 programs, the success of a milk market was based on whether a balance could be maintained between the seasonal demand and a contra-seasonal milk supply. Federal milk orders were designed to provide an adequate milk supply throughout the year. Order provisions were formulated to preserve tight, localized milk supplies which maintained a closely monitored supply/demand balance. Federal orders were requested and approved by dairy farmers for localized milk markets in urban population centers. Fluid dairy products were delivered in glass containers directly to homes. Milk was collected daily and hauled in cans from farms located close to a milk plant or receiving station.

The structure of milk markets changed over the next fifty years. Advancements and innovations such as refrigerated farm bulk tanks and improved transportation, the on-going conversion from a manufacturing grade milk supply to mostly Grade "A", fewer and larger farms, and the growth of supermarkets and integrated processors with larger distribution areas have all played a part in the continuing evolution of the dairy industry. The Federal milk order system has also been transformed by these changes - declining in number by more than half, as the small localized orders gave way to larger regional ones. Federal milk order provisions have been amended by dairy producer and industry requests to accommodate the pooling of Grade "A" milk well beyond the Class I requirements and a necessary reserve.

This has resulted in a shift in the responsibility of balancing the milk supply -- from order language constraints to milk supplier/handler obligations. Cooperative associations and other processing firms provide markets for milk that could be considered excess. These handlers have taken on the task of balancing the market by owning and operating manufacturing plants and storage facilities. This has created a Catch-22 situation for the handlers. On one hand, they want to be able to pool all of their producer milk. They desire to market milk from all producers who want to participate. On the other hand, they must incur the cost of balancing this milk supply. In addition to the normal contra-seasonal milk supply and demand imbalances, the job becomes more difficult to manage with existing weekly and daily supply/demand factors.

The Class I (i.e. packaged milk) requirements of distributing pool handlers on the Southern IllinoisEastern Missouri and the Southwest Plains Federal orders were examined in an attempt to quantify this daily supply/demand imbalance. Differences between the total producer milk associated with the market and Class I fluid utilization were examined to illustrate the magnitude of the "balancing act" problem. In this analysis, it was assumed that all producer milk not used in Class I was excess for the market on any given day and would be handled by manufacturing plants. The volume of milk utilized as Class II products, such as ice cream and yogurt, was arbitrarily included as surplus.

The following graphics and brief narrative illustrate this supply/demand imbalance.
--Continued on back page--


Fluid milk bottling records from all Southern Illinois-Eastern Missouri regulated handlers were examined for a seven-day period in April 1998 (6th-12th). All fluid processors were "down" on Sunday while about $1 / 3$ were also "down" on Wednesdays. This creates the daily variation in demand that manufacturing facilities must confront when dealing with a relatively constant milk supply.

During April 1998 an average of 6.2 million pounds of producer milk was pooled on the market each day. During this seven-day period an average of 2.8 million pounds of producer milk was processed into Class I products.

The top graph illustrates the average pounds (line) of producer milk pooled on the market each day along with the actual pounds (bar) of producer milk packaged in Class I fluid milk products. The daily Class I utilization as a percent of the seven day total is annotated on each bar.

The greatest volume of milk bottled was on Tuesday at 3.9 million pounds which accounted for 20.2 percent of the weekly total. Wednesday was the lowest (excluding no bottling on Sunday) with 1.5 million pounds or 7.7 percent of the weekly total.

Given a fairly consistent milk supply that dairy farmers deliver to the market each day, this variation in Class I utilization compounds another problem for processors. That is, the available daily milk supply is greater that what is necessary to meet any fluid demands. The middle graph illustrates this imbalance by comparing the daily fluid needs to the daily producer milk supply. Even on the largest bottling day (Tuesday), the required fluid milk only accounts for 63.5 percent of the average daily producer milk supply.

Thus on a daily basis, marketing firms must continually find other uses for over half of the milk they market. This "excess" must be moved into Class II and Class III manufactured products. The bottom graph depicts the pounds (bar) of milk utilized in Class II \& III by day with the percent of the average daily producer milk. On Wednesday and Sunday ("down" days) handlers must market or "balance" 75.2 percent and 100 percent of the available producer milk supply.

Daily Class I Utilization For The Week Of April 6-12 With April 1998 Average Daily Producer Receipts


Daily Class I Utilization For The Week Of April 6-12 As A Percent Of April 1998 Average Daily Producer Receipts 7 Mil. Lbs/Day


Southern Illinois-Eastern Missouri Federal Order No. 32

Daily Class II \& III Utilization For The Week Of April 6-12 As A Percent Of April 1998 Average Daily Producer Receipts


Fluid milk bottling records from all Southwest Plains regulated handlers were examined for a seven-day period in April 1998 (6th-12th). All but one of the fluid processors were "down" on Sunday while about two-thirds were also "down" on Wednesdays. This creates the daily variation in demand that manufacturing facilities must confront when dealing with a relatively constant milk supply.

During April 1998 an average of 9.1 million pounds of producer milk was pooled on the market each day. During this seven-day period an average of 4.1 million pounds of producer milk was processed into Class I products.

The top graph illustrates the average pounds (line) of producer milk pooled on the market each day along with the actual pounds (bar) of producer milk packaged in Class I fluid milk products. The daily Class I utilization as a percent of the seven day total is annotated on each bar.

The greatest volume of milk bottled was on Tuesday at 6.5 million pounds which accounted for 22.9 percent of the weekly total. Wednesday was the lowest (excluding no bottling on Sunday) with 1.4 million pounds or 4.8 percent of the weekly total.

Given a fairly consistent milk supply that dairy farmers deliver to the market each day, this variation in Class I utilization compounds another problem for processors. That is, the available daily milk supply is greater that what is necessary to meet any fluid demands. The middle graph illustrates this imbalance by comparing the daily fluid needs to the daily producer milk supply. Even on the largest bottling day (Tuesday), the required fluid milk only accounts for 71.7 percent of the average daily producer milk supply.

Thus on a daily basis, marketing firms must continually find other uses for over half of the milk they market. This "excess" must be moved into Class II and Class III manufactured products. The bottom graph depicts the pounds (bar) of milk utilized in Class II \& III by day with the percent of the average daily producer milk. On Wednesday and Sunday ("down" days) handlers must market or "balance" 84.9 percent and 96.0 percent of the available producer milk supply.

Daily Class I Utilization For The Week Of April 6-12 With April 1998 Average Daily Producer Receipts


Daily Class I Utilization For The Week Of April 6-12 As A Percent Of April 1998 Average Daily Producer Receipts


Daily Class II \& III Utilization For The Week Of April 6-12 As A Percent Of April 1998 Average Daily Producer Receipts


|  |  |  | Aug | Jul |
| :---: | :--- | :---: | :---: | :---: |
| A comparison |  | $\mathbf{1 9 9 8}$ | $\mathbf{1 9 9 8}$ | Aug |
| of Blend Prices |  | $\$ 15.86$ | $\$ 13.78$ | $\$ 13.37$ |
| for milk of 3.5\% | Southeast (Zone 7) | 14.47 | 12.94 | 11.94 |
| butterfat content | Chicago Regional (Zone I) | 14.94 | 13.26 | 12.59 |
| is provided | Greater Kansas City | 14.58 | 12.40 | 12.06 |
| for selected | Indiana | 14.63 | 12.95 | 12.16 |
| Federal milk | lowa (Zone I) | 15.36 | 13.48 | 12.79 |
| marketing | Southwest Plains (Zone I) | 14.66 | 12.58 | 12.22 |
| orders: | Central Illinois (Zone I) | 14.60 | 12.42 | 12.23 |

Over time, Federal milk orders have been successful in keeping the last 100 pounds of milk in a market from establishing the price for all of the milk in that market. The supply of milk continues to increase relative to fluid demands and marketing firms desire to include all of the supply in the Federal order pool. Consequently, one of the successful elements of the Federal milk order program may evolve into a historical footnote as did home deliveries and milk cans. Milk markets, once designed to ensure a disciplined milk supply with high Class I utilizations, have evolved to where only an approximate one-third of the milk draws a Class I price. Additionally, more than one-third of the nation's milk supply is used in the production of hard cheeses. This continued increase in the volume of milk moving into nonfluid milk products serves to nudge the dairy industry toward other possible alternatives in both the pricing and marketing of "natures most nearly perfect food".

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