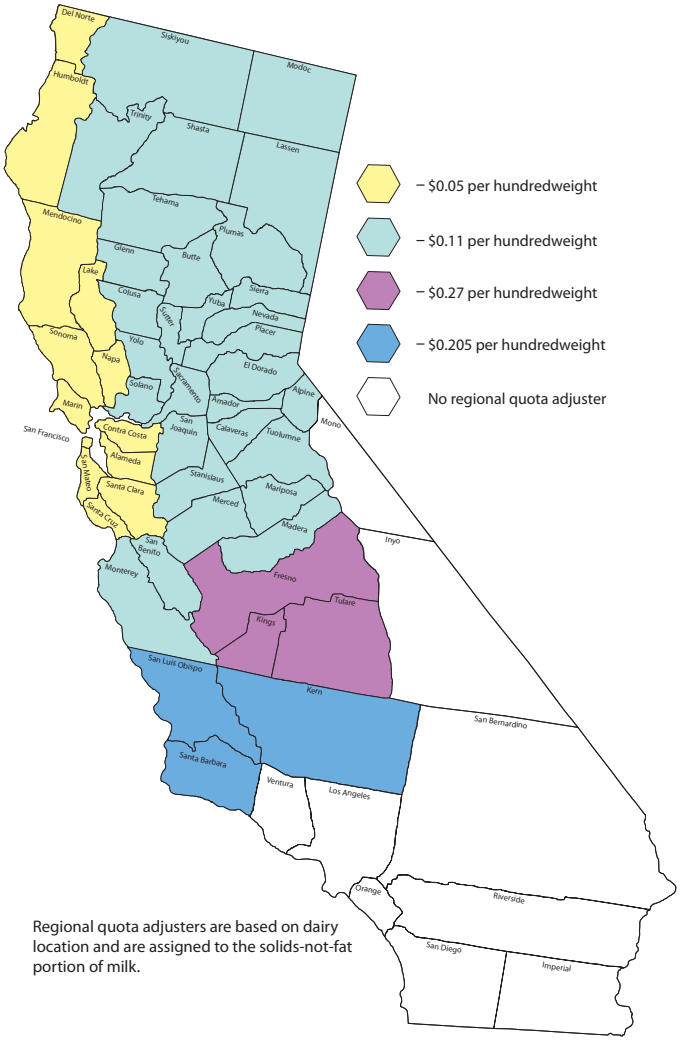
the Department may implement call provisions for any period of one or more months from September through April each year or not at all. The designated "eligible" months are significant because milk production is seasonally low from the fall into the following spring.

Regional Quota Adjusters (RQA)

While RQA do not provide any direct incentive to move milk to Class 1 plants, they relate to a basic principle of location economics. Most Class 1 plants are located in or near the major population centers for economic reasons. Under normal conditions, Class 1 plants attract the nearest milk supply over more distant rural milk production areas. Consequently, milk produced in close proximity to processing plants has more value.

RQA, which with transportation allowances replaced location differentials in 1983, follow this economic principle. RQA are deducted from the quota payments to producers and are determined by the geographical location of the producer's dairy. RQA apply to the hundredweight equivalent of quota milk produced. Presently, these rates range from 5 cents per hundredweight (Northern coastal counties) to 27 cents per hundredweight (Fresno, Kings, and Tulare counties). There are no RQA assigned to dairy farms located in the southernmost part of the state (Figure 7).

Figure 7
Regional Quota Adjusters in California



Regional quota adjusters are based on dairy location and are assigned to the solids-not-fat portion of milk.

Issues to Consider

Changes in Market Structure

Prior to the institution of the $1.70 fixed differential between the quota price and the overbase price, only producers holding quota benefited from positive changes in Class 1 prices. After implementation of the fixed differential in 1994, all dairy farmers who participated in the statewide pool benefited from higher Class 1 prices.

Since the inception of the statewide pooling program, there have been few significant changes in the mechanism used to compensate dairy farmers supplying milk to Class 1 plants. Consequently, there is no direct and compelling economic reason for a producer to ship milk to a fluid milk plant. In the late 1960s and early 1970s, this was not of concern because Class 1 utilization hovered near 65 percent of California's total milk production. Today, Class 1 utilization is about 15 percent. More importantly, almost three quarters of California's production is used in cheese, butter, and dry milk products.

To further compound the problem, many manufacturing plants pay premiums, and most cooperative plants distribute annual dividends. Premiums and dividends are in addition to regulated minimum prices and are not subject to statewide pooling. The producers who ship milk to these manufacturing plants receive both the appropriate pool price (quota, overbase, or a blend of the two) plus the associated premium or dividend. This economic incentive causes some milk production that would normally be shipped to fluid milk plants to be diverted to manufacturing plants.

The Southern California Milk Marketing Area exemplifies the change in market structure. There currently is not enough milk production in the Southern California milk marketing area to serve all the Class 1 needs and maintain a 40 percent standby reserve to handle the fluctuations in the demand and supply for Class 1 products. Additionally, over a third of the milk processed in Southern California is made into cheese.

Pool utilization in Southern California, September 2005

Class	1	2	3	4a	4b
Utilization	46%	5%	8%	5%	37%

Nonetheless, transportation allowances and credits reduce pool prices because approximately $16 million[5] is needed annually to ensure Southern California's Class 1 needs are met. In addition, the Department implements the call provisions every year as a means of obtaining enough milk to satisfy fluid processors during the months of seasonally short production.

Furthermore, in the 36 years since statewide milk pooling became effective, the state's milk production has gradually shifted away from the urban markets, where Class 1 plants are located, to rural areas that are further from urban markets. This situation is readily apparent in Southern California's Chino Valley where dairy farms have sold their land to developers. The farmers have either moved north to the more rural counties of Kern, Kings, and Tulare or moved to other states. The exodus of dairies from the Chino Valley has left fluid milk processors in the Los Angeles Basin with the challenge of attracting more distant milk

supplies to fulfill the needs of their customers. It should be clear that the use of the current policy alternatives, i.e., transportation allowances and credits, will only further reduce pool prices as more money is distributed to producers in more distant locations who service the Class 1 market.

Cost of Transportation Credits and Transportation Allowances

The current incentives for milk movement are a significant cost to the dairy producers of California (Figure 8). These costs do reduce the pool prices dairy farmers receive. However, the moneys from most of the Transportation Credits, and from all of the Transportation Allowances are returned to dairy farmers.

Figure 8 reveals that from 1984 to 1994

- Transportation credits increased $1.01 million (92%), mainly because of rate increases.
- Transportation allowances increased $0.81 million (25%), because of increased rates and utilization.

Figure 8 reveals, however, that from 1994 to 2004:

- Transportation credits increased $0.83 million (40%), mainly because rate increases were somewhat offset by changes in utilization patterns.
- Transportation allowances increased $13.23 million (323%), because of increased rates, increased utilization, and changes in eligibility.

Increasing Incentive to Obtain Transportation Credits and Allowances

As milk production and marketing becomes market–oriented, the level of competition among producers intensifies. Obtaining new or higher rates for transportation allowances can result in either economic success or economic failure for some "direct shippers."[6] Obtaining new or higher rates for transportation allowances can change the competitive situation for cooperatives competing for Class 1 contacts. Cooperatives that ship to fluid milk plants and fluid plants that receive milk from other processing plants are motivated to obtain new or higher transportation credits. Moreover, there seems to be a growing perception that if some farmers receive transportation allowances for shipping to selected Class 1 plants then all farmers shipping to a Class 1 plant should be entitled to them.

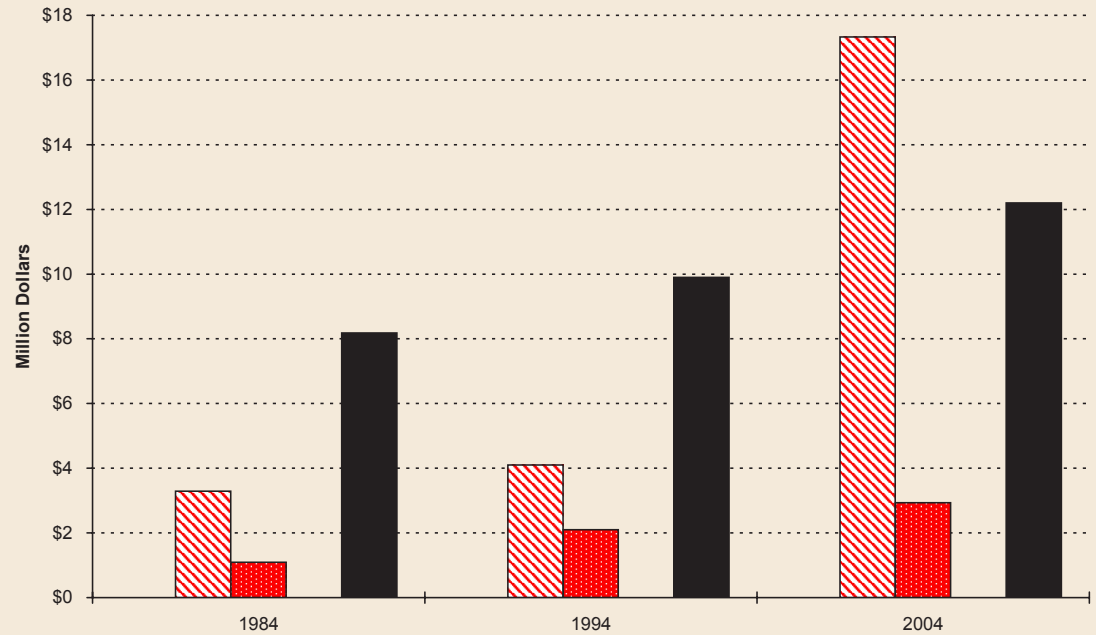
Revenue from Regional Quota Adjusters

Regional quota adjusters (RQA) reduce the quota price for producers located outside of Southern California. This reduction results in an increase in the overbase price. As producers leave Southern California, the increase in RQA will slowly increase the overbase price:

Figure 8 reveals that:

- From 1984 to 1994, regional quota adjusters increased $1.72 million (21%).
- From 1994 to 2004, regional quota adjusters increased $2.30 million (23%), mainly because of quota holders exiting Southern California.

Figure 8: Cost of Transportation Allowances and Credits Revenue from Regional Quota Adjusters



Two Categories of Alternatives for Milk Movement

The alternative approaches to providing Class 1 plants with increased availability of a milk supply center on two themes. One set of alternatives threatens a penalty (economic loss) for plants or producers that fail to supply milk to the Class 1 market, and the other set promises a reward (economic gain) for plants or producers that supply the Class 1 market.

Alternatives that Penalize Non–Participatory Plants/Producers

Stricter Shipping Requirements

More stringent requirements for plants participating in the statewide pool would provide a straightforward approach to the problem. Qualification standards obligate plants that participate in the statewide pool to divert or to sell milk to Class 1 plants, especially when milk production is low and fluid milk consumption is high. When qualification standards are not set high enough, manufacturing plants may be able to benefit from the statewide pooling system. In other words, by virtue of the classified pricing structure and statewide pooling that exist in California, manufacturing plants are able to draw money from the pool to augment the prices paid to dairy producers for milk. In federal milk marketing orders, qualification standards have been the traditional means used to avoid this problem. Plants that do not perform as expected or needed may not draw money from the pool. In this case, "to perform" means that a manufacturing plant diverts milk to Class 1 markets when it is needed and without exorbitant "give up charges."[7]

Simply, if a manufacturing plant wants to share in the statewide Class 1 pool, it must sell milk for Class 1 use, especially when needed. Currently to participate in the statewide pool, there is no minimum amount of milk manufacturing plants must divert to Class 1 plants. Manufacturing plants in California can divert just one load of milk per month to a Class 1 plant to maintain their statewide pool status. As such, a readily apparent solution to the problem of milk movement is to establish, at a more meaningful level, the minimum volume of milk manufacturing plants must divert to Class 1 plants.

Unfortunately, setting higher performance standards does have some undesirable effects. First, it may result in unintended market inefficiencies. Manufacturing plants may ship milk long distances for the sole purpose of qualification, despite the availability of adequate milk supplies that are in a closer proximity to the Class 1 plant. Second, stricter shipping requirements may lead to "roundtripping" of milk, i.e., milk that is shipped from a manufacturing plant to a Class 1 plant and then returned to a manufacturing plant simply to satisfy qualification standards on paper. Finally, stricter requirements for pool participants may lead to development of small and inefficient Class 1 production facilities just to fulfill qualification requirements.

Limiting Statewide Pool Participation of Manufacturing Plants

Current regulations detailed in the Milk Pooling Plan for Market Milk allow manufacturing plants that participate in the statewide pooling program to draw money from the pool on all of their milk. Under the limited participation alternative, manufacturing plants would not be able to continue to participate fully in the statewide pool. Instead of receiving a pool draw on all milk processed, they would receive the pool draw only on shipments of milk to Class 1 plants. If the goal is to provide an incentive for manufacturing plants to give up milk to Class 1 plants, this alternative does provide a significant incentive for cheese and butter/powder plants to divert milk. It should also be evident however, that the vast majority of the manufacturing sector that benefit from the current set of regulation would not be in favor of such a change. This is especially true given that there is so little Class 1 milk relative to the milk used in the manufacturing sector.

Requiring Quota Holders to Serve the Class 1 Market

With the introduction of the statewide pooling program came the demise of the traditional contracts with Class 1 plants, and consequently, the diminishment of the incentive for a producer to ship to a Class 1 plant. To facilitate the movement of milk to Class 1 plants, the industry could require that producers receiving the most benefit from the pooling plan, i.e., quota holders, fulfill an obligation of the industry to supply those markets with milk when needed. Simply, a producer who holds quota is required to ship a fraction of the quota milk produced to a Class 1 plant. Alternatively, the producer could contract with another producer or cooperative association to fulfill these obligations.

The benefits of such a system are numerous, but one major drawback looms. From an equity viewpoint, the quota holders would have the responsibility of supplying milk to that segment of the industry. No call provisions would be necessary because milk movements would be arranged prior to the receipt of producer milk by processing plants. Quota milk, however, makes up only about 25% of all pooled milk. Thus, the downside to this approach is that inefficient milk movements will result as quota holders attempt to fulfill their obligation to the Class 1 market. Milk may have to travel long distances just to fulfill a regulatory requirement when milk closer to the target area may be available. The inefficiencies may be reduced considerably however, if producers are allowed to contract with other producers or a cooperative association to fulfill their obligations.

Alternatives that Reward Participatory Plants/Producers

Location Differentials

Class 1 plants located in or near large population centers may be at a considerable disadvantage relative to a competitor whose plant is located closer to milk supplies. This disadvantage can be mitigated by accounting for the cost to transport milk for Class 1 use to the population centers and adjusting the Class 1 price downward to distant plants. In other words, milk received at plants located in or near metropolitan areas would receive a higher price than milk received at plants further from a large urban area. The underlying purpose of location differentials is to help equalize raw milk costs to the plants within a marketing area such that competing processors will be able to obtain milk at roughly the same price, not including the cost of transportation.

Unfortunately, this approach does have a number of drawbacks. First, a system of location differentials tends to be inflexible because the underlying presumption is that all milk moves in one direction within a marketing area, with no seasonal or year-to-year changes. Second, there may be more than one major population center within the marketing area, and these multiple "target areas" may make the task of developing meaningful location differentials difficult. The Bay Area and greater Los Angeles are two obvious such large metropolitan areas, and fluid milk plants have tended to locate in or near these two focal points (Figure 9). Fluid milk processing plants in the central valley are closer to the milk supply but compete for fluid milk sales throughout the state. These latter plants are also located in the fastest growing area of the state.[8] Because these plants do not have to pay the same premiums as the plants in the Bay Area to attract milk, they may be able to offer their product to retailers at a lower price than their competitors. Third, there are no set rules for determining the appropriate amounts for location differentials. The challenge to administrators is to establish differentials that are large enough to encourage milk to move to Class 1 processing plants, but not so large as to disrupt the functionality of the milk marketing system. Last, location differentials may not eliminate inefficient movements of milk, i.e., milk may still be shipped long distances even though adequate supplies are available closer to the buyer.

Individual Plant Pools

Prior to the establishment in 1969 of a statewide system that pools and redistributes revenues to dairy producers, individual plant pools were used. As the name indicates, revenues from milk sales were shared

Figure 9: Approximate Locations of Fluid Milk Processing Plants, in California, 2005

only among producers shipping to the plant and not with all producers in the milk marketing area. Some in the industry viewed individual plant pools in an unfavorable light because of the consequences of these types of pools. Some producers used predatory tactics in an attempt to obtain entrance into a fluid milk processor's pool; likewise, some processors played one producer against another. Nonetheless, the individual plant pools provided a substantial incentive to sell milk to Class 1 plants, a distinction that the present statewide pooling system cannot claim.

Individual plant pools offer two significant benefits but have their drawbacks as well. First, individual plant pools channel all Class 1 revenues to those plants and producers who are serving the Class 1 market. Second,

call provisions, which tend to be unpopular with manufacturing plants, are unnecessary with individual plant pools. The most obvious downside to individual plant pools is the impact on the statewide pooling system within a marketing area. Individual plant pools move away from the most basic premise of statewide pooling — equitable treatment of producers. Individual plant pools promote orderly marketing, but at the expense of price equity among producers.

Strictly speaking, individual plant pools are probably not feasible because they would affect the integrity of the statewide pool. A slight modification to this approach might make individual plant pools more workable while retaining many of the benefits. The idea is to give Class 1 plants a means of rewarding the producers who serve the Class 1 market without greatly affecting price equalization within the marketing area. Specifically, a portion of the Class 1 revenues could be designated for the individual plant pool with the remaining revenues pooled on a market–wide basis.

Summary

As milk production in California continues to increase, an ever-larger share is being used in manufactured dairy products (Figure 1). Premiums and dividends paid by manufacturing plants to attract milk are not pooled statewide. They provide a direct incentive for producers to ship milk to those plants. These premiums and dividends will continue to have a profound impact on the growing annual cost of directing milk to Class 1 plants via the current mechanisms of transportation credits, transportation allowances, and call provisions.

This paper reviewed a number of alternatives that are available to provide more orderly milk movements to Class 1 markets while maintaining reasonable prices to fluid milk processors. Instituting any of the alternatives will alter milk marketing, as it is known today. Some alternatives suggest penalties for quota–holding producers not serving the Class 1 market. Other alternatives recommend monetary incentives to encourage producers to ship to Class 1 processors. In any event, manufacturing plants and producers that ship to them may lose revenue outside of the pool because they will be less able to attract "over order premiums"[9] or command high "give–up charges."[10]

Economic incentives to supply Class 1 plants were not needed prior to the establishment of statewide milk pooling in 1969, but it must be recognized that today the California dairy industry operates under vastly different production and marketing conditions. Minor adjustments in the current system are not likely to improve significantly the efficiency with which milk moves or reduce the total cost required to fund the program. It may be appropriate for the industry to consider alternatives to facilitate the movement of milk to fluid milk plants in light of the changes in market structure. Potential solutions may require fundamental changes in the pricing and pooling provisions. It should be clear that consumers and Class 1 plants stand to benefit the most from adoption of these approaches to managing milk movements. The degree of success achieved will depend on a comprehensive review by all the stakeholders of the program, i.e., producers, processors, retailers, and consumers.

End Notes

[1] "Over order payments" are payments to producers above regulated minimum prices. The higher the "over order payment", the easier it is for processors to attract milk from producers. "Over order payments" can result from many causes, including but not limited to:

- Service charges for services that producers (usually cooperatives) perform that lower processors' costs.
- Premiums for large volumes of milk and higher milk quality.
- Premiums for added value, especially protein and yield premiums from cheese plants.
- Profit distribution from the operation of cooperative plants, these can be monthly or yearly (13th check).
- Competitive premiums either to attract milk in a deficit situation or to offset the payments offered by other processors.
- Transportation allowances, transportation credits and location differentials are all regulatory payments that are used to mimic competitive "over order payments". All three are discussed in detail in the text: allowances on page 4, credits on page 4, and differentials in endnote 3.

"Over order payments" are also called "premium schedules" and "over order premiums".

[2] All Class 1 products and most Class 2 products are mandated to be made with Grade A milk.

[3] Quota and Location Differentials — In the past 36 years, several regulatory tactics have been used to encourage desirable milk movement patterns, i.e., adequate milk supplies available to all fluid milk processing plants. When the statewide Milk Pooling Plan was instituted in 1969, location differentials were established to provide producers with economic

signals to move milk to designated counties. Location differentials were added to or deducted from quota payments to producers and were determined by the location of the plant that first received the milk. When milk was moved to designated counties, favorable location differentials offset the added cost of transporting milk.

As California milk production began to increase, overbase milk became increasingly larger share of the total milk production. As a result, location differentials based solely on quota milk were no longer an efficient means of ensuring that adequate milk supplies would be made available to Class 1 plants, and consequently, location differentials were discontinued and the current regulatory instruments were instituted.

[4] "Give up charges" – For most manufacturing plants, as the volume of milk increases, the average unit cost decreases. Diversion of milk to a fluid plant increases the manufacturing plant's average cost, so the manufacturing plant often seeks a "give up charge" to compensate for the increased cost.

[5] The $16 million is a combination of approximately $14 million for transportation allowances and approximately $2 million for transportation credits.

[6] "Direct shippers", as distinguished from cooperative members, are producers who are not members of a cooperative and who have a direct contractual relationship with a processor.

[7] "Give up charges" – see endnote 4 above.

[8] If current growth rates continue for the next 20 years, the Sacramento to Bakersfield corridor will be second only to Southern California in total population.

[9] "Over order payments" - see endnote 1 above.

[10] "Give up charges" – see endnote 4 above.