

Hedging Strategies Combining, Class III and IV Futures Contracts

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There are two different milk contracts, class III and class IV, traded at the Chicago Mercantile Exchange (CME). Each is driven by different dairy commodities. The class III contract is driven by the price of cheese and relates to the announced class III price on your milk check. The class IV contract is moved by the price of butter and relates to the class IV price on your milk check. The new Federal Order Pricing System uses the higher of class III or IV to calculate the class I price. Class IV has been the basis of class I price since the new pricing system was implemented. The percent of your production to hedge in each contract depends on which federal order you belong to and the percent of your milk classified as class I utilization. I feel there is misconception between the two contracts because of the higher prices at which the class IV futures contracts trade. In this article I would like to address the difference between the class III and class IV contracts and explain how to determine the number of each contract to sell for a sound-hedging program.

About two months ago I had an interesting conversation with a dairy producer about using the new class IV futures contracts to forward price milk. His comment was "the class IV prices are much higher" and he had forward priced a rather high proportion of his monthly milk production using the class IV contract. This was not a smart choice because changes in the price of butter drive price movement in the class IV contract and butter prices can remain steady while cheese prices decline. The best way to understand the difference between the two contracts and what problems may arise if the wrong futures contract is used to hedge all of your milk production is to give an example. Back on the 26th of July, this year, the November class III futures contract traded at \$11.06 and the November class IV futures contract traded at \$12.00. Without understanding how milk is priced the higher priced class IV contract appears more attractive.

Since January class I utilization in the Central Order has ranged between 26.5% and 38%. If your monthly milk production averages 1,000,000 lbs, 5 futures contracts are needed to forward price your milk production on the CME. This calculation results because one futures contract is equivalent to 200,000 lbs of milk; the average class I utilization so far this year is 32%; and the number of class IV contracts should equal 32% of the monthly milk production. (32% would be 320,000 lbs and approximately 1-1/2 contracts). Since you can't sale 1/2 of a contract, you need to round up to 2 contracts or down to 1 contract.

Let's compare two scenarios; the first (A) selling 4 class III futures contracts at \$11.06 and 1 class IV futures contract at \$12.00 and the second (B) doing the opposite selling 1 class III contract at \$11.06 and 4 class IV contracts at \$12.00. Using today's closing prices (October 27th) to evaluate these two scenarios, November class III futures closed at \$8.87 and class IV at \$11.65. I will further assume that in November for the Central Order the class I utilization will be 30% and the remaining 70% of the milk production classified as class III.

The spreadsheet below summarizes the two scenarios. In scenario A, additional revenue gained from selling 4 class III futures contracts equals \$17,520.00. Four class III contracts were sold at a price of \$11.06 and by October 27th the price had dropped to \$8.87. This would be a gain of \$2.19 per cwt. One class IV futures contract was sold at \$12.00 and closed at \$11.65 on October 27th. This is a gain of \$0.35 per cwt or \$700.00 for one contract. For this scenario profit gained from the hedge equals \$18,220.00 which calculates into \$1.82 per cwt. Add this to the \$9.70 blend price and the price you would have received for your milk is \$11.53 per cwt before producer price differential and locator adjustments (basis) are added.

In scenario B, additional revenue from selling 1 class III futures contract equals \$4,380.00 and from selling 4 class IV contracts is \$2,800.00. Total profit from this hedge is \$7,180.00 or \$0.72 per cwt. Add this to the blend price of \$9.70 and you would have received \$10.42 for your milk, or \$1.11 less than in scenario A. In scenario B, class IV milk which prices class I milk was over-hedged and resulted in a profit of only \$0.35 per cwt compared to \$2.19 per cwt in A. The downward movement in the class III futures contract is driven by the extremely low cheese prices we are currently seeing. A dollar to \$1.02 cheese prices are causing

class III prices to fall below the support price of \$9.90. On the other hand, butter inventory is 1.18% above a year ago but the excess butter inventory is no where near as burdensome on this market as the 736 million pounds of cheese currently in inventory is.

Although this producer pursued the logical choice and used the higher priced contracts to hedge his milk production, his decision was not backed by financial analysis. As I mentioned in my previous article (July 2000), a sound risk management program is not a guessing game. It must be based on financial analysis and evaluated to determine if business risk associated with price volatility is eliminated. With any hedging strategy you need to evaluate the outcome with extreme price movements in the market to determine if a floor price has been set. In the case of the second example no floor price was set and this would have been obvious if evaluated properly before these positions were placed.

Projected November Class III Price	\$8.87
Projected November Class IV Price	\$11.65
Class I Utilization	30%
Projected Milk Production for November (lbs)	1,000000

	Scenario 1		Scenario 2	
	Class III	Class IV	Class III	Class IV
#Contracts	4	1	1	4
Sell Futures Contract	\$11.06	\$12	\$11.06	\$12
Projected Announced USDA Price	\$ 8.87	\$11.65	\$8.87	\$11.65
Hedge Profit per cwt	\$2.19	\$0.35	\$2.19	\$0.35
Total Profit	\$17,520	\$700	\$4380	\$2800
Total Revenue from Hedge		\$18,220		\$7,180
Revenue/cwt from Hedge		\$1.82		\$0.72
Blend Price (without producer price differential)		\$9.70		\$9.70
Final Revenue per cwt		\$11.53		\$10.42

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