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## THE MINNESOTA-WISCONSIN PRICE SERIES —

### *Time for a Change*

— by Mary J. Keough —

The Minnesota-Wisconsin (M-W) price is one of the most important price estimates published by the National Agricultural Statistics Service (NASS). Each month NASS publishes the M-W price based upon reports indicating prices paid for manufacturing grade (grade B) milk in Minnesota and Wisconsin. The M-W price is then used as the basis for milk pricing within the Federal milk marketing orders as administered by the Agricultural Marketing Service. Currently the M-W price serves as the cornerstone for pricing over 70 percent of the U.S. milk production.

Future use of the M-W price is questionable as declines in grade B milk production and in the number of grade B purchasing plants will gradually reduce the reliability of the M-W price as an accurate indicator of the value of milk used in manufacturing dairy products (GAO, 1989). Based on these trends, NASS indicated in May 1990 that the agency would be able to provide a reliable M-W price until July 5, 1992. Further the Food, Agriculture, Conservation and Trade Act of 1990 requires the Secretary of Agriculture to study alternative pricing formula recommendations, as they may relate to the Minnesota-Wisconsin price series (Public Law 101-624, 104 STAT. 3379).

The dairy industry will have the opportunity to determine a new pricing mechanism to replace the M-W price as the single most important price for the dairy industry. The USDA plans to hold a hearing later this year on pricing alternatives to the M-W price. Possible pricing alternatives include a competitive grade A/B price series, product formula prices or a combination of the two.

### History

Prior to the 1961 implementation of the M-W price series, Federal orders primarily based manufacturing class milk prices on either competitive pay prices or product price formulas. However, regional conflicts emerged due to the use of different pricing mechanisms for manufacturing grade milk. Product formula derived prices used to price milk in Northeast Federal orders were established at significantly lower levels than Midwest milk prices based on competitive pay prices. Lower product formula prices placed Midwest firms at a competitive disadvantage in selling dairy products in the East. This concern led to the implementation of the M-W price as the basis for uniform milk pricing in most Federal orders, resulting in a decline in the use of product price formulas (Jacobsen et al.).

### Establishing the M-W Price

On the fifth day of each month, NASS publishes the M-W price

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which is an estimate of the average price received by producers and the average butterfat test for manufacturing grade milk delivered during the preceding month to a plant or receiving station, before hauling costs, producer assessments, and promotional checkoffs are deducted. It includes quantity, quality, protein and other premiums paid to producers, but excludes hauling subsidies.

The M-W price is derived from two survey reports, a base month report and a current month report voluntarily completed by purchasers of manufacturing grade (grade B) milk in the two states. Grade B plants in both states are requested to provide a base month report which indicates the price reporting plants paid for milk during the previous month. From this report, the base month price and butterfat test are calculated from data received from approximately 86 plants in Wisconsin and 74 plants in Minnesota which purchase 60 percent of all the manufacturing grade milk sold in the two states.

The current month report, submitted by 50 Wisconsin plants and 19 Minnesota plants, indicates the price sample plants paid for milk during the base month and for the first two weeks of the current month. These plants represent 30 percent of the manufacturing grade milk sold in the two states.

The data are summarized and analyzed by the statisticians in the Minnesota and Wisconsin Agricultural Statistics Service offices and then forwarded to the NASS board in Washington, D.C. for final review and consolidated into the M-W price and butterfat test estimates. The estimated monthly prices and fat tests for each state are incorporated into the M-W price and butterfat test estimates by weighing the respective monthly data by the quantity of manufacturing grade milk purchased from farmers during the same month a year ago. Generally the Minnesota data is weighted 40 percent and Wisconsin 60 percent.

### Validity of the M-W Price Series

Concern over the validity of the M-W price as an accurate indicator of manufacturing milk values did not develop overnight. Potential problems involving the performance of the series were voiced in the early 1970s and throughout the 1980s. The foremost problem has been the continual declining amounts of grade B milk produced in Wisconsin and Minnesota.

When the M-W price was adopted by the Chicago regional marketing order in 1961 to establish the price of milk used in manufacturing dairy products, approximately 70 percent of the milk produced in Minnesota and Wisconsin was grade B. Currently grade B production accounts for 17 percent of the milk produced in these two states. In addition, total milk production in Minnesota and Wisconsin has increased 26 percent during the past three decades (USDA-NASS, May 1991).

More stringent sanitary restrictions and price incentives to produce grade A milk have been the primary reasons for the decline in grade B milk supplies. Legislation implemented during the 1980s in both Minnesota and Wisconsin required more stringent milk quality standards and more frequent inspections of grade B dairy facilities which accelerated the exodus of grade B milk producers and the decline in grade B production. Some grade B milk producers left dairying while others converted to grade A milk production.

Consequently since 1961 the number of plants and receiving

stations accepting grade B milk has also decreased from 805 to 133 in Wisconsin and from 368 to 82 in Minnesota. More importantly the number of grade B plants that actually pay patrons twice a month, and thus are eligible to be in the current M-W price sample, has declined more rapidly than the total number of grade B plants. As this change takes place, the statistical validity of the M-W price erodes.

When the original 1961 sample was selected from 1173 plants, the M-W price served as a reliable measure of manufacturing milk prices that was relatively easy to obtain and provided a sensitive measure of changes in the overall supply-demand balance within the dairy economy. However, a decade after the implementation of the M-W price series, the original sample became out dated because of plant closures, because they no longer purchased grade B milk, or because they no longer reported prices twice a month. Further, some plants simply decided not to participate in the voluntary reporting system.

A new sample design was chosen in 1971 that established a stratification scheme based on the product type manufactured and the total pounds of milk received. The required samples sizes were determined to be 65 plants for Wisconsin and 40 for Minnesota. The total number of plants in the universe was 278 for Wisconsin and 98 for Minnesota.

Despite the implementation of the new sample, concern over the M-W series as the basis for the entire class price structure continued to surface. Rapid fluctuations in the M-W price during the early 1970s reflected short-run supply and demand conditions for all milk, including import actions, but sent mixed signals to producers, handlers, and consumers as to what to expect. This was viewed as being undesirable in a pricing system intended to provide some measure of stability (Manchester).

In 1972, the USDA established a Milk Pricing Advisory Committee (MPAC) to study alternatives to the M-W price series. The committee affirmed the need for a single mover of milk prices as a means of providing coordination between the price support program and the Federal order program. It also affirmed the need for a uniform price to be paid for all milk used for manufacturing. Finally, it determined that although the M-W price was still a satisfactory price mover, if it were necessary to replace the M-W, the best available alternative would be a butter-powder-cheese product price formula (USDA, 1973).

Almost two decades passed before the M-W price series once again became the subject of debate. In 1989 Senators Patrick Leahy, Rudy Boschwitz and Bob Kasten requested that the General Accounting Office (GAO), (1) determine whether the M-W price series is a reliable and appropriate adjuster of milk prices, (2) determine whether the M-W price series needs to be improved, and (3) develop recommendations for improving the pricing system for milk used in manufacturing, if warranted (GAO/RCED-90-8, p. 2).

The GAO report summarized the four major reasons why the M-W pricing mechanism needs replacement:

- (1) Declining grade B milk production and the reduced number of purchasing plants.
- (2) M-W sample prices may have become less representative of grade B purchasing plants.
- (3) Hauling subsidies, not included, provide additional revenue to producers.
- (4) Multiple-component pricing and protein premiums affect the accuracy of the M-W price reported at 3.5 percent buterfat.

From the analysis, the GAO recommended that the current M-W price be replaced with either of the following alternatives.

- A regulated grade A manufacturing price series that is similar

to the M-W price series, except that prices of grade A milk used in manufacturing under milk marketing orders and grade B milk prices, would be used to establish a pricing base. Such a base should generally reflect market conditions for all milk used in manufacturing.

- A product formula which would derive the value of milk from manufactured dairy product prices.

## New Pricing Mechanisms

The Food, Agriculture, Conservation and Trade Act of 1990 requires that the Secretary conduct a study of alternatives to the M-W price series. Among the alternatives, the Secretary is required to consider a price series based on prices paid for grade A milk and grade B milk that is used to manufacture dairy products. In addition, the 1990 Act requires that the Secretary compile and make available to the public the historical and current data used to compare the alternative pricing formulas with the existing M-W price series.

NASS, at the request of the Dairy Division of the Agricultural Marketing Service (AMS), has collected data for a competitive grade A/B milk price series on a research basis. The series is derived from a monthly survey of plants in Minnesota and Wisconsin and may be used to estimate the price received for milk used in manufacturing—regardless of grade. The A/B price estimate is the average price for all milk used in manufacturing, delivered to a plant or receiving station, before hauling costs, producer assessments and promotional checkoffs are deducted. It includes quantity, quality, protein and other premiums paid to producers, but excludes hauling subsidies and the pooled value of the Class I differentials.

The price that a Minnesota or Wisconsin producer receives for grade A milk marketed in the Chicago or Upper Midwest order includes the receipts from milk sold at the Federal order class I price plus any premiums received. The proposed A/B pay price would remove that portion of receipts each Federal order plant draws from the producer equalization fund. The theoretical draw represents how much each manufacturing handler benefits from sharing in Class I revenues by participating in the Federal order. The theoretical draw is equal to the uniform price (at location) minus the Class III or M-W price. Under the A/B pay price proposal, NASS would deduct the Federal order draw from the grade A pay price reported by each manufacturing plant to eliminate the impact of the Federal milk order program on the prices plants are paying for grade A milk used in manufacturing.

Unlike the current M-W price which is derived from two reports, a base month report and a current month report, the A/B price series is derived from only one report. Plants in the A/B price series sample indicate they are unable to provide a current month estimate. Therefore, if a competitive A/B price were to be used in existing Federal order pricing provisions, the price announced on September 5, 1991, would be based on the price paid by processors of butter and cheese for milk during July.

## Combination A/B Price and Product Price Formula

A product price formula could be used as a means of updating the base month A/B price to the current month. For example, the A/B price announced by September 5, 1991 is based upon July survey data updated to the current month by the change in a product formula price from July to August.

## Product Formula Price

Another alternative to the M-W price series is a product formu-

la price. Like competitive pay prices, product price formulas are only as accurate as the information used to construct the formulas—product prices, make allowances, and product yields. Currently, the construction of product price formulas is hampered by the lack of product price reporting throughout the dairy industry and limited data on product yields and make allowances. Product yields represent the amount of product produced from raw milk while the make allowance is the margin allowed for processing between the product prices and the raw milk price.

The market for manufactured dairy products is often criticized for being thin. That is, a small volume of products is traded on central reporting markets for manufactured products. For example the trading volume on the National Cheese Exchange in any one year has never exceeded one percent of the U.S. cheese production.

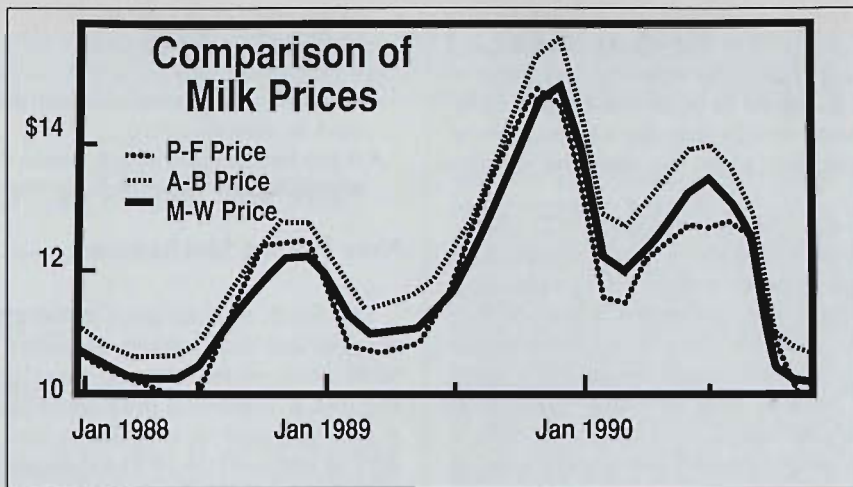
It is possible that the complaint of thin markets for manufactured dairy products is, to an important extent, the result of inadequate reporting of prices paid and received for manufactured products. A major effort would be required by the dairy industry and the USDA to develop not only a more accurate source of product price information but also adequate product yields and make allowance data if the use of a product price formula holds the potential as an alternative to the M-W price.

Figure 1 illustrates a grade A-B price series, product formula price series and the M-W price series from 1985 through 1990. The historical A-B price series is based on prices paid for manufacturing grade milk in Minnesota and Wisconsin as reported in Agricultural Prices published by NASS and grade A prices reported in a government staff paper (USDA-AMS Staff Papers 89-01,91-01). These prices were weighted together by the amount of grade B and grade A milk used in manufacturing products in these two states. This construction series is believed to be very similar to the A/B series currently being collected by NASS. The product formula is based on a combination cheese-butter-powder formula adjusted by a derived margin. The derived margin is the difference between the gross value of manufactured dairy products and average prices paid farmers for milk used in manufacturing. The use of a derived margin avoids the difficult problem of determining a representative make allowance, or compensating for imperfections in yield and price information.

The price series follow each other with varying margins among the price series. The A-B price series is consistently higher than the other series simply because it includes grade A milk. The product formula price tends to fluctuate more so than the A-B price series. This is the case because product formulas translate product prices directly into milk prices. Competitive pay prices require that the market makes that translation, which takes time.

### Implementation of the New Pricing Mechanism

The Food, Agriculture, Conservation and Trade Act of 1990 requires that by no later than October 1, 1991, the Secretary invite the dairy industry and consumers to submit proposals for alterna-



tives, and announce a national hearing on replacing the M-W price series in Federal milk marketing orders. In carrying out the preceding, the Congress expects that the Secretary will act expeditiously, and complete the amendment process by June 1, 1992, to the maximum extent practicable. As part of the process, the 1990 Act requires the Secretary to allow at least 30 days

for public comment on the recommended decision and to report the final decision to Congress when it is issued.

### For More Information

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### The M-W Price – FMMOs Connection

Federal milk marketing orders establish minimum prices that dairy processors must pay for grade A milk. Milk utilization is generally divided into three classes:

- Class I milk, the highest price milk, is used for fluid consumption.
- Class II milk is used for fluid cream and to manufacture soft products such as ice cream, cottage cheese and yogurt.
- Class III milk is used to manufacture hard products including cheese, butter and nonfat dry milk.

The use of the M-W price as the federal order base price establishes a direct link between the order system and the manufacturing milk market. The class III price is set equal to the M-W price because the products manufactured from class III and grade B milk compete in the same market.