

# Class III Milk Prices Boom or Bust: Making Sense of Historical Milk Prices

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If you have attended a price risk management meeting or even read an article about milk price risk in recent years, you probably have been told some information about the historical distribution of milk prices. Usually we characterize a distribution with an average and some measure of variance. In the case of Class III milk, milk used in cheese, the average was \$12.04 per hundredweight (cwt) for the five years it has existed in its current form (2000 through 2004). However, this average price does not accurately describe the Class III price as the actual price has almost never been in the \$12 to \$13 range in the past five years.

In fact, as I am certain you have noticed, the past five years have been either “boom”—high Class III prices—or “bust”—very low Class III prices. Figure 1 is a histogram of the Class III prices from 2000 through 2004. In Figure 1, each bar represents the number of times that the Class III price has been in the range indicated on the horizontal axis. For example, the Class III price was between \$12 and \$13 just one time.

This distribution is “bimodal.” A mode is a peak in the distribution that indicates a common value. In Figure 1, 50% of the time (30 out of 60 months) the Class III price was below \$11/cwt and 28% of the time (17 out of 60) the Class III price was above \$14/cwt.

Class III prices are largely derived from wholesale cheese prices, which often track closely the cash cheese trades. However,

the Class III price is an average price taken over several weeks of wholesale prices. Thus, the daily cheese price is usually much more variable than the Class III price. When the cheese price consistently moves in one direction, the Class III price follows.

## Class III Extremes

Why has the Class III price, which is the basis for your mailbox milk price, been so apt to be at one price extreme or the other? There are several reasons, beginning with the relatively low price support (the red line in Figure 2). The market equilibrium determined by supply and demand is generally above the price support of \$9.80/cwt (for 3.5% butterfat milk) and has been this way since around 1990. This means that the price support is usually not purchasing product. When milk price is sitting at support, not only is it low but it is also quite stable (it’s not always good to have no variation!).

Meanwhile, milk supply and demand are quite inelastic and sensitive to small changes in quantity especially in the short-term. This means that when something like poor forage quality due to weather happens, the resulting relative decline in milk production can have a large effect on milk price (in this



Chris Wolf met with MMPA members at the Forward Contracting Workshop held in February.

case a large potential price increase). Another effect of the low price support is the indirect effect as the government does not serve as the major holder of inventories. In past decades, when the price support was higher and the government routinely purchased and held butter, cheese and non-fat dry milk, these inventories could be put back onto

the market which mitigated some potentially large price increases. Thus, the price support program both floored the price preventing downward price variation as well as dampened price increases.

In recent years, the only significant government stocks have been non-fat dry milk. This product is less important in determining milk prices and large portions of the government inventory are exported (This is the case in recent months as the weak U.S. dollar and high world prices have resulted in large amounts of the formerly 1.3 billion pound U.S. government inventory moving

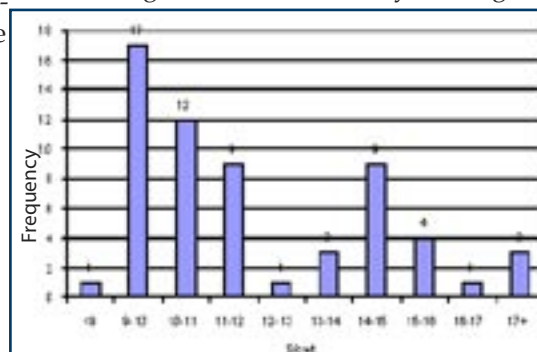


Figure 1. Histogram of Class III prices, 2000-2004.

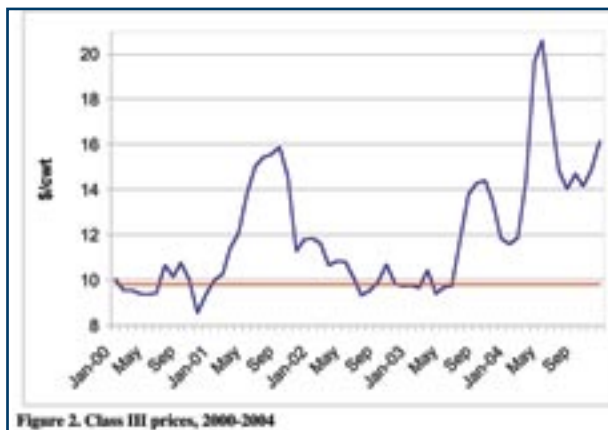


Figure 2. Class III prices, 2000-2004

overseas). Industry has had to perform more of its own inventory control.

There seems to be a process whereby the Class III price is bid up in the early months of a year until inventories reach a desired level and then stop supporting those prices resulting in a drop. The years when this has not occurred are the years when the milk price is sitting at support because of large surpluses (and, thus, large government stocks to fall back on).

Examining the prices in a time series is also another phenomenon. The variation is higher when prices are high. That is, when prices are near the support price, they can only go up; whereas, when prices are say, \$14/cwt, they can go up or down sometimes \$5 or more in a single month. In 2000 and then for 2002 into 2003, the price was at or even below the support price (Figure 2). During these periods, large supply increases and resulting product stocks kept Class III price at support telling the market to cut back on production. Cutting back production is a slow process, however, as this often occurs through herd dispersals.

## What does this mean to you?

The large monthly variation might indicate a need to be able to handle swings in cash-flow (and perhaps profits). Your mailbox price, however, likely does not vary as much as the Class

III price. This is because the Marketing Order blends milk across all classes and your cooperative also blends revenues and takes actions to lower price variation that occurs in the Class III price.

You might still want to avoid price variation on your own. This is where cash forward contracts (MMPA has this option available), futures and perhaps options come into play. It turns out that the Class III futures contract for pretty much any given month is usually around \$12/cwt a year prior to expiration. This means that you could lock in for this price (less fees) and receive that price for the Class III portion of your milk check. If you had done so consistently (at \$12) for the past five years, you would have received a higher price than the cash Class III in 39 months and a lower price

in 21 months. You would have felt great in 2000 and 2002 and not so good in 2001 and 2004. This happens with risk management—you take out the price peaks as well as the valleys—but you have a smaller price variation. Of course, this is just a simple—and naïve—example to illustrate the concepts.

The boom and bust cycle also highlights the need to manage your income taxes carefully. In the high price years, such as 2004, it is especially important to estimate taxes late in the year and pre-pay expenses for the following year as well as perhaps make capital investments that can be depreciated (or direct expensed). Income smoothing is also available that results in moving income across years. When you smooth you shift income from the high price years to the lower price years so that you can consistently pay in a lower tax bracket.

It appears that wide milk price swings are a fact of the current U.S. milk market landscape. Awareness and planning for the effects of these swings will help you maintain a successful dairy farm business.

## Fast Facts

>> Milk supply and demand are quite inelastic and sensitive to small changes in quantity especially in the short-term.

>> The large monthly variation might indicate a need to be able to handle swings in cash-flow.

>> You can avoid price variation on your own using cash forward contracts (MMPA has this option available), futures and perhaps options.