BEFORE THE
UNITED STATES DEPARTMENT OF AGRICULTURE

In the Matter of:	)	
MILK IN THE NORTHEAST AND	)	
OTHER MARKETING AREAS; Class	)	Docket No. AO-14-A69,
III and Class IV Milk	)	et al.; DA-00-03
Pricing Formulas	)	

POST-HEARING BRIEF OF
NORTHWEST DAIRY ASSOCIATION

This post hearing brief is submitted by Northwest Dairy Association, following the public hearing in the above-identified rule making proceeding. The public hearing was held from May 8, 2000 through May 12, 2000, at the Embassy Suites Hotel in Alexandria, Virginia, before the Honorable James W. Hunt, Administrative Law Judge. The purpose of the rule making proceeding is to consider changes in the pricing formulas for manufacturing milk (Class III and Class IV) which are a fundamental component of all the Federal Milk Marketing Orders administered by the United States Department of Agriculture (USDA).

Northwest Dairy Association (NDA) is a dairy marketing cooperative which represents nearly 800 dairy producers whose milk is pooled on the Western or Pacific Northwest Federal Orders. NDA's subsidiary, WestFarm Foods, operates four large manufacturing plants and is the largest processor of Class III and IV milk in the Oregon-Washington-Idaho region. NDA is, therefore, vitally interested in the

outcome of these proceedings and participated in the public hearing.

Methodology. The most important decisions which the Secretary of Agriculture and USDA will make in this proceeding may be in the methodology that will be used to adjust or arrive at new formulas. One of the keys to end product pricing is that the formula components (commodity reference prices, yield formulas, and "conversion cost allowances") all be realistic and current. While any decision could be reversed in a subsequent rulemaking proceeding, the approach taken in this first formal hearing on the product formulas will be seen by the industry (and perhaps by the Department) as a precedent that will guide future actions.

For that reason, the methodology that USDA will reveal in this proceeding will be critical to maintaining the industry's ongoing support for end product pricing. Both buyers and sellers must be confident that the Class III and IV will remain viable over time, and that it will evolve to reflect changes in economic conditions -- including plant costs, processing technology, and geographic relationships (transportation cost).

NDA's primary concern is that the surveys used to establish "conversion cost allowances" should not simply be averaged and used without additional judgment about other policy decisions. Instead, the surveys should establish a range of values which the Department should then interpret in view of other policy considerations.

Among those policy conditions are: the need to encourage (or not) additional processing capacity, the need to encourage (or not) new capital investment in existing plants, the relative efficiency of plants in the survey compared to a plant with the newest technology, and the issue that is greatest importance to our cooperative: price alignment relative to the California state order prices (which is discussed in detail later in this brief).

Our principal concern in this regard is that USDA's explanations of the conversion cost allowance numbers in the last round of rulemaking (implementing the consolidation of orders) led some in the industry to assume that in the current proceeding USDA wished to simply gather some cost numbers and compute a weighted average or simple average. We do not interpret USDA's actions in the last round of rulemaking to imply a stamp of approval for that approach, rather it would have been a practical solution to the problem of insufficient information at the time.

We strongly urge that applying a simple or weighted average of plant cost data should <u>not</u> be adopted as USDA's methodology. Indeed, such an approach would be dangerous, for many reasons, including these:

1. Each of the surveys discussed during the hearing (the RCBS survey, the NCI-sponsored survey, and the State of California's survey) all necessarily use book depreciation numbers. Depreciation generally reflect historical acquisition costs of equipment and construction, but those historical costs may no longer reflect today's values for the same plant.

2. This "basis" for depreciation can become somewhat arbitrary. Decisions about what costs to capitalize (and depreciate) versus what to expense during the year of construction can vary -- and that affects depreciation that is booked in the future. Also, there are times when that "basis" for depreciation can be "stepped up" for accounting purposes. The step up in basis normally would be to something like the fair market value, but in fact it can be higher depending on the desires of the parties involved. The result is that the same operation could legitimately report lower depreciation costs one year, and higher the next - due to an accounting artifice (a step up in basis) that underscores the arbitrariness of depreciation numbers. *[Marshall, Transcript at p. 1810.]*

3. Even if the basis for depreciation were "right" (whatever that means), the period of time over which an asset can be depreciated may vary with management philosophy - another somewhat arbitrary feature.

4. As a final comment on the narrow subject of depreciation, it should be noted that typically depreciation schedules are for a shorter period than the useful life of plants and major equipment. As a result, an older plant may show virtually no depreciation, which would distort the type of survey that RCBS uses.

5. There is also a necessary arbitrariness in allocating costs within multi-product plants, among the various products.

6. Many participants in the hearing pointed out that the "cost" factors reported in these surveys seem to be highly variable, which casts some doubt on the accuracy with which they were prepared.

7. Even if all the above factors could be somehow corrected, and "accurate" numbers could be developed from "statistically valid" surveys, there would still remain a key philosophical question: Does it make sense to set the conversion cost allowance at an "average" - which thereby necessarily would generate a milk cost so high (relative to the commodity market) that *half the plants in the country would not be able to recover from the marketplace their cost of converting raw milk into finished products*? If a plant with higher than average costs is not able to achieve more than the NASS survey price from the marketplace, it eventually will fail. Condemning half of the plants to an operating loss is no way ensure a healthy processing industry, and no way to ensure a market for dairy producers.

In developing the Federal order pricing formulas, USDA has benefited from (and improved upon) the State of California's experience with end product pricing. California has routinely applied policy judgments in establishing an appropriate "make allowance" (as they call it). As discussed at the hearing *[Vanden Heuvel, Schiek,*

Marshall], these policy considerations (which can at times be contradictory) include: encouraging processing efficiency, attracting sufficient processing capacity, sharing the benefit of higher prices between processors and producers, etc. They seem typically to look at the array of costs shown in the survey, and set the "make allowance" at a level which includes most of the processing capacity but excludes the plants which are significantly out of the main part of the array.

Perhaps the clearest point is that California does not arbitrarily compute and apply a simple average (nor a weighted average) processing cost *[Marshall, Transcript at p. 1794; Exhibit 54-3A and -3B]*.

Finally, we stress the importance of "harmonizing" (to use Prof. Barbano's concept) all elements of the end product pricing formulas in the methodology that USDA adopts. For example, "minimal packaging" is assumed by NASS in the reporting of prices *[Exhibit 22]*; accordingly, the cost survey should sing the same tune and reflect only minimal packaging costs. Regrettably, the RCBS survey does not attempt to "harmonize" the RCBS methodology with what NASS does, and in fact assumes a higher packaging cost than does NASS *[Ling, Transcript at pp. 99-101]*.

An additional illustration of this concept can be drawn from some of the testimony and cross examination during the hearing, about yields. Some have suggested that modern plants achieve somewhat higher yields than once was the case (which NDA believes to be true). On the other hand, that

modern technology costs money, to invest in the equipment necessary to obtain those higher yields. The system would not be in "harmony" if old plants (without such technology) were included in the survey plant operating costs, but the formula's yield numbers were to assume the efficiencies that can be achieved only with (higher cost) modern technologies.

Until a "harmonized" system is developed, we are inevitably dealing with rough numbers, with lots of inconsistencies contained within them. Given that imprecision in the data sources, it is even more imperative not to arbitrarily compute and apply an average of whatever numbers might show up in that process.

Price Alignment with California. NDA's hearing exhibits demonstrated that the new Federal order system may have slightly worsened the competitive position of a Federal Order processor of Class III or IV, relative to California *[Exhibit 54-2A and -2B]*. Since our market area borders California, and since our manufacturing plants compete directly with California manufacturing plants, this pricing relationship is a tremendous concern to NDA.

Attached to this brief as Addendum 1 is a compilation prepared in our office from data which is in the record (or of which official notice was taken). It shows both California and Federal Order data for milk used to produce cheese and whey (Federal Order Class III and California Class 4b), and for milk used to produce butter and powder (Federal Order Class IV and California Class 4a).

Addenda 1-a and 1-b identify in detail each element of the formulas. Addendum 1-a details the two butter-powder formulas, Addendum 1-b covers cheese and whey. Included are the actual cwt prices generated by the formulas for the first six months of the year 2000.

Addendum 1-c then shows what the formulas would generate if the CME cash market prices (used in the California formula) and the NASS survey prices (used in the Federal order formula) were identical. This computation isolates out the impact of the different wholesale price data (the potential differences between the NASS and CME price series), so it shows clearly the differences inherent in the formulas, themselves.

The analysis just described is summarized below for the first six months of 2000 using the foregoing analysis, which is summarized below. Since California uses Solids Non Fat pricing instead of protein pricing, we converted Federal Order data to SNF using the assumptions built into the Federal Order formula for announcing cwt prices.

- The differences in the Butterfat formulas (holding product values constant) accounted for $.0528 per pound (CA lower than FO). The difference between CME and NASS during first six months reduced that difference in the butterfat component to $.0214 per lb, to the advantage of a California processor. That applies to both Class III and IV. For a significant producer of butter and cheese like

WestFarm Foods, that 2 cent difference is a very significant amount.

- The differences in the two Butter-Powder SNF formulas (holding product values constant) accounted for $.0054 per pound of solids, with the Federal Order formula generating a lower value than California's. The differences between the NASS NFDM price and the California NFDM survey price used to determine Class 4a reduced that disadvantage for California powder plants, to $.0041 per pound.[1]

- On the Cheese-Whey analysis, the formulas (holding product values constant) generated a higher price for Federal Order SNF, by $.0056 per pound SNF. The differences between the CME and NASS data series brought the actual difference to $.0068 per pound (Federal Order higher)[2]. It should be noted that with cheese pricing at support for much of the period, the differences between CME and NASS prices have narrowed. In addition, the jump in the CME cheese price in late May caused the California Class 4b value to jump way ahead of the FO Class III, which is not characteristic. So over time, the

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[1] As shown on Addendum 1-a, the announced California SNF price for Class 4a was $.8592 per pound of SNF, while the corresponding FO value would compute to $.8551, a difference of only $.0041 per pound SNF.

2 As shown on Addendum 1-b, the announced California SNF price for Class 4b was $.6410 per lb of SNF. An equivalent FO Class III value can be computed as: 3.1 times the protein price of $1.7981 ($5.5741), plus 5.9 times the other solids price of $.0435 ($.2567), all divided by the 9.0% SNF assumption for the solids content of skim milk. This computes to a Federal order value of $.6479. The difference between that number and the CA $.6410 is the $.0068 shown above.

differences probably will be more significant than the 7 tenths of a cent per pound shown above.

Put all together, the foregoing explains why the announced prices under the two systems have differed by an average of $.13/cwt on Class III since the new Federal Order formulas became effective, and $.03 on Class IV (Federal Order higher).

It also shows that in considering price alignment with California, the most dramatic current disparity lies with butterfat pricing rather than protein or other solids. We note that there were several formal proposals before this hearing, to adjust the butterfat pricing formula by 6 cents per pound (an adjustment to make the formula more consistent with butterfat pricing under the old Federal orders). The above data would not suggest that large an adjustment would be needed to achieve price alignment with California.

As suggested earlier, NDA urges USDA to develop any changes that should be made in yield factors, then determine a range of realistic conversion costs, and then within that range undertake an analysis something like what is shown above. Comparing prices yielded by the possible new formulas against the California formulas, will identify price misalignment issues.

Continue Using NASS Survey. While there was some support at the hearing for changing the indicator of commodity values from the NASS survey to the Chicago Mercantile Exchange (CME) cash market prices, NDA urges USDA not to make such a change at this time.

One obvious problem with doing so would be that the CME doesn't trade whey -- just cheese, butter, and NFDM. And (at least at this point in time) very little NFDM is traded. So presumably the proponents of using CME would rely on NASS for whey and possibly NFDM, while suggesting that the CME be used to indicate the value of butter and cheese. That would raise potential consistency issues.

With that in mind, there remain two significant problems that would have to be addressed if the CME were to be used, even on a limited basis.

The first is political. As pointed out at the hearing, many in the Midwest made such a point of arguing a few years ago that the exchanges were manipulated, that there is distrust of the CME that persists today. Until those political problems subside, it makes no sense to jeopardize support for the Federal Order program by adopting a pricing mechanism that currently is distrusted by some.

Our second concern is technical. The CME price is not a national price, it is a Chicago regional price *[see the contract specifications in Exhibit 28]*. California addresses this problem when they use CME prices in their formulas, by applying a transportation differential to adjust the CME number. USDA could adopt that approach, but that would mean different price levels from order to order. While NDA has in the past advocated such an approach, there is little evidence in this hearing record to ensure that this could be done in a sensible way. <u>If</u> USDA does wish to

pursue that approach, however, there is some useful data in the record.

At NDA's request, official notice was taken *[Transcript at pp. 1795-96]* of the Cornell study of transportation cost relationships that was used in the development of Class I price relationships. *[See also, Exhibit 54-4A and 4B.]* While NDA has expressed reservations about use of this model in Class I pricing, the Cornell study does show that there is a price surface which reflects the "location value" of manufactured products. The Cornell model predicts location-price relationships which are close to what the marketplace sees *[Marshall, Transcript at p. 1799]*. Basically, the location values shown in the Cornell model reflect relative transportation costs from where the products are manufactured (in the West), to where the people are (in the East).

Indeed, Figures 7 and 8 of the Cornell Study *[Exhibit 54-4A]* depict a "price surface" that could be used to adjust the Chicago-based CME prices, based on the zone differences shown, relative to the Chicago area. The price surface shown echoes the industry saying, that manufactured product prices tend to reflect "California plus Freight".

This "location value" concept explains why NASS typically announces numbers that are lower than the CME. NASS announcements show some breakdown by region, and confirm that plant prices are typically lower in the West than the Midwest. Since the types of products surveyed by NASS are disproportionately produced in the West, the West

makes up more of the NASS surveys, and the NASS price used in the Federal Orders (which is a weighted average) tends to track more closely with the lower Western price. The result is to lower the price used in the formula, which in turn lowers the Class price more toward California levels.

This feature of the NASS survey is the only aspect of the current Federal order system which recognizes location factors, and it is therefore important to all of us who make manufactured products in the Federal orders in the west *[Williams, Transcript at p. 1315]*. Getting product to market is a very significant portion of the total cost of converting a cwt of raw milk into dollars which can be used to pay producers. This feature of the NASS survey and the Federal order system should remain in place -- whereas simply converting to CME without explicit transportation adjustments would wrongly ignore this significant transportation factor entirely.

To conclude this point, while we recognize there certainly may be some potential advantages to using CME rather than NASS, NDA feels this is the wrong time to make that change.

Support NMPF Position. NDA generally supports and endorses the approach taken by National Milk Producers Federation (NMPF) in this proceeding. As noted at the hearing, we do not necessarily adopt the same rationale as NMPF *[Marshall, Transcript beginning at p. 1806]*. We vehemently disagree (in a good natured manner) with NMPF's approach of using the average of the RCBS survey in computing conversion cost

allowances in the formulas (for the reasons set forth earlier in this brief). Still, the formulas which NMPF proposes are generally within what we think is the right range.

However, we also point out that the NMPF position was unresolved on the specific numbers that should be used for a sales and marketing allowance, and on the whey conversion cost. The NDA positions on those two items are discussed later in this brief.

A key premise to the NMPF position (throughout the 1996-99 debate, and in the current proceeding) has been that the new system of end product pricing should generate Class prices roughly consistent with the former "BFP-based" system and Class III-A. NDA supports that approach.

NDA and others introduced at the hearing Exhibits which compare the prices generated under the old Federal Order formulas during 1999, with those which would have been generated under the new formulas. The NASS data were available for 1999, even though not part of the pricing formulas, so the two systems can be compared for 1999. NDA showed that the new system seems to have been virtually "status quo" under 1999 conditions *[Exhibit 54-1A and -1B]*.

On balance, then, NDA feels that the new formulas which became effective January 1, 2000 were in the right ball park, by historical standards - and that, therefore, this rulemaking proceeding should focus on fine tuning rather than significant changes.

We note, however, that our good friends from the Western States Dairy Producers Trade Association (WSDPTA) took a slightly different approach. Because they reached an incorrect conclusion, NDA will comment on their reasoning here, as part of our argument that USDA should be comfortable with how well the general level of pricing generated by the new end product pricing formulas compares with the former system's actual 1999 numbers.

The WSDPTA position was similar to NDA's in that they testified that the implicit conversion cost allowances generated under end product pricing should be roughly what they were under the prior, BFP-based system *[Vanden Heuvel, Exhibit 25, pp. 5-7]*. That is a reasonable concept, but they then proceeded to examine (in their Tables 1 and 2) the implicit margin in cheese during the 1991-1999 time frame, and drew from that data some incorrect conclusions to the effect that 1999 provided cheese manufacturers with unusually large margins. They then argued that 1999 should not be used as a basis for comparing alignment of the old and new systems, implying that the new Federal order Class III and IV formulas generated too low a producer price.

Before commenting on that, it will be useful to discuss methodology and terminology. WSDPTA used a time-honored analytical tool of dairy economists, by which the relationship between the market price for a pound of cheese (in this case, CME Blocks) is compared against the cost of milk in the cheese (the Class III price, converted to a per-pound cost of the raw milk ingredient going into the cheese vat). Some yield assumption must be used in that

conversion. The resulting number is conceptually analogous to the conversion cost allowance (the "make allowance") that is part of this hearing discussion. Tracking changes in that number over time can help identify changing market conditions.

Note that this type of analysis includes the same factors as Federal Order end product pricing, with similar mathematical relationships. The difference is this: The Federal Order formulas start with the commodity market price, the yield factors, and a predetermined manufacturer's margin, and "solve" the equation to determine the Class price. In contrast, the WSDPTA analysis started with a raw milk cost, a commodity market price, and yield factors and then "solved" a similar mathematical equation to determine the gross margin available to the manufacturer to convert raw milk into cheese. So conceptually what WSDPTA was comparing is the gross margin available to the manufacturer that is "implicit" in the marketplace (as opposed to "explicit" in the formula). I will refer to this difference between the raw milk cost, and the selling price of the processed commodity, as the "implicit manufacturer's margin". It was this implicit margin that WSDPTA suggested was unusually generous in 1999.

The first problem with the WSDPTA analysis was pointed out by WSDPTA at the hearing - their data in the original tables included erroneous numbers for late 1999. That was corrected, and the corrected numbers reduced the magnitude of the comparison that they were making.

The second problem was that WSDPTA's approach ignored the value of whey to a buyer of Class III products *[Marshall, Transcript at pp. 1791-1792]*. NDA will demonstrate in this brief that when whey values are properly considered, the implicit manufacturer's margin generated by the old "BFP system" in 1999 was indeed comparable with the general level throughout the 1990s. In providing this information, we are not necessarily endorsing the analysis that follows, we are merely expanding the WSDPTA analysis to include whey (using their fundamental rationale) and showing that when whey is considered, one reaches the conclusion that 1999 was a "normal year".

To develop a value for whey, we refer to hearing Exhibit 43, which is an analysis of whey values prepared by Prof. Robert Cropp. That Exhibit was introduced at the request of WSDPTA *[Cropp, Transcript at p. 1458]*. Prof. Cropp's study assumed a processing cost for whey, and computed from market data how much additional margin was available to the cheese/whey manufacturer, per cwt of raw milk going into the vat. Prof. Cropp's data series ended with 1996. NDA has tried to duplicate his work for 1996 through 1999 using data of which official notice was taken *[shown in Addendum 2-a to this brief]*. Our numbers are very close to his for 1996, so we assume the 1997-99 numbers are faithful to his methodology for determining a net value for whey. Again, we do not necessarily endorse his approach, but we have used it to expand the WSDPTA methodology because it was offered by WSDPTA.

Our expansion of their approach is shown in Addendum 2-b to this brief. It was prepared in this office using the data from the WSDPTA Tables 1 and 2 (referred to above), Prof. Cropp's data for 1991-96 from Exhibit 43, and our own computations following Prof. Cropp's methodology for 1997-1999. We added the implicit manufacturer's margin for cheese, and the Cropp numbers for whey values (note that those are numbers net of an assumed $.13/lb processing cost, but a similar comparison would be seen if that were backed out). The summation column represents a <u>total</u> implicit manufacturer's margin to a cheese/whey processor. Comparing the numbers in that column demonstrates that 1999 was a "normal year".

The data shows that 1999's number of $1.71 compared favorably with both the 9-year average ($1.67) and the average for 1995-99 ($1.91). This demonstrates that if USDA adopts the WSDPTA recommendation that the product formulas should generate margins consistent with the BFP data, 1999 was a legitimate year for comparison. As demonstrated elsewhere in this brief, the Class III pricing for 1999 that the new system would have generated is very close to what the BFP did generate that year. We conclude from this that the new system <u>does</u> approximate the prior BFP pricing, and that WSDPTA's concern was unfounded.

Having demonstrated that, we also note that Prof. Cropp expressed at the hearing some concern about the accuracy of the 13 cent whey conversion cost he had assumed back when Exhibit 43 was prepared *[Cropp, Transcript at pp. 1458-1461]*. For purposes of comparing 1999 with the rest of the

1990's, as was done above, it is only the trend that is important, not the absolute number. So the conclusions drawn above are valid.

At the same time, it should be noted that the right column of our Addendum 2-b also could be read to demonstrate that the market has consistently allowed whey manufacturers 42-56 cents more (per cwt of raw milk going into the vat) than the 13 cents/lb estimate of whey conversion cost used by Prof. Cropp in Exhibit 43. That would be consistent with his testimony at the hearing in this proceeding, that his 13 cent figure might be too low *[Cropp, Transcript at pp. 1460-1461]*. If a perfect competitive market were providing an additional 42-56 cents, one might well conclude that where the supply and demand curves intersect, the processing cost includes all of that 42-56 cents, and that it is not a "profit". That amount (42-56 for whey on raw milk going into the vat) computes out to 7-10 cents per pound of whey (assuming a yield of 5.7 lbs of whey from a cwt of milk, as is assumed in the current Federal order formula[3]). With those assumptions, Prof. Cropp's analysis might indicate that the processing cost for whey was not 13 cents, as assumed, but as high as 23 cents per pound. There is better evidence in the hearing record about the actual processing cost of whey, but it is worth noting that the foregoing analysis certainly indicates that the present whey conversion cost allowance figure (13.7 cents) is too low.

[3] The Class III formula assumes 5.9 lbs of whey can be obtained from 100 lbs of skim milk, which means that for milk containing 3.5% Buttterfat, the whey yield would be 5.9 * .965 = 5.6935.

Whey Conversion Cost. NDA is very impressed with the testimony and data provided by Mr. C. K. Venkatchalam, now with Leprino, with whom our organization worked earlier in his career.

He accurately described the additional storage tankage required, and the greater energy costs required to remove water during the drying process. The drying process involves removing more water, and also must contend with the consistency of whey (which is contains a high percentage of lactose, a milk sugar).

Mr. Venkatchalam's discussion of "double effect" driers versus "single effect" driers was very important, and should not be overlooked. In a nutshell, whey requires a slower drying time than NFDM, requiring two drying chambers. Double-effect driers (WestFarm Foods has two) can be used for NFDM as well as whey, but the processing cost is higher.

NDA provided data (from our work with Tillamook Cheese) modeling the cost of a modern, $20 Million whey plant *[Exhibit 54-5]*. Interestingly, Agri-Mark's witness provided testimony about a similar study, for a similar sized whey drier with a similar cost *[Wellington, Transcript at pp. 1488-1489]*, which tends to confirm the investment required. The testimony from Agri-Mark and NDA clearly indicates that a modern whey drier will be far more expensive than indicated by the cost data in the RCBS survey. Tillamook's model anticipates a depreciation cost alone of 4-5 cents/lb *[Exhibit 54-5]*.

NDA does not recommend a specific number for a whey conversion cost allowance, but we believe the record evidence is clear on two points: first, that the cost of drying whey is inherently more expensive than the cost of drying NFDM; and second, that the current conversion cost allowance of 13.7 cents is too low.

Sales and Marketing Allowance. NDA put into the record detailed information about our manufactured products selling and related costs *[Marshall, Transcript at p. 1802-1805]*. This data indicated that a figure of $.0025 per pound would be more appropriate than the current figure of $.0015. We urge USDA to adopt a figure at least that large.

More important than the number itself is the concept behind the number. Many witnesses at the hearing made the point that in an end product pricing formula, the manufacturing and selling allowances must include all the costs that are incurred, in each step of the process that converts raw milk into product, and into dollars that can be paid to producers. Accordingly, all realistic sales and marketing expenses must be considered in this process.

We also noticed some confusion at the hearing, among non-processors, about what this number represents, and why it must be included. The manufacturing cost surveys represent in-plant costs to turn raw milk into a pallet of product. But that pallet is worth nothing if it never leaves the plant's warehouse. Selling and marketing expenses are necessary to convert that product into money with which to pay producers the anticipated Class price.

All expenses related to that task should properly be included within the sales and marketing category.

Powder Yields. It was argued at the hearing that the current powder yield assumptions are illogical *[Vanden Heuvel, Pacheco]*. NDA disagreed, and testified in some detail why the current numbers are reasonable *[Marshall, Transcript at pp. 1811-1814]*.

Support for the current numbers can be found in the report on "Butter and Powder Yields" prepared by the California Department of Food and Agriculture, and incorporated into Exhibit 31 as Attachment #3 (hereinafter referred to as the "CDFA Yield Study").

NDA's argument in this brief utilizes an engineering approach, which uses known factors to estimate the amount of Non Fat Dry Milk (NFDM) that can be produced from a cwt of milk containing the amount of butterfat and other solids assumed in Federal order calculations.

NFDM sold to the CCC can contain up to 4% moisture, which is a standard parameter in the trade. But 4% moisture is a maximum, which can not be exceeded, so typically plants are calibrated to achieve an average of 102-103% moisture, depending on how good the drying plant is at controlling its moisture levels. That implies a 102-103% yield from a pound of SNF in the bag.

The CDFA Yield Study started with empirical observations, one of which exceeded the 4% moisture level allowed on powder which can be sold to the CCC. This is an

"outlier" that should discarded from any analysis that "harmonizes" formula assumptions with the NFDM market that is surveyed by NASS (see the NASS instructions, in Exhibit 22, which contemplate powder that can be sold to the CCC or traded on the CME). Their study showed an uncorrected average of 1.0252 lbs of NFDM from 1.00 lbs of SNF, even with one of the plants reporting a suspicious 1.0406. So a 1.02 figure seems reasonable.

A hundredweight of standard milk (3.5% BF and 8.7% solids) going into a butter-powder plant is typically thought to suffer approximately a 2% shrinkage in farm to plant loss, and in-plant shrinkage. The CDFA Yield Study showed a 2.13% average shrinkage (SNF Loss). That compares favorably with the 2.0% assumption we will use in this engineering model in this brief.

Applying a 2.0% shrinkage reduces the SNF to make powder to (8.7 * .98 =) 8.5 lbs. However, if the resulting NFDM and buttermilk powder (BMP) is 2% water, the NFDM produced comes back to 8.7 lbs. So we assume those two factors offset each other.

When a cwt of 3.5%BF/8.7%SNF milk is skimmed, it produces 40% cream, or 8.75 lbs of the cwt. The remaining 91.25 lbs is skimmed milk. Of the 8.75 lbs of cream, 3.5 is butterfat and the remaining 5.25 lbs are buttermilk. Thus the ratio of buttermilk solids to total solids is 5.25 to (91.25 + 5.25), or 5.4%.

From that, we can make two calculations. One is that that 5.4% of the 8.7 lbs of powder from a cwt, or .47 lbs of

powder, is BMP, and the remaining 8.33 are NFDM. The other is that for every pound of powder produced from standard milk, we would expect .966 lbs of NFDM and .054 lbs of BMP. The CDFA Yield Study found .9736 lbs of NFDM and .0521 lbs of BMP.

We suggest, based on price surveys and the additional cost of processing BMP, that the manufacturer's value of BMP is roughly half the value of NFDM. That must be accounted for in some fashion. The Class IV formula would become unnecessarily cumbersome if a true price and yield computation were included (as it is for whey, in Class III). NDA agrees with the current approach of adjusting yield assumptions to account for this lower value, rather than complicating the formula to achieve that greater degree of accuracy.

Since there is no separate accounting in the formula for BMP, a 50% profitability discount can be dealt with by assuming that only .24 lbs of BMP are produced (rather than the .47 calculated above) and then assigning it the full value of NFDM. That would generate an equivalent NFDM yield of (8.33 + .24 =) 8.47 lbs of NFDM from a cwt of 3.5% BF milk (8.7% SNF).

The Federal order Class IV formula is based around the yield of powder from a pound of solids. In the model shown above, that means an adjusted yield of 8.47 lbs of NFDM from 8.7 lbs of farm test SNF, which computes to a .973 ratio - that is, .973 lbs of NFDM can be made from 1.00 lb of SNF received at the farm. This compares favorably with the

1.02 factor currently used in the Class IV formula, which is roughly equivalent to making .98 lbs of powder from 1.00 lbs of SNF received at the farm.

The 1.02 factor can also be seen as a ratio of 1.00 lb of NFDM produced from 1.02 lbs of SNF picked up on the farm. The WSDPTA criticism of the current formula yield factor *[Exhibit 25, page 27]* assumed that the Class IV 1.02 factor represented 102 lbs of nonfat solids going into every 100 lbs of NFDM. Of course that is not the case - such a conclusion would ignore shrinkage and ignores the lower value of BMP.

Based on the above, it seems fair to conclude that the current yield assumption is reasonable. However, a clear discussion of its derivation in the Recommended Decision might be useful for the industry.

Consider Shrinkage. The world being what it is, any theoretical model of either manufacturing or marketing costs must reflect the near-certainty that some percentage of the time, things will go wrong. Several such concepts were presented at the hearing.

Farm to plant shrinkage is inherent in the use of equipment that must be cleaned. It is not recognized in the Van Slyke theoretical work, which begins with a vat of milk. Yet it must be considered, even in a model based on Van Slyke's work, because the order system is based on pricing at farm weights and tests.

Plant mistakes are also not part of the Van Slyke model, but accidents, product contamination, bad starter,

and other factors can result in batches of product that must be tossed out or sold at a lower value than normal. Some of those potential losses can be insured against, but in that event the cost of the insurance must be considered as a cost of doing business.

Financial shrinkage also was discussed. This would include bad debt writeoffs, adjustments taken by customers, and perhaps even losses due to write downs of inventory value.

These "shrinkage" factors must be expected in any business, and reasonable allowances for them must be built into any system which models costs and limits the manufacturer's margins (in this case, by establishing a fixed differential between raw product cost and the price received for processed products.

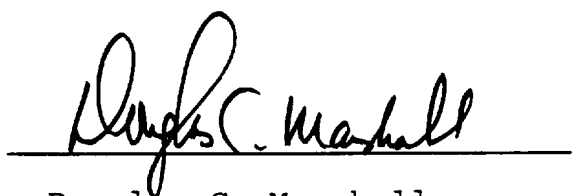
Summary and Conclusion. NDA has argued that the methodology to be revealed in the Secretary's decision should use as a general guide the available data from conversion cost surveys, but in addition the Secretary should also use judgment in establishing the conversion cost numbers which will determine what margins manufacturers will have to operate in, and to convert raw milk into product, into sales, and into money that can be used to pay producers.

We have argued that the most important policy consideration in establishing these pricing formulas is to achieve price alignment with California.

We feel the current yield assumptions in the formulas are reasonable and justifiable. We have urged adjustments in the assumed conversion cost of whey, and in the assumed sales and marketing allowance.

We also have argued in this brief that the general level of pricing in the current Federal order Class III and IV formulas in the same ballpark as prior Federal order pricing, and only minor adjustments are needed (not a major rewrite). In general, the evidence suggests that USDA did a fine job in developing these formulas during the 1996-99 rulemaking.

We appreciate the Department's consideration of our views.

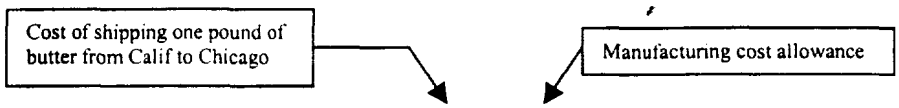


Douglas C. Marshall
Sr. Vice President,
Northwest Dairy Association

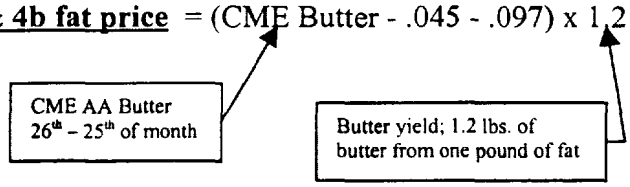
Addendum 1-a

California and Federal Order Pricing Formula Analysis

BUTTER POWDER PRICING FORMULA COMPARISION

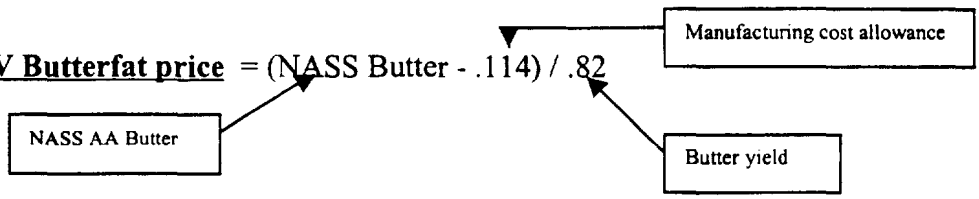


- **Class 4a & 4b fat price** = (CME Butter - .045 - .097) x 1.2



Jan-June 00 (1.0614 - .045 – .097) x 1.2 = $1.1033 per lb. butterfat

- **Class III & IV Butterfat price** = (NASS Butter - .114) / .82



Jan-June 00 (1.0362 - .114) / .82 = $1.1247 per lb. butterfat

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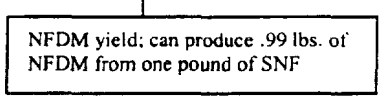
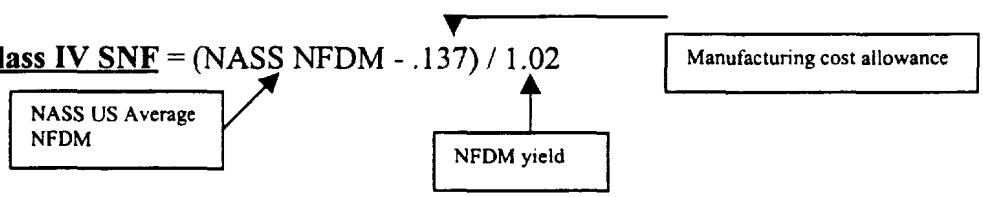
- **Class 4a SNF price** = (California powder - $0.14) x .99



Jan-June 00 (1.0079 - .14) x .99 = $0.8592 per pound SNF

- **Class IV SNF** = (NASS NFDM - .137) / 1.02



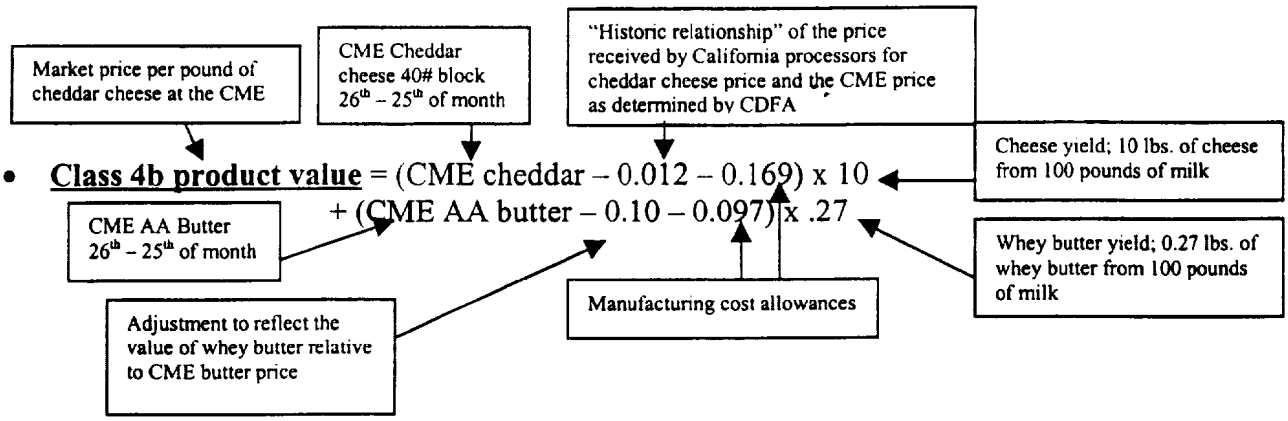
Jan-June 00 (1.00928 - .137) / 1.02 = $0.8551 per pound SNF

- **California Class 4a price** = (fat price x 3.5) + (4a SNF x 8.7)
  Jan-June 00 = (1.1033 x 3.5) + (.8592 x 8.7) = $11.34 cwt.

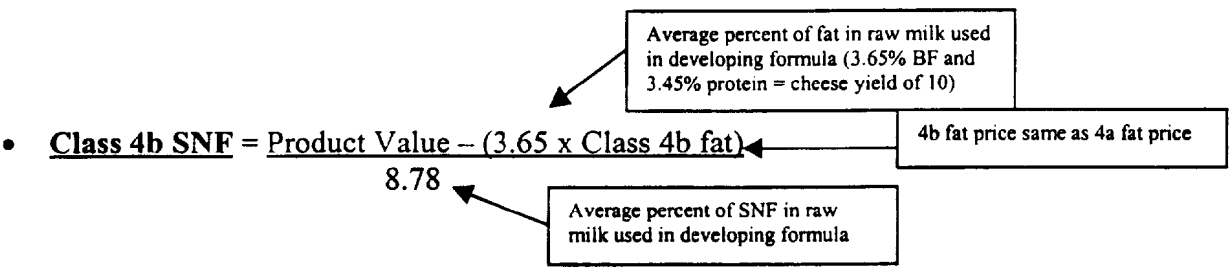
- **FO Class IV price** = ((SNF x 9) x .965) + (BF x 3.5)
  Jan-June 00 = ((.8551 x 9) x .965) + (1.1247 x 3.5) = $11.37 cwt.

Addendum 1-b

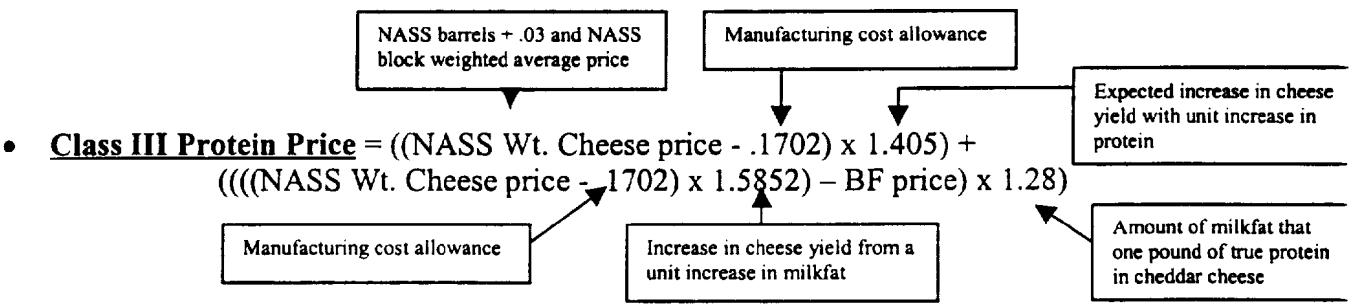
CHEDDAR CHEESE PRICING FORMULA COMPARISION



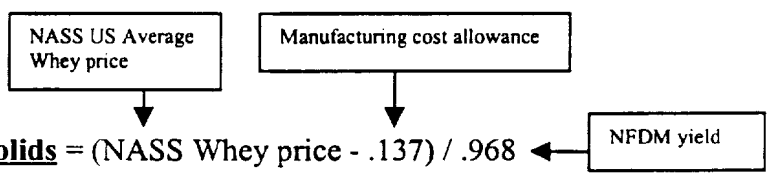
Jan-June 00 ((1.1231 - .012 - .169) x 10) + ((1.0614 - .10 - .097) x .27) = $9.65 cwt.



Jan-June 00 (9.65 – (3.65 x 1.1033)) / 8.78 = $0.6410 per lb. SNF



Jan-June 00 ((1.1141 - .1702) x 1.405) + ((((1.1141 – .1702) x 1.5852) – 1.1247) x 1.28)
= $1.7981 per pound protein



Jan-June 00 (.1791 - .137) / .968 = $.0435 per pound Other Solids

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- **California Class 4b price** = (3.5x fat price) + (8.7 x SNF price)
  (3.5 x 1.1033) + (8.7 x .6410) = $9.43 cwt.

- **FO Class III Price** = (((protein price x 3.1) + (O/S x 5.9)) x .965) + (Butterfat x 3.5)
  (((1.7981 x 3.1) + (.0435 x 5.9)) x .965) + (1.1247 x 3.5) = $9.56 cwt.

Addendum 1-c

Formula Analysis Cheese-Whey

Commodity Prices

Cheese	$1.2000
Whey	$0.1800
Butter	$1.1000

	FO Cl III	CA Cl 4b	Difference
Butterfat	$1.2024	$1.1496	$0.0628
Protein	$1.9931	N/A	
Other Solids	$0.0444	N/A	
SNF	$0.7156	$0.7100	$0.0056
Cwt.	$10.42	$10.20	$0.22

Formula Analysis Butter-Powder

Commodity Prices

NFDM	$1.0100
Butter	$1.1000

	FO Cl IV	CA Cl 4a	Difference
Butterfat	$1.2024	$1.1496	$0.0628
SNF	$0.8859	$0.8613	($0.0054)
Cwt.	$11.64	$11.52	$0.12

Addendum 2-a

Simulated Monthly Whey Margins

	Central Whey	Whey Milk Replacer	Wt Avg. Price	Margin	Margin Cwt.
Jan-96	0.2552	0.2358	0.2542	0.1242	0.6957
Feb	0.2309	0.2108	0.2299	0.0999	0.5594
Mar	0.2312	0.2127	0.2303	0.1003	0.5615
Apr	0.2344	0.2145	0.2334	0.1034	0.5791
May	0.2168	0.2025	0.2161	0.0861	0.4821
June	0.2200	0.2000	0.2190	0.0890	0.4984
July	0.2249	0.2043	0.2239	0.0939	0.5257
Aug	0.2427	0.2289	0.2420	0.1120	0.6273
Sept	0.2431	0.2358	0.2427	0.1127	0.6313
Oct	0.2193	0.2016	0.2184	0.0884	0.4951
Nov	0.1834	0.1704	0.1828	0.0528	0.2954
Dec	0.1876	0.1675	0.1866	0.0566	0.3169
	0.2241	0.2071	0.2233	0.0933	0.5223
Jan-97	0.1920	0.1693	0.1909	0.0609	0.3408
Feb	0.2052	0.1905	0.2045	0.0745	0.4170
Mar	0.2113	0.1957	0.2105	0.0805	0.4509
Apr	0.1877	0.1688	0.1868	0.0568	0.3178
May	0.1805	0.1598	0.1795	0.0495	0.2770
June	0.1911	0.1711	0.1901	0.0601	0.3366
July	0.2163	0.1997	0.2155	0.0855	0.4786
Aug	0.2270	0.2084	0.2261	0.0961	0.5380
Sept	0.2500	0.2283	0.2489	0.1189	0.6659
Oct	0.3213	0.2939	0.3199	0.1899	1.0636
Nov	0.3275	0.3006	0.3262	0.1962	1.0985
Dec	0.3324	0.3035	0.3310	0.2010	1.1253
	0.2369	0.2158	0.2358	0.1058	0.5925
Jan-98	0.2841	0.2674	0.2833	0.1533	0.8583
Feb	0.2430	0.2125	0.2415	0.1115	0.6243
Mar	0.2390	0.2114	0.2376	0.1076	0.6027
Apr	0.2274	0.1978	0.2259	0.0959	0.5372
May	0.2303	0.1998	0.2288	0.0988	0.5531
June	0.2580	0.2278	0.2565	0.1265	0.7083
July	0.2793	0.2535	0.2780	0.1480	0.8289
Aug	0.2815	0.2511	0.2800	0.1500	0.8399
Sept	0.2840	0.2552	0.2826	0.1526	0.8543
Oct	0.2510	0.2213	0.2495	0.1195	0.6693
Nov	0.2470	0.2005	0.2447	0.1147	0.6422
Dec	0.2452	0.1950	0.2427	0.1127	0.6311
	0.2558	0.2244	0.2542	0.1242	0.6958
Jan-99	0.2026	0.1705	0.2010	0.0710	0.3976
Feb	0.1875	0.1600	0.1861	0.0561	0.3143
Mar	0.1863	0.1584	0.1849	0.0549	0.3075
Apr	0.1726	0.1444	0.1712	0.0412	0.2307
May	0.1638	0.1475	0.1630	0.0330	0.1847
June	0.1737	0.1538	0.1727	0.0427	0.2391
July	0.1809	0.1561	0.1797	0.0497	0.2781
Aug	0.1972	0.1673	0.1957	0.0657	0.3679
Sept	0.2079	0.1723	0.2061	0.0761	0.4263
Oct	0.1938	0.1612	0.1922	0.0622	0.3482
Nov	0.1834	0.1521	0.1818	0.0518	0.2903
Dec	0.1865	0.1500	0.1847	0.0547	0.3062
	0.1864	0.1578	0.1849	0.0549	0.3076

Addendum 2-b

Summary of Class III Implied Conversion Margins
1991 - 1999

	Cheese Margin	Whey Margin	Implied Make
1991	1.12	0.22	1.34
1992	1.10	0.40	1.50
1993	1.16	0.29	1.45
1994	1.02	0.35	1.37
1995	1.36	0.44	1.80
1996	1.39	0.52	1.91
1997	1.19	0.59	1.78
1998	1.44	0.70	2.14
1999	1.40	0.31	1.71
91-99 Avg	1.24	0.42	1.67
91-98 Avg	1.22	0.44	1.66
95-98 Avg	1.35	0.56	1.91