BEFORE THE UNITED STATES DEPARTMENT OF AGRICULTURE
INDIANAPOLIS, INDIANA

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Docket No. AO–14–A77, et al.; DA–07–02

Milk in the Northeast and Other Marketing Areas

TESTIMONY OF BENJAMIN F. YALE, ESQ. ON BEHALF OF

DAIRY PRODUCERS OF NEW MEXICO

SELECT MILK PRODUCERS, INC.

CONTINENTAL DAIRY PRODUCTS, INC.

LONE STAR MILK PRODUCERS, INC.

ZIA MILK PRODUCERS, INC.

Exhibit 32

I. Introduction

I am testifying today as the general counsel and regulatory affairs consultant for Dairy Producers of New Mexico, a voluntary trade association of dairy farmers in New Mexico and West Texas. I am also testifying in the same capacity for Select Milk Producers, Inc., a Capper-Volstead milk marketing cooperative with members in New Mexico, Kansas and Texas and Continental Dairy Products, Inc., a Capper-Volstead milk marketing cooperative with members in Ohio, Michigan, and Indiana. Our testimony is also endorsed by Lone Star Milk Producers, Inc., a Capper-Volstead milk marketing cooperative with members in Arkansas, Kansas, Kentucky, Louisiana, Mississippi, Missouri, Oklahoma, Texas, New Mexico and Tennessee, and Zia Milk Producers, Inc., a Capper-Volstead milk marketing cooperative with members in New Mexico. Collectively, the marketing cooperatives market approximately 8 billion pounds of milk per year, virtually all of it within the Federal milk marketing areas-- including the Mideast, Southwest, Southeast, Florida, Appalachian, Central, and Upper Midwest. They have, from time to time, also marketed milk into the Arizona order.

We are grateful to the Department for noticing our proposals and providing this opportunity to explain why they should be adopted. Each of these organizations support the system of Federal milk marketing orders and have worked for years to make them more responsive to the needs of producers. In particular they believe that the hearing process is essential to the continued success of the program.

II. The Scope of this Testimony

The Department has noticed six proposals of Dairy Producers of New Mexico. Proposals 6, 7, and 8 each deal with the factors in the pricing formulas affected by shrink factors, butterfat recovery, and product yields. While listed as three discrete proposals, our position is that each proposal is part of a whole. That is not to say that the Department could not, for example, correct the arithmetic error in the calculation of butterfat shrink without addressing the issue of butterfat recovery. But we view the proposals as a singular effort to amend the yield portions of the pricing formulas to more accurately and fairly establish minimum prices for producers. Accordingly, my testimony will first address Proposals 6, 7, and 8. I will also provide testimony concerning our Proposal 3 which addresses make allowances. As indicated at the first hearing in Strongsville, our Proposal 4, which proposed the establishment of a separate Class III butterfat price, has been withdrawn.

Finally, another witness, Mary Ledman, will testify about our Proposal 15, dealing with the use of prices as reported on the Chicago Mercantile Exchange, CME, as a replacement for the NASS survey of dairy products currently used to compute minimum component prices.

A. Summary of positions.

This testimony will support the need to make changes as follows:

1. For the butter to butterfat component formula, change the yield from 1.20 to 1.22 and the make allowance from 12.02 cents to 11.50 cents. 7 CFR 1000.50(l).
2. For the cheese to protein formula, change the make allowance for cheese from 16.92 cents per pound to 16.38 cents per pound, the protein yield from 1.383 to 1.405, the butterfat yield from 1.572 to 1.652, and the butterfat to true protein ratio from 1.17 to 1.214. 7 CFR 1000.50(n)(2), (3)(i), (3)(iii).
3. For the NFDM to solids not fat formula, change the make allowance from 15.7 cents to 14.10 cents per pound. 7 CFR 1000.50(m).
4. For the Dry Whey to Other Solids formula, change the make allowance from 19.56 cents to 15.9 cents. 7 CFR 1000.50(o).

III. Supporting Documents

In support of this testimony I will rely upon a number of documents. Unless made a part of this hearing earlier, the documents I will rely on have been bound into a single exhibit, number ____. Within Exhibit ____, individual documents are identified by the capital letters A through FFFF. Throughout this testimony I will reference them only by the document letter. A list of each of these lettered documents appears at the beginning of the exhibit package along with the source of the document. More information on the source, meaning, and relevance of each Document will be provided at the time it is referenced in the testimony.

IV. The need for upward price adjustments in commodity to component prices.

Since the demise of the Minnesota-Wisconsin Price Series, M-W, and the Basic Formula Price, BFP, producer input into the prices they receive under the Federal milk marketing orders, has virtually disappeared. Then, the competitive situation in the Upper Midwest required cheese plants and other milk buyers to respond to the on-the-farm economics of milk producing or risk losing their milk supply. Plants paid higher prices when feed costs were high, and passed those costs onto their customers and on to the consuming public. It was not a perfect system, but it did an excellent job of discovering the competitive value of milk in the marketplace and the FMMO system guaranteed producers would receive that value. That is no longer the case today.

We now have a system wherein the determinative factor is the cost to make cheese and other dairy products, not how much it costs to produce milk, or even if producers receive sufficient money to cover their costs. Even the data on the costs to produce products is woefully incomplete.

The result has been a financial catastrophe to dairy farmers. Regardless of size, location, breed or geography, dairy farmers are losing money and doing so at record rates. As Gary Genske pointed out in his testimony, even the larger, more efficient herds are losing money.

Ken Bailey showed that there is an ever shrinking gross margin to producers, exposing them to continued loss of equity.

Several USDA publications have been noticed, including Mailbox Prices in the FMMO reported by AMS and the Cost of Production data reported by ERS. **Document A** is a table that was prepared by me and that shows three selected states where the values have been compared and cost of production exceeds income. In that Document, for New Mexico, I used the Texas costs although discussions with my clients in both states suggest that the feed costs are higher in New Mexico, particularly in the Roswell area.

The Agricultural & Food Policy Center at Texas A&M publishes an analysis which observes several "panel farms" of varying size, location, and product. "The chief purpose of this analysis is to project those farms' economic viability by region and commodity for 2007 through 2012." The 2007 Baseline Working Paper shows that dairy farms face serious economic risks. **Document B** contains the dairy portion of that report. The full report can be found at http://www.afpc.tamu.edu/. Under the "Recent Publications" option, select "2007 Baseline Working Paper".

Figure 5 of that report graphically shows the distribution of poor, marginal and good financial condition of the representative dairies. A comparison of the January 2006 to January 2007 reports shows an increase in the number of farms in poor condition from six to ten with four in marginal conditions in both reports. As a result, beginning in 2007, 14 of the 23 panel dairies are in marginal to poor condition. The dairy portion of the January 2006 report is found at **Document C**.

A combination of several factors combine to put a financial stranglehold on producers. The first is the rapid rise in grain prices in response to the growing demand for ethanol production. Second, significant increases in fuel costs have had the effect of increasing the cost of feeds through increased transportation and decreases in mailbox prices through increased hauling costs. Third, the rise in corn prices has also reduced the value of bull calves to near zero. General inflation has also reduced farm income.

For example, in New Mexico, producer prices are about $2.00 cwt under what is needed for positive cash flow. A typical 2000 cow dairy in New Mexico produces 140,000 pounds of milk per day. A $2.00 cwt shortfall amounts to a daily loss of $2,800 and an annual loss in excess of one million dollars. At an average investment of $3,000 per cow, that is a reduction of 16% of the total capital and debt. No farm can sustain such losses in the long term.

Current milk pricing is inadequate to meet even the cash expenses of most dairies. Unless this is resolved quickly, there will be a significant reduction in the milking herd and the supply of milk. I do not believe the phrase "disorderly marketing" means anything, but I do believe that a government policy that forces farms to transfer their equity to plants and customers by supplying their milk at below cost destabilizes the market.

V. Explanation of the commodity to component prices and their use.

Current Federal order pricing calculates four class prices from four component prices derived from four commodities. **Document D** is a printout of the formulas used since 2000 and each year thereafter as reported at the USDA. These were downloaded from the AMS Dairy Programs website at http://www.ams.usda.gov/dyfmos/mib/cls_prod_cmp_pr.htm. The critical part of these formulas for this hearing is found under Class III where the formulas for the Protein Price, Other Solids Price, and Butterfat Price are stated and Class IV where the Solids Not Fat Price formula is stated.

Each of these component formulas is stated as the product price less the make allowance with the result multiplied by a yield. For protein, an adjustment is made to accommodate the use of the Class IV butterfat price for Class III. The product prices are the result of surveys by NASS.

I have relied almost entirely on 2006 data because it is the most current twelve month period for which we have complete data. Further both the Cornell and California cost studies are applicable to that year. **Document E** lists the NASS prices for 2006 as used in the pricing formulas. The table was downloaded from the AMS Dairy Programs site at http://www.ams.usda.gov/dyfmos/mib/nass_prc_2006.pdf. It is Table 30 of the FMMO annual statistics. I will use the simple annual average of the "final" prices– butter at 1.2193, NFDM at 0.8874, cheese at 1.2470, and dry whey at 0.3285.

Document F is Table 31 of the Annual Statistics -- Federal Milk Order Class I and Class II Advanced Prices and Pricing Factors, 2006. **Document G** is Table 32 of the Annual Statistics--Federal Milk Order Class II, Class III, and Class IV Milk and Component Prices, 2006. These are official reports of USDA as found at the AMS Dairy Website cited earlier. Note that by applying the formulas found in **Document D** on the average of the commodity prices in **Document E** will not necessarily yield the same numbers as the class and component prices in **Documents F and G**.

Document H, Table 33--Federal Milk Order Principal Pricing Points, with Class I Differentials, **Document I**, Table 34--Class I Skim Milk Price, by Federal Milk Order Marketing Area, 2006, **Document J**, Table 35--Class I Butterfat Price, by Federal Milk Order Marketing Area, 2006, and **Document K**, Table 36--Class I Milk Price, by Federal Milk Order Marketing Area, 2006, represent the use of the **Document D** formulas for 2006 in setting the Class I prices in each of the orders. These are also official reports of USDA as found at the AMS Dairy Website.

Document L, Table 5--Number of Producers Delivering Milk to Handlers Regulated Under Federal Orders, by Marketing Area, 2006, **Document M,** Table 6--Receipts of Producer

Milk by Handlers Regulated Under Federal Orders, by Marketing Area, 2006 and **Document N,** Table 7--Average Daily Delivery of Milk Per Producer to Handlers Regulated Under Federal Orders, by Marketing Area, 2006 are official reports of USDA as found at the AMS Dairy Website. These will be used to provide producer data that will be used to show how price changes impact producers. In estimating the impact of changes, the total receipts for producers for the year (**Document M**) were divided by the number of producers in December (**Document L**). I chose to use the December number of 51,355 rather than the simple average as it more closely represents the numbers today. The simple average of production per producer per year will be multiplied times changes to the blend prices estimated for various changes. The impact on producers who are outside of the FMMO system is not estimated. USDA has repeatedly, and correctly, asserted that the changes to pricing in the FMMO has an impact on all milk sold in the Nation. We have not sought to estimate that impact.

Document O, Table 8--Butterfat Test of Producer Milk, by Federal Milk Order Marketing Area, 2006, **Document P**, Table 9--Nonfat Solids Test of Producer Milk, by Federal Milk Order Marketing Area, 2006, **Document Q**, Table 10--Protein (True) Test of Producer Milk, by Federal Milk Order Marketing Area, 2006 and **Document R,** Table 11--Other Solids Test of Producer Milk, by Federal Milk Order Marketing Area, 2006 are also official reports of USDA as found at the AMS Dairy Website. These will be used to illustrate the per class computations discussed later.

Document S, Table 13--Utilization of Producer Milk in Class I Products, by Federal Milk Order Marketing Area, 2006, **Document T,** Table 14--Class I Utilization Percentage of Producer Milk , by Federal Milk Order Marketing Area, 2006, **Document U,** Table 15--Butterfat Test of Producer Milk Used in Class I Products, by Federal Milk Order Marketing Area, 2006, and **Document V,** Table 16--Nonfat Solids Test of Producer Milk Used in Class I Products, by

Federal Milk Order Marketing Area, 2006 are official reports of USDA as found at the AMS Dairy Website. The numbers in those tables, particularly the annual averages, are used to compute the impact on Class I values at test.

Document W, Table 17--Utilization of Producer Milk in Class II Products, by Federal Milk Order Marketing Area, 2006, **Document X,** Table 18--Class II Utilization Percentage of Producer Milk, by Federal Milk Order Marketing Area, 2006, **Document Y,** Table 19--Butterfat Test of Producer Milk Used in Class II Products, by Federal Milk Order Marketing Area, 2006 and **Document Z,** Table 20--Nonfat Solids Test of Producer Milk Used in Class II Products, by Federal Milk Order Marketing Area, 2006 are official reports of USDA as found at the AMS Dairy Website. The numbers in those tables, particularly the annual averages, are used to compute the impact on Class II values at test.

Document AA, Table 21--Utilization of Producer Milk in Class III Products, by Federal Milk Order Marketing Area, 2006, **Document BB,** Table 22--Class III Utilization Percentage of Producer Milk, by Federal Milk Order Marketing Area, 2006, **Document CC,** Table 23--Butterfat Test of Producer Milk Used in Class III Products, by Federal Milk Order Marketing Area, 2006, **Document DD,** Table 24--Protein (True) Test of Producer Milk Used in Class III Products, by Federal Milk Order Marketing Area, 2006, and **Document EE,** Table 25--Other Solids Test of Producer Milk Used in Class III Products, by Federal Milk Order Marketing Area, 2006 are official reports of USDA as found at the AMS Dairy Website. The numbers in those tables, particularly the annual averages, are used to compute the impact on Class III values at test.

Document FF, Table 26--Utilization of Producer Milk in Class IV Products, by Federal Milk Order Marketing Area, 2006, **Document GG,** Table 27--Class IV Utilization Percentage of Producer Milk, by Federal Milk Order Marketing Area, 2006, **Document HH,** Table 28--

Butterfat Test of Producer Milk Used in Class IV Products, by Federal Milk Order Marketing Area, 2006, and **Document II,** Table 29--Nonfat Solids Test of Producer Milk Used in Class IV Products, by Federal Milk Order Marketing Area, 2006 are official reports of USDA as found at the AMS Dairy Website. The numbers in those tables, particularly the annual averages, are used to compute the impact on Class IV values at test.

Document JJ was prepared by me and summarizes the assumptions that will be used to estimate the impact of changes to various parts of the component formulas. The average monthly NASS prices for each of the commodities for 2006 from **Document E** are listed. The Standard Butterfat, True Protein, Other Solids and Solids Not fat are derived from the Formulas in **Document D**. The averages for butterfat, true protein, other solids, and solids not fat that are actual tests for the various classes and weighted were taken from **Documents O, P, Q and R.** The total pounds of milk per Class were taken from **Documents S, W, AA, and FF.** Utilization by Class is the average annual classification as found in **Documents T, X, BB and GG.**

The number of producers was taken from **Document L**, the total receipts from **Document M** and the average annual deliveries is a function of the total receipts divided by the number of producers in **Document L**.

Document KK was prepared by me and utilizes these assumptions to compare the financial impacts of the changes adopted by USDA since it issued its Tentative Final Decision on the pricing formulas in December 2000. **Document KK** demonstrates that the blend price has been reduced by 0.56 cwt over that period as a result of incremental changes to the pricing formulas. Because the format of **Document KK** is used elsewhere in this testimony, it is important to take time to explain it in detail. The primary purpose of the format is to compare one set of formulas to another and determine what the changes are to the component prices, the class prices, the class prices at test, and the blend prices.

The methodology is straightforward. There are four commodity to component computations: butter to butterfat, cheese to protein, non-fat dry milk to solids-not-fat, and dry whey to other solids. These computations are labeled across the top of the spreadsheet. Each computation is divided into two columns. The column on the left under each formula represents the current values as listed in **Document D**. The column on the right represents the changed values. Generally, each component is computed separately from the other components with the exception of the butterfat price which is used in Cheese to Protein computation. The component prices combine in the class and blend prices computed later.

Each of the factors and values of the formulas are listed along the left side. The first of these is the Product Price. The Product Prices for these comparisons, except those in which the change in the Product Price is the issue, are the average NASS commodity prices for 2006 as found at **Document E.** The Product Price for Butter is \$1.2193. The Make Allowance is the value assigned as the cost per pound of product such as \$0.1202 per pound for butter. The Net Per Pound is the Product Price less the Make Allowance. This difference is multiplied by the Product Yield to arrive at the component prices found at the bottom of the table with the exception of the Cheese to Protein Formula. In the case of the Cheese to Protein Formula, the product yield of 1.383 in the spreadsheet, is the yield for protein only and is part of other calculations used to derive the protein price.

At the next to last row in this spreadsheet the component prices are shown. For the butterfat, solids not fat, and other solids the component prices are the Product Yield times the Net Per Pound. To determine the protein price, a more detailed analysis is required. Rows 5, 6, and 7 simply repeat the information set out in rows 1, 2 and 3. Row 8 (cheese from butter yield) represents the Van Slyke cheese yield formula. This number, 1.572 in the current formula, implies a butterfat recovery of 89.40%, the number necessary to obtain 1.572 by using the Van

Slyke formula. The result is the Class III Butterfat value per pound. Since the FMMO uses the same basic butterfat price for all classes, it is necessary to make adjustments to the protein price. The details of this adjustment are explained in more detail when I will discuss alternative values for some of the factors in this part of the formula.

The Butterfat Price is the Component Price for Butter to Butterfat. Note it takes the values calculated in the "butter to butterfat" conversion. In the first column of the "cheese to protein" conversion, which is the current formula, the value of $1.3189 is input. In the "As Changed" column, the value of $1.3467 is input which represents the As Changed value in the "butter to butterfat" conversion. Those numbers are then multiplied by the factor of 0.9 which represents the ostensible 90% butterfat recovery in the formula. The "Fractional pound of butter" row represents the equivalent value of Class IV butterfat as used in the protein formula. This Fractional Pound is subtracted from the Butterfat price for the difference between the Class IV and Class III price.

The next factor, Fat to True Protein Ratio, is 1.17 in the Current column. What it means and how it should be changed is described elsewhere. For the moment the factor is multiplied times the Class IV to Class III butterfat for the Adjustment to Protein, $0.5953 in this case. It is added to the Protein before Adjustment. The latter is the product of the earlier Net Per Pound times the Product Yield. The sum of the Protein before Adjustment and the Adjustment to Protein is the Component Price.

The As Changed column is computed identically as the Current column except where the values are stated ***in bold and italics.*** For example, in this worksheet, the butterfat make allowance in the As Changed is stated as ***0.1150*** which signals differences from the Current column for that value.

In **Document KK**, the values in the As Changed column represent those values found in the Tentative Final Decision published in December 2000 and effective from January 2001 through March of 2003. The values in bold and italics identify those changes.

The second table in **Document KK** compares the class prices at standard test, 3.5% butterfat, 2.9915% true protein, and 5.8% other solids, based upon the computed component prices. The top row represents prices based on current formulas, the second row represents prices using the changed values. The last row is the difference per hundredweight.

Since milk is never sold at standard test, the third table is necessary. Using the data from the Annual Statistics as summarized in **Document JJ**, the class prices at average test throughout the FMMOs are computed. The formula for the class prices at test are as follows:

- Class I Price at Test = (1- Cl I BF%)* Class III Skim + (Cl I BF % * BF Price* 100)

The formula for Class II at test is:

- Class II Price at Test = (1- Cl II BF%)* 9 * (SNF +0.7) + (Cl II BF % * (BF Price +0.007)* 100)
- Class III Price at Test = (1- Cl III BF%)* (PR% * 100 * PR Price) + (OS % * 100* OS Price)+ (Cl III BF % * BF Price * 100))
- Class IV Price at Test = (1- Cl IV BF%)* SNF% * 100 * SNF Price + (Cl IV BF % * BF Price * 100)

In addition a blend price is computed by weighing the prices at test using the class usage for 2006. It is computed by dividing the total pounds marketed by the pool values in the next table. This is not intended to create a statistical blend such as we see in each month's milk marketing orders' reports. It is, instead to establish a baseline (the current formulas) and provide a method to approximate component, class price, and blend impact as the result of changes. For that reason, as well as simplicity, this blend price does not include any adjustments for location values of Class I prices, payments into and out of the reserve, market administrators fees and other parts of determining an official final blend price computation for producer payment or statistical purposes.

The last table computes the blend values at test and class prices computed above. The Pool is the sum of the class values without adjustment for location or other non class price issues.

What the spreadsheet tells us, then, is the expected change in component prices, class prices at standard test, class prices at actual test, pool values at test and blend prices and the differences between each of those between current formulas and the changes being discussed. In this example, the spread sheet tells us that the 2000 Tentative Final Decision formulas had butterfat at 2.83 cents higher, protein at 7.19 cents, SNF at 2.43 cents higher and Other Solids at 5.73 cents. Class I and III were 64 cents higher and Class II and IV were 31 cents higher at test. At Test Class I increased 60 cents, Class II increased at 42 cents, Class III increased at 63 cents, and Class IV at 35 cents. Producer blend prices have been reduced an average of 56 cents per hundredweight. The final number on the page, $13,245, estimates the annual reduction per the average producer shipping in the FMMO system.

Each time that we analyze a proposed change to the pricing formula, we have prepared and included a document identical in form to **Document KK.** This way, each individual proposed change can be assessed in terms of its total financial impact on producer income and compared with other changes.

VI. Error in Butterfat Price Formula

Proposal Six proposes an increase in the yield factor for butterfat to butter from 1.20 to 1.211. The purpose of this change is to correct for a mathematical error in the Department's calculation of "shrinkage." In the Final Decision establishing the Class III and IV pricing formulas from November 2002, the Department made substantial reductions from the yields in the Recommended Decision of October 2001 by including, for the first time, adjustments for "shrinkage." Because these changes were included in the Final Decision but not in the Recommended Decision, interested parties were not provided an opportunity to respond to the changes. Assuming for the moment that shrinkage should be accounted for in the formula, the assumed shrinkage was improperly calculated. The purpose of Proposal Six is to correct this improper calculation. The 2002 Final Decision described the incorporation of shrinkage as follows:

> The loss allowance for butterfat will be reflected by adjusting the 0.82 divisor in the butterfat price formula. Testimony and comments indicate that farm-to-plant losses on all milk solids is 0.25 percent (0.0025) with butterfat incurring an additional loss of 0.015 pounds per 100 pounds of milk. The butterfat price formula is determined as follows:
>
> - For every pound of butterfat, 0.0025 pounds is lost in the farm-to-plant transfer (1.000 - 0.0025 = 0.9975).
> - In addition, for every pound of butterfat [sic, should be "for every hundredweight of milk" (See, 67 Fed. Reg. 67917)], there is an additional 0.0150 farm-to-plant loss on butterfat solids (0.9975 - 0.0150 = 0.9825 pounds of butterfat).
> - Dividing 0.9825 by 0.82 results in a butterfat factor of 1.20 (0.9825/0.82 = 1.20).
> - Therefore, the Class III and IV butterfat value per pound is computed as follows: (NASS butter price - 0.115) ×1.20.

67 Fed. Reg. 67920 (November 7, 2002).

The error is further explained by the following: Assuming that overall milk volume at the farm is reduced by 0.25% in transportation and fat is further reduced by .015 pounds per 100 pounds of milk received at the plant, the milk at the plant is the farm volume adjusted for shrink in accordance with this formula: (3.5 * 0.9975) - 0.015 = 3.47625. That is, if the farm test indicated 3.5 pounds of butterfat per hundredweight, that amount is first reduced by 0.25% for farm-to-plant loss. The result is then further reduced by a loss of 0.015 pounds of butterfat solids.

The yield from this reduced volume is divided by the farm weight to obtain the yield from farm weight to product. The Final Decision instead increases the farm-to-plant shrink factor by a full 1.5%. The formula used by the Department, therefore is (3.5 * (0.9975 - 0.015)) or (3.5 * (0.9825)) = 3.43875. The difference is that the Department assumes that the plant utilizes 0.0375 pounds of butterfat less than it should (3.47625 less 3.43875). A comparison of the correct formula with the Department's formula demonstrates that the Department has incorrectly placed the second set of parenthesis in its formula.

Correct Computation	((3.5 * 0.9975) – 0.015) = 3.47625
Department Computation	(3.5 * (0.9975 – 0.015)) = 3.43875

The Department implicitly acknowledged its error in the 2002 Final Decision. In the manufacturing price formulas, the butterfat shrink is used in two places. First, it is used in calculating the butterfat price. Second, it is used in calculating the butter-cheese yield in the protein formula.

In the butter-cheese yield in the protein formula, the Department correctly calculated the butterfat shrink in the butter-cheese yield by first incorporating farm-to-plant shrink and then incorporating the additional 0.015 pound reduction per hundredweight.

The Van Slyke formula for the cheese yield of 3.5 pounds of butterfat in a standardized 100 pounds of milk is (0.90 * 3.5 * 1.09) / 0.62 = 5.538. To calculate the yield of one pound of butterfat, the result is divided by 3.5 (5.538 / 3.5 = 1.582). This is the source of the 1.582 factor which was used in the formulas in the Department's decision beginning in January 2000 up through the Final Decision in 2002.

Applying the shrink for butterfat, the formula was modified as follows: (0.90 * ((3.5 * 0.9975) - 0.015) * 1.09) / 0.62 = 5.5003. Since we want to know the yield of one pound of butterfat on the farm, we divide 5.5003 by 3.5 for a yield of 1.572. That is the new yield in the protein formula in the Final Decision.

Here, the Department correctly placed the second set of parenthesis in the formula. In the butterfat formula it is done incorrectly.

Department's Butterfat Formula	(3.5 * (0.9975 – 0.015)) = 3.43875
Department's Protein Formula	(0.90 * ((3.5 * 0.9975) - 0.015) * 1.09) / 0.62 = 5.5003

Correctly calculating the butterfat yield would result in the following:

- (3.5 * 0.9975) - 0.015 = 3.47625
- 3.47625 / 3.5 = 0.9932
- Dividing 0.9932 by 0.82 (yield of butterfat from one pound of butter) equals 1.211. By placing the parenthesis in the wrong place, USDA incorrectly computed the formula as follows: 3.5*.9875 or 3.43875. 3.43875/3.5 = .9825. .9825/.82 = 1.98. The resulting factor is 1.2. For butter at $1.05 per pound, the increase in the producer price is $0.0413 per hundredweight on 3.5 milk.

In addition to incorrectly calculating the butterfat yield, the 2002 Final Decision failed to correct the Cheese to Protein component price formula. The current formula calculates the protein price as a residual difference between the Class III price and the Class IV butterfat price.

In the Tentative Final Decision on Class III and Class IV prices, published by the Department on December 7, 2000 and in subsequent decisions, the Department agreed that the amount of Class IV butterfat that was to be subtracted from the value of butter and cheese to calculate the protein price was to be factored by the butterfat recovery.

The formula adopted by the Department in the 2000 Tentative Final Decision utilized an implied butterfat recovery of 90%. Thus, to determine the value of Class IV butterfat, the Department properly multiplied the Class IV butterfat price by 0.9 in the formula. In the process of reducing the yield to account for farm-to-plant shrink, the result was a butterfat yield of 1.572 which is equivalent to a butterfat recovery of 89.4%. In the protein formula, the corresponding factor should be used. The 0.90 in the protein formula should be replaced with 0.894 to be consistent with the calculation of the Class IV butterfat price. Accordingly, we are amending our Proposal Six to correct for both the change in the butterfat yield and the calculation of protein.

In **Document LL**, a document prepared by me using the same format as used in **Document KK**, Comparison of Impact on Blend by Correcting the Errors in Applying Shrink to Butter to Butterfat and Adjustment for Class IV BF in Protein Price to Current Formula, the impact of the error in the shrink computation is shown. The estimated impact is 7 cents per cwt and average loss to dairy producers each year of $1,683.

VII. The Farm to Plant Shrink should be removed.

Incorporating so called "farm to plant losses" into the plant yield factors should be discontinued. In the 2002 Final Decision setting the current yields, the USDA stated,

> Butterfat Price. This final decision continues to use the NASS price for Grade AA butter in calculating the butterfat price to be used in Class IV, and uses the current and the recommended decision's make allowance of $0.115. However, this final decision changes the use of a 0.82 divisor in the price formula to a multiplier of 1.20 in order to provide consistency to price formulas and to account for farm-to-plant milk losses.

67 Fed. Reg. at 67918. The Federal Milk Marketing Order system and its pricing and blending program should not be used by producers, cooperatives, or processors to mask inefficiencies or to obligate those who provide milk more efficiently to subsidize those who do not. Adjustments to the pricing formulas to account for farm-to-plant shrink is a carryover from a period of lesser efficiency. What was then recognized as general industry practice now penalizes those producers whose cooperatives and buyers have taken the steps to improve the accuracy and specificity of the measurements for their milk and their components.

Traditionally a milk hauler would stop at several farms and use a dipstick to measure the amount of milk picked up at each farm or other measuring method. The process is detailed in Appendix B to the PMO. *See* **Document MM**. In the modern day, the hauler scale weighs his rig before and after a single pick up and delivers that milk directly to the plant, where a similar scale observation is made.

While we recognize that in many instances, milk haulers still have several stops on their route, this is increasingly the exception and not the rule. Today, over half the milk in the country is produced on farms that can deliver a full tanker of milk. **Document NN**, Milk Cows: Number of Operations, Percent of Inventory and Percent of Milk Production by Size Group, United States, 2005-2006 is Table 27 from Farms, Land in Farms, and Livestock Operations 2006 Summary: Released February 2, 2007, by the National Agricultural Statistics Service (NASS), Agricultural Statistics Board, U.S. Department of Agriculture. It shows that 51.6% of the milk comes from operations that have more than 500 dairy cattle. At 65 pounds per day per cow, the lowest milk production in that group is 32,500 pounds per day– well able to fill a tanker of milk within 48 hours of harvest. Much, probably, most, of the milk in the next tier, 200 to 499 head, are in a similar position because from about 350 cows on up the producer has reached the point where a single pickup will fill a tanker. In the case of the others, depending on the proximity of the market, they could fill smaller, straight trucks. Thus, we are approaching the point where nearly two thirds of the milk comes from farms that are or could be single farm pickups. By the time this hearing process ends, that number will be only higher.

I have conferred with the employees responsible for farm weights and tests, milk marketing reconciliation, and accounting for my clients. Those employees indicate that the net of all overages and underages between farm weights and tests and plant weights and tests is a wash. In almost all instances, the difference between the farm weights and tests and the plant weights and tests is significantly less than the 0.25% assumed by the federal milk marketing order presumptions. If there is a consistent error, steps are taken to identify the source of the difference and to correct it.

The primary reason for the minimal differences in weights is that all of the members of Select, Continental, and Zia and the producers with most of the milk marketed by Lone Star, ship a full tanker load of milk at each pickup. This leads to greater specificity and accuracy in the observation of the milk picked up at the farm. These cooperatives are not unique. **Document N**, Table 7--Average Daily Delivery of Milk Per Producer to Handlers Regulated Under Federal Orders, by Marketing Area, 2006, shows that the average daily pickup in the Florida, Pacific Northwest, Southwest, and Arizona Marketing Areas, is sufficiently large enough for full tanker pickups of approximately 50,000 pounds from farms within 48 hours of harvest as required by the PMO. As for the other marketing areas there, are a number of farms that also qualify for single farm pickups.

To maintain its relevance, the federal order system needs to recognize the changing technologies and efficiencies in milk production and marketing. We need to demand that our regulations fairly compensate producers for becoming more efficient. Maintaining a farm to plant shrink adjustment in the pricing formula penalizes those producers who have become more efficient and caters to those who could become more efficient, but decline to do so. The concept of farm to plant shrink is a remnant of the dairy industry that I began working in thirty years ago. It has no place in the modern, globally-competitive marketplace in which we now compete.

Our proposal Seven would eliminate the farm to plant shrink adjustments from the pricing formulas. Adoption of proposal Seven would signal to end a triple penalty to efficient producers:

First, elimination of farm to plant shrink would result in a minimum pay price premised on the reality experienced by my clients that true farm weights are equivalent to plant weights. The current formula confers an unwarranted windfall on our buyers who, essentially, pay for less milk than they receive.

Second, because our member farmers have true weights, eliminating farm to plant shrink from the formulas will end the subsidization of those producers whose farm weights and tests are inaccurate and erroneous.

Third, because the manufacturing formulas are the basis for Class I and II pricing formulas, those prices are reduced unnecessarily as a result of the farm to plant shrink adjustments.

The shrink is not "stickiness" or milk left in vessels. It results from the weighing and testing at the farm. Milk hauling is typically contracted to independent haulers hired by producers or their cooperatives. Volume losses are due to the use of "dipsticks" and the conversion of those imprecise measurements instead of using actual observed weights. The PMO describes it this way:

> Carefully insert the measuring rod, after it has been wiped dry with a single-service towel, into the tank. Repeat this procedure until two identical measurements are taken. Record measurements on the farm weight ticket.

Document MM, p 4.

This visual measurement of the rod provides an opportunity for interpretation. Do you read at the top or the bottom of the meniscus? A hauler who reads the meniscus of the dipstick at its highest point, credits the producer with slightly more milk than picked-up, while the hauler benefits by keeping his customer happy. If those who purchase the milk checked the economic incentive for this, the farm to plant shrink would effectively end.

Fat losses are not necessarily the result of fat sticking to pipes and tanks. Imagine if 0.015 pounds of butterfat per hundredweight actually stuck to the pipes. In a full tanker of 500 hundredweight, this is a full 7.5 pounds of butterfat clinging somewhere in the works. In a plant that receives even a modest ten loads of milk per day, each year 13 tons of butterfat would be sticking to pipes and tanks somewhere, never to be seen again. At a large and modern cheese plant, where 140 loads of milk are delivered each day, this amounts to half ton of butterfat sticking to pipes each day —a truly staggering case of clogged arteries. So high is such a number that the buyer would require, and obtain, procedures from the sellers of milk to eliminate those errors.

The most common source of these butterfat losses is inaccurate sampling and testing. The failure to fully agitate the tanks before measurement, the failure to properly take the sample, and simple errors in testing account for the bulk of the "shrink." In other words the "shrink" being claimed will include situations where the plant tester arrived at lower tests than the selling cooperative. Today the market administrators' offices routinely check test equipment to insure accurate tests. Even with modern testing equipment there are still ranges and each side has the incentive to go to the end of the range in its favor.

Assuming such behavior is okay and assigning a regulatory cost to such behavior masks the problem. There is no economic incentive for the parties to solve the issue. These losses are not too small to ignore. Regulations should demand solutions rather than institutionalize inefficiency in a rule based upon decades old analyses.

USDA said in the 2002 Final Decision, "Federal orders have always contained provisions for 'shrinkage.' Since handlers have to account for all receipts and utilization, the shrinkage provision allows assigning a value to milk losses at the lowest priced class, providing explicit recognition that some milk loss is inevitable in farm-to-plant movement." 67 Fed. Reg. at 67917 (November 7, 2002). But in the modern dairy industry, milk loss is not "inevitable" and those who are inefficient should not be rewarded by subsidies from those who have solved the problem. The marketplace has devised arrangements to contract for shrink, and reductions to the pay prices for inefficient producers should be left for the marketplace to determine.

The Department also said in the Final Decision, "The loss allowances in the Class III and IV formulas are intended to reflect actual losses that are beyond the processing handler's ability to control. In addition, farm-to-plant losses cannot be assigned to a lower class value since the milk solids unavailable for processing effectively have no value in the Class III and IV formulas." 67 Fed. Reg. at 67917 (November 7, 2002). But these losses are within the processing handler's control. A handler can refuse to accept milk from shippers that demonstrate unacceptable farm to plant losses. The handler can request assistance from the market administrator to check the tanks and the testing methods. The handler can contract for milk based on farm tests without shrink, and adjust their payments accordingly.

Additionally, the Department stated, "Prior to Federal order reform, milk pricing for all Federal milk marketing orders relied on the Grade B Minnesota-Wisconsin (M-W) price series and later the Basic Formula Price (BFP). These prices were determined by manufacture milk plant survey reports of Grade B milk purchases free of government price regulation and represented a competitive pay price for milk. The competitive pay price factored the entire cost of processing milk purchased from farms into finished dairy products. In contrast to the competitive pay prices, Federal order reform could no longer rely on a competitive pay price and purposefully chose NASS surveys of end-product prices and sales to establish Class III and IV prices with product price formulas. Many of the plants reporting to NASS purchase large quantities of milk from individual producer cooperatives. The end-product pricing formulas developed under reform were based in part upon the cost to process raw milk into finished dairy products." 67 Fed. Reg. at 67917 (November 7, 2002).

The basic contractual relationship described in the Final Decision has not changed. Cooperatives can still negotiate with their members and pay them on actual milk deliveries. Proprietary handlers can refuse to accept milk from producers with excessive losses.

When the Department incorporated shrink adjustments in the Final Decision, it made the following statements to explain the incorporation of the adjustments:

> The hearing testimony as well as comments to the recommended decision provide sufficient evidence to conclude that the recommended decision formulas do not properly consider farm-to-plant losses that occur. Testimony indicates that these losses are 0.25 percent on all milk solids, and that butterfat solid losses are an additional 0.015 pounds per hundredweight of milk. These losses need to be represented in the pricing formula, according to these claimants, to account for the out-of-plant losses that occur prior to processing raw milk into finished products such as cheese or butter/powder. 67 Fed. Reg. at 67917.
>
> An adjustment to the price formulas to account for the difference in milk components paid for versus components actually received is appropriate. Based on the hearing record and comments filed by numerous parties, the farm-to-plant adjustment will reflect a 0.25 percent loss of nonfat solids, including protein and other solids, and a 0.25 percent loss of butterfat plus a 0.015 pounds loss of butterfat. These adjustments are reasonable and are reflected in the respective yield factors used for computing the milk component prices. 67 Fed. Reg. at 67918.
>
> This final decision incorporates an adjustment to the respective yield coefficients of each milk component. The adjustment is based on an overall factor of 0.25 percent loss of each milk component and an additional 0.015 pounds of butterfat lost between the farm and the receiving plant. 67 Fed. Reg. at 67918.

These loss allowances are adopted into the Class III and IV pricing formulas. The farm-to-plant losses are reflected on the end-products that result from Class III and IV milk, namely, cheese, dry whey, nonfat dry milk, and butter. They are reflected in this way to ease the concerns raised by Select Milk and Continental Dairy who indicated that reflecting farm-to-plant losses on the front-end of the product formulas (based on farm milk) may cause confusion. 67 Fed. Reg. at 67918.

When farm-to-plant losses are incorporated into the Van Slyke cheese yield formula, the Van Slyke formula results in the protein price factors from which the Class III protein price is derived. 67 Fed. Reg. at 67928.

The Van Slyke Formula Used in This Final Decision

- Cheddar cheese pounds attributable to butterfat = $((0.9 \times 3.5) \times 1.09 / (1 - 0.38)$ = 5.5379 pounds of cheddar cheese

- Cheddar cheese pounds lost due to the 0.015 farm-to-plant butterfat loss = $((0.9 \times 3.5) \times 1.09 / (1 - 0.38) = 0.0237$ pounds of cheddar cheese, $5.5379 - 0.0237 = 5.5142$ of cheese after farm-to-plant loss.

- Cheddar cheese pounds lost due to the 0.25 percent solids loss on fat solids = 5.5142 pounds of cheese from butterfat $\times(1 - 0.0025)$, $5.5142 \times 0.9975 = 5.5004$ pounds of cheese from farm butterfat

- Cheddar cheese yield contribution per pound of fat at farm = 5.5004 pounds of cheddar / 3.5 pounds of fat at farm = 1.572

- Cheddar cheese pounds attributable to protein = $((0.8220 \times 2.9915) - 0.01) \times 1.09 / (1 - 0.38) = 4.1473$ pounds of cheddar cheese

- Cheddar cheese pounds lost due to the 0.25 percent solids loss on protein solids = 4.1473 pounds of cheese from protein $\times(1 - 0.0025)$ for farm-to-plant loss = $4.1473 \times 0.9975 = 4.1369$ pounds of cheese from farm protein pounds of cheddar / 2.9915 pounds of protein at farm = 1.383

- Cheddar cheese pounds from standard farm milk = 5.5004 pounds of cheese from standard farm butterfat +4.1369 pounds of cheese from standard farm protein 9.6615 total pounds of cheese from standard farm milk

- The butterfat-to-protein ratio factor in this final decision is 1.17 and is derived by dividing the farm butterfat by the farm protein (i.e. 3.5 pounds of butterfat / 2.9915 pounds of protein = 1.17). 67 Fed. Reg. at 67929.

- The butterfat yield coefficient is changed from 1.582 to 1.572 to reflect the farm-to- plant butterfat losses. The remainder of the protein price formula is unchanged. 67 Fed. Reg. at 67927.

- The results of the above computations yield the following protein price formula:

$((\text{NASS cheese price} - 0.165) \times 1.383) + (((\text{NASS cheese price} - 0.165) \times 1.572) - (\text{butterfat price} \times 0.9)) \times 1.17.$

67 Fed. Reg. at 67929.

Our proposal Seven to remove shrink has the following impact on component prices: Butter to butterfat yield goes from 1.20 to 1.22. The cheese to protein formula also changes. Protein factor goes to 1.386 if only the shrink is removed. Butterfat recovery goes from 89.40% to 90% and the factor to 1.582 and the solids not fat goes from 0.99 to 0.9925. **Document OO** was prepared by me and computes the component, class and blend prices by making those changes to the formulas. The result on average 2006 NASS prices was 7 cents increase in the blend and $1,595 on the annual proceeds for an average producer.

VIII. The need to change the commodity to component yields.

A. Public Data available on dairy products and yields.

1. The Definition of Commodity Products

Before a discussion of product yields can be had, we should begin by clearly identifying the commodity products that are the basis for the pricing system. It should go without saying that if NASS prices, or as we argue later CME prices, provide the prices utilized in the pricing formulas, then the make allowances and the yields should be tied to the products in the price series utilized and no other products should be utilized to determine make allowances or yields.

For protein, the proxy for cheese and the basis for determining the value of milk used in all cheeses are 40# block and 500# barrel commodity cheddar cheese prices. The use of "commodity" cheddar is significant because there are a lot of producers of cheddar style cheeses that do not produce commodity cheeses. Many of these cheddars are not sold in blocks or barrels. They come in plastic covered loafs and wheels. Some are wrapped in black wax or larded cloth. These are sold as artisan or specialty cheeses at higher prices. In the United States, Cheddar cheese comes in many varieties. These include, but are not limited to mild, medium, sharp, New York Style, Colby/Longhorn, white, Vermont, and full fat. New York style Cheddar cheese is a particularly sharp Cheddar cheese, sometimes with a hint of smoke. Cheddar cheese is provided for use as sliced, cubed, shredded and mixed to make spreads and many other uses. The costs of plants making cheeses that are not reported cannot be considered. Their costs and practices are not reasonably comparable to commodity plants. These extra costs are offset by higher sales prices (or should be).

Regulations specify the standard of identity for cheddar cheese. **Document PP**, Standard of Identity for Cheddar Cheese, 21 C.F.R. §133.113 and **Document QQ**, Standard of Identity for Cheddar Cheese used in Manufacturing, 21 C.F.R. §133.114 define the product subject to the NASS cheese survey. I will refer to different parts of this regulation later, but it should be pointed out now that under subsection (b)(1), the ingredients must be milk, nonfat milk, or cream as defined by regulation. **Document RR** Dairy Product Prices Cheddar Cheese, is a copy of the reporting instructions for cheddar cheese as used in the pricing formulas. It requires that the cheese meet the standards of identity for cheese.

Unique among dairy products, butter is not defined by regulation, but by statute. 21 U.S.C.A. §321a. *See* **Document SS**. NASS butter must meet this definition. **Document TT**, Dairy Product Prices Butter. NASS butter must also meet USDA Grade AA standards. USDA Grade AA standard is reached if butter (defined by statute) scores 93 out of a 100 points based upon aroma, flavor and texture. USDA Grade AA butter will be delicate and sweet in flavor with a fine and pleasing aroma. It is made from Grade A sweet cream, smooth and creamy in texture and easily spread.

The Standard of Identity for NFDM is at **Document UU**, Standard of Identity for NFDM, 21 C.F.R. §131.125. The requirements for NASS purchases are set forth in **Document VV**, Dairy Product Prices Nonfat Dry Milk. These include USDA Extra Grade and USPH Grade A. USDA Extra Grade "means that laboratory tests show that it possesses a sweet and pleasing flavor, a natural color, and satisfactory solubility. USDA inspectors also check the instant milk for other quality factors such as moisture, fat, bacteria, scorched particles, and acidity." This comes from the USDA website at http://www.ams.usda.gov/dairy/grade.htm#dpgrad.

Dry whey does not have a standard of identity. **Document WW**, Dairy Market News Terminology, does not define dry whey although it includes prices for Whey Powder and whey protein concentrate. The NASS survey form, **Document XX**, Dairy Products Prices Dry Whey requires that the product meet USDA Extra Grade edible nonhydrogroscopic dry whey standards. **Document YY**, contains the definition for dry whey used by USDA in Supplemental Specifications for Plants Manufacturing, Processing, and Packaging Whey, Whey Products and Lactose.

2. Lack of Public Data on Yields and other factors

Despite the fact that end product pricing for FMMOs has been used since January 2000 and contemplated since the mid 1990's, there still has been no study on actual yields at the commodity plants. This is disappointing because the information that does exist is known by processors but not producers. This lack of available information limits producer participation in hearings such as this and hinders the ability to establish accurate formulas. But the total absence of complaints by plants regarding the current yields speaks enormously in favor of the proposition that they are too low. With the limited data available to us, we will show that, that is in fact the case.

There is a total lack of public data on this issue. It is not in the interest of the processors to provide this information. Higher yields will result in higher producer prices. If the current yields were too high for any processor, let alone ones of average efficiency, there would be requests to lower the yields. Since there are no such complaints it means that the yields are below the lowest yielding plants! Otherwise, we would expect complaints from processors similar to those made regarding make allowances.

Although the adjustment of yields has a significant impact on the accuracy of the formulas, USDA has not asked for the information. RBCS provided some yield information, although it was not requested by the participating plants. After all, those requesting the RBCS study had an interest in lower minimum prices, not raising the yields. Likewise, the Cornell Study did not seek yield information, although the make allowances surveyed have real meaning only relative to the yields of the plants. CDFA provides some yield information which can be made usable.

B. Changing factors in the Cheese to Protein Formula

Our proposal includes an adjustment to the yield of pounds of cheese from one hundredweight of milk. Our proposed change is due to three different factors. First, the current formula assumes that a plant recovers 90% of the butterfat when making cheese. We propose changing this recovery percentage to 94% to reflect modern efficiencies. Second, the current formula assumes that casein represents 82.2% of the true protein in milk. But at average producer tests, the actual percentage of casein in milk is 83.25%. We propose changing the percentage of casein in the formula to reflect the more accurate percentage of casein. Third, the fat to protein ratio in the cheese to protein formula used to adjust protein to compensate for the difference between Class III and IV butterfat should be changed to 1.214 to reflect average producer tests.

1. The yield factor in the formula is an indivisible part of the formula.

The make allowances are a function of the yield. If we take the total cost of making cheese (or any other manufactured product) and divide those costs by the total pounds of product produced, a cost of production per pound of product is determined. In the minimum price formulas, where we are attempting to approximate the manufacturing allowances for a plant of average efficiency, the yield of product assumed by the formula has a direct impact on the make allowance. If the costs of a plant are divided over a smaller volume of produced product, a higher make allowance results.

Under the current formulas, producers are actually "paying" for higher yields at the plant. Make allowances cover all costs associated with operating the plant including depreciation on the equipment and systems that increase butterfat recoveries and yields. Make allowances include a return on investment for the equipment that increase yields. These costs are reflected in the cost surveys that form the basis of the make allowances. Fairness and consistency require that the yields be considered and updated so that producers share in the benefits gained from the additional costs passed back to them.

Looking at only make allowances and ignoring the product pricing and the yields results in an incomplete picture. The end product pricing formulas are proxies for what the milk is worth. The concept is to determine what a plant must keep to pay costs and be profitable and what is left is what can be paid for milk. To determine that product price one needs to know how much milk will be received, how much product comes from that milk (yield) and how much the product is sold for (product price). Any business that ignored how efficient it was would not long survive.

Make allowances without direct linkage to the product being made and the yields are meaningless. The make allowances also reflect the type of vats purchased, their butterfat recovery, whether they are designed to capture whey and separate and return the butter to the vat, ultrafiltration that increases recovery both of fat and the amount of casein to make cheese. The yields represent the plant management and its ability to produce sufficient cheese from a quantity of milk at a price.

2. **Use of the Van Slyke formula**

USDA has used the Van Slyke formula as the basis for computing Class III prices. I prepared **Document ZZ** which sets forth the Van Slyke Formula. The formulas solve for the amount of cheese from milk as well as for only protein and butterfat yields. The formulas are as follows:

Pounds of Cheese = ((BR% x BF lbs) + (CS% x PR lbs) -0.1) x 1.09)/(1 - Moisture%)

Pounds of Cheese from Butterfat = (BR% x BF lbs) x 1.09)/(1 - Moisture%)

Pounds of Cheese from Protein = ((CS% x PR lbs) -0.1) x 1.09)/(1 - Moisture%)

The parts of the formula at issue are the percent of casein in protein and the butterfat recovery rate. The fat to protein ratio is a creature of the Class III protein component pricing.

Each of these three have impacts on the pricing. I prepared **Document AAA**, Sensitivity of Class, Component, and Blend Prices to Various Change in Cheese to Protein Formula, which looks at how small but significant changes in these values influence the ultimate prices producers receive. The numbers were derived by using a modification of the worksheets such as **Document KK**. I also prepared **Document BBB**, Sensitivity of Class, Component, and Blend Prices By Changes to Butterfat Recovery, Casein Percent, and Fat to Casein Ratio, which does not imply, but actually computes the yields based upon the changes to butterfat recovery and percent of casein in the protein. Using this worksheet and setting the values to those in the current formulas, I used the Scenario function of the Quattro spreadsheet program calling for iterations as discussed below. Each of the three values, butterfat recovery, casein percent and fat to true protein ratio were independently and individually adjusted. **Document AAA** summarizes the result of that analysis.

Table 1 of **Document AAA** considers the impact of changing the implied butterfat recovery in the formula from the stated, but reduced, 90% by one percentage increments to

100%. The impacts relate changes from the current formula. Since protein is only used in Class III and, depending on the Class IV price, Class I, the changes to those prices at the standard tests and at actual test are computed as well as a blended value. For example, changing the formula to imply 94% would result in a 10.5 cent increase in the blend price.

Table 2 of **Document AAA** shows the effect of changing the casein as a percent of protein. As explained in detail later, the current casein percent of 82.2% inaccurately reflects the percentage of casein in producer milk. This table compares the result of 0.10% changes in this factor on the component, class and blend prices. For example, a percentage of 83.2% would result in a change of 2.3 cents per hundredweight in the average blend or over $1000 per year to an average producer, assuming no other changes.

Table 3 of **Document AAA** looks at the sensitivity of changes to the butterfat to true protein ratio. Currently in the formula it is 1.17. The table looks at the impact by raising it to 1.23 at 0.01 increments. For example, use of 1.23 results in a 3.7 cent blend price increase.

In summary, consideration of these factors and arriving at the most appropriate will have a significant impact on producer blend prices.

a. Use the correct casein percent in true protein of milk at average test.

We propose adjusting the formula to reflect the ratio of casein to true protein at weighted average producer test. USDA uses the weighted average price as reported by NASS as the starting point for formulas. It is appropriate, in fact virtually required, that the weighted average or averages, where appropriate, be used in other parts of the formula.

USDA decided early on in the FAIR Act order reform to use true protein rather than total (crude) protein. The difference between true protein and total protein is the amount of non-protein nitrogen (NPN). True protein is not a fixed percent of total protein. Traditionally, true protein was measured and the total protein was calculated by adding a factor back to the true protein. This is one reason USDA decided to use true protein. The amount of NPN in crude protein varies, but a study done by personnel at USDA AMS and Cornell determined that a fair factor for non-protein nitrogen is an unchanging 0.19. **Document CCC**, David M. Barbano and Joanna M. Lynch, "FAQ: Changing from Crude Protein to True Protein," May 14, 1999. Since true protein for milk with a crude or total protein test of 3.20 is 3.01, milk with a crude protein test of 3.1 would have true protein of 2.91, not 2.916, which would be the calculated true protein if calculated by a simple ratio.

Because non-protein nitrogen is a fixed number, the use of a a fixed percent of casein in the Van Slyke formula can result in discrepancies if producer milk has a protein test different from that assumed when the percentage in the formula is calculated.

Document DDD, Comparison of Casein in Crude Protein to Implied Casein in True Protein at Two Rates, was prepared by me to analyze the relationship between casein in crude protein and in true protein in tabular form. In the Final Decision of 2002,USDA stated that the percent of casein in crude protein was 78%. 67 Fed. Reg. at 67928. With that as a starting point, one can compute the amount of casein in crude protein by simple multiplication. In **Document DDD** the leftmost column (% Crude Protein) lists various crude protein percentages from 2.9% to 4.0% in increments of 0.05%. The second column (NPN) is the amount of non-protein nitrogen–a fixed 0.19%. The third column (True Protein) represents the amount of true protein which is the simple difference of the crude protein and the NPN. The fourth column (% Casein in Crude Protein) is the percent of crude protein which is casein, or 78%. In the fifth column (Casein), I computed the amount of casein by taking 78% of the crude protein.

The sixth column (% Casein in formula) represents the factor used in the current cheese to protein portion of the component pricing. The seventh column (Casein Implied in Formula) computes the amount of casein that is implied in the current formula by taking the percent of casein in the formula times the true protein. The eighth column (Implied less Actual) determines the difference between the casein computed by taking 78% of the crude protein and the casein computed by taking crude protein less 0.19 and that times 82.2% as in the current formula.

The ninth column (% of Casein Proposed) uses 83.25% instead of the 82.2%. **Document O** and **Document Q** show the average butterfat tests and true protein of producer milk in each of the orders. The average for butterfat is 3.69% and for true protein 3.05%. Additionally, **Documents BB** and **CC** show the percent of butterfat and protein used in Class III. The latter shows an average of 3.69% butterfat and 3.04% for orders that pay on components.

The current formula has an implied 82.2% casein. This is incorrect for producer milk at the average weighted tests in the market. **Document DDD** shows that all farmers with less than 3.56% true protein are penalized by the inaccurate implied percentage in the current formulas. (That is the point when when 82.2% of true protein equals 78% of crude protein.) **That is a full half a point of protein higher than the average.** We do not have studies showing the distribution of protein rates, but the number now used as a basis for milk pricing only applies to higher protein yield cattle, mostly in the Jersey, Ayrshire, or Brown Swiss breeds.

The formulas that use weighted average prices for commodities should also use weighted averages for true protein. The range of the average is very small. Since 2000, the all market average is 3.00 with a standard deviation of only +/- 0.07. To accommodate the highs and lows would mean utilizing a factor for casein from 83.2% to 83.3%. 83.25% is sufficiently accurate.

With that in mind, the appropriate ratio of casein to total protein is 83.25% at the weighted average true protein test within the federal milk marketing orders. Applying this casein percent to the Van Slyke formula, the result is as follows:

Protein yield = (((CS% x PR lbs) -0.1) x 1.09) / (1 - Moisture%)

= (((83.25 x 2.9915)-0.01) x 1.09) / (1 - 0.38)

= (2.390424) x 1.09 / 0.62

= 2.605562 / 0.62

= 4.202519

Per Pound = 4.202519 / 2.9915

= 1.40482 or 1.405

Document EEE, Comparison of Impact on Class, Component, and Blend Prices by Changing the Percent of Casein in True Protein to Current Formulas, was prepared by me and changes only the protein yield in the formulas and then recomputes the component, class and blend prices. The change would increase the Class III, and through that the Class I, prices by seven cents and overall improve blend prices by five cents for an annual average gain per producer of $1,277.

b. The Butterfat Recovery in the cheese to protein formula should be adjusted.

Current cheese formulas price protein based upon an effective butterfat recovery of 89.40%. This recovery is calculated by reducing an assumed 90% recovery by a factor for farm-to-plant shrink for all milk and for butterfat. The basis for using 90% before the farm-to-plant shrink is found in the 2002 Final Decision which says:

> These commenters relied on hearing testimony that butterfat recovery in cheddar cheese generally ranges between 90 to 93 percent, although Kraft testified that their butterfat recovery is lower. The commenters favored use of a factor that reflected 91 or 92 percent fat recovery because that level of recovery is common. In a comment filed by Leprino, the cheese manufacturer urged that the 1.582 factor not be increased, as any increase would exacerbate the overvaluation of whey fat in the current formula and because the 90 percent recovery factor reflects results from many cheese vats installed prior to the late 1980's.
>
> The recommended decision stated that even though many cheese makers may be able to achieve a higher fat retention in cheese, the use of the 1.582 factor representing 90 percent fat recovery in cheese continued to be appropriate. The

> recommended decision also stated that as a result of the 90 percent level, butterfat in cheese was not overvalued, and those cheese makers who fail to recover more than 90 percent of the fat would not suffer a competitive disadvantage. The preponderance of the record indicates that most cheese manufacturers should be able to obtain a 90 percent butterfat recovery.

67 Fed. Reg. 67907, 67929 (November 7, 2002).

These bases stated in the Final Decision are unreasonable and unsupportable today. First, Kraft does not make the commodity cheddar cheese reported in the NASS survey but makes a higher quality cheese that has a different value and is produced in a manner different than commodity cheddar cheese. Testimony of Mike McCully p. 1116-18 (March 2, 2007). Similarly, Leprino does not make any commodity cheese. In any event, basing the value of milk produced by farmers in 2007 using plant efficiency information for cheese vats now more than twenty years old is simply wrong.

The final statement in the decision, "The preponderance of the record indicates that most cheese manufacturers should be able to obtain a 90 percent butterfat recovery." is true. So low is the 90 percent to reality that not a single plant has complained about the yield. If it represented average production in cheese plants, then there would be someone on the short side. The only parties on the short side of this factor are producers.

In addition to the inapplicability of the previous rationale for a 90% butterfat recovery, the surveys and studies relied upon to set make allowances show that plants are, in fact, realizing yields significantly higher than those implied in the current price formulas.

Parenthetically, I want to note that those of you who received a preliminary copy of my statement, that the portions found in it at approximately pages 36-39 have been withdrawn and the following statement, which is my sworn testimony, will differ from those pages.

California in its plant cost surveys provides some information regarding yields. The CDFA 2003 cost study for 2002 reported a weighted average yield of 10.85 pounds of cheese per hundredweight of milk. The weighted average moisture was 37.08%, and weighted average vat tests were 3.95% fat and 8.95% solids-not-fat. **Document FFF** CDFA Cheese Processing Costs Released November 2003.

For 2003, CDFA reported a weighted average yield of 10.92 pounds of cheese per hundredweight of milk. The weighted average moisture was 37.12%, and weighted average vat tests were 3.94% fat and 8.95% solids-not-fat. **Document GGG** CDFA Cheese Processing Costs Released November 2004.

For 2004, CDFA reported a weighted average yield of 11.53 pounds of cheese per hundredweight of milk. The weighted average moisture was 37.04%, and weighted average vat tests were 4.02% fat and 9.05% solids-not-fat. **Document HHH** CDFA Cheese Processing Costs Released November 2005.

Exhibit III Cheese Manufacturing Costs, Current Study Period: January through December 2005 with Comparison to the same time Period Prior Year (2004), reported a weighted average yield of 11.89 lbs. of cheese per hundredweight of milk for all cheeses and 12.20 pounds of cheese per hundredweight of milk for 40 pound blocks. For all cheeses the weighted average moisture was 37.22% and the weighted average vat tests were 4.35% butterfat and 9.30% solids-not-fat. For blocks, the weighted average moisture was 38.04%, and weighted average vat tests were 4.29% fat and 9.17% solids-not-fat.

These reports are summarized by me at **Document JJJ**, Estimating California Butterfat Recovery, **Table 1** Summary of CDFA Cheese Processing Yields.

These numbers do not directly answer the butterfat recovery rate. Based upon a phone conversation I had with Venetta Reed of CDFA, the yields I confirmed that the stated yields are vat yields, not yields from producer milk. Relying on the standard of identity to make commodity cheddar cheese, the input has to be milk, cream, or skim milk. **Document PP**.

CDFA reports the utilization of solids fat and non fat in its classes. Class 4b is equivalent to the FMMO Class III. **Document KKK** CDFA Class Utilization 2002-2005, is a report that I prepared that comes from the CDFA website where it reports the utilization by each class. I took the Excel report available at that site and inverted it so that it starts with 2002 and ends with 2005 (to match the time of the studies). CDFA has the practice of putting the most recent data at the top. It is otherwise the same data available there. **Document LLL** Milk Pooling Comparative Statement 2004-2005, is a report of CDFA summarizing pool data.

Cheese yield is a function, in part, of protein but not total solids not fat. California does not report protein separately from the other solids-not-fat. To arrive at the protein value, it is necessary to look at other sources. One such source is information from Dairy Herd Improvement Association (DHIA). **Document MMM** Annual Summary DHIA Records California 2002-2005 comes from the California DHIA website, www.cdhia.org. The information from these sheets came from http://www.cdhia.org/Annual_Summaries/index.html. These reports are summarized in **Document JJJ**, Table 2, Summary of Component Tests Reported by DHIA California.

To arrive at what the butterfat recovery is at these plants, it was necessary for me to use a mass balance of a cheese and whey powder plant computation. Exhibit ____ is a spreadsheet prepared entirely by me. It represents the flow of components into a cheddar cheese plant and their allocation to products and by-products. This mass balance will permit us to approximate the butterfat recoveries necessary to obtain the kind of vat yields that were identified in the CDFA exhibits.

The process explained in this mass balance represents a simplified version of mass balances for cheese and other product plants that I have done for my clients as we consider issues of plant participation and negotiation of prices for milk. It was totally prepared by me relying upon information that was available from public and reliable private sources. I have removed the confidential information. The methodology has been tested against others who have prepared similar mass balances in the processes of these negotiations and has proven itself to be appropriately designed.

Dr. Barbano at the May 2000 hearing on manufacturing formulas presented his own version of a mass balance. I did not use it because I did not prepare it, but it, too, fairly describes the entirety of the cheese making process. It is our request that this format be used in all surveys of plants for costs in order to establish the kind of mass balance found in the plants for which the make allowances are fixed. It provides a greater picture.

At this point I will divert from the prepared statement and describe the exhibit.

These estimates of butterfat recovery fairly state what is happening in those plants. Several other observations support these levels. First, the California DHIA report for 2005 that showed a composite 3.68% butterfat test for the entire state. See Table 2, **Document JJJ**. Summary of Component Tests Reported by DHIA California. For the same period as the DHIA report, CDFA's cheddar cheese processing costs study showed that the composite average vat butterfat in all the plants in the study was 4.35%. This study encompassed virtually all of the cheddar cheese produced in California. The difference between 4.35% in cheese and 3.68% in the raw milk supply is 0.67 percent of butterfat. This is not additional butterfat in terms of pounds but represents as shown earlier in the mass balance, the concentration of the milk received from producers.

The concept that the total butterfat recovery of a plant, that is that percentage of the butterfat that comes in the plant door that goes out as cheese, is higher than the stated 90% is much easier to understand when one takes even a 90% recovery vat. If the 10% remaining, the whey butter, is added into the next vat with the raw milk and that gets a 90% butterfat recovery, then effectively 99% (90% in the first pass, 90% of the remaining 10% in the second pass) ends up into the cheese.

Part of the CDFA formula includes a computation for whey butter. **Document NNN**, California Milk Pricing Formulas. It includes a factor for 0.27 pounds of whey butter. With an average butterfat test of 3.68, this implies that nearly 93% of the butter is recovered in the making of cheese. (3.68-.27)/3.68 = .9267. Again, because of the policy to understate the value of milk to plants, this recognition of whey butter overstates the amount so as to understate the actual recovery in the plants.

More to the point, as a service to a client I was asked to analyze several years worth of milk checks received from a cheese plant in California. In this case, the producers received payment based on a cheese yield formula. Each load of milk was tested for butterfat and protein and the yield of that milk computed or determined. In total I analyzed hundreds of such individual computations of yields. The formula for computing the yields was overtly not stated, but was consistent the use of the Van Slyke formula, 78% of casein to total protein and 94% butterfat recovery. Similar analysis for producers selling milk to plants in other states where modern plants pay on a cheese yield formula, the implied yields reflect butterfat recovery in the same or higher range.

The RBCS study introduced at the 2006 hearing on make allowances reported a cheese yield of 10.4 pounds per hundredweight on all cheeses and 10.7 pounds per hundredweight on 40-pound blocks. A copy of that report is **Document OOO**, Charles Ling Testimony Ex. 18 in 2006 Make Allowance Hearing. Applying FMMO average tests of butterfat and true protein, 3.69% and 3.04% respectively, the results show a butterfat recovery of 95.25% for all cheeses. **Document PPP**, Estimating Butterfat Recovery on RBCS Report.

Unfortunately the Cornell Study introduced at the 2006 hearing on make allowances failed to survey and report plant yields. That is a critical error in both planning and execution that should not happen again in any USDA study aiming at obtaining the correct pricing formulas.

Document QQQ Ex. 65 from the 2006 Make Allowance Hearing, showed a New Mexico plant with a 10.25 pound yield at 38.8% moisture. Average component tests for NM are 3.58% and protein 3.06%. Using the same methodology for the RBCS study, the estimated butterfat recovery was 93.4%.

Other studies and publicly available evidence recognize that butterfat recovery higher than 90% are expected in modern plants. In his text on cheese manufacturing, Vikram Mistry, a Professor of Dairy Science at South Dakota State University demonstrates the Van Slyke formula with a butterfat recovery of 93%. Kosikowski and Mistry, *Cheese and Fermented Milk Foods*, Vol. 1, Third Ed. 1997, pp. 623-24.

Prior to the use of end product pricing, the price support for cheese was 10.1 lbs for 100 pounds of milk at 3.67% butterfat which reflects a 92% butterfat recovery, and that was based on technology more than twenty years old.

Manufacturers of cheese making equipment recognize and, in fact, promote butterfat recoveries significantly higher than 90%. Scherping Systems, a manufacturer of cheese vats, installed four new vats at the Cabot (Agri-Mark) plant in 2002. A press release from Scherping about the new Cabot vats stated that, " 'We went from a fat recovery of 90 to 93 with the old vats, and 93 being the absolute best we've ever had,' [Cabot plant manager Marcel] Gravel says. 'Now we're running a 95 to 96 fat recovery with these new vats.' Trapping more of the butterfat into the cheese, in turn, increases yields. Gravel says their yield has increased by 10 percent." **Document RRR**, Scherping Press Release. (available online at http://

www.allbusiness.com/agriculture-forestry/animal-production-cattle/120464-1.html). In the same light, in a proposal for a plant to purchase new vats, Scherping estimated butterfat recoveries in excess of 94%. **Document SSS**, Scherping Proposal.

Finally, a comparison of FMMO average tests on all producer milk and FMMO tests for milk that goes into Class III shows that virtually all butterfat from producer remains in cheese—effectively a 100% butterfat recovery. Compare **Document CC,** Table 23--Butterfat Test of Producer Milk Used in Class III Products, by Federal Milk Order Marketing Area, 2006 showing 3.69% with **Document O** Table 8--Butterfat Test of Producer Milk, by Federal Milk Order Marketing Area, 2006 showing the same butterfat percent.

Based on these facts, we know that butterfat recovery in the cheese making process is far greater than the ostensible 90 percent or the actual 89.4% that is the current formulas. The current formula grossly understates the butterfat recovery that plants obtain given using the make allowances which they claim.

Just as the 94% is implied in the cheese yield from butterfat, so should the same factor be used to adjust the butterfat value in the formula. Thus, with only the changes to the butterfat recovery, the formula for protein should be as follows with changes in ***bold italics***:

Protein = (Cheese Price - .1682)*1.383 + ((Cheese Price -.1682)****1.653 - 0.94****(BF Price))*1.17.

Document TTT, Comparison of Impact on Class, Component, and Blend Prices by Correcting Butterfat Recovery in the Cheese to Protein Formula, prepared by me, shows the impact of adjusting the butterfat recovery to 94%. The resulting factor in the butterfat adjustment would go from 1.572 to 1.653. The protein component price would rise 4.05 cents, the Class I and III would increase, at test, 12 cents, and the blend price would increase 9 cents. The average dairy farmer would receive an additional $2,180 per year as a result of this necessary correction.

C. Change the Fat to Protein Ratio in the butterfat adjustment to the protein component price.

Following the goal that in fixing values, whereever practical, the weighted average should be used, the weighted average of the FMMO system of fat to protein is 1.214 and thus that should be the number for the formula protein adjustment, not the current 1.17.

The current cheese to protein formula adjusts the simple protein component price to act as a residual to the difference between the Class IV butterfat and the value of butter used in cheese. In simple terms, the difference between the two different butterfat values will be carried by the protein so that the overall value of Class III at test will not change as a result of changing the butterfat value. Since the adjustment is being stated per pound of protein and there is less protein than butterfat, the rate of adjustment, first computed as per pound of butterfat, has to be increased so that on the fewer pounds of protein the same total value is adjusted. In that regard, the current formula uses the ratio of 1.17. This represents the ratio of standardized tests of 3.5% butterfat and 2.9915% true protein.

The problem with that ratio is that it represents a small fraction of the milk actually delivered by producers. According to **Document OO** and **Document PP**, the average tests for butterfat and protein are 3.69% and 3.04% respectively. This represents a ratio of 1.214. **Document UUU,** Ratio of Butterfat to True Protein at Various Tests, prepared by me, shows the ratios of butterfat to true protein through a range of 3.2% through 3.8% butterfat and 2.85 to 3.65% of true protein. The increments are .05% except that 2.9915% was inserted as a row and 3.69% was inserted as a column to show where the current ratio falls and the proposed one would fall.

Having the ratio incorrectly at the standardized tests effectively undervalues milk at test for more than one half of the producer milk marketed in the FMMO system. Again, since the starting point is weighted average prices for the products, the concept of weighted average should pass through the entire program. After all, it is milk at test that plants purchase, not standard test milk. **Document VVV,** Comparison of Impact on Class, Component, and Blend Prices by Correcting Butterfat to Protein Ratio in the Cheese to Protein Formula, prepared by me, shows the impact on producer prices by making this change. The impact on the protein component price is 2.24 cents. Prices at test increase seven cents and the blend price increases five cents with the average producer at her or his test receiving an additional $1,217 per year. The impact goes beyond that, however, because it multiplies other changes that are being proposed such as changes to the butterfat recovery.

D. Summary of changes to the cheese to protein formula

Based upon the testimony above and the supporting documents, we are recommending changes to the cheese to protein formula to (1) imply a 94 % butterfat recovery, (2) recognize that 83.25% of true protein is in casein, and (3) adjust the butterfat to protein ratio to 1.214. Utilizing these adjustments the formula should be as follows:

Protein = (Cheese Price - .1682)****1.405*** + ((Cheese Price -.1682)****1.653*** - ***.94****(BF Price))****1.214***.

Document WWW, Comparison of Impact on Class, Component, and Blend Prices by Correcting Yields to the Cheese to Protein Formulas, prepared by me, shows how all of these changes to the formula will impact the various prices. The protein component price would increase by 8.82 cents. The Class I price at test would increase by 27 cents, the Class III by 26 cents and the blend price by 20 cents. The average dairy producer would receive an additional $4,743.

E. Change the yield factor for NFDM to 1.02

USDA in setting the NFDM yield stated:

> This final decision also changes the divisor from 1 to 0.99 in order to account for farm-to-plant losses of nonfat solids and to simplify and provide consistency to price formulas. Nonfat milk solids in buttermilk are removed from the computation of the Class IV nonfat solids price.

Prior to the Final Decision effective 2003, the formula was a multiplier of 1. The current formula for NFDM to SNF states an inconsistency. According to the standards of identity, NFDM is the product of removing water from pasteurized skim milk. The resulting powder may not "contain more than 5 percent by weight of moisture". **Document UU,** Std of Identity for NFDM 21 C.F.R. §131.125. Because of the cost of drying as well as the fact that the moisture is less valuable than the powder, the expectation is that NFDM will be sold at nearly 95% dry matter. In the case of Extra Grade the moisture is lower, 4.5%. The solids not fat (SNF) component price for the FMMO pricing system is based upon dry matter with no moisture. But the current formula implies that NFDM is *drier* than the SNF. According to the standards of identity, one pound of SNF will produce as much as 1.05 pounds of NFDM. It is impossible to produce less than a pound as the current formula contends.

It is irrational to assume that there are more pounds of nonfat milk solids than there are pounds of NFDM in a quantity of NFDM. NFDM is approximately 3.2% moisture. Thus the Final Rule represents a loss of 5.2 pounds of nonfat milk solids in every 100 pounds of NFDM or a 5% loss.

Exhibit 9, admitted earlier in the hearing at page 19, includes a graphic description of the typical butter powder plant. This shows that the output from such a plant, output paid for by the make allowances included in the formula, is not only powder and butter, but condense and buttermilk both bulk and powder.

Document XXX, Excerpts from Stephenson and Novakovic, Determination of Butter/Powder Plan Manufacturing Costs Utilizing an Economic Engineering Approach, June 1990, A.E. Res. 90-6 and excerpts from Stephenson and Novakovic, Manufacturing Costs in Ten Butter/Powder Processing Plants, September 1989, A.E. Res. 89-12 indicates these solids are salvaged and processed into buttermilk powder. CDFA in a nearly ten year old study examined actual yields in butter powder plants. It found the yields, then, to average 1.025. We certainly are not less efficient. **Document YYY** CDFA Butter and Powder Yields, 1998. All of these studies show a combined NFDM and buttermilk powder yield in excess of 1.025 pounds of product from each pound of solids non fat. However, buttermilk powder is slightly less valuable than NFDM and so we are proposing a yield of 1.02 pounds of SNF in each pound of finished product.

Thus the formula for NFDM before adjusting for the make allowance should be:

SNF = (NFDM - 0.1570)*1.02

I prepared **Document ZZZ**, Comparison of Impact on Class, Component, and Blend Prices by Correcting the Yield of the NFDM to SNF, which incorporates only the change to the NFDM yield. The change would result in a 2.19 cent increase in the SNF component price, 18 cent increase in the Class II at test, and 18 cent at the Class IV at test and a 4 cent blend. On the average a producer will receive an additional $984.

With all of the changes to the yields, I prepared **Document AAAA**, Comparison of Impact on Class, Component, and Blend Prices by Correcting the Yields, which incorporates all changes proposed to the yields. The change would result in a 2.2 cent increase in the butterfat component price, 12.82 cent increase in the protein component price, 2.19 cent increase to the SNF component price and no change to the other solids price. In terms of Class prices, it would result in a 43 cent increase in Class I, 35 cent increase in Class III, and 46 cent increase in Class

II and 29 cent increase to Class IV, all at test and a 42 cent blend increase. On the average a producer will receive an additional $9,787.

IX. Make Allowances

Our Proposal 3 seeks to adopt new make allowances for each of the four surveyed commodities. We propose the adoption of the following make allowances:

Butter	11.08 cents
Cheese	16.38 cents
NFDM	14.1 cents
Dry Whey	15.0 cents

<u>The Basis for Our Proposed Make Allowances</u>

These make allowances are drawn directly from the survey of manufacturing plant costs performed by Dr. Mark Stephenson and the Cornell Program on Dairy Markets and Policy. Dr. Stephenson compiled sample weighted average costs for each commodity that allowed him to draw inferences about the population of manufacturing plants located in federal milk marketing areas.

With the exception of dry whey, the make allowances we propose are identical to those observed by Dr. Stephenson in his sample weighted average. For dry whey, we propose adopting the sample weighted average make allowance for nonfat dry milk and adding in the additional cost attributable to the energy needed to make dry whey. Dr. Stephenson's survey indicated that this additional energy cost was approximately 0.9 cents per pound of product. Testimony in past hearings suggested that this additional cost was one to two cents per pound of product. Our proposal adds 0.9 cents to the proposed make allowance for nonfat dry milk.

F. California Data Should Not Be Included in this Federal Price Formula

The California study, a virtual census of manufacturing costs for plants in California, cannot be used because it only reflects costs in California and those costs are admittedly higher than in the rest of the country. The California data also reflects a different mix of plants than in the FMMO system both in terms of products, but also markets, location of milk to plants, and costs.

At **Document NNN,** CDFA pricing formulas, the CME price is reduced and then a make allowance is taken off. For example for cheese, the product value is (Cheddar price - $0.0252-.1780) X 10.2. The real formula, simplified combines the price adjuster with the make allowance for 20.32 cents.

Document BBBB, Comparison: CME Cheddar Cheese Prices / Audited California Cheddar Cheese Sales 24-Month Period: December 2004 through November 2006 is prepared by CDFA and available at its website. It compares the CME cheddar price to what plants sell the cheese for. That shows that the average sales price in 2006 was not .0252 cents less than the CME but 1.62 cents. This effectively reduces the make allowance from 17.80 cents to 16.90 cents. Even then it is for 10.2 pounds and the FMMO price is for 9.89 pounds. The extra value of the .31 pounds at the cheese price further reduces the California effective make allowance more, bringing it almost to the .165 cents that we had before the changes took effect earlier this year. The formula used by USDA to consider California's make allowances, besides just the use itself, is thus fundamentally flawed as it is mixing apples and oranges.

In the case of **Document CCCC,** Comparison: CME Butter Prices / Audited California Butter Sales 24-Month Period: December 2004 through November 2006, this shows a higher adjustment in sales than the formula, but it should be noted that most of the butter in California is produced at less than the stated make allowance.

In addition, because the plants purchasing federal order producer milk have different manufacturing and regulatory costs, it is not proper to utilize California plant costs to approximate the costs for federal order plants.

California data was first included in the computation of make allowances to compliment the data drawn from RBCS data. The RBCS data, at least prior to 2006, was not compiled and reported for the purpose of computing make allowances. Now that USDA has abandoned the use of the RBCS survey to set make allowances, there is no longer a need to rely on California's data to make up for the uncertain accuracy of the RBCS data. While it may have been proper to use the audited California data as a verifying and balancing factor to the RBCS study in 2000, the data for Cornell is far more complete and verifiable than the RBCS survey. The Cornell data, as a more comprehensive survey of plants in the federal order system provides a sufficient basis to set make allowances.

I prepared **Document DDDD**, Comparison of Impact on Class, Component, and Blend Prices by Correcting Make Allowances to the Current Formulas, which incorporates only the change to the the make allowances. The changes would result in a 62/100 cent change in the butterfat component price, a reduction of a small amount in the protein component price, 1.58 cent increase in the NFDM and a 3.77 cent increase in the other solids component price. Over all it would increase the blend by 22 cents per hundredweight with an average producer gain of $5,065.

X. Conclusion

In the midst of the minutia and complexity of price formulas, the Department should not forget that the establishment of minimum prices has a real impact on dairy farmers. Absent a viable community of dairy farmers, there will be no dairy products, thus no need for plants to process dairy products, and certainly no need for a Federal milk marketing system. Whether employed by or an agent of producers or not, everyone in this room, at least for this hearing, directly depends upon the producers and their continued ability to produce the good and wholesome product that they do.

Nationwide there are about 9 million milk cows, and another 3 million in heifers and dry cows. In total, farmers have investments in almost 25 billion dollars in cattle alone in order to provide valuable dairy products. Farmer investment exceeds the investment of plants that process the milk and the number of farm workers exceed the number of workers in the plants. For example a $200 million cheese plant that requires 7 million pounds of milk per day requires farms with 100 thousand cows, or a $450 million investment, and over 100 employees on the farm plus many more to handle, haul, market, and account for the milk.

Finally, I want to briefly address those who argue that all we set are "minimum prices" and that plants can pay more. That is a dangerous view. One of the benefits of the FMMO system is that everyone is supposed to be on the same pricing system and generally the same level. This is a price risk reducer that enhances producer prices. If USDA at the urging of some of those in this hearing, continue to depress these "minimum prices" producers will be forced to find other sources of reference prices for future contracts and the hodgepodge of pricing schemes will introduce additional price risk which will be felt in lower producer prices. A fairly established reference price for milk used in manufacturing is essential. These so called "minimum prices" have been the reference price for setting prices in the US. It has been a common practice to price milk at the "Class III price" plus, and, yes, even a minus, a basis. **Document FFFF, CME Daily Dairy Report, February 23, 2007,** notes that when the U.S. District Court for Northern District of Ohio denied the motion for preliminary injunction, futures markets for Class III dropped up to 22 cents. As the CME reporter noted, "Yesterday's ruling was considered partly responsible for a big drop in milk futures today." What prices are set here are viewed as prices in the market place, minimum or not.

Our proposals will help in that regard by regaining some money. More importantly, the most important tool for dairy producers will obtain more of their trust by being fair. Our proposals will result in the following formulas:

Butterfat = (Butter price - ***.115***)****1.22***

Protein = (Cheese Price - ***.1638***)****1.405*** + ((Cheese Price -***.1638***)****1.653*** - ***.94****(BF Price))****1.214***.

SNF = (NFDM - 0.***1410***)*1.02

Other Solids = (Dry Whey - ***.1590***)*1.03

I prepared **Document EEEE**, Comparison of Impact on Class, Component, and Blend Prices by Correcting Make Allowances to the Current Formulas, which incorporates only the change to the the make allowances. The changes would result in a 2.83 cent change in the butterfat component price, an increase of 12.74 cents in the protein component price, 3.82 cent increase in the NFDM and a 3.77 cent increase in the other solids component price. Over all it would increase the blend by 63 cents per hundredweight with an average producer gain of $14,868. In comparison to **Document KK** which showed that since 2001 the formulas had reduced producer blend prices by 57 cents, the increase that we ask for is not only supported by the facts, but really only a modest 7 cents over correcting incorrect portions of the formula.

On behalf of Dairy Producers of New Mexico, Select Milk Producers, Inc., Continental Dairy Products, Inc., Lone Star Milk Producers, Inc. and Zia Milk Producers, Inc., I want to thank the Department for holding this hearing. We urge the Department to adopt proposals 3, 6, 7, 8 and 15.