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# Proposals for Multiple Component Pricing in Midwest Federal Milk Marketing Orders

by

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# Proposals for Multiple Component Pricing in Midwest Federal Milk Marketing Orders

Ed Jesse[1]

## *Introduction*

In late January 1994, USDA held a federal milk marketing order hearing in Minneapolis to hear proposals for adopting multiple component pricing (MCP) in five midwestern orders. The orders are Chicago Regional, Upper Midwest (Minneapolis), Iowa, Eastern South Dakota, and Nebraska-Western Iowa. The bulk of Wisconsin Grade A milk is marketed by plants within this combined marketing area. The proposals that were heard all involved separately pricing three components of milk used for manufacturing; butterfat, protein, and other solids.

If MCP is adopted by USDA based on the hearing record, Wisconsin dairy farmers will see a difference in the way their milk checks are written. They will be paid for pounds of butterfat, pounds of protein, and pounds of other solids marketed for the month. They will also receive a "blended" differential per hundredweight reflecting market-wide utilization of milk for Class I and Class II purposes. Currently, payment is for the volume of milk marketed with a price adjustment for butterfat test above or below 3.5 percent.

Wisconsin dairy farmers may also see a change in the amount of their milk checks. The total dollars paid to all farmers will be the same with MCP as currently, but the distribution among farmers will change. Some farmers are likely to receive more money under MCP than under current pricing; others will likely receive less. How much milk checks will change will depend mainly on the protein test of producers' milk. In any case, MCP will more equitably reward dairy farmers for producing protein.

This paper explains the rationale for adopting MCP, outlines the major proposals presented and the issues identified at the MCP hearing, and discusses likely implications of MCP for plants and dairy farmers.

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### *Rationale for Adopting Multiple Component Pricing*

Economic justification for multiple component pricing can be summarized by the following quote:

> "An equitable method of paying producers for fat and solids-not-fat in milk has long been needed in the dairy industry. Milk is usually purchased on the basis of its fat content with little or no attempt to adjust the price for the variation in solids-not-fat. This method of paying becomes more and more unsatisfactory as the value of solids-not-fat increases relative to the value of fat."

This quote is from Professors Froker and Hardin of the University of Wisconsin. It is contained in Wisconsin Agricultural Experiment Station Research Bulletin 143, published in February 1942. Some 52 years later, most federal milk marketing orders -- and all orders in the midwest where manufacturing use dominates fluid use -- still use volume/butterfat pricing. Butterfat/volume pricing was deemed obsolete by Froker and Hardin in 1942 when the value of butterfat in a hundredweight of 3.5 percent butterfat milk represented about 60 percent of the total milk value. Currently, the butterfat value represents less than 20 percent of the M-W price.

Put simply, if economic signals are not fashioned to encourage dairy farmers to modify milk composition in accordance with consumer preferences, then the dairy industry risks a substantial worsening of the current milkfat surplus problem.

Figure 1 illustrates the extent of the current problem. Since the mid-1980s, Commodity Credit Corporation (CCC) purchases of American cheese and nonfat dry milk have moderated substantially. For example, cheese purchases were 16 million pounds in 1992, compared to 833 million pounds in 1983, when CCC purchases measured on a milkfat equivalent basis peaked. Similarly, nonfat dry milk purchases by the CCC in 1992 were only 13 percent of their 1983 levels. But CCC butter purchases have shown an increase at the same time that total CCC purchases have been declining. Since 1989, butter purchases have exceeded 400 million pounds, more than what was experienced in 1983, when all dairy products purchased by the CCC were in surplus.

This distortion in CCC purchases is the result of changes in dairy product consumption patterns that have not been matched by changes in milk composition. The butterfat composition of milk in the U.S. has changed very little over the last 40 years. There was a slight decrease in fat tests -- from almost 4 percent to less than 3.7 percent -- from 1950 through the early 1960s. This was attributable to a decreasing percentage of colored breeds in the U.S. dairy herd. From the mid-1960s to 1981, the U.S. average fat test dropped another one-half point, from 3.69 to 3.64. But since 1981, there has been a slight gain in the butterfat content of the U.S. milk supply. In 1992, the average butterfat content was 3.68 percent.

In contrast to butterfat production, butterfat use has been declining. This decline has come from four sources. First, per-capita consumption of butter has exhibited a steady drop since it peaked at nearly 18 pounds in the 1930s. Most of the decline in butter use was due to market erosion from less-expensive vegetable oil substitutes. By the mid-1970s, per-capita butter use was less than 5 pounds, a 75 percent decline from peak consumption levels. Consumption appears to have stabilized at that level. But new concerns about the health effects of cholesterol and saturated fats may reduce butter use even further unless these concerns are countermanded through advertising or lower butter prices.

The second source of reduced butterfat use is in fluid products. Two percent low-fat milk began to substitute for whole milk in the 1960s. Later, one percent milk gained modest popularity. In the late 1980s, a surge in skim milk use began, after many years of stagnant sales. By 1987, U.S. per capita use of low-fat milks in the aggregate (two percent, one percent, and skim) exceeded use of whole milk. The substitution of low-fat for whole fluid milk appears to be accelerating.

Even for whole milk, the butterfat content of the retail product (minimum 3.25 percent butterfat, but usually higher) is less than the butterfat content of the raw product (about 3.67 percent butterfat). This means that sales of *all* fluid milk generate excess butterfat in the form of cream. With low-fat milks, the volume of excess butterfat associated with fluid milk processing is much larger. Currently, the average butterfat content of all Class I products under federal milk marketing orders is slightly in excess of 2 percent. Converting the difference between butterfat in raw milk and butterfat in fluid products to a butter equivalent yields nearly 2 pounds of butter for every hundredweight of Class I sales.

Trends in cheese consumption represent the third source of reduced butterfat use. All varieties of cheese have shown strong growth in the last two decades. But the largest growth recently has come in "other" varieties, primarily Italian, which have considerably lower butterfat content than traditional American varieties. The butterfat content of full-fat American cheese is about 33 percent; the fat content of Italian cheeses is in the low 20 percent range. Italian cheese production results in large quantities of both sweet cream and whey cream. Sweet cream results from skimming whole milk prior to cheesemaking in order to "standardize" butterfat content with protein content. Whey cream results from making Italian varieties without standardizing. In either case. the manufacturing of Italian cheese produces large quantities of butter as a byproduct.

The final source of reduced butterfat utilization comes from increasing production and sales of reduced-fat versions of several conventional higher-fat manufactured dairy products. Because of imprecise product definitions, there are no "official" production or utilization data for these products. But a casual stroll past the dairy case of any supermarket confirms that "low-fat" forms of cheese, yoghurt, cottage cheese, sour cream, and other products are displacing substantial volumes of their conventional counterparts.

The stability of the butterfat content of raw milk combined with the trends in butterfat use imply a serious potential problem of excess butterfat. To avoid this problem, the ratio of butterfat to protein in milk must be reduced to correspond to the ratio in the mix of dairy products that can find a commercial home. As a first step in altering the butterfat to protein ratio, producers must know the relative values of fat and protein. Multiple component pricing accomplishes this.

While the adoption of multiple component pricing is an essential first step in alleviating the current and projected butterfat surplus problems, MCP, by itself, is not the solution. Within any MCP plan that is adopted, the ratio of prices for fat and protein must be high enough to encourage dairy farmers to change the ratio of fat and protein production and to stimulate research into ways to accomplish this.

### *The MCP Proposals*

The two major proponents of MCP at the Minneapolis hearing were National All-Jersey (NAJ), an industry association of Jersey cattle breeders, and Central Milk Producers Cooperative (CMPC), the over-order bargaining federation for several dairy cooperatives supplying fluid milk to the Chicago market. NAJ's proposal was also supported by Alto Dairy Cooperative, Land O'Lakes, Swiss Valley Farms and Tri-State Cooperative. Several other entities supported the CMPC proposal with specified modifications, many dealing with adjusting protein price for somatic cell count.

The NAJ and CMPC proposals were very similar.[2] Both noted that since cheese was the predominant use of milk in the area, protein should be the nonfat component priced in an MCP plan. Both would separately price butterfat, protein, and other milk solids for milk used for Class II and Class III purposes (hard and soft manufactured products). Their difference is in how the protein price is set.

The NAJ and CMPC proposals would set a butterfat price based on the Chicago Mercantile Exchange price for Grade A butter. This is exactly the way the butterfat differential in federal orders is currently set.

The NAJ proposal would set the protein price according to the average monthly National Cheese Exchange price for block cheddar cheese and the monthly average price for whey protein concentrate (WPC) as reported by USDA's Dairy Market News. Specifically, the protein price per pound would be 1.32 times the block cheddar cheese price plus .735 times the WPC price.

What this seemingly peculiar formula does is allocate one pound of protein to the portions that normally show up in cheese and whey. In cheesemaking, about 75 percent of the protein in milk is retained in cheese, the remaining 25 percent is lost in whey. Three-quarters of a pound of protein will produce about 1.32 pounds of 38 percent moisture cheddar cheese. One-quarter of a pound of protein will produce about .735 pounds of 34 percent protein WPC. So the formula for the protein price in the NAJ proposal essentially "exhausts" the value of one pound of protein used to make cheese through a combination of cheese and whey product values.

The CMPC proposal for protein price involves two differences. First, the protein price formula uses the barrel cheddar cheese price on the National Cheese Exchange instead of the block price. The block price typically runs about 3-5 cents per pound under the block price. Second, the formula does not include any value for protein in whey. The specific protein price formula in the CMPC proposal is 1.32 times the average monthly barrel cheddar cheese price.

Both the NAJ and CMPC proposals would calculate the other solids price as a residual to the M-W price after accounting for the value of butterfat and protein in producer milk. The other solids price would be:

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[2] Most of CMPC's members participated in developing NAJ's MCP proposal, but CMPC later decided to support their own proposal.

[The M-W price
minus 3.5 times the butterfat price
minus average protein test times the protein price]
All divided by average other solids test[3]

While the same procedure is used in the NAJ and CMPC proposals to calculate the other solids price, the other solids price is not the same in the two proposals because the protein price used in the calculation is different. The CMPC proposal results in a higher other solids price because it yields a lower protein price

The monthly component prices that would have been calculated for the two proposals for the four-year period 1990-93 are shown in Figure 2. Over this period, the NAJ proposal yielded protein prices that averaged $0.45 per pound higher than the CMPC proposal. The NAJ other solids price averaged $0.25 per pound lower than the CMPC proposal. The imputed monthly price per hundredweight of milk at 3.5 percent butterfat and average M-W protein and other solids is the same for both proposals and equal to the monthly reported M-W price

Testimony at the hearing revealed different philosophies underlying the two different ways of computing protein prices. NAJ preferred a method that would result in a price for protein that reflected its maximum potential value in cheesemaking. Proponents of the NAJ proposal argued that it was important to send a strong economic signal to producers to alter milk composition in favor of protein, which is the milk component of highest value. CMPC preferred a method that was more conservative in the sense of not severely penalizing producers with relatively low protein tests and not penalizing plants that did not recover whey value.

Some other proposals deviated slightly from the NAJ and CMPC approaches in treating protein and other solids prices. A proposal supported by the National Cheese Institute would use a "residual fluid price" instead of an other solids price. The Trade Association of Proprietary Plants (TAPP) supported using a protein differential, like the current butterfat differential, rather than expressing protein value on a per-pound basis.

[3] The average protein and other solids tests used in this formula are the averages reported for the month by plants surveyed in the M-W price sample. Other solids tests are solids-not-fat tests less protein tests and average about 5.45 percent.

### *Disputed Issues*

There was no expressed opposition to MCP for Class III milk (milk used for butter, nonfat dry milk, cheese, and a few other non-perishable dairy products) at the hearing. And there was no expressed support for applying MCP to milk used for fluid products. There was evidence noting that Class I handlers could not sell high protein milk at higher prices.

However, two issues did elicit disagreement among those present: Whether Class II products should be exempt from MCP and whether protein prices should be adjusted for somatic cell count.

#### *Class II Exemption*

The Class II issue revolved around whether processors of soft manufactured products could "capture" the value of protein indicated by the MCP proposals. Class II products include ice cream and ice cream mixes, cottage cheese, yoghurt, sweetened condensed milk, milkshake mix, and a host of other dairy products generally described as "spoonable." For some of these products, there is a clear and measurable increase in yield associated with increasing protein content of the milk used to produce them. Cottage cheese yields per hundredweight of milk, for example, vary directly with the protein content of milk. For other products, the relationship between yield and protein is less obvious. In some cases, there is no apparent distinction between protein and other nonfat milk solids in determining yield. Thus, there is no sound economic rationale for obligating processors to pay more for protein than for other nonfat solids.

The inability to obtain marketplace value from protein is the reason that the MCP proposals exempt fluid milk processors from paying for protein in the same way as manufacturing plants. Two parties at the hearing (TAPP and the Galloway Company) argued that processors of certain Class II products should be exempt from MCP for the same reason.

### *Somatic Cell Count Adjustments*

There is irrefutable research evidence that high somatic cell counts (SCC), resulting from the incidence of mastitis in dairy cows, reduces cheese yields. Consequently, there is an economic rationale for paying for milk used to make cheese on the basis of SCC; the higher the SCC, the less the milk is worth to cheesemakers. However, research results have not been uniform in measuring how much cheese yield loss can be expected from a given SCC measurement. Some studies have shown more than a 10 percent yield loss from milk with a SCC greater than 750,000 compared to milk with a SCC less than 100,000. Other studies have shown the yield difference to be only 1 percent.

Most cheese plants in Wisconsin and other Midwestern states offer premiums to producers for low SCC and some also deduct for high SCC. But the extent to which these "quality" premiums and deductions reflect the relative value of SCC as opposed to representing a milk procurement tool is an open question. Some quality premiums appear to be much higher than what could be reasonably defended by any research linking SCC to reduced cheese yields. Therefore, building a value-based premium/deduction into federal order blend prices could serve the useful purpose of rationalizing payments for quality; that is, federal order SCC payments could be set at levels that more reasonably represent the economic effect of SCC on cheese yields than existing premium programs.

There is also some evidence that high SCC may reduce the yield or quality of other manufactured dairy products, and reduce the shelf life of fluid dairy products. However, the the reduction in value associated with high SCC is even less clear for these products than it is for cheese. In particular, setting a payment based on some average of the measured effect of SCC on cheese yields could penalize manufacturers of dairy products that are not very sensitive to SCC.

Given the uncertainty surrounding the economic effect of SCC, the NAJ and CMPC proposals were silent on the issue of adjusting protein or milk prices for SCC levels.[4] Neither were opposed to some kind of adjustment, but they were not comfortable in supporting a specific premium/deduction schedule.

Other proposals requested SCC adjustments. Most of these proposals were quite generic with respect to how milk value should be changed according to SCC. Land O'Lakes, for example, supported a general payment adjustment for both milk quality and volume by requesting that:

> "In making payments to producers, deductions may be made to individual producers for variations in quality or volume of milk relative to an announced norm of up to 10 percent, provided that such deductions are offset by premiums paid to other individual producers of equal or greater value."

Similarly, the National Cheese Institute asked that:

> "Instead of including in the order a somatic cell price per hundred-weight, allow handlers to submit a plan for the market administrator's approval to pay premiums or make deductions based on somatic cell count or other quality considerations so long as the total payment to all producers reflects the monthly minimum pay price under the Order."

Kraft General Foods asked simply that USDA:

> "Adjust the protein or other component prices on the basis of somatic cell content (and any other relevant quality characteristic) of producer milk."

Wagner's Weyauwega Milk Products, Inc., submitted but did not defend a proposal to:

> "Modify (the CMPC proposal) to include negative somatic sell adjustments for somatic cell levels between 500,000 and 750,000."

Only TAPP proposed a specific SCC adjustment:

[4] CMPC submitted a proposal that would have varied protein prices according to SCC. At the hearing, CMPC abandoned its support for the SCC adjustment.

"Protein value per hundredweight to be adjusted by a positive somatic cell adjustment of approximately 1 cent per 15,000 somatic cells as somatic cell counts decline below 300,000, and a negative adjustment of approximately 1 cent per 15,000 somatic cells as somatic cell counts increase above 350,000, up to a maximum adjustment of plus or minus 10 cents to the value of protein per hundredweight of milk."

### *Implications of Multiple Component Pricing*

Multiple component pricing recognizes that "milk" is not a homogeneous commodity. Milk is composed of components -- butterfat, protein, and other solids -- that have different values, and the value of these components varies across products and over time as consumer preferences change. At one time, butterfat was the most valuable component of milk. Most dairy farmers were then paid for the pounds of fat they marketed. The skim milk produced by creameries in making butter was often returned to the farmer for feeding to hogs or other disposition. With growth of fluid milk sales, skim milk solids (protein and other solids) took on added value, and the milk pricing system was altered to pay for both butterfat and skim milk. Currently, the importance of cheese means that protein has taken on increased value. MCP represents a change in federal order pricing system to recognize the value of protein.

Several federal milk marketing orders have already been amended to use MCP instead of butterfat/skim milk pricing. While the five orders in the midwest that were the focus of the recent MCP hearing do not use MCP, most dairy plants in the Midwest offer protein premiums and (less frequently) deductions for protein tests above or below specified base levels. Hence, the dairy industry has considerable experience with MCP.

MCP makes milk pricing more equitable for both producers and manufacturers. With federal order butterfat/skim milk pricing, protein value is completely ignored, and even with private protein premium plans, the value of protein to cheesemakers is not adequately reflected in the premiums. Consequently, dairy farmers with high protein milk receive less than what the high protein milk is worth in cheesemaking. Conversely, dairy farmers with low protein milk receive more than what their milk is worth to a cheesemaker. In effect, high-protein milk is subsidizing low-protein milk.

To illustrate, consider two dairy herds, herd A and herd B, each producing milk with 3.7 percent butterfat. The protein content of herd A milk is 3.15 percent and the protein content of herd B milk is 3.35 percent. Given expected product yields per hundredweight of milk, the high-protein milk from herd B would produce 0.27 pounds more cheese than the low-protein milk from herd A. Herd B milk would also produce 0.09 pounds more whey protein concentrate. Whey cream butter production from the two herds would be the same. Using December 1993 monthly prices for block cheddar cheese, butter, and whey protein concentrate[5], herd A milk would yield gross revenue to the plant of $14.62 per hundredweight, while herd B milk would yield $15.05, 43 cents per hundredweight more than herd A milk. But with conventional pricing, the cost of milk to the plant would be $12.63 per hundredweight regardless of which herd supplied the milk, and the two herds would receive the same price per hundredweight.[6]

Multiple component pricing alters this inequitable pricing situation by explicitly pricing protein. Plants pay more (less) and farmers receive more (less) for milk that is high (low) in protein. In this example, use of the NAJ MCP proposal would have changed the cost of milk to the plant. Milk from herd A would cost the plant $12.65 per hundredweight. Milk from herd B would cost $13.10. Comparing gross returns with milk cost indicates that the plant would experience a net margin of $1.97 per hundredweight for milk obtained from herd A and $1.95 per hundredweight for milk obtained from herd B. By requiring plants to pay for protein, MCP tends to equate net margins to plants regardless of the protein composition of the milk they receive.

Table 1 illustrates this "leveling" of net margins to cheesemakers across a range of butterfat and protein tests. For conventional pricing, the range in net margins is from $0.36 per hundredweight to $4.05, or $3.69 per hundredweight. There is a spread of from $2.14 to $3.34 per hundredweight in net margins across the range of protein values, and from $0.35 to $1.55 per hundredweight across the range of butterfat values.

With pricing under the NAJ proposal, the absolute spread in net margins is $1.47 cents per hundredweight, from $1.17 to $2.64 per hundredweight. The spread across protein values ranges from $0.13 to $1.10 per hundredweight and the spread across butterfat values ranges from $0.24 to $1.45.

There will be gainers and losers from the adoption of MCP in Midwest federal orders. Among dairy farmers, those gaining will be those whose herd milk is relatively high in protein; losers will be farmers with relatively low protein. With current pricing, producers of low-protein milk are being paid more than what their milk is worth in cheesemaking; those with high-protein milk are being paid less. Among plants, gainers will be those who are now receiving milk of less than average protein content; losers will be those who receive milk that is higher than average in protein. Currently, plants are paying too much for low-protein milk; too little for high protein milk.

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[5] Prices used in this example are average December prices for block cheddar cheese on the National Cheese Exchange, Grade A butter on the Chicago Mercantile Exchange, and Central States whey protein concentrate. The December M-W price and butterfat differential are used to derive plant costs for milk.

[6] The cost of milk to the plant and the farm price are not the same. Farm milk prices are higher by the amount represented by the weighted Class I and Class II differential.

Table 1: Comparison of Block Cheddar Cheese Manufacturing Margins: Conventional Pricing versus NAJ MCP Proposal*

| | Butterfat | | | | | | |
|---|---|---|---|---|---|---|---|
| Protein | 3.2 | 3.4 | 3.6 | 3.7 | 3.8 | 4.0 | 4.2 |
| Gross Returns: | | | | | | | |
| 2.75 | 12.70 | 13.06 | 13.20 | 13.27 | 13.34 | 13.49 | 13.63 |
| 2.95 | 13.12 | 13.55 | 13.97 | 14.05 | 14.12 | 14.26 | 14.40 |
| 3.15 | 13.55 | 13.98 | 14.41 | 14.62 | 14.84 | 15.03 | 15.17 |
| 3.25 | 13.76 | 14.19 | 14.62 | 14.84 | 15.05 | 15.42 | 15.56 |
| 3.35 | 13.98 | 14.41 | 14.83 | 15.05 | 15.26 | 15.69 | 15.95 |
| 3.55 | 14.40 | 14.83 | 15.26 | 15.48 | 15.69 | 16.12 | 16.55 |
| 3.75 | 14.83 | 15.26 | 15.69 | 15.90 | 16.12 | 16.55 | 16.97 |
| Milk Cost: Conventional Pricing | | | | | | | |
| 2.75 | 12.33 | 12.45 | 12.57 | 12.63 | 12.69 | 12.80 | 12.92 |
| 2.95 | 12.33 | 12.45 | 12.57 | 12.63 | 12.69 | 12.80 | 12.92 |
| 3.15 | 12.33 | 12.45 | 12.57 | 12.63 | 12.69 | 12.80 | 12.92 |
| 3.25 | 12.33 | 12.45 | 12.57 | 12.63 | 12.69 | 12.80 | 12.92 |
| 3.35 | 12.33 | 12.45 | 12.57 | 12.63 | 12.69 | 12.80 | 12.92 |
| 3.55 | 12.33 | 12.45 | 12.57 | 12.63 | 12.69 | 12.80 | 12.92 |
| 3.75 | 12.33 | 12.45 | 12.57 | 12.63 | 12.69 | 12.80 | 12.92 |
| Milk Cost: NAJ Multiple Component Pricing | | | | | | | |
| 2.75 | 11.39 | 11.53 | 11.67 | 11.74 | 11.81 | 11.95 | 12.09 |
| 2.95 | 11.85 | 11.99 | 12.13 | 12.19 | 12.26 | 12.40 | 12.54 |
| 3.15 | 12.30 | 12.44 | 12.58 | 12.65 | 12.72 | 12.86 | 13.00 |
| 3.25 | 12.53 | 12.67 | 12.81 | 12.88 | 12.94 | 13.08 | 13.22 |
| 3.35 | 12.76 | 12.89 | 13.03 | 13.10 | 13.17 | 13.31 | 13.45 |
| 3.55 | 13.21 | 13.35 | 13.49 | 13.56 | 13.63 | 13.76 | 13.90 |
| 3.75 | 13.66 | 13.80 | 13.94 | 14.01 | 14.08 | 14.22 | 14.36 |
| Net Margins: Conventional Pricing | | | | | | | |
| 2.75 | 0.36 | 0.60 | 0.63 | 0.64 | 0.66 | 0.68 | 0.71 |
| 2.95 | 0.79 | 1.10 | 1.41 | 1.42 | 1.43 | 1.45 | 1.48 |
| 3.15 | 1.22 | 1.53 | 1.84 | 1.99 | 2.15 | 2.23 | 2.25 |
| 3.25 | 1.43 | 1.74 | 2.05 | 2.21 | 2.36 | 2.62 | 2.64 |
| 3.35 | 1.64 | 1.95 | 2.27 | 2.42 | 2.58 | 2.89 | 3.03 |
| 3.55 | 2.07 | 2.38 | 2.69 | 2.85 | 3.00 | 3.31 | 3.63 |
| 3.75 | 2.50 | 2.81 | 3.12 | 3.28 | 3.43 | 3.74 | 4.05 |
| Net Margins: NAJ Multiple Component Pricing | | | | | | | |
| 2.75 | 1.30 | 1.52 | 1.53 | 1.53 | 1.53 | 1.54 | 1.54 |
| 2.95 | 1.27 | 1.57 | 1.85 | 1.85 | 1.85 | 1.85 | 1.86 |
| 3.15 | 1.25 | 1.54 | 1.83 | 1.97 | 2.12 | 2.18 | 2.18 |
| 3.25 | 1.23 | 1.52 | 1.82 | 1.96 | 2.11 | 2.34 | 2.34 |
| 3.35 | 1.22 | 1.51 | 1.80 | 1.95 | 2.09 | 2.38 | 2.50 |
| 3.55 | 1.19 | 1.48 | 1.77 | 1.92 | 2.06 | 2.35 | 2.64 |
| 3.75 | 1.17 | 1.46 | 1.75 | 1.89 | 2.04 | 2.33 | 2.62 |

*Values calculated using December 1993 prices. Milk cost does not include weighted differential from Class II and Class I utilization.

The size of producer gains and losses from adopting MCP was estimated by the Market Administrators' offices of the Upper Midwest and Chicago Regional orders and related material presented at the hearing. Summaries of this material are illustrated in Figures 3 (Upper Midwest Order) and 4 (Chicago Regional Order).

The charts show the percent of producers that would have experienced gains and losses relative to current pricing had the NAJ MCP proposal been used during the period January 1992 through September 1993. From Figure 3, note that in January 1992, about 44 percent of the producers in the Upper Midwest Order would have received a federal order blend price per hundredweight calculated using the NAJ MCP proposal that was lower than what they actually received. About 25 percent would have received from 1 to 20 cents per hundredweight less; 16 percent would have received from 21 to 50 cents per hundredweight less; and 4 percent would have received more than 50 cents per hundredweight less.

In the same month, 56 percent of the Upper Midwest producers would have received the same or more per hundredweight of milk if the NAJ proposal had been in effect. About 27 percent would have seen from no change to a 20 cents per hundredweight increase; 21 percent would have experienced an increase of from 21 to 50 cents per hundredweight; and 8 percent would have received more than a 50 cents per hundredweight gain.

The percentages of producers gaining and losing from the use of MCP vary from month-to-month and between markets. In some months, there are more gainers than losers while the opposite is true in other months. In general, the percentage of producers who would gain more than 50 cents per hundredweight from MCP is larger than the percentage who would lose more than 50 cents.

Dairy farmers who are paid less under MCP will obviously feel that MCP is a raw deal. But those farmers are now getting a very generous deal, since their milk checks are being subsidized by dairy farmers with higher-protein milk, whose milk is underpriced relative to its value in manufacturing. MCP does nothing more than require payment for milk in accordance with the value of the milk in cheesemaking, the dominant use of milk in the Midwest.

While the adoption of MCP would not generate any additional revenue for producers in the short run, it would be expected to increase revenue in the longer run. The composition of milk should change in favor of higher protein, since that is the component that is priced the highest. Changes in feeding and management can yield marginal increases in protein content. Over a longer period, larger changes are possible through genetics, possibly accelerated by genetic engineering. These changes will be encouraged by MCP, and as they occur, the value of a hundredweight of milk will correspondingly increase.