



# Understanding Your Milk Check

## *A Guide for Pennsylvania Dairy Producers*

As of January 2000, Pennsylvania dairy producers shipping milk to plants regulated by federal milk marketing orders receive milk checks based in large part on milk components and quality. The major sources of revenue on a typical milk check include (1) milk components, (2) revenue from federal orders, and (3) market and government premiums. This new method of payment is more market driven, as component values rise and fall with changing market conditions. It also is more performance driven, as producers receive more or less money based in part on the quality of milk they deliver. The objective of this report is to help Pennsylvania dairy producers better understand how they are paid, where the prices come from, and what factors they control.

### **Building Blocks of the Milk Check**

A typical milk check is presented in Table 1. You will note that there is not just one price for milk—in fact, there are seven separate prices on today's milk check:

1. Butterfat price, \$/lb
2. Protein price, \$/lb
3. Other solids price, \$/lb
4. Producer price differential, \$/cwt
5. Volume premiums, \$/cwt
6. Quality premium, including SCC, \$/cwt
7. Market over-order premiums, \$/cwt

Items 1–3 represent prices for the milk components produced by the dairy farmer. These prices are quoted in dollars per pound and are announced each month by USDA.

Thus, farmers are paid for each pound of milk components they market. Item 4 is the producer price differential (PPD) that represents the additional value paid to farmers from the federal order pool (more about this later). This is also announced by the USDA and is paid on the basis of volume of milk delivered. Items 5 and 6 represent volume and quality premiums that are paid by the milk handler (the plant that picks up the milk). This is paid on the basis of volume and quality of milk delivered. The final price, item 7, represents over-order premiums. These are based on the premiums for fluid milk set by the Pennsylvania Milk Marketing Board (PMMB) as well as other premiums determined by market conditions.

### **Where Do the Prices Come From?**

For many Pennsylvania dairy producers, milk pricing seems to be a mystery. However, because of the reforms that have taken place in federal orders, milk pricing is very transparent. Milk producers today can understand how their milk check adds up and where the numbers come from.

Most Pennsylvania dairy producers ship their milk into one of two federal milk marketing orders: the Mideast Order 33 (western Pennsylvania) and the Northeast Order 1 (eastern Pennsylvania). Some dairy producers ship their milk to plants located physically outside of Pennsylvania. These plants may in fact be qualified on another federal order (e.g., the Appalachian Order No. 5 or Southeast Order No. 7).

Much of the pricing information on the milk check is announced by a federal market administrator employed by the USDA. For example, the component prices and PPD are announced during the month by the Northeast and Mideast market administrators. The check in Table 1 was derived from information announced from the Northeast federal order for July 2004. This information is summarized in Table 2.

Three separate price announcements are made during the course of each month by USDA that are relevant to Pennsylvania dairy producers. The first is the “Advanced Pricing Factors.” This sets the minimum price for Class I fluid milk products and Class II skim for each of the federal milk marketing orders and is announced prior to the relevant month. For example, the advance pricing factors for July 2004 were announced on June 18.

The next major report is the “Class and Component Prices,” which releases the component prices for butterfat, protein, and other solids as reported on a producers milk check. This report also contains the monthly average commodity prices for cheese, butter, nonfat dry milk, and dry whey. These commodity prices are used to derive the component values for butterfat, protein, and other dairy solids. Information from this report (calculations for class prices) is also ultimately used in the calculation of the PPD. Class and component prices are announced on the last day of the month or by the fifth of the following month. For example, the July 2004 Class and Component Prices report

was announced on July 30, 2004.

The last major report produced by USDA and of interest to Pennsylvania dairy producers is the "Pool Price Announcement." This report is announced by each of the market administrators for each federal order pool. It not only calculates the value of the federal order pool, but also calculates the PPD. This information forms the basis of a producer's milk check which he or she will receive a few days later. This report is usually announced in the middle of the following month. For example, the July 2004 Pool Price Announcement was released August 12.

### Review Example Milk Check

#### MILK COMPONENTS

To understand the milk check in Table 1, let's start with a review of milk components. Nearly every load of milk shipped from a dairy farm to a plant regulated by a federal milk marketing order is tested for butterfat, protein, and other dairy solids. At the end of the month a summary is calculated for each producer and the average component levels appear on the milk check. These component tests are used to calculate the pounds of components delivered. For example, the check in Table 1 shows a butterfat average of 3.85 percent, a protein average of 3.0 percent, and an other solids average of 5.56 percent, as well as the pounds of components delivered. In addition, the prices for these components are printed on the milk check based on the announcement from the federal order. One can then multiply the component tests (percentages) by the volume of milk delivered in order to derive the pounds of dairy components shipped. These pounds of dairy components are then multiplied by the component prices in order to generate revenue. Thus, producers are paid directly for the pounds of components they ship. For example, the producer in Table 1 received \$7,909 for 3,850 pounds of butterfat,

\$7,088 for 3,000 pounds of protein, and \$583 for 5,560 pounds of other dairy solids shipped during the month of July.

It is important that producers understand that while every producer in a federal order will get the same component prices each month, they will all get different Class III values. At the bottom of Table 1 we have computed the Class III value of \$15.58 per cwt. This reflects the sum of the component prices multiplied by the component percentages (or the sum of component revenue divided by cwts of milk shipped). Each producer will get a different Class III value since the component levels vary from farm to farm. While this value is not computed on most Pennsylvania milk checks, dairy producers can easily compute it using the following formulas:

$$\text{Class III value} = \% \text{ butterfat} \times \text{butterfat price (\$/lb)} + \% \text{ protein} \times \text{protein price (\$/lb)} + \% \text{ other solids} \times \text{other solids price (\$/lb)}$$

OR

$$\text{Class III value} = [\text{sum (component price (\$/lb)} \times \text{pounds of components shipped)}] / \text{cwts of milk shipped}$$

#### Producer Price Differential

The next major price on the milk check is the PPD. In this example the PPD is \$2.79 per cwt for Boston. This price was computed by the Northeast Market Administrator for July 2004 as follows:

$$\text{PPD} = \text{Northeast Uniform Blend Price} - \text{Class III Price}$$

$$\$2.79 = \$17.64 - \$14.85$$

The PPD was created by the USDA as a way to separate the value of milk into two buckets: one to reflect milk components, which vary from farm to farm, and the other to reflect the additional value created from the federal order. The Class III price reflects the market value of milk

components at standard component test levels. For the month of July, the pool value (\$17.64 per cwt) was greater than the market value of components (\$14.85 per cwt). This difference was the PPD (\$2.79).

Not every producer shipping milk into a federal order will get the same PPD. The producer in our example in Table 1 faces a negative location adjustment of \$0.45 per cwt, thus our producer received \$2.34 per cwt (\$2.79 - \$0.45), not \$2.79 per cwt as announced in Boston. This is because the announced PPD's are subject to a location adjustment that was set by Congress to reflect different values for fluid milk across the country. In fact, every county in the United States has a different fluid milk value (Class I differential). In our example, fluid milk has a lower Class I value in Carlisle, Pennsylvania (where our farm is located), than in Boston, Massachusetts, where the PPD was announced.

#### OTHER PREMIUMS AND DEDUCTIONS

So far the gross value of milk in our example is simply the producer's Class III value at test (\$15.58), plus the location adjusted PPD (\$2.34), or \$17.92 per cwt. However, our example also includes an additional \$0.70 per cwt to reflect the value of volume, quality, and over-order premiums. Together the gross value of milk is \$18.62 per cwt.

One premium/deduction that is not reflected in our example milk check is somatic cell count (SCC). Dairy producers shipping milk into the Mideast federal order receive a premium for the level of their SCC if it falls below 350,000 cell count. An SCC above this level will realize a deduction.

Of course, dairy producers also face deductions on the milk check from the gross milk price. The major deductions are the advance payments, federal and local advertising, transportation (hauling), and other

**Table 1. Example Milk Check, Carlisle, Pennsylvania.**

<b>Farm: Smith and Family Dairy Farm</b>		<b>Check no. 236587</b>		
<b>Producer: George and Mary Smith</b>		<b>Date: August 17, 2004</b>		
STATEMENT FOR JULY 1–31, 2004				
Component testing				
Percent butterfat	3.85	SCC	200	
Percent protein	3.00	BACT	3	
Percent other dairy solids	5.56	PI:	8	
	<b>Pounds</b>	<b>Rate (in dollars)</b>	<b>Description</b>	<b>Farm Total (in dollars)</b>
Grade A pounds	100,000			
Grade A butterfat	3,850	2.0543	\$/lb butterfat	7,909
Grade A protein	3,000	2.3625	\$/lb protein	7,088
Grade A other solids	5,560	0.1048	\$/lb other solids	583
Producer price diff @ Boston	100,000	2.7900	\$/cwt	2,790
Loc adj to PPD	100,000	-0.4500	\$/cwt	-450
Other premiums				
Volume	100,000	0.1500	\$/cwt	150
Quality	100,000	0.1000	\$/cwt	100
PMMB over-order premium	100,000	0.4500	\$/cwt	450
Gross amount		18.6192	\$/cwt	18,619
Total deductions			\$/cwt	-7,760
Net check			\$/cwt	10,859
Your mailbox price		17.72	\$/cwt	17,719
Deductions				
Advance payment	50,000	13.72	\$/cwt	6,860
Advertising	100,000	0.15	\$/cwt	150
Hauling	100,000	0.65	\$/cwt	650
Cooperative/marketing fees	100,000	0.10	\$/cwt	100
Total deductions				7,760
Class III Value @ Test	100,000	15.58	\$/cwt	15,579

**Table 2. Northeast Federal Milk Marketing Order No. 1, July 2004 Price Announcements.**

Producer Milk	Percent	Pounds (million)	Class Price	Units
Class I	43.4	865.4	21.20	\$/cwt
Class II	19.2	383.0	14.00	\$/cwt
Class III	25.0	499.1	14.85	\$/cwt
Class IV	12.4	248.5	13.31	\$/cwt
Total producer milk	100.0	1,996.0		
Producer price differential (Boston)		2.79	\$/cwt	
Statistical uniform price (Boston)		17.64	\$/cwt	
<b>Component values</b>				
Protein			2.3625	\$/lb
Butterfat			2.0543	\$/lb
Other solids			0.1048	\$/lb
<b>Commodity prices:</b>				
Butter			1.8269	\$/lb
Cheese			1.5695	\$/lb
Nonfat dry milk			0.8513	\$/lb
Dry whey			0.2607	\$/lb

Sources: Federal Milk Order No. 1

<http://www.fmmone.com/NortheastOrderPrices/NEPricesmainnew.htm#Uniform/>

marketing fees. The advance payment is simply a half month's milk shipments multiplied by a set price. This price is usually the lower of the Class III or IV price from the federal order from the previous month. It is simply a partial monthly payment.

Deductions are usually presented as a lump sum on most milk checks, not in the manner presented in Table 1. This means a typical Pennsylvania dairy producer may not know the per-unit costs for these deductions; however, they can be easily computed. In our example, these costs are for advertising (\$0.15 per cwt), hauling (\$0.65 per cwt), and cooperative/marketing fees (\$0.10 per cwt), making the per-unit costs of these deductions (not including the advance payment) \$0.90 per cwt.

#### **NET CHECK/MAILBOX PRICE**

So what did our example dairy producer get paid for his milk? There are two answers to this question. First let's look at the "net check"—this simply reflects how many dollars the producer received from the milk check and is equal to gross sales less all deductions, including the large deduction for the advance payment. That amounted to \$10,859 in our example milk check.

Of greater interest is the mailbox milk price—this is equal to the gross price less marketing deductions such as advertising, hauling, and coop/marketing fees for the entire month. In effect, this is the take home price of milk for the month reflected in dollars per cwt. Note that the mailbox price does not include other deductions for advance payments, forward contracts, or assignments. In our example, the mailbox milk price was \$17.72 per cwt.

#### **What Factors Can I Control?**

The milk check contains a great deal of management information that is of value to Pennsylvania dairy producers. The factors that are directly under the control of the producer should be of most interest. These are as follows:

- **Milk Volume.** Dairy producers are clearly in charge of how much milk they ship each month. The larger the volume of milk produced and shipped, the bigger the milk check. This is because the component prices are applied to the pounds of components shipped, and the PPD is applied to the volume of milk shipped. In addition, some milk handlers provide a volume premium for milk if a producer exceeds a certain level of milk shipments each month.
- **Component Levels.** For a given volume of milk, producers will receive a higher Class III value if

their components are greater than that of their neighbors. This is particularly true for protein and butterfat given the market value of these components. Likewise, producers will face a substantial deduction each month if their components are below average.

- SCC. Producers who ship milk into the Mideast federal order receive a premium/deduction for SCC. Thus, producers have an incentive to track and manage their SCC score. A second incentive is that research indicates that milk production will be depressed if a cow has a high SCC score.
- Overall Milk Quality. Most milk handlers in Pennsylvania have pricing incentives for high quality milk.

### Conclusions

The milk business today is highly competitive. Pennsylvania milk producers need information on their milk components, milk quality, and market prices in order to remain competitive. Much of this information is contained in their milk checks. This report is intended to help Pennsylvania milk producers better use this important information.

### Internet Resources

Federal orders relevant to Pennsylvania:

- Federal Order No. 1: <http://www.fmmone.com/>
- Mideast Order No. 33: <http://www.fmmaclev.com/>
- Appalachian Order 5: <http://members.aye.net/~usda/>

Current federal order price announcements (requires Adobe Acrobat):

- Advanced prices: <http://www.ams.usda.gov/dyfmom/mib/advanprc.pdf/>
- Class and component prices: <http://www.ams.usda.gov/dyfmom/mib/classprcacnmt.pdf/>

---

Supported by an informational partnership of Penn State Cooperative Extension, Pennsylvania Department of Agriculture, and USDA's Risk Management Agency.



**Prepared by Ken Bailey, associate professor of agricultural economics**

Visit Penn State's College of Agricultural Sciences on the Web: [www.cas.psu.edu](http://www.cas.psu.edu)

Penn State College of Agricultural Sciences research, extension, and resident education programs are funded in part by Pennsylvania counties, the Commonwealth of Pennsylvania, and the U.S. Department of Agriculture.

This publication is available from the Publications Distribution Center, The Pennsylvania State University, 112 Agricultural Administration Building, University Park, PA 16802. For information telephone 814-865-6713.

This publication is available in alternative media on request.

The Pennsylvania State University is committed to the policy that all persons shall have equal access to programs, facilities, admission, and employment without regard to personal characteristics not related to ability, performance, or qualifications as determined by University policy or by state or federal authorities. It is the policy of the University to maintain an academic and work environment free of discrimination, including harassment. The Pennsylvania State University prohibits discrimination and harassment against any person because of age, ancestry, color, disability or handicap, national origin, race, religious creed, sex, sexual orientation, or veteran status. Discrimination or harassment against faculty, staff, or students will not be tolerated at The Pennsylvania State University. Direct all inquiries regarding the nondiscrimination policy to the Affirmative Action Director, The Pennsylvania State University, 328 Boucke Building, University Park, PA 16802-5901, Tel 814-865-4700/V, 814-863-1150/TTY.

Produced by Information and Communication Technologies in the College of Agricultural Sciences

© The Pennsylvania State University 2005

CAT UA413 5M5/05ps4720

PENNS<sup>T</sup>ATE



---

College of Agricultural Sciences • Agricultural Research and Cooperative Extension