

Milk Hedging Strategies Utilizing Futures & Options

A Basic Understanding of hedging and forward pricing scenarios Utilizing both futures & options traded at the Chicago Mercantile Exchange focusing on the ClassIII Milk futures.

By

Dennis Kissler & Paul Pozzi of KIS FUTURES TRADING INC.

INTRODUCTION

Everyday for a dairyman is a calculated risk. The dairy farmer is exposed daily to many elements that must be overcome to make a living in the dairy industry. The daily fluctuation of their milk price is one risk element which most dairy farmers take for granted.

Risk is a very large part of the dairy farmer's life. As most of us know today's dairy farmer are faced with many management decisions. Cow health, feed rations, labor and environmental issues are just a short list. All of these factors require decision-making skills for a dairyman. When a dairyman makes the decision to purchase his hay or contract his corn he is making a trade for the commodity he needs. These decisions will have a major effect on the dairy's profitability. These decisions are made from past experiences or the need to reduce the pain caused from the price level.

Making the decisions to buy hay or contract corn is second nature to the dairyman. All dairymen have certain times of the year or price levels they feel good about to use as a meter for making these decisions. This type of decision making is what makes a dairyman a good fit for using the Futures and Options market as a tool to reduce the risk in their milk check.

The dairy industry has seen drastic price swings over the past ten years. The dairy industry has seen historical high and low prices paid to the dairyman. To deal with this risk, the dairymen have few options. Flow with the cash market, forward contract, hedge using Futures and Options.

During the past seven years, we've experienced volatile price swings of the cash market causing many dairymen to have an uncertain future. Forward contracting offers some sound support to the dairy by fixing the milk price which is paid to the dairyman. This allows the dairyman to focus on the management needs of the dairy. One major problem with forward contracting is that the dairyman loses the opportunity to make further gains as the milk price rises. Hedging with Futures and Options empowers the dairyman to reduce price risk and have the opportunity to participate as the milk price rises.

HEDGING

A hedger is someone taking a position in the futures market that is equal and opposite the position he either currently has or expects to take in the cash market, therefore providing protection against drastic price movements. The position taken by a hedger is in contrast with the position of a speculator. The speculator is taking a position to profit only from the price movement. The hedger is taking the futures position to reduce the risk of price action while the speculator is looking for price movement. Both of these players are needed in the market to create liquidity. Floor traders and brokers are an equally needed part of the market. Floor traders provide valuable liquidity to execute the dairyman's hedge orders. Floor traders are looking to profit from very short-term price movement while the hedger is

looking months in the future. The floor trader takes on the short-term risk while the hedger is able to reduce his longer-term price risk, by transferring it to the floor trader. All of these traders are needed to create an efficient market for the hedger to use as a tool in reducing risk. The dairyman will use this tool as a hedger and not as a speculative trader.

FUTURES

Class III milk futures trade on the Chicago Mercantile Exchange (CME). Futures contracts are a legally binding obligation to buy or sell a commodity that meets a preset grade and standard. For Class III milk futures this is used to produce cream cheese and hard manufactured cheese. The Class III contract is the most liquid contract traded at the CME and offers the dairyman the best market to spread off his forward price risk. The Class III milk contract correlates very well with the producers over base production.

Class III Milk futures are listed on the CME for each month of the year. This allows the dairyman to select a month or months that best reduces his price risk. Milk has some unique characteristics that affect the use of hedging mechanisms. Since milk is produced daily, it is a flow product. Being a flow product the producer needs a tool to benefit from the gradual changes in supply and demand, while also protecting against volatile price adjustments. The NASS conducts weekly industry-wide surveys on cheese, whey and butter. These reports are monitored by milk traders to gain insight to the final cash price. The dairyman should monitor these reports to better understand the supply and demand factors of the milk market. The dairyman should also research market fundamentals from third party sources. Using combinations of futures and options the dairyman is able to reduce his risk in this flowing market.

CLASS III FUTURES

Ticker Symbol	Clearing=DA; Ticker=DA
Sample Quote	U.S. dollars per hundredweight
Contract Size	200,000 lbs. of Class III milk
Minimum Price Fluctuation (Tick)	Floor: Regular - 0.01=\$20.00
Price Limit	Floor: There shall be no trading at a price more than \$0.75 per hundredweight above or below the previous day's settlement price.
Contract Month Listings	Eighteen consecutive months on monthly cycle.
Trading Hours	Floor: 9:40 a.m.-1:10 p.m. CT
Last Trading Day	Business day immediately preceding the day on which the USDA announces the price for that contract month
Final Settlement Rule	Cash settled based upon the USDA price at 3.5% butterfat for milk for the particular contract month.
Position Limits/Accountability	500 contracts long or short in any contract month, but 125 contracts long or short in the expiring contract month as of the close of business on the business day immediately preceding the first business day of the contract month.
Trading Venue	Floor CME

The table above covers the futures contract specifications. The dairyman must understand some or all parts of this in detail. Milk futures contracts are cash settled, at the end of each month the CME settles the milk contract based on the NASS survey. This settlement is posted on or before the fifth day of the next month. Because the contract is cash settled the dairyman will have his profit or loss credited to his futures account. No physical milk changes hands between buyer and seller of a futures contract. For the dairyman nothing changes to his current delivery of milk.

What the hedging account creates for the dairyman is a two-account milk price system. The dairy will calculate the price they receive from their processor and the profit or loss from the hedging account. This two account system become clear as we go through a few hedging examples.

To understand what taking a future positions means, the dairyman must understand the types of positions he can take. Here are the two position types:

1. Buy Futures= long market position. Profits are realized if the price of milk goes up. Losses are felt when prices drop
2. Sell futures= short market position. Profits are realized if the price of milk goes down. Losses are felt when prices rise.

To offset these positions the dairyman can buy or sell the contract back. The milk futures contract expires on the last day of trading for each month. Since the contract is cash settled the dairyman doesn't have to worry about delivery. Expiring the contract will credit or debit the dairyman's futures account. Each day as the milk price changes on the CME trading floor the dairyman's account will reflect these price changes. When using futures as a hedging tool the dairyman will have to maintain a futures account to cover the initial margins and also carry a balance to cover the maintenance margin. This money is held by the clearing firm to guarantee the transaction. If the dairyman sells a futures contract to hedge his milk and the market rises against him he will have to add money to his margin account this is called margin calls. Using only futures is one tool to hedge Class III milk. But this is a tool for the more experienced hedger. Using only futures will lock the dairy into an almost fixed price for his milk. Lets look at a simple example with some milk prices:

Example: Dairyman Bill

Bill has an account with a commodity broker, balance of \$10,000

Dairyman Bill sells a March Class III Future for \$12.50 on the date of 1-26-04

His initial margin is \$800.....this is the hedger margin for the CME MILK

Maintenance margin is \$800

Only the initial \$800 is put into the market, the maintenance margin stays in the dairyman's account. It just has to be there to insure the account is liquid.

The price of Class III milk rises to \$15.50, on the last trading day of March Class III milk is \$15.50. In this simple example we show that Bill locked his milk in at \$12.50. His account will be debited \$6000 (300 points at \$20 per point) plus the broker fees.

By using the futures market Bill locked in a price floor and ceiling with one trade. Now this is not a bad thing if Bill can make a profit at \$12.50 milk. Bill is locked in because he sold his cash milk for \$15.50 less the \$3.00/cwt he lost on his futures hedge. In this example Bill did not have to add any money to his account because his balance was above the \$6000 cost. Bill locked in his maximum price while trying

to protect against lower prices. The use of options in most cases will allow Bill protect his down side and keep the up side open to take advantage of higher milk prices.

OPTIONS

An option contract is the right, but not the obligation, to buy or sell a futures contract at a specific price. The cost of an option is premium, which is paid up front. Speculators who buy an option can only lose the premium paid, but can profit substantially if the market moves his way. Hedgers buying options have limited losses's but unlimited profit potential. The hedger use's options contacts to protect his cash position from adverse price movement, while retaining most of the gains in the cash market if the price moves in their favor.

Because milk options are based on milk futures, their technical specifications are almost the same. Options on milk are listed in the same trading months as milk futures contracts. The option market brings a lot of new terms to the hedger. Options are traded as Puts and Calls

A Put is the right to sell a futures contract

A Call is the right to buy a futures contract.

Put options increase in value if prices fall and decrease in value if prices rise. The buyer of a put has the right to exercise the option into a short or sell futures position. The buyer of a put option has limited risk and unlimited profit if prices fall.

Call options increase in value if prices rise and decrease in value if prices fall. The buyer of a call has the right to exercise the option into a long or buy futures position. The buyer of a call option has limited risk and unlimited profit if prices rise.

The seller of a put or call option has no right to exercise. The seller is limited in the profit, while holding an unlimited risk position. Most marketing information will express option selling as something only floor traders or speculator's do. Later in this paper we will show some areas were this part of the hedging plan creates value to the dairyman.

Options are traded in strike prices. In the milk market these strike prices are broken down into .25-cent intervals. So with March milk trading around \$12/cwt., the strike prices we would look at are 12.50, 12.25, 12.00 11.75 and so on. Strike prices are the levels were the hedger would enter the futures market if that option were exercised. When a dairyman is deciding which option strike price to use as a hedge he must understand how to value the price he pays for the option.

That value is the option premium. Option premium is determined by the willingness of the buyer to purchase the option and the seller's willingness to sell it. Factors that affect the premium value are the strike price level relative to the underlying futures price for that option, the time remaining until that option expires and the market volatility.

The dairyman must have a decent understanding of the factors that affect the option premium. The willingness of the buys and sells can first be found buy checking the CME quotes page on the internet. The dairyman should also feel comfortable calling his broker to get the bid offer spread from the trading floor. The strike price is relative to the underlying futures, this can also be found using web, the dairyman should look at the current futures price levels, then look at the month they feel is best used for

hedging. Then access the strike prices that are listed. Almost always the CME or other Quoting services will list the five strike prices above and below the current futures price.

Using a put option as the example:

If March futures are trading at \$12.00/cwt

The \$12.25, strike would be IN THE MONEY, because the strike price is .25/cwt above the current futures price.

The \$12.00, strike would be AT THE MONEY, because the strike price is equal to the current futures price.

The \$11.75, strike would be OUT OF THE MONEY, because the strike price is .25/cwt below the current futures price

A term used for this IN, OUT or AT the money is intrinsic value. The simple fact is, a strike price has intrinsic value then it is IN THE MONEY.

Time value is determined by how many days till the options expiration date. A March 2004 option would have less time value than a June 2004 option. March 2004 and June 2004 milk futures might be trading at the same price level, but the premium cost of the options will be priced differently to reflect the time value. June will have a high premium for the longer length of time 'till expiration.

Volatility plays an important role in the value of option premium. The more volatile a market is the more premium a trader will try to put on an option. When milk prices move very high the volatility of the milk market increases, the price of premium on a put option will increase because the volatility risk has increased.

Absorbing and understanding all the new terms and factors that affect the option market might seem like too much to ask a dairyman to take on, considering that first and foremost he has a dairy to run. But it really isn't that technical or complicated to understand. One of the hardest things for most dairymen is to find the time to get familiar with the option market.

What I tell dairymen to do is list the futures and option markets on their computers and take a few minutes each day to check the changes. By watching how the values of the puts and calls change relative to the price movement in the futures market the dairymen are able to gain a sense of how the puts and calls respond to the price action in the milk market.

Implementing an options strategy begins by developing a marketing plan and growing from that plan is one of the most important parts to forming productive risk management strategy. The objective of a hedging plan is to reduce financial risks, not create additional financial worries. The development of a marketing plan involves many factors, seasonality of milk prices, the producer's breakeven price, current milk prices relative to the five-year average price and the producer's relationship with his banker. Gathering information from other relationships like his banker, nutritionist, processor, broker or grain supplier, will help in developing the marketing plan.

When presenting the use of futures and options to a dairyman it is very important they understand hedging is a continually changing marketing plan. Each dairyman must begin using the basic tools and strategies of the futures and options market. Beginning with a basic hedging plan and growing from that plan will give the dairyman more value and start him off with a solid foundation to reduce his exposure to the ever changing milk market.

Example strategies:

For all examples we will use a beginning futures price of \$13.00/cwt for the March 2004 contract.

Example hedge using a single futures contract:

Sell one Class III March futures @ \$13.00

Let's look at what happens if the milk prices move to \$10.00/cwt or \$15.00/cwt

\$10.00/cwt milk = \$3.00/cwt, profit in the futures account.

The dairyman would receive a cash price of \$10.00/cwt for his delivered milk, then add in the profit from the futures for a total milk price received of \$13.00/cwt

\$15.00/cwt milk = \$2.00/cwt loss in the futures account.

The dairyman would receive a cash price of \$15.00/cwt for his delivered milk, then subtract the loss from the futures account for a total milk price received of \$13.00/cwt

Example hedge using a single put option:

Buy one March \$13.00 put option for .55 cents.

.55 cents is the premium paid up front = \$1100 Dollars

The dairyman will have a price floor of \$12.45/cwt (\$13.00 Strike price minus the premium cost of .55 cents)

\$10/cwt milk = \$2.45 profit in the options account.

The dairyman would receive \$10.00/cwt for his cash milk plus the profit from the put option.

The \$13.00 strike would expire with a \$3.00 profit less the .55 cents in premium for a total milk price received of \$12.45

\$15.00/cwt milk = .55 cent loss in the option account.

The dairyman would receive a cash milk price of \$15.00/cwt less the cost of the put option .55 cents for a total milk price received of \$14.45

\$13.00/cwt milk = .55 cent loss in the options account.

The dairyman would receive a cash price of \$13.00/cwt for his milk less the cost of the put option .55 cents for a total milk price received of \$12.45

The use of a put option hedge will allow the dairyman to have a more controlled use of the futures and options market. The put option hedge will allow him to enter the hedge knowing his cost and knowing that cost is his maximum risk. The dairyman will be able to monitor his option hedge without worrying about meeting margin calls or the emotion's involved in selecting a fixed forward milk price. Developing and fine tuning a market plan to maximize profits and minimize risk is continually evolving process. The use of futures and options as a tool for dairyman is not a right or wrong decision. The development of a marketing plan and incorporating a risk management strategy is the right decision.

SOURCES FOR INFORMATION:

WWW.CME.COM

Price for the futures and options can be found here along with other CME information.

WWW.KISFUTURES.COM

Price quotes and market information

WWW.DAILYDAIRYREPROT.COM

This is a very nice dairy report. Covers futures, options and the cash milk market

WWW.AMS.USDA.GOV

NASS reports and other USDA information

<http://dairyoutlook.aers.psu.edu>

This is Ken Bailey's milk report.

<http://aae.wisc.edu/future/default.htm>

Great informational web site, Lots of graphs and reports

Dennis Kissler owns Kis Futures Trading. Dennis is current member of the CME, with fifteen years experience hedging agriculture commodities. Dennis also has valuable experience hedging Natural Gas, which is an area dairyman, can look at for hedging examples. For more advanced Milk hedging strategies, Dennis can be reached at his Oklahoma office. 1-800-256-2555 Email: Dennis@KISFutures.com

Paul Pozzi operates a Branch office for Kis Futures in northern California. Paul is a current member of the CME, with eleven years experience trading: Index futures, Interest rate spreads and many Agriculture futures. Paul can be reached at his Petaluma office: 707-762-7416, Email: ppozzi@yahoo.com