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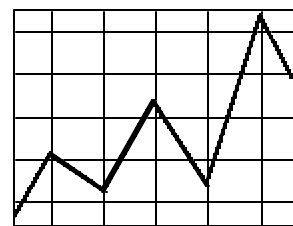
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MARKETING AND POLICY BRIEFING PAPER



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Enrollment in the 2003/2004 MILC Program: Does Timing Matter?

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Introduction to the MILC Program

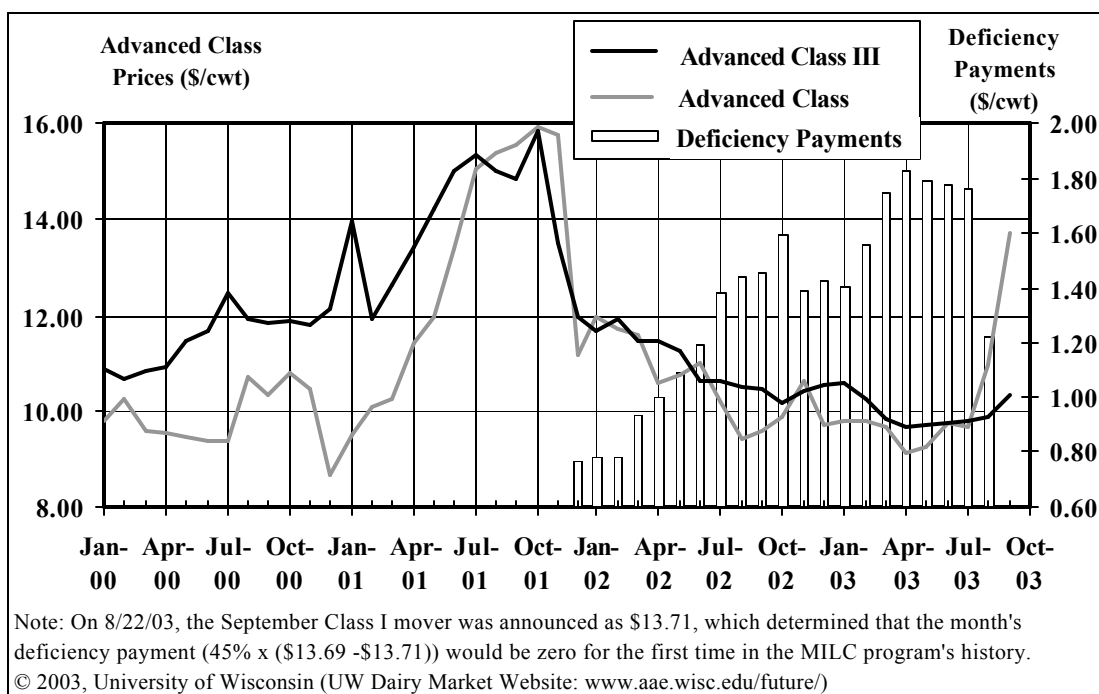
The 2002 Farm Security and Rural Investment Act established a deficiency payment system for milk designed to reimburse dairy producers 45% of the difference between a target price and market prices. This program is known as the *Milk Income Loss Contract* (MILC) program. The market price used to determine the level of monthly payments made on all classes of milk is the announced Boston Class I price. The target price is set at \$16.94, which is equivalent to a Class I mover of \$13.69 when the fixed Class I Boston differential of \$3.25 is subtracted.² Under the 2000 Federal Order Reform, the Class I mover is the higher of either the advanced Class III or advanced Class IV prices for the month in question. As shown in Chart 1, advanced prices for Class IV have surpassed those of Class III for most of the period from 2000 to present, with reversals during the last two quarters of 2001 and in isolated subsequent months, most recently August and September 2003. Because the Class I mover generally declined since the inception of the MILC program, monthly MILC payments increased until recent months.

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² For more information concerning the MILC program, refer to the MILC section of the University of Wisconsin Dairy Marketing website (www.aae.wisc.edu/future/milc.htm).

Producers enrolling in the MILC payment program are subject to an annual 2.4-million-pound production cap during any one fiscal year (Oct.-Sept.). There is no limit on aggregate payments over the life of the program (Dec. 2001-Sept. 2005). The annual cap is applied to marketings during successive months once the producer decides to start receiving MILC payments. Each fiscal year producers must specify their starting month and thus the term during which the deficiency payments would be received. Smaller producers, whose annual milk production is under the annual cap (*e.g.*, 80-85% of dairy operations in Wisconsin), are eligible to receive deficiency payments all twelve months so there is no decision to be made as to when to start receiving MILC payments. For larger producers, however, there may be significant financial implications of the decision as to which month participation in the MILC program should start.³

Chart 1. Advanced Class III and IV Prices and MILC Program Deficiency Payments



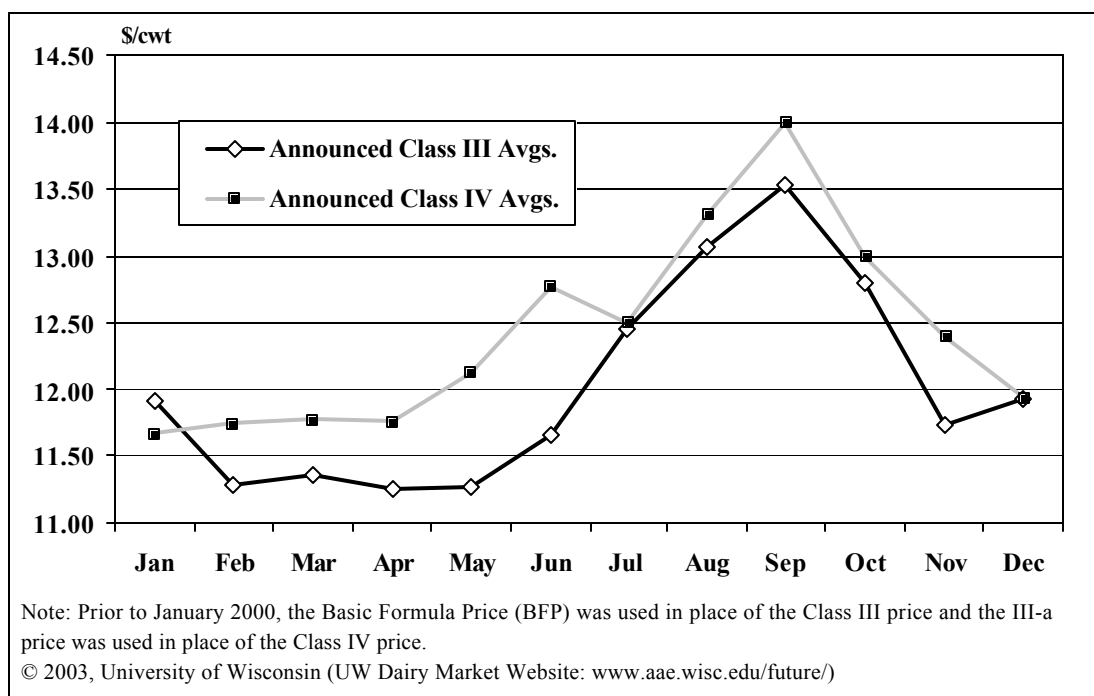
³ Again, remember that once you decide to start receiving *MILC* payments, you continue to receive payments until the 2.4 million lb. limit is reached.

By Sept. 15 of each year, participants must notify their local USDA Farm Service Agency (FSA) office of the beginning month for which payments are to be received for the fiscal year that starts Oct. 1. If producers fail to notify their FSA office, their enrollment period will remain the same as the previous year.⁴

Use of Historical Data as a Guide to Future Price Movements

Your MILC payments will increase the greater the difference between the target price of \$13.69 and the Class I mover. The question, then is how you might best predict advanced Class III and IV prices. One strategy is to examine historical records of announced Class III and IV prices for patterns of seasonal variation. In Chart 2, we show the average announced class prices from 1995-2003.

Chart 2. Average announced Class III and IV prices (1995-present)



⁴ A producer can change the desired starting month by notifying FAS on or before the 15th of the month prior to the originally designated entry date. After this date, the starting month cannot be modified until the

Chart 2 shows the typical increase in price during the fall and decrease thereafter during the first quarter of the year. The range in average monthly values of the Class III prices was from a low of \$11.22 for February to \$13.59 for September, a \$2.37 difference. The pattern of average milk prices shown in Chart 2 is the inverse of the typical seasonal pattern of milk production in the U.S. Increased production during the spring period has a depressing effect on milk price.

Chart 3 provides descriptive statistics for manufacturing milk prices (Class III/BFP/MW) observed over a longer time period than shown in Chart 2 (1988-2003).⁵ The seasonality in the average values calculated over this 15 year period mirrors that shown in Chart 2, with a maximum average value in September and a minimum average value obtained in February. The longer time period, however, emphasizes observed within-month price variability. For example, in the month of April, the maximum monthly value was \$13.09 (1996) while the minimum value was \$9.41 (2000), a \$3.68 difference.

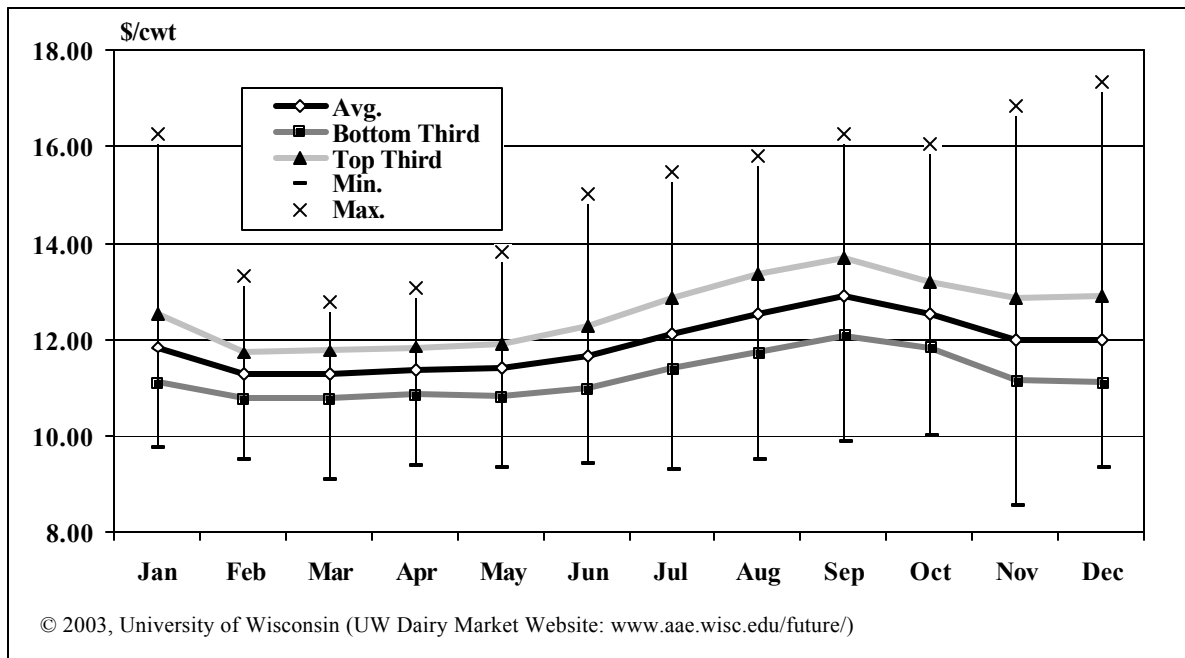
Besides the average milk price, Chart 3 displays the milk price above which there is a 33% probability of observing a higher price and the price below which there is a 33% probability of observing a lower price.⁶ These upper and lower limits may be useful in your estimation of likely future milk prices in any month.

next fiscal year. For a detailed discussion of the *MILC* program regulations, refer to: <http://www.fsa.usda.gov/dafp/psd/MILCReg.pdf>.

⁵ The use of additional years of data compared to Chart 2 allows us to obtain a better estimate of the distribution of this type of milk price.

⁶ To estimate these price levels, we assume that monthly Class III prices have a symmetric bell-shaped (normal) distribution.

Chart 3. Comparison of Class III/BFP/MW Prices, 1988-2003



If you produce more than 2.4 million pounds of milk annually, the main conclusions to draw from Charts 2 and 3 are: (i) there is significant variability in observed milk prices during any particular month, and (ii) there could be negative economic consequences from starting MILC payments during a month having typically high milk prices. Based upon historical seasonal price patterns, producers likely to exceed the annual production cap should consider starting their MILC payments in a month that would allow their 2.4 million pounds of production to overlap those months with typically low milk prices instead of starting payments in October.

Use of Futures Markets as Guides to Potential Price Movements

As an alternative to or in conjunction with evaluating historical cash price data, a producer may want to use the information provided by the futures markets for Class III and IV milk at the Chicago Mercantile Exchange (CME). After each day of trading, the CME publishes a *daily settlement price* for each of the months for which futures contracts are currently available. Settlement prices can be thought of as reflecting the collective opinion of futures market traders as to the level of future Class III and IV prices given

the dairy market information available on that particular day.⁷ For example, Table 1 shows actual Class III settlement prices as of August 25, 2003. On that day, the market's opinion was that Sept. '03 Class III milk price would be \$14.15 and the Sept. '04 price would be \$12.75. Remember that this is only an opinion and this opinion changes from day to day given updated information about market conditions such as milk production, commodity stocks, herd size changes, weather, commercial disappearance of dairy products, *etc.* A dairy producer making a decision regarding when to start receiving MILC payments may want to use the resulting settlement price information (in addition to historical price data) to assess the likelihood of future price paths.

**Table 1. Class III Futures Settlement Prices,
August 25, 2003**

Contact Year	Contract Month	Settle Price (\$/cwt)
2003	August	13.78
2003	September	14.15
2003	October	13.95
2003	November	12.75
2003	December	12.20
2004	January	12.00
2004	February	11.30
2004	March	11.40
2004	April	11.39
2004	May	11.39
2004	June	11.80
2004	July	12.05
2004	August	12.30
2004	September	12.75
2004	October	12.00
2004	November	11.79
2004	December	11.30

Source: U.W. Dairy Marketing Web Site
(www.aae.wisc.edu/future/data/futures/cme/new_cme_futures/classiii_data_2003.xls)

⁷ For a detailed discussion of the futures markets for dairy products refer to the following website:
www.aae.wisc.edu/future/front_tutorials.htm .

An Example of How to Evaluate the Entry Decision

We have developed a number of spreadsheet models that can be used by dairy producers to evaluate current and future possible MILC payments. These models can be found on the University of Wisconsin Dairy Marketing website (www.aae.wisc.edu/future), which contains an entire section devoted to the MILC program (www.aae.wisc.edu/future/milc.htm). Two spreadsheet models allow the user to undertake farm-level analyses of the impacts of the timing of a MILC program contract entry date on annual total farm and per cwt program payments.

In the example discussed below, we will use one of these models to illustrate how market information can be used to guide your selection of a starting month for MILC payments (www.aae.wisc.edu/future/MILC/MILC_Payments_04.xls). We will refer to this program as the MILC_PAYMENTS program. This program takes as input your estimate of average daily milk production (lbs./cow) and herd size over the October-September fiscal year. You also need to enter the desired starting month of your MILC contract.

Default future Class III and Class IV milk prices for those months for which the Class I mover has not been announced are CME settlement prices for months with actively traded contracts.⁸ The MILC_PAYMENTS program is updated daily to incorporate that day's settlement prices, and the program picks the higher of Class III or Class IV as the Class I mover to compare with the \$13.69 target price. Settlement prices can be overridden by producers who want to use their own "best guess" or explore the impact of other price predictions.

Following entry of your herd's average productivity, number of milk cows, and future path of Class III and IV prices, the MILC_PAYMENTS model will generate estimates of farm level milk production and will calculate payment estimates for all months during which the annual cap has not yet have been exceeded.

⁸ Recent trade activity associated with Class IV futures contracts has been minimal at the CME. This implies that our estimate of future Class I movers when we use settle prices, at least in the short term, will primarily be based on the Class III settle price.

For illustration purposes consider Table 2, where we model a 135-head operation with 65 lb./day average milk per cow. On August 25, 2003, the operator assesses which month to begin receiving MILC payments for FY2003-04. As of that date, all FY2003-04 Class I mover values are unknown. Consequently, we use the Class III and IV settlement prices reported for August 25, 2003 as estimates of future milk prices. This information yields an average of \$0.569/cwt in MILC payments over the 2003/2004 fiscal year if October 2003 is selected as the starting month.

**Table 2. Estimated 2003/2004 MILC Payments Using Daily Settlement Prices
(Estimates Effective August 25, 2003)**

Month in FY 2004	Days	Class III Settle (\$/cwt)	Class IV Settle (\$/cwt)	Class I Mover	Deficiency (\$/cwt) \$13.69– Class I Mover	Payment rate @ 45% (\$/cwt)	Monthly Milk Prod. (cwt)	Prod. Eligible for MILC Payment (cwt)	Payment (\$)
Oct '03	31	13.95	10.36	13.95	0.00	0.0000	2,720	2,720	\$0
Nov	30	12.75		12.75	0.94	0.4230	2,633	2,633	\$1,114
Dec	31	12.20		12.20	1.49	0.6705	2,720	2,720	\$1,824
Jan '04	31	12.00		12.00	1.69	0.7605	2,720	2,720	\$2,069
Feb	29	11.30		11.30	2.39	1.0755	2,545	2,545	\$2,737
Mar	31	11.40		11.40	2.29	1.0305	2,720	2,720	\$2,803
Apr	30	11.39		11.39	2.30	1.0350	2,633	2,633	\$2,725
May	31	11.39		11.39	2.30	1.0350	2,720	2,720	\$2,815
Jun	30	11.80		11.80	1.89	0.8505	2,633	2,589	\$2,202
Jul	31	12.05		12.05	1.64	0.7380	2,720	0	\$0
Aug	31	12.30		12.30	1.39	0.6255	2,720	0	\$0
Sep	30	12.75		12.75	0.94	0.4230	2,633	0	\$0
Totals:							32,117	24,000	\$18,288
Payment/cwt on Total Annual Production:									\$0.569

Note: We assume a 135 head herd with an average production of 65 lbs/cow/day. Due to lack of trading, on August 25th, there were no settle prices for the Class IV contract after October, '03.

Table 3 looks at the effects of selecting starting months other than October and also assesses the impact of daily milk per cow greater than 65 pounds. The results are again based on the daily settlement prices reported by the CME as of August 25, 2003.

As illustrated, the month selected for starting to receive MILC payments influences total and per hundredweight payments in two ways. First, the annual production cap may or may not be reached during the successive months of the enrollment period — selecting a late starting month may result in the year ending before exhausting the cap. Second, price patterns differ according to the starting month selected.

Note that for the 65 pounds/cow/day herd, delaying program entry until some time between December and February will result in receiving payments on less than the full 24,000 cwt of eligible production. In other words, monthly milk production for this herd is small enough that it takes about 9 months to hit the 2.4 million pound cap. In contrast, the 85-pounds/cow/day herd can wait until March to begin payments, since it produces 2.4 million pounds in seven months.

**Table 3. Impact of Alternative Entry Dates on MILC Payments,
2003-2004 Fiscal Year (Estimates as of August 25, 2003)**

	MILC-Contract Entry Month					
	October	December	February	March	April	
Potential Contract Months	12	10	8	7	6	
Annual Production (Cwt)	32,117	32,117	32,117	32,117	32,117	65 Daily Production (lbs./cow/day)
	37,058	37,058	37,058	37,058	37,058	75
	41,999	41,999	41,999	41,999	41,999	85
Eligible Months Below 2.4 Million Cap	9	9	8	7	6	65 Daily Production (lbs./cow/day)
	8	8	8	7	6	75
	7	7	7	7	6	85
Is 2.4 Million Cap Reached?	Yes	Yes	No	No	No	65 Daily Production (lbs./cow/day)
	Yes	Yes	Yes	No	No	75
	Yes	Yes	Yes	Yes	No	85
Eligible Production Under MILC Contract (cwt)	24,000	24,000	21,323	18,779	16,058	65 Daily Production (lbs./cow/day)
	24,000	24,000	24,000	21,668	18,259	75
	24,000	24,000	24,000	24,000	20,999	85
Total MILC payments (\$)	18,288	20,839	18,142	15,405	12,602	65 Daily Production (lbs./cow/day)
	17,832	21,656	20,677	17,775	14,540	75
	16,897	22,132	21,991	19,909	16,479	85
Payments per Total Fiscal Year Production (\$/cwt)	0.569	0.649	0.565	0.480	0.392	65 Daily Production (lbs./cow/day)
	0.481	0.584	0.558	0.480	0.392	75
	0.402	0.527	0.524	0.474	0.392	85

Summary

With the new Federal fiscal year fast approaching some dairy producers will need to make some decisions as to the timing of their MILC payments. We have intended this publication as a guide as to how to define the parameters of this decision and to hopefully improve your ability to maximize your program benefits.

A final comment should be made with respect to the results shown in this publication. They should be considered as illustrative only not predictive. As we all know, since the early 1990's dairy markets have become much more volatile. When making program participation decisions, you should obtain the most recent market information possible, discuss your decision with a number of industry professionals and always keep in mind your fiscal management objectives.