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May 1978

Study Paper 78-6

SHOULD NONFAT SOLIDS BE USED IN PRICING

GRADE A MILK?

by

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Research has demonstrated that the average composition of producer milk in the United States is approximately 3.7 percent butterfat, 8.7 percent nonfat solids, and 87.6 percent serum (water). The combination of these three components varies by cow, age of cow, month of lactation, season of the year, herd, breed, and feeding program. Nonfat solids consist of lactose, protein, and minerals. Minerals and lactose are quite constant in milk. Most of the variability in nonfat solids is caused by protein fluctuation. It goes up and down with butterfat but not by the same amount. On the average, for each 1 percent change in fat, protein changes about 0.4 percent. For individual cows there are variations to this rule.

Most milk, both Grade A and manufacturing, is currently priced using a hundredweight-butterfat differential pricing plan. Under this plan a basic price is established per hundredweight of milk at some standard test, such as 3.5 percent fat. A price differential is then added (or subtracted) for each difference of 0.1 percent between the fat test of the milk being purchased and the standard test. The total value of the fat in milk being purchased is the butterfat differential times the fat test of the milk. The skim milk value equals the price of the milk per hundredweight less the value of the fat. The skim milk

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value includes the value of the serum and nonfat solids. While handlers are charged and producers are paid for additional hundredweights of skim milk under this pricing system, they are not charged or paid a differential for variations in protein or nonfat solids in the skim milk, such as is done for variations in fat in whole milk.

Since both butterfat and nonfat solids in milk vary by herd and during the year, some people contend that component pricing--the use of protein or nonfat solids in addition to fat, or fat and serum--should be used in pricing milk. It is contended that without component pricing, farmers with high levels of nonfat solids relative to fat are not getting paid for the extra nonfat solids, and thus are not being treated equitably. With component pricing, farmers would not only increase equity in distributing proceeds from sales of milk, but give producers an incentive to increase or change protein or nonfat solids in milk. In implementing component pricing, processing and manufacturing plants might also be charged for milk according to the components in the milk they buy, including protein or nonfat solids.

The arguments for using component pricing are the most valid and compelling when applied to manufacturing grade milk, and the manufacturing of dairy products. Here the marginal value productivity of milk (the value of the products that can be made from an extra unit of milk, such as 100 pounds) is directly linked to the solids components in the milk. The more solids, the more products that can be made, such as butter, nonfat dry milk, and cheese.

Despite this obvious relationship, many manufacturing milk producer groups and plants continue to use the hundredweight-butterfat

differential pricing plan. Some, in continuing to do so, indicate that they believe the extra cost and inconvenience of including protein or nonfat solids in pricing more than offsets the increase in equity in paying producers. Others contend that many of the variations in nonfat solids and protein levels in milk average out over time in herds, and that the hundredweight-butterfat differential pricing plan works well enough, and is sufficiently equitable to use in charging and paying for manufacturing grade milk.

Most of the rationale for using component pricing has come from, or has been based on applications appropriate to the pricing and marketing of manufacturing grade milk. With little extra thought, it has then been assumed that what is good for the goose surely must be good for the gander--that component pricing is also appropriate and should be used in pricing grade A milk, and that using it could not but fail to improve the marketing of Grade A milk and increase equity in charging processors and paying producers for milk. Such is not necessarily the case. The issue of whether component pricing should be used in pricing and marketing of grade A milk is much more complex, as is the pricing and marketing of grade A milk.

Since most of the reasons for using component pricing have already been enumerated by others, I would like to point out in this paper some of the potential problems, complications, and policy considerations of using component pricing for pricing grade A milk.

Components in milk ought to be used in pricing Grade A milk only if they have marginal value--that is, if the market pays or logically should pay for additional amounts--and if the marginal or extra value exceeds the marginal or extra cost of identifying, pricing, and marketing

additional quantities of the component. The market must not only be able to identify and utilize extra amounts of the component but before paying producers for it, the extra costs incurred must be weighed against the increased equity in pricing expected from doing so.

Before deciding whether component pricing is appropriate for pricing Grade A milk, it is necessary to determine whether components in Grade A milk have marginal values in the market place.

A. Marginal Value of Fat

Fat can be removed or added to milk, and milk can be standardized to any desired level of fat. Fat not needed in fluid milk products can be removed and used in manufactured products such as fluid cream, ice cream, and ice cream mixes. The remainder can be used in making butter. There is always a market for butter, even if it is through the price support purchase program of the government.

Fat in producer milk, whether it be additional fat in each hundredweight of milk or in additional hundredweights of milk, has a marginal value. It has a marginal value whether used in fluid milk products or in manufactured products. The marginal value of fat is the butterfat differential. The hundredweight-fat differential method of pricing works well in paying producers for the marginal value of fat in milk.

B. Marginal value of Serum

It is illegal to add water to fluid milk products that are not labeled as reconstituted products. Consumers prefer fresh fluid milk products to reconstituted milk products. It costs considerably more to

produce a local supply of fresh milk, supply it to processors on demand, and carry the reserve supplies which are necessary because of variations in supply and demand, than to reconstitute butter and powder, and consumers have demonstrated that they are willing to pay for it.

The extra utility consumers associate with fresh milk products gives extra serum in grade A milk used in fluid milk products a marginal value. The more hundredweights of milk produced and delivered to the market, including the serum, the more fluid milk products that can be processed.

On the other hand, serum in milk not used for fluid products and diverted to manufacturing is in the way, and has no marginal value. It adds to transportation and manufacturing costs.

Under the hundredweight-butterfat differential pricing method, the value of serum is recognized, together with nonfat solids, in the skim milk price. The Class I differential portion of the Class I price essentially is the marginal value of serum used in fluid milk products. Class II and Class III prices do not include the Class I differential. For these uses the skim milk value represents only the value of the nonfat solids in the milk. Class I includes fluid milk and cream; Class II, cottage cheese; and Class III, other manufactured dairy products.

C. Marginal Value of Nonfat Solids Used in Manufacturing

There is no question but what the nonfat solids in additional hundredweights of milk used for manufacturing have marginal value. The more milk, the more solids, and the more solids, the more product that can be made.

While the hundredweight-butterfat differential method of pricing does not pay producers for differing levels of nonfat solids, it does pay them for additional solids in additional hundredweights of milk delivered.

But what about extra nonfat solids in each hundredweight of producer milk? They have marginal value too for making manufactured dairy products--if actually used in manufacturing. The more solids in each hundredweight, the more products that can be made. To obtain these marginal values, however, there would be considerable marginal cost. In order to utilize the extra nonfat solids in milk for manufacturing, producer milk extra high in nonfat solids would have to be tested, identified, assembled and delivered separately to manufacturing plants. This would require a second assembly and distribution system for grade A milk. While it may be feasible, there are questions related to whether it would be economical or practical when considered from the point of view of why and how the grade A dairy industry is organized and operated.

Grade A milk is produced primarily for the fluid milk market. Manufacturing is secondary, and only grade A milk in excess of fluid milk and cream requirements is used in manufacturing. In the Eastern Colorado federal milk marketing area, 74 percent of producer milk was used for Class I or fluid milk and cream in 1977; only 26 percent was used for Class II and III, or manufactured dairy products. For the combined Black Hills, Eastern Colorado, Western Colorado, Great Basin and Lake Mead federal milk marketing orders, all of which draw milk supplies from the same pool of producer milk, 65 percent of

producer milk was used for fluid milk and cream, and only 35 percent for manufactured dairy products during 1977.

How feasible would it be to test, identify, and assemble separately the 35 percent of producer milk in the five federal order supply area? This area covers Western South Dakota, Western Nebraska, Colorado, Southern Wyoming, Utah, Southern Idaho and Southern Nevada. In this area an average of over 5 million pounds of milk are assembled per day from about 2,000 pool producers and delivered to about 50 fluid milk pool plants, or diverted to manufacturing plants. The fluid milk plants are located in or near the major population centers in the area. The manufacturing plants are primarily located on the periphery of the supply area in South Dakota, Utah and Idaho.

Within this area, tankers of producer milk are constantly being rerouted to balance variations in daily and seasonal production and fluid milk plant requirements. During some days and seasons of the year, all of the milk in some large areas such as Eastern Colorado is required for local fluid milk use. To divert milk high in nonfat solids out of this area to manufacturing plants would require bringing in more milk from distant supply areas to replace it.

Identifying, assembling, and shipping on separate trucks milk high in nonfat solids to distant manufacturing plants, and replacing the milk when necessary with milk with less nonfat solids, would be very costly. It is highly probable that the marginal costs associated with such operations would exceed the marginal returns.

In reality, it is not likely that separate assembly routes will be organized to handle high nonfat solids milk. What are the

chances, then, that producer milk high in nonfat solids would have marginal value for manufacturing? On the average, the chances would be about one out of three. But from a practical point of view, seldom would milk produced near Denver and Salt Lake City, the larger population centers in the five federal order markets, be used for manufacturing. This milk lies closest to the market, and will usually go to grade A plants for processing. On the other hand, milk produced in the outlying, more distant parts of the supply area, such as Northern Utah and Southern Idaho might be diverted to manufacturing a majority of the time. With milk constantly being rerouted according to variations in supply and fluid milk demand, it would be impossible to assemble separately milk high in nonfat solids, pay producers a premium for the extra solids, and still operate a well-coordinated, minimum cost, efficient operation.

D. Marginal Value of Nonfat Solids Used in Fluid Milk Products

Nonfat solids in additional hundredweights of milk have marginal value when used in fluid milk products. The more hundredweights of milk, the more fluid milk products that can be packaged. The extra nonfat solids, together with the serum and varying amounts of fat, can be used, for example, for homogenized milk, two-percent milk, one-percent milk, and skim milk.

While the commonly used hundredweight-butterfat differential pricing method does not pay producers for differing levels of nonfat solids, it does pay them for additional hundredweights of skim milk, which includes the nonfat solids.

The question of whether additional nonfat solids per hundredweight of grade A milk have marginal value in fluid milk products is more complex. Nonfat solids cannot be removed from milk used in fluid milk products. They can be added to standardize milk at higher levels of nonfat solids, but they cannot be removed to standardize at lower levels. Thus, there is no opportunity, such as there is with fat, to remove excess amounts of nonfat solids and use them in making additional manufactured products.

Whether extra nonfat solids in each hundredweight of milk have marginal value when used in fluid milk products depends on the level of nonfat solids in producer milk and the level of nonfat solids required in fluid milk products. If producer milk contains sufficient quantities of nonfat solids that fluid milk products made from it do not need to be fortified with additional nonfat solids, then additional nonfat solids in producer milk have no marginal value. If, on the other hand, fluid milk products require fortification with nonfat solids, additional nonfat solids in producer milk would have marginal value.

In practice, what is the case? Of the combined sales of homogenized milk, two percent, one percent, and skim milk in the Great Basin and Eastern Colorado orders last year, 70 percent was not fortified, while 30 percent was fortified (Table 1). In the Great Basin area, 39.4 percent was fortified, compared with only 23.5 percent in Eastern Colorado.

A total of 2.4 million pounds of nonfat solids were added in the two markets to two percent, one percent, and skim milk. The nonfat

solids added amounted to .79 percent of milk fortified, .24 percent of total fluid milk sales, and .14 percent of total producer milk.

No homogenized milk was fortified. However, 60 percent of the two percent milk, 69 percent of the one percent, and 4 percent of the skim milk was fortified.

One Great Basin processor is currently adding about one percent nonfat solids to two percent milk, and about 1.5 percent nonfat solids to one percent milk.

A recent analysis of skim milk, two percent, and homogenized milk samples from six processors in Eastern Colorado showed that the skim milk contained an average of 8.36 percent nonfat solids and .48 percent butterfat; two percent milk contained an average of 8.75 percent nonfat solids and 2.17 percent fat; and homogenized milk contained an average of 8.62 percent nonfat solids and 3.28 percent fat. The nonfat solids content of 8.62 percent in homogenized milk indicates that producer milk this time of the year in Eastern Colorado contains an average of about 8.62 percent nonfat solids.

These data indicate that currently, extra nonfat solids in a majority (70 percent) of producer milk used in fluid milk products has no marginal value. Additional nonfat solids would bring no extra income.

This is especially true for homogenized milk. Additional nonfat solids would probably not enhance flavor enough to increase sales, since it already contains a minimum of 8.25 percent nonfat solids and 3.25 percent fat solids. Homogenized milk with extra nonfat solids would probably sell for the same price at retail as

milk containing the minimum amount of nonfat solids. Retailers surely would not be able to mark prices up and down as actual nonfat solids varied up and down above the minimum.

Most of the milk fortified last year in the two federal orders was two percent milk, with some one percent and some skim milk also being fortified. If producer milk higher in nonfat solids had been used in these products, less fortification with nonfat solids would have been required. It probably would be cheaper, however, to fortify these products with extra nonfat solids than to assemble separately and use milk from the herds throughout the supply area producing milk extra high in nonfat solids. Also, if nonfat solids content in all producer milk were increased to the level that no fortification with extra nonfat solids were required in two percent, one percent and skim milk, substantial quantities of nonfat solids having no extra value would be added to homogenized milk.

In summary, about 18.2 percent of producer milk in the Great Basin and Eastern Colorado federal order markets was used last year in fluid milk products fortified with extra nonfat solids. An additional 34.6 percent was used in making manufactured dairy products. The remainder of the milk was used in homogenized milk and other fluid milk products that were not fortified. Thus, about half of producer milk last year was used in products for which additional nonfat solids had no value, and about half was used in products where they either yielded greater amounts of manufactured products or reduced the amount by which fluid milk products had to be fortified.

Table 1. Sales of fluid milk products, regular and fortified, with nonfat milk solids. Great Basin and Eastern Colorado federal milk marketing orders, April 1977-March 1978.

Item	GREAT BASIN		EASTERN COLORADO		
	Regular	Fortified	Regular	Fortified	
Sales of fluid milk					
Homogenized	Mil. lbs.	169.8	0	298.6	0
2 percent	Mil. lbs.	63.6	136.7	99.4	131.0
1 percent	Mil. lbs.	3.7	18.5	3.4	2.3
Skim milk	Mil. lbs.	6.3	3.0	32.0	*
TOTAL	Mil. lbs.	243.4	158.2	433.4	133.3
TOTAL	Percent	60.6	39.4	76.5	23.5
Nonfat solids added	Mil. lbs.		1.1		1.3
Total producer milk	Mil. lbs.	768.7		829.3	
Nonfat solids added as a percent of:					
Fortified milk	Percent		0.67 [#]		0.95
Regular & fortified milk	Percent		0.26		0.22
Producer milk	Percent		0.14		0.15

*A small amount was fortified by one handler, Data are not available on amount.

Source: Administrator's office, Federal Orders #136 and #137.

[#]One handler was adding 1.0 percent nonfat milk solids to 2 percent milk, and 1.5 percent to 1 percent milk.

Whether or not an individual producer's milk was used in making products for which extra nonfat solids had value, or in products for which they had no value, was largely a matter of chance or random occurrence, depending on the location of the producer's herd and where the tanker of milk including his milk was needed on a given day. There is probably no economically feasible way to assemble and use all of the producer milk in the market which is high in nonfat solids for making products where the extra nonfat solids have extra value.

A summary of whether extra quantities of milk components under current standards for minimum component requirements have value as marketed, and whether producers are paid for that value under the hundredweight-butterfat differential pricing plan is included in Table 2.

Following is a summary of some of the concepts and findings presented in this paper, some policy considerations for using component pricing, and some potential scenarios if component pricing is used in pricing grade A milk under current Food and Drug Administration minimum nonfat solids standards and current market practices for fortifying fluid milk products.

1. Applying component pricing to prices paid dairy farmers without being applied to prices charged processing plants for milk. Some contend this would recognize and pay dairy farmers for the nonfat, as well as the fat solids in milk, and thus be more equitable. In my opinion, we should use the pricing system to pass on to producers what the market is paying for. To do anything else reduces the efficiency of the pricing

Table 2. Summary of whether extra quantities of milk components have value as marketed, and whether producers are paid for that value under the hundredweight-butterfat differential pricing plan.

Component	Components Used In Fluid Milk Products		Components Used In Manufactured Products	
	Same Cwt.	Additional Cwt.	Same Cwt.	Additional Cwt.
Fat solids	Yes (paid)	Yes (paid)	Yes (paid)	Yes (paid)
Serum		Yes (paid)		No (not paid)
Nonfat Solids			Yes (not paid)	Yes (paid)*
Fortified products	Yes (not paid)	Yes (paid)*		
Nonfortified products	No (not paid)	Yes (paid)*		

*Producer receives skim milk price for additional quantities, but does not receive a differential for varying levels of nonfat solids in the skim milk.

system, and allows it to be used to allocate resources according to administrative or social values, rather than according to values in the marketplace. Ideally, price is the mechanism whereby the market signals to producers what is wanted. It would be just as illogical, for example, to charge processors for milk on a hundredweight-fat differential basis and pay producers on a fat and nonfat solids basis, as to charge processors on a fat and nonfat solids basis and pay producers on a hundredweight-fat differential basis. Let us first determine and use what will work best or be the most efficient in the market, and then apply the same pricing system in paying dairy farmers.

2. Producers ought to be paid for milk components only if they have a marginal value, the market pays for that value, and the marginal or added value is more than the marginal or added cost of identifying, quantifying, and marketing the additional components.
3. Butterfat can be added to or removed from milk. It has a marginal value marketed either with additional quantities of milk, or in milk with higher levels of butterfat. Butterfat has a marginal value in both fluid and manufactured dairy products. Producers should be paid for the extra butterfat they produce. The hundredweight-butterfat differential pricing plan can be adequately used to do so.
4. Serum in grade A milk used in fluid milk products has a marginal value, but there is no marginal value to serum in milk used in manufacturing dairy products such as cheese, butter, and nonfat dry milk. The presently used hundredweight-

pricing plan, together with classified pricing and base-excess plans, serve well to allocate to producers the marginal value of the serum in the milk they supply. The value of serum in milk used for fluid products is equal to the Class I differential. No Class I differential is paid for milk used for manufacturing.

5. Nonfat solids marketed in additional quantities of milk used in fluid milk products or in making manufactured products have a marginal value. Under the hundredweight-butterfat differential pricing plan, producers are paid the skim milk value, less the Class I differential for these solids. While this system pays producers for the additional nonfat solids in additional hundredweights of milk, it does not provide for a price differential for different levels of nonfat milk solids per hundredweight.
6. Additional quantities of nonfat solids per hundredweight of producer milk have marginal value when used to make fluid milk products which are fortified with additional amounts of nonfat milk solids, and in milk used in making manufactured dairy products. They have no marginal value when used in milk used for making homogenized milk and lower fat fluid milk products not fortified with extra nonfat solids. Under the hundredweight-butterfat differential pricing plan, producers are not paid for these extra nonfat solids.
7. It makes no more sense to pay producers for extra nonfat solids not needed to meet minimum or acceptable levels of nonfat solids

in milk used for fluid milk products, than to pay producers for serum in milk used for manufacturing butter, powder and cheese.

8. In general, use of component pricing is not viewed as a means of gaining additional revenue from the sale of milk. If used, some producers would receive more money than they do under the present pricing system, and some would receive less. To the extent that nonfat solids have no extra value, such as in homogenized milk and other unfortified fluid milk products (half of fluid milk sales), using the component pricing system would result in making an arbitrary transfer of income from producers of fat and/or serum which have marginal values (serum for fluid use only), to producers of milk high in nonfat solids.
9. Recent research at Utah State University has confirmed that in the short run it is more profitable to feed to produce more nonfat solids by increasing total milk production per cow, rather than by producing milk higher in nonfat solids but less milk. The hundredweight-butterfat differential pricing system would reasonably reward such efforts. In the long run there may be some opportunity to breed for both higher milk production and higher nonfat solids content in milk, although in general, the one goal is achieved at the expense of the other.
10. Carried to an extreme, paying grade A producers for protein or nonfat solids could cause them to react as though they

were producing for the manufacturing market, rather than for the fluid milk market. This would include producing milk higher in nonfat and fat solids (if nonfat solids go up, so will fat), but a smaller total volume of milk. The result could be higher levels of nonfat solids in producer milk than is needed to meet minimum or acceptable levels of nonfat solids in fluid milk products, while adding no extra value, and reducing the production of serum. Since fluid milk is the basis of fluid milk products, this could cause shortages of fluid milk, while at the same time having more nonfat solids in milk than needed for the fluid market.

11. If producers are to be paid a premium for milk high in protein or nonfat solids, and the milk must be used in manufacturing in order to obtain the marginal value of the extra nonfat solids, then such milk serves no value to the fluid milk market, and ought to be priced as excess grade A or manufacturing milk. It ought not to participate in the marginal value of the serum in milk used for fluid products, which is equivalent to the Class I differential, and which in practice makes blend or base prices higher than Class III or manufacturing grade milk prices. In paying producers a premium for the utility which milk high in nonfat solids has for manufacturing, they ought not to be paid for the utility such milk has forfeited and no longer has-- the utility associated with fresh fluid milk.
12. Assuming that for grade A milk it is more profitable to feed and to breed for higher levels of milk production, rather

than higher levels of protein or nonfat milk solids, the use of component pricing might cause some producers to erroneously feed and breed for higher levels of protein or nonfat solids.

13. If component pricing is used in pricing grade A milk, nonfat solids ought to be used in conjunction with both fat and serum. If only fat and nonfat solids were used, the value of serum would be transferred to the nonfat and/or fat solids. Such a system would price fat and nonfat solids above their marginal value for manufacturing and give undue encouragement to additional production. Use of only fat and nonfat solids in pricing would make base-excess pricing plans useless, since there would, in effect, be no way to allocate the Class I differential or value of the serum to base milk. Without a base-excess plan, seasonal variation in production could be expected to increase.
14. Rather than pay a premium to producers for nonfat solids in excess of the minimum standard for nonfat solids in milk, perhaps it would make more sense to deduct for milk below the standard. This would transfer income from producers delivering milk that has to be fortified to those that meet the standard, yet would not require payment for extra nonfat solid having no additional value used in homogenized and other unfortified fluid milk products.
15. Fluid milk processors ought not to be charged for nonfat solids in excess of minimum standards (8.25 percent nonfat solids in most parts of the country). They cannot remove the extra nonfat

solids and sell them as by-products. Since milk cannot be standardized downward for nonfat solids content, other than by individual processors blending current supplies, nonfat solids in milk will vary above the minimum standard from week to week and from processor to processor. Processors, wholesalers and retailers will have no way of charging for extra nonfat solids. Realistically, they cannot be expected to vary the price of a gallon of homogenized milk up and down with nonfat solids content, as long as it includes the minimum amount required. Homogenized milk with extra nonfat solids will have to be sold in competition with all other milk labeled as homogenized milk, including homogenized milk with the minimum solids not fat content. Consumers would have no way of knowing whether milk in a particular carton had extra nonfat solids, and probably would not pay more for them even if they did, with minimum total solids at the level they are.

16. We would have chaos at the wholesale and retail levels in pricing and marketing fluid milk products if we began pricing a standard product such as homogenized milk according to the amount of nonfat solids in it. Producers, processors, wholesalers, and retailers charging more for extra nonfat solids above minimum requirements would lose sales as consumers began shunning the higher-priced labels for the cheaper ones. Consumers would become confused as to what they were really getting. Prices would change often.

17. If suppliers were shipping to processors milk extra high in nonfat solids, and charging for the extra solids, and processors had no way of passing the extra costs on to wholesalers and retailers, they would become competitively disadvantaged, compared with other processors receiving lower nonfat solids milk. Such a processor would probably begin looking for a source of supply of lower nonfat solids milk to either replace present supplies or to blend with them. If such occurrences became common, milk low in nonfat solids could begin selling for a premium over its normal value. Processors forced to repeatedly use and pay for milk extra high in nonfat solids, and to compete with others buying and selling milk lower in nonfat solids, would eventually go broke, and the supplier would lose his market.
18. Marketwide application of component pricing would make it impossible for a processor to switch from one supplier using component pricing to another who is not using it to avoid paying for nonfat solids in excess of minimum standards. But it would not remove the possibility that a given processor would have to pay more for his milk if it were consistently higher in nonfat solids than milk purchased by competitors. Thus, processors, even under marketwide application of component pricing, might still shop around for milk low in nonfat solids to minimize ingredient costs. Anything paid for nonfat solids above necessary levels would be money lost. Sustained losses would eventually cause the processor to go broke.

19. Federal orders and classified pricing were adopted to equalize milk ingredient costs to processors competing with each other in an effort to bring about increased stability and order. Use of component pricing could reverse this. Charging processors for nonfat solids in milk above minimum standards would result in unequal ingredient costs among processors. This could happen if nonfat solids in producer milk delivered to plants varied from plant to plant, since nonfat solids cannot be removed from milk to standardize it.
20. If suppliers of producer milk begin using component pricing, processors may insist that suppliers standardize producer milk before they deliver it so that ingredient costs to all processors will be equal. This could include standardizing at the minimum standard level (8.25 percent), or blending all milk so that all milk in the supply area would have the same solids nonfat content. The former might encourage watering down of milk if nonfat solids are in excess of the minimum standards. The latter could lead to considerable extra transportation and operating costs, and would not be very feasible if several suppliers served the same market.
21. A possible solution to the dilemma of unequal ingredient costs resulting from variations above minimum standards in nonfat solids content in producer milk would be to increase the minimum standard to equal or exceed the highest level expected in producer milk. This way processors may have to fortify to meet the standard, but would not have to pay for

nonfat solids in excess of the standard. This, in effect, is what has been done in California. They require in homogenized milk, for example, 12.2 percent total solids, including from 3.4 to 3.5 percent fat, and from 8.7 to 8.8 percent nonfat solids. At these levels, processors would seldom have to pay for more solids not fat in milk than they actually require. Increasing solids not fat requirements in milk, however, could increase the price of milk and cause per capita consumption to fall.

22. Increasing the minimum nonfat solids requirement in all fluid milk products to 8.7 or 8.8 would, at present levels of nonfat solids in producer milk, give a marginal value to nonfat solids in all grade A milk, regardless of whether it was used in fluid milk products or in manufacturing. Under these conditions, use of component pricing for grade A milk would be appropriate and equitable, so long as all three components were included in the pricing system (i.e., fat, serum, and protein or nonfat solids). If producers responded to component pricing, however, by increasing protein or nonfat solids in milk to the point that average levels were once again above the standard, the same problem would return that we are faced with now. The nonfat solids in excess of the standard would have no value to processors in unfortified fluid milk products.
23. It is concluded that under current Food and Drug Administration minimum nonfat solids standards, current market

practices for fortifying fluid milk products, and current levels of nonfat solids in producer milk:

- a. It would be inadvisable to charge fluid milk processors according to the solids not fat content of producer milk purchased, especially for nonfat solids in excess of the minimum requirement.
- b. It would be inadvisable to use component pricing in paying producers for milk. Doing so would create as much inequity among producers as it would solve. If component pricing is used, perhaps an upper limit on nonfat solids should be set, beyond which added differentials would not be paid, or perhaps a deduction could be made for milk falling below the minimum nonfat solids content.

24. It is further concluded that if component pricing is to be used in charging fluid milk processors and paying producers for milk:

- a. Component pricing ought to be adopted on a marketwide basis, such as through the federal order system.
- b. The minimum standard for nonfat solids content in fluid milk products ought to be raised to the level, or near the level, of the average nonfat solids content in producer milk. Before the latter is done, it should be determined that doing so would not be detrimental to the fluid milk market.

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