

**Milk for Manufacturing:  
Number of classes, Number of components, Advanced pricing  
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As you well know there are drastically different opinions regarding federal milk marketing order topics such as the proper number of classes of milk, what components to test for and to pay dairy producers for, how to establish these prices and the need for advanced pricing of Class I as well as other milk classes. Opinions range from those who advocate expanded price regulation of federal milk marketing orders (FMMOs) to those who want to simplifying the regulation that currently exists. I don't claim to have the correct answer to all of these topics, but I hope to shed some light on the subject and stimulate some good discussion.

Answers to these topics are found in the stated purpose of FMMOs. The Agricultural Marketing Agreements Act of 1937, as amended provides a specific set of objectives to guide FMMO decisions. Basically the objectives of FMMOs are:

- To ensure consumers of an adequate supply of wholesome milk at a reasonable price. I believe the intent was primarily a supply of wholesome milk for beverage (Class I) purpose, which of course includes a reasonable reserve supply, but not necessarily a supply for manufactured dairy products.
- To provide adequate producer prices that ensure an adequate current and future Grade A milk supply.
- To promote greater producer price stability
- And orderly marketing.

These objectives are to be fulfilled by classified pricing and pooling provisions. Rather than one flat price classified pricing and pooling results in improved price stability and enhance producer revenue via price discrimination. Whether classified pricing and pooling provisions are working today to fulfill these objectives has received considerable discussion. Some of you may recall some rather thorough discussion found in the Nourse Report<sup>2</sup>. The report devoted

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<sup>2</sup> *Report to the Secretary of Agriculture by the Federal Milk Order Study Committee* by Edwin G. Nourse, et al. U.S. Department of Agriculture. December 1962.

considerable discussion to FMMOs and orderly marketing. This is a useful report to review. But, there has been less discussion as to whether classified pricing and pooling provisions have been appropriately amended on a timely basis in response to ongoing changes in the dairy industry. For example, are existing classified pricing and pooling provisions interfering with or not allowing for the adoption of innovative technology, new product development or the proper allocation of raw milk and its components to the highest and best use? These are important questions given modern technology allows for the separation of milk components and the fractionation of these components into many sub-components designed for specialized uses. These technologies offer the potential to grow the domestic and international market for milk components.

An objective of FMMOs is to ensure an adequate supply of wholesome milk for Class I use. It appears that objective has been more than met considering today 97 percent of all milk is Grade A and the majority of Grade A is pooled and priced under the provisions of an order. In 2006, FMMOs regulated the pricing of 68 percent of all Grade A milk of which just 37.6 percent was used for Class I. With the vast majority of Grade A milk utilized for manufactured dairy products we need to evaluate whether or not current classified pricing and pooling provisions allow for technology and product innovation not only for beverage use milk but for milk used in the manufacture of a variety of dairy products and dairy ingredients that may be incorporated into a variety of potential food and beverage uses. This pertains to both the domestic and international markets. We need to seriously ask, are both consumers and dairy producers receiving the full potential benefits from FMMOs as was intended by the 1937 Act? If the answer to this question is no, and I think the answer is no, does this mean we need more classes

of milk or less? Do we need to price milk on the basis of a different set of components? Do we need advanced pricing for Class I or for all classes?

**Number of Classes:**

In the 1930s when FMMOs came about life was much simpler. Either milk was drunk as a beverage, (and by the way as whole milk), or it was made into butter, a few varieties of cheese, nonfat dry milk, some ice cream and a few other products. Butterfat was the primary determinate of the value of raw milk. Some dairy producers separated cream at the farm to be marketed and fed skim milk to the hogs. Raw milk was only tested for butterfat. No practical technology existed to test for and pay producers for protein or other solids content. FMMOs had a two class system, one for beverage use and one for manufacturing use. With time a third class came into being, a class for soft manufactured products—ice cream, cream products, cottage cheese, condensed milk products—a manufacturing class separate from cheese, butter and nonfat dry milk. The need for this separate manufacturing class was based on the argument that these soft dairy products are frequently processed together and marketed by milk handlers in common distribution channels with that of beverage milk products. So most FMMOs adopted three classes of milk—Class I for beverage milk, Class II for soft manufactured products and Class III for butter, powder and cheese.

A 1973 study, Milk Pricing Policy and Procedures, Part II, Alternative Pricing Procedures, Report of the Milk Pricing Advisory Committee, USDA—Ron Knutson, was chairman of the committee—examined alternative methods for determining a minimum price for Class III milk (competitive pay price or product price formulas) and an appropriate mover for Class I. Even as late as 1973 this report suggested that one manufacturing class for butter, milk powder and cheese was still appropriate. The report stated, “If separate price classes were created in FMMOs for butter-powder and cheese the incentives for switching between the two products would be substantially reduced. Surplus class prices would be adjusted to reflect product prices and appropriate make allowances. As a result manufacturing profit margin would be relatively constant”. But, like any economist, the report went on to state, “On the other hand, substantial evidence is accumulated to indicate long-term differences in demand and price relationships between butter-powder and cheese and further consideration of the need to create a separate price class for butter-powder would appear appropriate”.

The push for a fourth class came into being in 1993 after two year's of legal proceedings. A Class III-A for butter-powder use was established. Butter-powder plants argued that they could not pay the same minimum price for raw milk as cheese plants and be profitable. Further, dairy cooperatives operated butter-powder plants to provide a valuable market-wide service, balancing the milk supply with Class I milk requirements. But dairy cooperatives argued that they experienced unfavorable returns by operating butter-powder plants in providing balancing when paying the same price for raw milk as cheese plants pay. All dairy producers benefited from this market-wide balancing service, but the dairy cooperatives bore the cost at the expense of their member-producers. Producers who were not members of a dairy cooperative providing a market-wide balancing service were therefore "Free Riders". By establishing Class III-A the "Free-rider" problem would be solved and all dairy producers would share in the cost of balancing.

Opponents argued that the establishment of Class III-A would inhibit the allocation of milk to its highest use, but instead it would encourage expansion of butter-powder processing capacity when market signals indicate more milk should move to cheese plants. Further, since dairy cooperatives with manufacturing plants provided most of the balancing service negotiated over-order premiums for fluid milk sales ought to compensate for manufacturing losses experienced by their operating butter-powder plants involved in providing the balancing function. Market data suggest that concerns of the opponents might have been valid. While milk production grew 3.1 percent from 1993 to 1995, nonfat dry milk production grew by 29 percent and government stocks of nonfat dry milk increased by 419 percent. There was evidence that nonfat dry milk was made and later reconstituted to make Class II products. The cost to make nonfat dry milk and later reconstituting it for Class II use was cheaper than paying the Class II price directly for raw milk.

After five years of study groups and analysis, hearings, proposed rules and final rules, Federal Milk Marketing Order Reform was implemented on January 1, 2000. The number of FMMOs was reduced from then 33 to 11 and several changes were made to the methods for pricing milk including milk component pricing and the use of product price formulas with fixed make allowances and yields. Needless to say since then there have been numerous proposals and hearings to amend these changes and we are still in this process with a recent hearing held this month of April. It has meant full-employment for dairy economists and lawyers. The 2000

FMMO reform retained the four class pricing system—Class I beverage milk, Class II soft manufactured products, Class III cheese and Class IV butter-powder.

So since about 1993 we have had a chance to evaluate whether a four class system is appropriate or whether we ought to expand the number of classes or reduce the number of classes. If we were to expand the number of classes what might that be? Most often suggested is a separate class for making milk protein concentrates MPCs. The domestic market for MPCs has been growing and since we are not making it domestically MPC imports have been growing. It is argued that if we would create a separate class for MPCs with appropriate pricing, domestic production of MPCs would come about. Others argue that the lack of interest in domestic production of MPC is because of the relatively high support price on nonfat dry milk that discourages investment into MPC technology.

Recognizing that modern technology allows for the separation and refinement of milk and its components for the best use in different dairy products and food ingredient uses, these product uses could be a criteria in establishing various classes of milk for FMMOs. But, the Class III-A experience and the continuation of a four class system under FMMO reform strongly suggests no more than three classes—Class I for beverage use, Class II for soft manufactured products and Class III for butter, milk powders and cheese. In fact do we even need a separate Class II for soft manufactured products but rather just one manufacturing class?

One of criteria for deciding what products should go into what class has been based on similar elasticities of demand. Using the different price elasticities as criteria price discrimination could be implemented to its fullest to enhance producer revenue. But, we don't have a good handle on the price elasticities of many of dairy products, and even if we devote some effort to measure demand elasticities, I believe there is more to be lost than to gain in producer revenue enhancement in the long run. Attempting to classify and price every speck of raw milk and/or milk component to the highest possible value hampers new product development and new uses of milk components, in particular milk proteins. For many of these new uses milk proteins compete with vegetable proteins. Which one wins out has to do with functionality, but also price. Further, I don't believe with an expansion of more manufacturing classes appropriate formulas for establishing minimum class prices can be accomplished to the mutual agreement of the dairy industry. Just consider the challenge we are currently having with the product price formulas for Class III and Class IV milk as well as continued concerns with Class II pricing. The bottom line

is that more manufacturing classes are more likely to hamper rather than encourage new dairy product development and new uses for milk components. The potential growth in both the domestic and international markets for milk and milk components will not be realized and at the detriment of dairy producers and the dairy industry long-term.

The experience with the four class system under FMMO reform supports the fact that by having both a Class III and Class IV for manufacturing milk there is little incentive to move milk to its highest value use. It is normal for milk to have different values across uses from time to time. Values change as product prices change in response to supply and demand conditions for the various products. It is expected that milk will be directed to the production of those products that provide the greatest return. As this happens net returns between uses of milk for different products become more similar. Economic logic for one manufacturing class is that raw milk and/or its components would be allocated among uses until the finished product market prices adjusted to bring about equilibrium.

But, with the Class III and Class IV classes having product price formulas with fixed make allowances (recognizing that the current make allowances may not be appropriate) entices manufacturers to maximize capacity use regardless of commodity market prices. A product price formula yields a value for milk equal to the commodity's market price multiplied by the yield factor of that commodity from a pound of the component and subtracting a cost (make allowance) for converting the milk into the commodity. Since the make allowance is fixed, processors have little if any incentive to "give-up" milk to the higher valued manufacturing product mix. This is because the more milk received by a manufacturing plant increases the plant's output and reduces its average fixed costs per unit of product. This leads to additional production of the lower valued manufacturing product and pushes its commodity price even lower. The higher valued manufactured class is unable to attract more milk pushing its commodity price even higher. Plants making commodities in the lower manufacturing value class become even more profitable as more output lowers average fixed cost but the make-allowance is fixed. With product price formulas as fixed make allowances the manufacturer of the higher priced commodities has no additional margin to pay premiums to attract additional milk because higher commodity prices do not result in greater margins, only higher raw milk costs. The result is greater commodity price and in turn producer price volatility and longer

periods of time before appropriate raw milk and milk component allocation and price adjustments come about.

Since market-wide pooling exists the regulated manufacturing plants share in the pool and have the ability to pay their producers the same uniform base milk price regardless of commodity market prices. But, with two manufacturing classes the problems with pooling and de-pooling are enhanced. We experienced some of this during the 2000-2004 period. For example, in 2000 high butter prices but depressed cheese prices pushed Class IV well above Class III. The result, there was less incentive for butter-powder manufacturers than cheese plants to pool under an order. The opposite occurred in April 2004 when cheese prices took a sharp run up pushing the Class III price well above Class IV and even the Class I price. The Class IV price stayed below Class I. Cheese plants de-pooled but there remained an advantage for powder plants to remain pooled and receive a pool draw. If there had been one manufacturing class during these times, both cheese and butter-powder plants would have been required to pay the same regulated minimum price for milk and components. Milk and milk components would more likely have moved quicker from cheese to butter-powder during the 2000 period and from butter-powder to cheese during the 2004 period. Also, there would probably have been less de-pooling. Quicker allocation of milk from the lower valued use to the higher valued use would have reduced the price volatility of butter, powder and cheese as well as producer pay prices. Since then hearings have been held and final amendments approved to make it more difficult for manufacturing plants to de-pool and then later re-pooling.

Having both a Class III and Class IV with fixed make allowances along with market-wide pooling may have been a factor for cheese prices and the resulting Class III price to fall below the \$9.80 per hundredweight support price for several months during the 2000 to 2003 period (7 months in 2000, 3 in 2002 and 6 in 2003). In November of 2000 the Class III got a low as \$8.57. During these months cheese manufacturers continued to produce cheese for an over-saturated commercial market despite better returns to butter-powder. During this time period there were many months when the Class IV price was above the \$9.80 support price while the Class III price was below. The fixed make allowance guaranteed the cheese plant a margin and provided the incentive to maximize cheese production that lowered average fixed cost per unit of cheese. With a product price formula having a fixed make allowance and with market-wide pooling there was no real incentive to sell cheese to the CCC or to reduce cheese production.

While recognizing there were other factors that interfered with the operation of the support program during this period of time, it appears when there was just one manufacturing class for butter, nonfat dry milk and cheese, the federal milk price support program operated much better. Raw milk costs were held near or close to the support price regardless if milk was used for butter-powder or cheese.

A closely related issue to the effective operation of the federal price support program after FMMO reform was the decision to use the higher of an advanced Class III or Class IV price as the mover of the Class I price. It is quite clear that in 2000 when Class IV was much higher than Class III due to relatively high butter prices but depressed cheese prices and CCC purchases of nonfat dry milk were increasing under the support program, political pressure interfered with the Secretary of Agriculture to exercise his authority to implement an appropriate butter-powder tilt. The advanced Class IV price was the mover of Class I and a butter-powder tilt would have lowered the Class I price. If there had been one manufacturing class, doing a butter-powder tilt would not have been as big of an issue.

In conclusion, I think the evidence supports one manufacturing class for butter, nonfat dry milk and cheese. With one manufacturing class milk and its components are more likely to move quicker to the highest use value and thereby enhance producer revenue and reduce dairy product and producer price volatility—an important objective of FMMOs as stated in the 1937 Act. Some argue the opposite that one manufacturing class would reduce producer revenue. But, for two manufacturing classes to generate higher producer revenue there must be differences in the price elasticity of demand with the more inelastic product having the higher price and the possibility of substitution of lower cost components must be foreclosed. While elasticity studies are lacking, there is no evidence that elasticity of cheese and that of butter and nonfat dry milk differ enough to enhance producer revenue via price discrimination.

There is the argument that dairy cooperatives provide a market-wide service of balancing the Grade A milk supply to Class I needs to the betterment of all dairy producers. Without a separate manufacturing class for nonfat dry milk the entire cost of balancing would fall on dairy cooperative producers. While it may be easier to balance milk supplies with powder plants, especially when the federal price support program stands ready to purchase surplus nonfat dry milk, other manufacturing plants can be also used for balancing. For example, in the Upper Midwest order there is little milk balancing done with nonfat dry milk plants, but rather cheese

plants are used for balancing. Dairy cooperatives ought to be compensated for providing the market-wide service via market-wide service payments provided within FMMOs and/or negotiated over-order premiums with Class I handlers.

What about the need for Class II for soft manufactured products? Over the years how to price Class II use milk has not been without controversy. As previously mentioned, Class II came about because Class II products are frequently processed and marketed by handlers in common distribution channels similar to Class I products. Therefore Class II milk should be priced higher than other manufacturing use of milk. But, the controversy has been over how much higher? In the early 1980s Class II was priced from \$0.10 to \$0.25 per hundredweight higher than the Minnesota-Wisconsin Price Series depending upon the FMMO. By the early 1990s the price difference was \$0.30. Under the 2000 FMMO reform the Class II skim milk price is priced \$0.70 higher than the advanced Class IV price. The Class II butterfat price is the Class III/IV butterfat price plus \$0.007. With these price changes Class II processors have had two primary concerns. One is that under FMMO regulation Class II products compete with similar products made from un-regulated milk. For example, the price for cream may be higher than sources of un-regulated cream supplies. This can put regulated Class II handlers at price disadvantage. A second concern is that if Class II skim milk is priced too high above Class III (now Class IV), this may encourage increased substitution of nonfat dry milk for fresh raw milk in the making of Class II products.

Because of these and other concerns I think we could fold milk used for Class II products into the same manufacturing class as butter, nonfat dry milk and cheese. Producer revenue is not enhanced because Class II milk is priced higher due to Class II products being more inelastic than Class III or Class IV products. If anything, most Class II products are probably less price inelastic. Further the \$0.70 differential over Class IV adds relatively little to enhance producer revenue. This of course varies by FMMO. In 2006, the Class II utilization ranged from almost 20 percent in the Northeast order to a low of less than 6 percent in the Upper Midwest order and averaged about 12 percent for all 10 orders. The challenge of course with one manufacturing class is to come up with a formula for establishing the appropriate minimum monthly class price. "Minimum price" needs to be stressed allowing for market forces to allocate raw milk and milk components to the highest use.

**What milk components to test for and pay for:**

Currently, FMMOs assume the following standardized whole milk composition for the purpose of calculating Class prices: 87.82 percent water, 3.50 percent butterfat, 2.99 percent protein and 5.69 percent other solids (lactose, minerals—salts or ash). Seven of the 10 existing orders pay producers on the basis of milk components and three (relatively high Class I markets) still pay producers on a fat-skim milk basis. In the seven FMMOs with component pricing producers are paid on a per pound basis for total pounds of butterfat, protein and other solids marketed as well as a producer price differential (PPD) and somatic cell adjustments, both paid on a hundredweight basis. Is butterfat, protein and other solids the correct components? I think so. More of an issue is whether or not the correct product price formulas are being used to calculate the minimum butterfat, protein and other solids per pound values. There is not a big issue with the butterfat value being determined by the butter price. But, when it comes to protein and the other solids price questions do arise. The protein price is primarily determined by the cheese price but the butter price plays a small role as well by recognizing the added value from casein retaining butterfat in cheese. But, some feel the resulting protein value is inadequate. For example, in the April 2007 FMMO hearing the National All-Jersey Association claims FMMOs understate the value of protein. They proposed to recognize added protein value from dry whey.

The dry whey price is now used in a product price formula to calculate the other solids price per pound. But, the dry whey price increased substantially the end of 2006 and into 2007, driving up the other solids price and the Class III price. For every one cent increase in the dry whey price the other solids price per pound increases one cent and the Class III price about 6 cents. In March 2006, the dry whey price used in the other solids price formula was \$0.3409 per pound and the other solids price was \$0.1874 per pound. But, a year later, March 2007 the dry whey price was \$0.7060 and other solids price \$0.5257. This increase in the dry whey price added about \$2.20 per hundredweight to the Class III price over a year ago for cheese making. But, the cheese price used in the Class III formula increased just \$0.212 per pound (\$1.1612 March 2006 to \$1.3732 March 2006), adding only about \$2.00 to the value of Class III milk for cheese making. The Class III price increased from \$11.11 March 2006 to \$15.09 March 2007. Since many cheesemakers don't process whey but rather field spread whey or sell wet whey they are not experiencing the enhanced value of raw milk from high dry whey prices. This raises the question as to whether using dry whey in the product price formula for calculating the value of other

solids per pound and in turn being a factor in the Class III price for cheese is appropriate when it may over-state the realized value of raw milk experienced by many cheesemakers. In the March 30, 2007 issue of *Cheese Market News* there was an article titled, “Cheesemakers respond to market changes with price increases, debt”. Cheesemakers are quoted as saying the cost of raw milk has gone up not because of higher cheese prices but because of high dry whey prices. In response to higher dry whey prices some have increased their selling price of cheese, but are concerned that any further increase might hurt business. Others indicated that for now they have taken on more debt to maintain their business. Thus, the question is now being raised as to whether the product price formula for the other solids price is appropriate to establish the FMMO minimum price for other solids and the raw milk cost for Class III. But, in time cheesemakers will most likely figure out how to capture added value from whey via investing in driers and membrane technology. But, in the short run, volatility of product prices used in product price formulas can cause these types of price distortions.

The question of are we pricing the right milk components is closely tied to the number of classes of milk. And this pertains mainly to paying for milk proteins. Today technology exists for separation, fractionation and refinement of milk proteins into different proteins having different functionalities and targeted for specialized uses. For example, milk protein can be separated into casein protein and whey protein. From a nutritional standpoint both proteins are the same. But, from a functionality standpoint they are totally different. Casein has the binding capabilities to capture butterfat to make cheese curds in cheese making. Whey protein does not. So technically we could separate casein protein from milk to be used to make cheese and put the whey protein back into Class I milk. But, because technology would allow us to do this is this practical from a cost standpoint and if so, should we be paying a different price for casein protein than whey protein? When FMMO order reform was first implemented in 2000 there was a different butterfat price for Class I versus the other classes. It didn't take the industry long to object to this and FMMOs were amended to have the same butterfat price for Class II, III and IV. Class I now uses the same butterfat formula except Class I butterfat is advanced priced.

There are real valid reasons to focus on the components of milk. Allergists might be interested in the protein beta lactoglobulin, the culprit behind many milk allergies. Another protein, casein macropeptide, found in many sport supplements, might catch the eye of a body builder. But, for a cheese maker, casein is the major milk protein. So should FMMOs be

amended to add additional classes that recognize the use of milk proteins to make quite different final products and then come up with some formula to calculate an appropriate price for each different protein use? Rather than one price for the “other solids” component of milk should we be paying one price for lactose and another for whey protein? Or we can go even further and pay one price for dry whey as a whole, and different prices per pound of protein for whey protein concentrates (WPC) having 25 to 49.9 percent protein, for WPC having 50 to 89.9 percent protein and even another price for whey protein isolates. With how the world has changed from just a year ago in regards to dry whey prices versus WPC prices, some may say such refinement maybe needed.

Previously, it was mentioned that some do suggest a separate class for making milk protein concentrates (MPC). There is a growing domestic and international market for MPC. Like WPC, MPC can be refined via ultra filtration technology to remove more and more minerals and lactose to increase the protein concentration. What makes MPC valuable is that the process to make it does not damage the proteins. The proteins in MPC behave like milk proteins when MPC is used as an ingredient.

Let’s consider casein. *Acid casein* is the major product of world markets. It is used as an additive for glazing high quality paper and in the production of paints and cosmetics. *Lactic acid casein* is favored for food uses by New Zealand and Australia. *Rennet casein* can serve as nutritious ingredient in process cheese products or modified to produce products that function like plastic. *Caseinates* have about 91 percent protein and are used in the food industry in cured meats and to make milk and cream substitutes.

Since U.S. is currently not making casein, at least in any significant quantity, these refined casein products probably need not be considered in FMMO pricing at this time. But, with new technology developments and a growing domestic and international market for MPC, WPC and refined milk proteins for both food and non-food uses hopefully the U.S. dairy industry will eventually become increasingly be involved in manufacturing these products.

If we wanted to recognize and price all of these milk component possibilities, where will it end? Buttermilk may be used as an example. Dry buttermilk impacts the value of Class IV milk, but the current Class IV formula doesn’t recognize buttermilk. I find it interesting that in June 1995 when the BFP replaced the MW series as the base price and mover of Class I in FMMOs, the BFP was adjusted by considering the value of .42 pounds of dry buttermilk in Western States

in deriving the butter/nonfat dry milk portion of the BFP formula. So at one time someone thought buttermilk was important enough that it should be a part of establishing minimum FMMO prices.;

In conclusion, I think we are paying for the correct milk components. But, there should be critical evaluation as to whether current formulas used to calculate the minimum price for these components, in particular milk protein and other solids are appropriate. FMMOs are to establish minimum prices allowing for market forces to function in allocating milk and its components to its highest use. Since FMMOs establish minimum prices the minimum component pay prices should be based on the basic commodities of cheddar cheese, butter, nonfat dry milk and dry whey. Dry whey prices are a concern at this time, but the cheese industry will eventually adjust and make appropriate investments in technology that better capture the value of dry whey and other whey products.

There is also the debate as whether NASS prices or CME prices are the most appropriate prices to be applied in the component formulas. Consideration needs to be given to how to improve this price discovery process for prices used in product price formulas, but this is topic for discussion at another time. Any attempt to further refine milk components such as different milk proteins and to regulate minimum pay prices for the variety of potential uses or classes of these components would surely hamper the potential use of milk components in dairy products, as food ingredients and even industrial uses, all of which can potentially grow the domestic and international market for the long-term benefit of U.S. dairy producers. Any more regulation would be overkill and would discourage the expanded use of milk components in new product development. For many of these food and beverage products vegetable proteins can compete with milk proteins, except where the functionality and flavor of milk proteins may be required. The allocation of raw milk and its milk components to the highest use would not be improved via more classes or paying for more milk components.

**Advanced pricing:**

Historically, economic formulas have had limited use in pricing Class I milk under FMMOs. For most of the history of FMMOs the Class I price has been established and moved by adding a differential to a manufacturing milk value, making Class I the highest priced milk and giving it the first claim on Grade A raw milk supplies. Class I milk has also been advanced priced but not manufacturing use milk. The logic has been that cows are milked today and the milk can be in

the store as packaged milk the next day. Thus, bottlers need to know what the raw cost of milk is before selling and delivering the packaged milk to the store. This is similarly true for some Class II products. But, there is more time between when cows are milked and cheese, butter and nonfat dry milk is made from that milk and moved into the market channel. Thus, manufacturing use of milk is not advanced priced. But, in reality some manufactured dairy products move into the marketing channel within a week or two of manufacture.

From the early 1960s up until the 2000 FMMO reform Class I and Class II prices were based off of the Minnesota-Wisconsin Price Series and later the Basic Formula Price (June 1995) two-months previous to when the price applied. Under the 2000 FMMO reform the Class I price is based on the higher of the advanced Class III or Class IV price (class I mover). The “advanced” means that the Class I mover must be announced on a Friday on or before the 23<sup>rd</sup> of the previous month to which it applies. The Class II skim milk price is announced the same time but by adding \$0.70 to the advanced Class IV skim milk price. Class II butterfat and Class III and Class IV prices are announced on a Friday on or before the 5<sup>th</sup> of the following month to which it applies.

By advanced pricing of Class I and Class II and not Class III and Class IV major pricing and pooling issues arise. There is about six weeks between when the Class I price and Class II skim milk prices are announced and Class IV and Class III prices are announced. With the volatility of dairy product prices, in particular cheese prices, the price relationship between the Class I and Class II prices and Class III and Class IV prices can be distorted. For example, in 2004 the Class I mover for milk in April was announced on Friday, March 19<sup>th</sup>. The Class III and Class IV prices for April were announced on Friday, April 30<sup>th</sup>. A sharp run up in the cheese price the last half of March and the first part of April resulted in the Class III price being well above the Class I price. This was because the advanced Class III price was the mover for the April Class I price and the average cheese price used in the advanced April Class III price was \$1.4582 per pound. But, the average cheese price used in the product price formula for the April Class III price had increased \$0.5938 to \$2.0520 per pound. The result was major de-pooling of cheese plants and a major negative PPD. For example, the April PPD for the Upper Midwest order was a negative \$4.11 per hundredweight. Normally the Upper Midwest order utilization is about 20 percent Class I and 70 percent Class III. With the cheese plants de-pooling, the April 2004 Class I utilization increased to 63 percent and Class III dropped to less than 2 percent. Other FMMOs

having higher Class I differentials also had negative PPDs and experienced de-pooling, but to a lesser degree. Of course when cheese prices take a sharp decline the opposite occurs and the spread between Class I and Class II widens. Negative PPDs and de-pooling is a failure of FMMOs in fulfilling the major objective of orderly marketing.

What is the solution to avoiding negative PPDs and de-pooling. As previously indicated, since 2004 FMMOs have held hearings and amendments have been implemented to tighten up provisions for de-pooling and then later re-pooling. But, with advanced pricing this has not eliminated the entire problem. Either advanced pricing should apply to all classes of milk or it should be eliminated for Class I and Class II. With the volatility of dairy product prices, disorderly marketing will continue with the current advance pricing simply because of the time lag of about six weeks between the announced Class I mover and announced Class III and Class IV prices. Perhaps consideration could be given to shorting this a week or two at most. But, it comes down to either advanced pricing of all classes and the minimum price for all classes announced on the same advanced day or eliminate advance pricing for Class I milk and Class II skim milk. If advanced pricing is eliminated, no doubt Class I and Class II handlers would object but they would survive without advanced pricing. How do cheese plants operate without advanced pricing? Cheese plants experience unfavorable margins at times because even announced Class III prices lag changes in cheese prices. Using CME rather than NASS cheese prices for Class III would help to reduce this lag time about two weeks. But, now most cheese plants and other manufacturing plants pay dairy producers and/or their dairy cooperative supplier of raw milk around the 16<sup>th</sup> or so of the month for milk delivered during the first half of the month. These plants follow what is going on in the market with dairy product prices when making this first monthly milk payment. Then after the final Class III and Class IV price is announced for the entire month on or before the 5<sup>th</sup> of the following month the final milk payment for month is adjusted to reflect what was paid for the first half—an upward adjustment if the first half was too low or vice versa. FMMO provisions could be amended to allow Class I handlers to do the same. Without advanced Class I pricing Class I handlers may need to price weekly or bi-weekly to their retail outlets. Class I handlers would be exposed to greater margin risk similar to what manufacturing plants now experience. But, Class I handlers could learn how to manage the risk from changes in raw milk cost.

**Conclusions:**

Current milk classification, pooling and pricing provisions of FMMOs are not allowing orders to fulfill the objectives as spelled out by the Agricultural Marketing and Agreement Act of 1937. Classified pricing and pooling provisions are interfering with allocation of raw milk and milk components to their highest use and hampering the use of modern technology in new dairy product development and new uses of milk components in dairy products and as ingredients in food and beverage products, and perhaps even in industrial uses of milk, for both the domestic and international markets. I recognize that standards of identity also play a role in adoption of new technology and product development.

To over-come these problems and to modernize FMMOs to do a better job of establishing minimum prices for milk and milk components and at the same time allowing market forces to work in fulfilling FMMO objectives, the following recommendations are offered:

- Two classes of milk. One for Class I and a Class II for all manufactured dairy products.
- Continue to price the same milk components—butterfat, protein and other solids.
- But, evaluate the appropriateness of the product price formulas in reflecting minimum component values. In this light, the ability of FMMOs to make timely needed changes in these formulas when situations change needs to be improved.
- Basic commodities of butter, cheddar cheese, nonfat dry milk and dry whey can continue to be used in the product pricing formulas. But, consideration should be given to using CME prices rather than NASS survey prices as a means of reducing time lags between market prices and announced minimum prices. In addition, consideration needs to be given to how price discovery of CME can be improved.
- Either advance price all classes or milk or eliminate advanced pricing of Class I and Class II skim milk.

In summary, I think a two class pricing system and a simplified rather than more complex component pricing is the way to go. But, much needed thought and analysis will be required to determine the appropriate formula(s) to use to calculate the minimum value of the one manufacturing class. Market forces must be allowed to work so raw milk and milk components are allocated to the highest potential use. When the BFP was used as the base

price and mover of Class I product price formulas were used to update the competitive pay price (base price) for the proceeding month to get the announce BFP for the current month. The updating was based on the weighted average change in per hundredweight value of milk from a product price formula for cheese and a product price formula for nonfat dry milk and butter. Some similar weighted average of milk values for manufacturing use could be used with one manufacturing class.