

USDA Agricultural Marketing Service (AMS)

**Economic Analysis
Class III and IV Pricing Formulas
Tentative Partial Final Decision**

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Introduction

The Department has performed this analysis in order to provide further information to all interested parties regarding the effects of proposed changes to the pricing formulas used to price Class III and Class IV milk pooled under Federal Milk marketing orders (FMMO). Under this proposal, manufacturing allowances commonly referred to as “make allowances,” are increased as illustrated in Table 1. Additionally, the butterfat yield factor is increased from 1.20 to 1.211.

The current make allowances were established in an interim final rule of December 2006. These make allowances are derived from two sources (1) *Cost of Processing in Cheese, Whey, Butter and Nonfat Dry Milk Plants*, by Mark Stephenson, Ph.D., Cornell Program on Dairy Markets and Policy, September 1, 2006; and (2) *Weighted Average Manufacturing Costs for Butter, Nonfat Powder, Skim Whey Powder and Cheddar Cheese*, California Department of Food and Agriculture, Costs for Calendar Year 2004, amended January 2006.

The make allowances proposed in this tentative partial final decision come from the most recent surveys of those same sources: *Testimony on Cost of Processing in Cheese, Whey, Butter and Nonfat Dry Milk Plants*, by Mark Stephenson, Ph.D., Cornell Program on Dairy Markets and Policy, July 9, 2007 (Cornell study); and (2) *Weighted Average Manufacturing Costs for Butter, Nonfat Powder, Skim Whey Powder and Cheddar Cheese*, California Department of Food and Agriculture, Costs for Calendar Year 2006, published September 2007 (CDFA study). The Cornell study encompassed data from last quarter of 2005 through the second quarter of 2007, but it was submitted in testimony that a large proportion of the data apply to the calendar year of 2006.

In calculating make allowances for butter and nonfat dry milk (NFDm), weighted average costs from both studies are weighted by their respective product volumes for the calendar year 2006 to estimate an overall U.S. weighted average. The weighted average costs for cheese manufacturing are based solely on the data from the CDFa study and the costs for dry whey manufacturing use data only from the Cornell study. An additional \$0.0015 per pound is added in the calculation of the final make allowance as an estimate of sales and administrative costs.

Table 1. Calculation of Make Allowances as Proposed in Tentative Final Decision

| <u>Butter</u> | | <u>NFDM</u> | |
|--|----------------------|---------------------------------------|----------------------|
| Weighted average cost, \$/pound: | | Weighted average cost, \$/pound: | |
| CDFA Study ¹ | 0.1373 | CDFA Study | 0.1664 |
| Cornell Study ² | 0.1846 | Cornell Study | 0.1662 |
| 2006 volume ³ , 1000 pounds: | | 2006 volume, 1000 pounds: | |
| California | 448,592 | California | 613,240 |
| U.S. other than California | 999,890 | U.S. other than California | 610,832 |
| U.S. | <u>1,448,482</u> | U.S. | <u>1,224,072</u> |
| Weighted average cost per pound: | | Weighted average cost per pound: | |
| Before sales and administrative costs | 0.1700 | Before sales and administrative costs | 0.1663 |
| Sales and administrative costs | 0.0015 | Sales and administrative costs | 0.0015 |
| Proposed make allowance | <u><u>0.1715</u></u> | Proposed make allowance | <u><u>0.1678</u></u> |
| <u>Cheese</u> | | <u>Whey</u> | |
| Weighted average cost, Cheddar cheese, \$/pound: | | Weighted average cost, \$/pound: | |
| CDFA Study | 0.1988 | Cornell Study | 0.1976 |
| Sales and administrative costs | 0.0015 | Sales and administrative costs | 0.0015 |
| Proposed make allowance | <u><u>0.2003</u></u> | Proposed make allowance | <u><u>0.1991</u></u> |

¹ *Weighted Average Manufacturing Costs for Butter, Nonfat Powder, Skim Whey Powder and Cheddar Cheese*, California Department of Food and Agriculture, Costs for Calendar Year 2006, September 2007

² *Testimony on Cost of Processing in Cheese, Whey, Butter, and Nonfat Dry Milk Plants*, by Mark Stephenson, Cornell Program on Dairy Markets and Policy, July 2007

³ Source for all volumes: USDA, National Agricultural Statistics Service, 2006 values

Economic Analysis Framework

This document provides analysis of the proposed changes to Class III and Class IV pricing formulas using *USDA Agricultural Baseline Projections to 2016*, published in February 2007¹. Baseline projections have been adjusted to reflect make allowances as stated in the December 2006 Interim Final Rule. These make allowances became effective February 1, 2007. (See Appendix for current formulas.) Hereafter, all impacts are stated as changes from the USDA baseline projections as adjusted for the new make allowances.

The most current version of the Dairy Programs National Econometric Model is used, as described in *National Econometric Baseline Documentation (Model Calibrated to USDA Baseline Projections to 2016)*, published in April 2007². The USDA baseline and the model baseline assume: (1) Milk Price Support Program (MPSP) will continue unchanged; (2) the Dairy Export Incentive Program (DEIP) will not be used throughout the projection period; (3) the Milk Income Loss Contract Program (MILC) terminated in 2007 and is not renewed; and (4) the Federal Milk Marketing Order Program (FMMO) will continue unchanged. This analysis assumes that the first three assumptions remain unchanged and that the FMMO changes are limited to the changes in make allowances and butterfat yield factor proposed in this decision. As the model is an annual model, it is assumed that these changes are effective January 1, 2008.

The econometric model used for this analysis includes demands for fluid milk products and manufactured dairy products. Demands for fluid milk and manufactured dairy products are functions of per capita consumption and population. Per capita consumption for the major milk and dairy products are estimated as functions of own prices, substitute prices, and income. The demands for fluid milk and soft manufactured products are satisfied first by the eligible supply of milk. The milk supply for manufactured hard products is the volume of milk marketings remaining after satisfying the volumes demanded for fluid and soft manufactured products. Milk is manufactured into dairy products according to returns to manufacturing in each class. Wholesale prices for cheese, butter, nonfat dry milk (NFDm) and dry whey reflect supply and demand conditions for these products. These manufactured dairy product prices underlie the FMMO pricing system.

¹ OCE-2007-1 http://www.usda.gov/oce/commodity/ag_baseline.htm

² <http://www.ams.usda.gov/AMSV1.0/getfile?dDocName=STELPRDC5056334>

Static Results

The proposed changes to the Class III and Class IV formulas have direct impact on the values of milk pricing components and consequently Federal order minimum prices. Table 2 illustrates the static impact of these changes, that is, without accounting for the changes in supply and allocation that would occur as prices change. Component prices fall as make allowances increase. The protein price is the most affected by the proposed changes given that this formula incorporates not only adjustments for the make allowance for cheese, but also includes the butterfat price which itself is altered by the change in the make allowance for butter as well as the change in butterfat yield.

Table 2. Static Results of Proposed Changes to Class III and Class IV Pricing Formulas ¹

| Product Prices (\$/pound) | Baseline | | | |
|---|----------|----------|---------|----------------|
| Cheese | 1.5538 | | | |
| Butter | 1.8296 | | | |
| NFDM | 1.0120 | | | |
| Dry Whey | 0.3624 | | | |
| Make allowances (\$/pound) | Current | Proposed | Change | Percent Change |
| Cheese | 0.1682 | 0.2003 | 0.0321 | 19.1 |
| Butter | 0.1202 | 0.1715 | 0.0513 | 42.7 |
| NFDM | 0.1570 | 0.1678 | 0.0108 | 6.9 |
| Dry Whey | 0.1956 | 0.1991 | 0.0035 | 1.8 |
| Change in component values assuming no supply response (\$/pound) | | | | |
| Protein | 2.3047 | 2.2469 | -0.0578 | -2.5 |
| Butterfat ² | 2.0513 | 2.0080 | -0.0433 | -2.1 |
| Nonfat solids | 0.8465 | 0.8358 | -0.0107 | -1.3 |
| Other solids | 0.1718 | 0.1682 | -0.0036 | -2.1 |
| Change in milk prices assuming no supply response (\$/cwt.) | | | | |
| Class III skim milk | 8.16 | 7.96 | -0.20 | -2.5 |
| Class IV skim milk | 7.62 | 7.52 | -0.10 | -1.3 |
| Class III price at 3.5% butterfat | 15.05 | 14.71 | -0.34 | -2.3 |
| Class IV price at 3.5% butterfat | 14.53 | 14.29 | -0.24 | -1.7 |

¹ Nine-year average baseline prices are used in the formulas for calculations.

² Proposed butterfat yield factor is 1.211