

COMMODITY PRODUCTS

# An Introduction to Trading Dairy Futures and Options



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navigating a **DYNAMIC**  
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# INTRODUCTION

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Dairy producers and manufacturers today face many challenges in operations and in marketing. Dairy prices fluctuate from month to month and make it difficult to ensure meeting break-even costs. Dairy futures and options, however, serve as useful tools for managing the risks inherent to the dairy industry. Options on Dairy futures, in particular, allow producers and manufacturers to limit their price risks, while leaving open the door for profit potential. These markets also attract traders who are willing to accept the risk, in return for potential profits, that dairy professionals seek to transfer.

## What Are Futures and Options?

Futures contracts are standardized, legally binding agreements to buy or sell a specific product or financial instrument in the future. The buyer and seller of a futures contract agree on a price today for a product to be delivered or settled in cash at a future date. Each contract specifies the quantity, quality and the time and location of delivery and payment.

The value of a futures contract is derived from an underlying financial measure or market, such as commodity prices, equity index levels, foreign exchange rates or interest rates – hence the term derivatives. As the value of the underlying measure or market changes, the value of the futures contract based on that measure or market also changes. Institutions and individuals that face financial risk based on the movement of the underlying measure or market can buy or sell futures that will change in value to offset that financial risk. Such transactions are known as hedging. Institutions and individuals also buy and sell futures hoping to profit from price changes. These transactions are considered speculation.

CME Group also offers investors options on futures. Options can be thought of as insurance policies. The option buyer pays a price for the right – but not the obligation – to buy or sell a futures contract within a stated period of time at a predetermined price. The combination of options and futures – both risk-management tools – can give market participants the leverage of futures and the more limited risk of options. Options provide the opportunity to limit losses while maintaining the possibility of profiting from favorable changes in the futures price.

# DAIRY PRODUCT FUTURES AND OPTIONS

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CME Group offers seven different dairy product futures and options: two on different types of milk, two different butter contracts, two different nonfat dry milk contracts and a dry whey contract.

## Milk Class III

Milk Class III is also known by the industry as cheese milk. The Milk Class III contract represents milk used mainly in the manufacturing of cheddar cheese. All factors affecting milk production and cheese cash prices influence the price direction of this contract. The Milk Class III contract is quite user-friendly to trade and lists contracts out 24 months. Hedgers and speculators watch factors affecting milk production and the cheese cash market for pricing indicators.

## Milk Class IV

Milk Class IV is used to produce butter and nonfat dry milk. All factors affecting milk production along with butter and nonfat dry milk cash prices influence the price direction of the Milk Class IV contract. Milk Class IV contracts were introduced in 2000 in response to industry needs to hedge milk classified for usage in butter production and dried milk products. The contract is a mirror image of the Milk contract trading specifications. But instead of focusing on cash cheese for market price indicators, hedgers and traders are attuned to factors affecting milk production and the cash butter market.

## Nonfat Dry Milk

Nonfat dry milk is a product of the manufacturing of butter; it can be stored, used in various feed and food sources and/or reconstituted into milk. Nonfat Dry Milk futures contracts broaden the scope for dairy industry trading as the product readily trades worldwide.

## Deliverable Nonfat Dry Milk

Deliverable Nonfat Dry Milk futures and options are electronically traded contracts based on 44,000 pounds of Grade A and Extra Grade dry milk. These contracts offer the same price certainty as the cash-settled contracts, with the added convenience of physical delivery.

## Butter

Butter futures reflect cash market supply, demand and cold storage stocks fundamental information, and offer spread trade opportunities as butter is placed in storage for the holiday (seasonal) demand period. Butter futures contracts offer both hedgers and traders a storable product to trade. Storable contracts create spreading opportunities between deliverable contract months. As the supply and demand for the cash product changes, the need arises for the butter industry to store product or take product out of storage. This movement creates pricing relationship differences between the nearest contract month and the most distant ones.

## Cash-settled Butter

Another butter contract – Cash-settled Butter futures – is an electronically traded contract based on 20,000 pounds of Grade AA butter, one-half the contract size of the pit-traded Butter futures, which has a delivery trade unit of 40,000 pounds. This contract was designed to meet the needs of industry participants who prefer the features of cash settlement over the current physical delivery contract. Settlement is based on the first-released USDA monthly weighted average price of butter in the United States. This contract provides producers a liquid, cash-settled hedging mechanism, while also enabling buyers in this industry to hedge their exposure to price fluctuations in butterfat.

## Dry Whey

Dry Whey futures are cash-settled futures that are traded exclusively on the CME Globex electronic trading platform. Whey is the liquid that separates from milk during the cheese-making process. Dried whey, which is high in protein and low in fat, is used in foods such as crackers, breads and cereal, as well as energy bars and protein drinks. It is also used in animal feed. Contract settlement is pegged to the USDA monthly weighted average price in the United States for dry whey as first released. The contract provides price volatility, price transparency and growing liquidity, as well as innumerable choices for spreading.

# ABOUT THE DAIRY INDUSTRY

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## Large and Complex

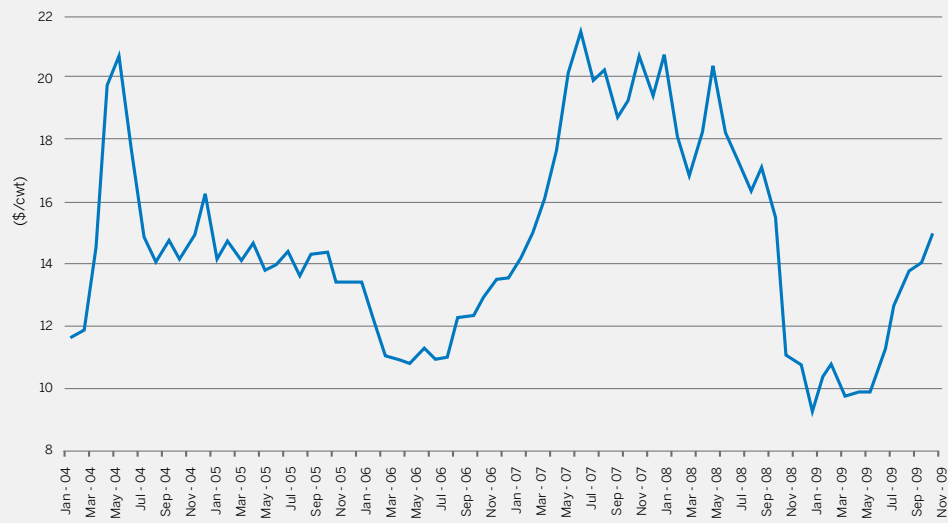
The U.S. dairy business is a \$48 billion business (at wholesale) with extreme volatility in pricing. Cows produce a perishable product – milk – two to three times per day, 365 days per year. From there, dairy manufacturers turn this raw commodity into finished goods for thousands of uses, from drinking milk that is consumed within a few weeks, to dried milk powder that may be stored for several years. Along the marketing chain, the milk will change hands many times. Most dairy farmers belong to (and own equity in) a cooperative, which stands ready to buy the farmers' milk whether the market is long or short. Other farmers ship directly to proprietary dairy processors. Most cooperatives are also manufacturers, processing the raw milk into drinking milk, cheese, butter and milk powder that is sold to users of dairy products such as distributors, retailers, food-service operators and food processors. Co-ops also serve an important market-balancing function by selling raw milk to proprietary processors and manufacturers, and manufacturing storable products (butter, milk powder) when milk supplies are excessive for current market needs.

## Heavily Regulated

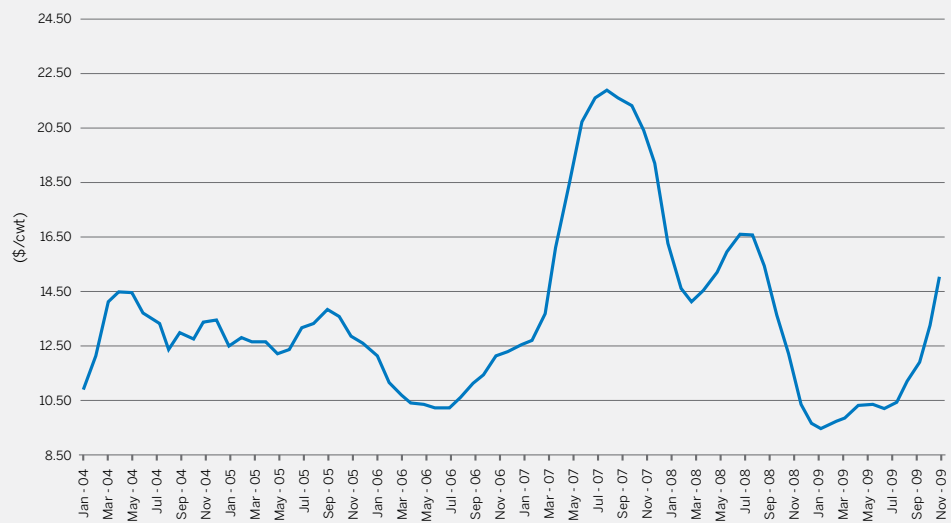
The dairy industry is one of the most heavily regulated segments in all of agriculture. Through its support price program, the U.S. government agrees to buy dairy commodities at a minimum level (cwt basis) – \$1.13 for block cheese, \$1.10 for barrel cheese, \$1.05 for butter, \$.80 for non-fortified nonfat dry milk and \$.81 for fortified nonfat dry milk. This purchase level acts as a floor on dairy prices when supplies get excessive. However, the commercial dairy markets, such as the cash butter, cheese and nonfat dry milk, can and have traded below the support prices. For example, during January 2009, Barrel Cheese traded as low as \$1.03.

The availability of imports tends to act as a practical ceiling on dairy prices. Quotas and tariffs are in place to prevent massive volumes of imports from flooding the U.S. market, but when U.S. prices move too far out of line from world prices, imports begin to enter the country and act as a damper on U.S. prices, especially when supplies get too short.

**CLASS III MILK PRICES**



**CLASS IV MILK PRICES**



### Highly Sensitive to Changes in Supply and Demand

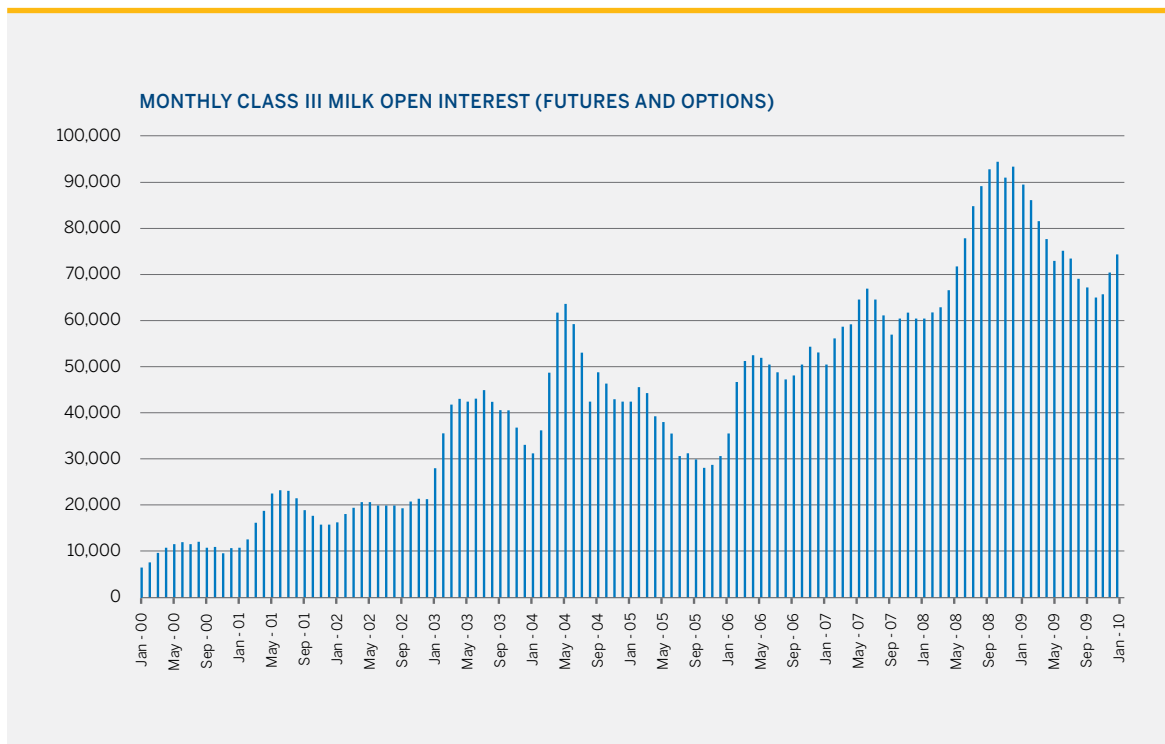
The dairy markets are unique in that they react very dramatically to small changes in supply and demand. Reductions in supply of 1 percent or less can send prices soaring 50 percent or more within a few months. Increases of 1 percent or less can send prices reeling by the same magnitude.

### Increasing Volatility, Decreasing Price Supports

Since the mid-1980s, the government has steadily decreased its support price, leading to greater volatility in the dairy markets. In the last six years, the Class III Milk price has averaged \$11.76, with a high month of \$20.58 and a low month of \$8.57. Since 2002, the price has fallen between \$10.00 and \$12.00 just 26 times in 84 months. Thirty-nine times it has been above \$12.00; 19 times it has been below \$10.00 (see Class III Milk Prices chart).

### Growing Appeal of Dairy Futures

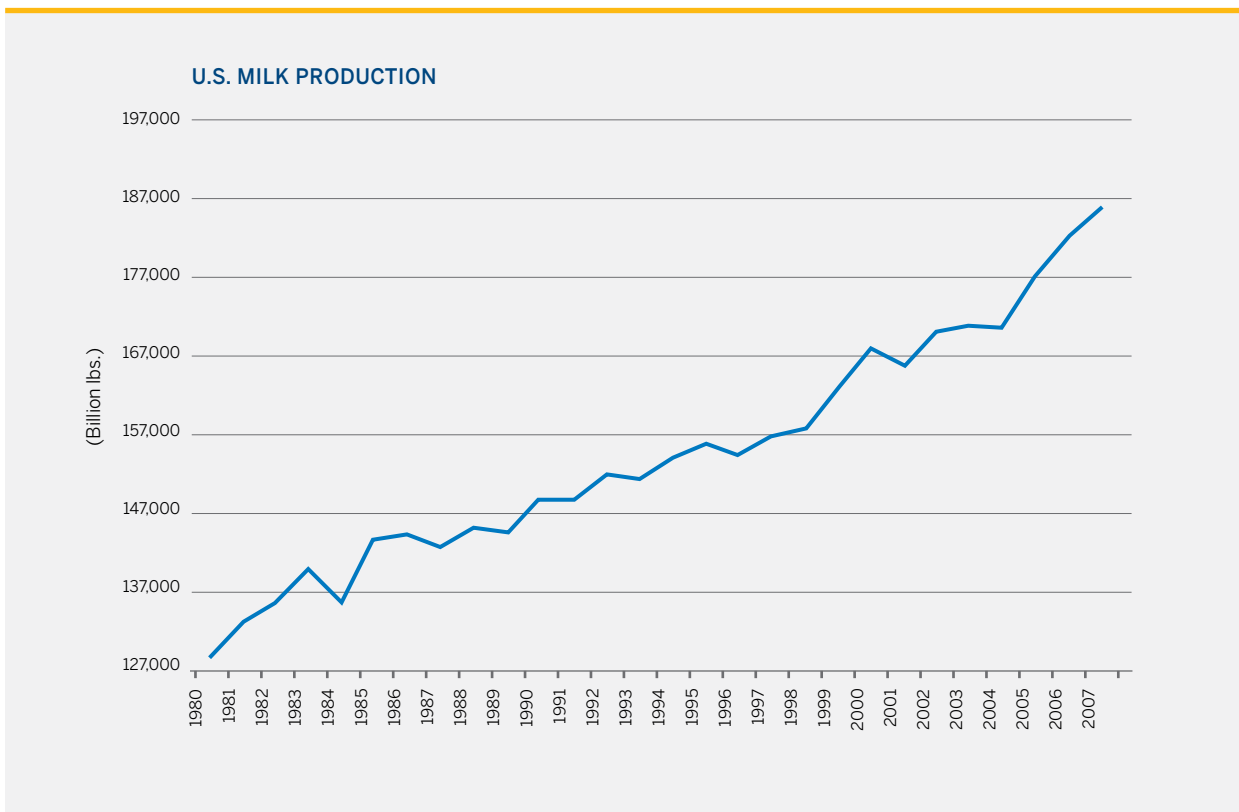
Against this backdrop, activity in dairy futures has increased significantly in the last couple years. In 2006, more than 1,300 Class III Milk contracts a day were traded.



## Milk and Product Production Trends

### Attrition and Advances

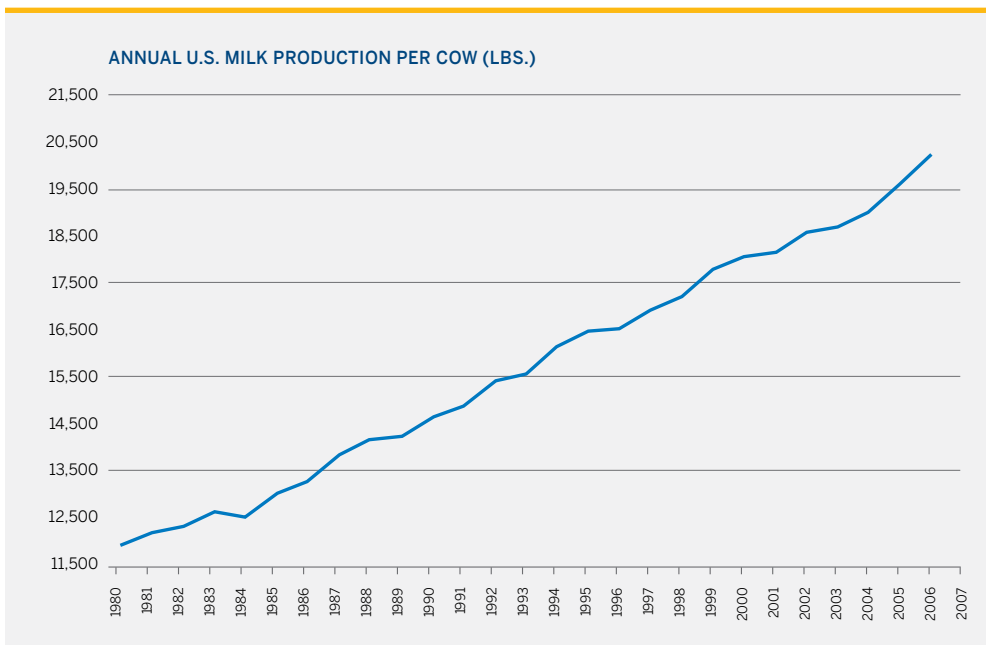
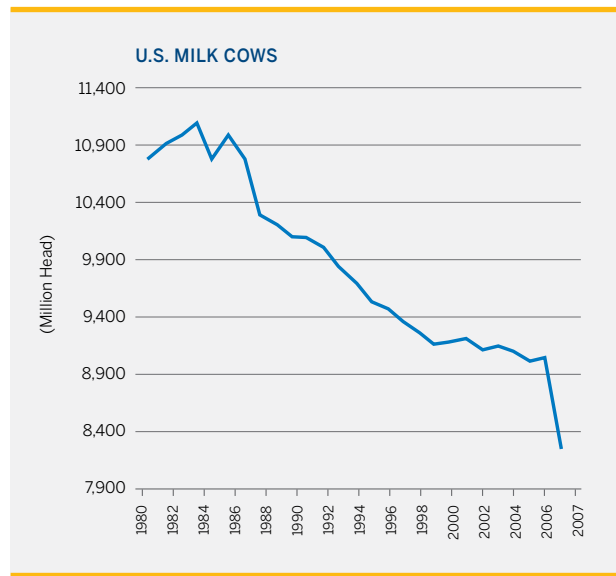
The primary means for assessing supply conditions in the dairy industry is through milk production. The U.S. dairy industry is a growth industry with an average annual increase in production of 1 percent since the 1980s (see U.S. Milk Production chart). U.S. milk production totaled approximately 185,602 billion pounds in 2007. Periodic changes in milk production are largely a function of price and factors such as weather and feed quality, though occasionally, such as with the “Whole Herd Buyout” of 1984, production changes can be the result of government intervention. The historical 1 percent gain in milk production each year has been driven by a 2 percent increase in milk per cow and a 1 percent decline in cow numbers.



Advances in output per cow are attributed to genetics, feeding and cow comfort. Changes in milk per cow are largely due to the attrition of lower producing herds, weather conditions and changes in feed and forage quality due to price or availability. Milk production per cow spans from a low in Alaska of 12,250 pounds to a high of 23,155 pounds in Colorado. Typically states west of the Rockies post herd averages over 20,000 pounds annually and increase at a rate closer to 1 percent rather than 2 percent. As a result, it is uncertain if long-term milk production per cow will continue to increase at a rate of 2 percent annually, since the national average rises through attrition of lower producing herds as well as increased production per cow (see Annual U.S. Milk Production Per Cow chart).

The U.S. dairy herd totaled approximately 8.2 million head. Herd numbers declined steadily from the mid-1980s to late 1990s due to structural changes in the industry. However, in

the past five years the rate of decline in the U.S. dairy herd has dwindled to almost nothing (see U.S. Milk Cows chart). This perhaps is an indication that the dairy herd has reached a balance to support demand for young stock in our herds.



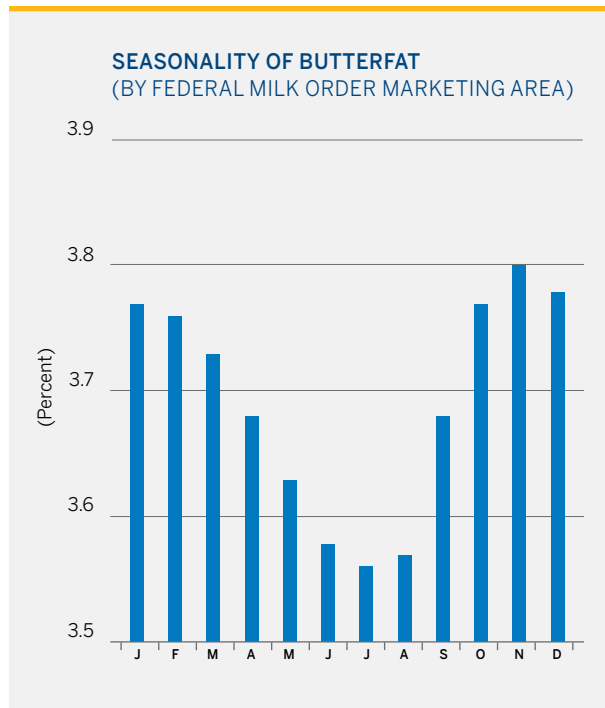
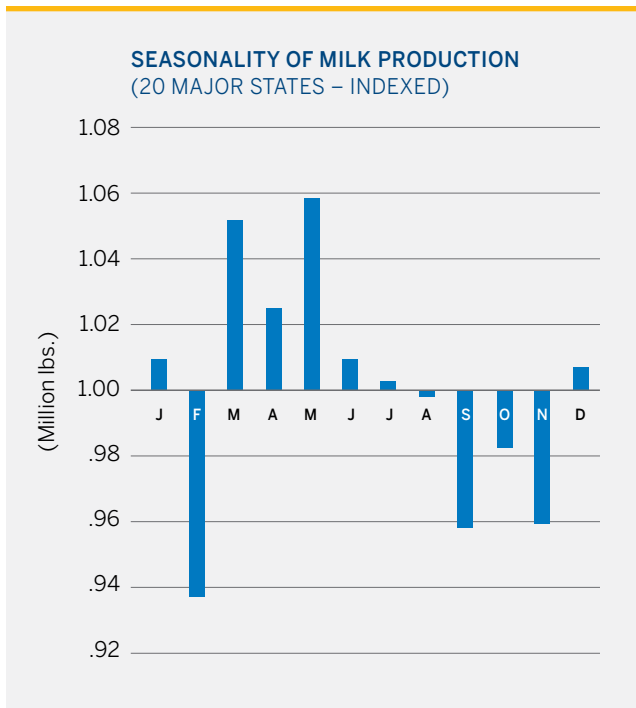
## Seasonality of Milk Production

### Higher Production Means Lower Butterfat

Milk production variability is due in part to the seasonality of the milk supply. Historically, June was the month with greatest milk production. However, as the result of growing milk supplies in the West, which has an earlier peak, May is now the month with the greatest milk production (see Seasonality of Milk Production chart).

The term “flush” is used to describe the seasonal period of highest milk output per cow. This usually coincides with spring after cows produce a calf and enter the peak of their milk-production cycle. Other factors contributing to the “flush” include genetics, feed quantity and quality and climate conditions.

As milk production increases during the flush season, however, the percentages of butterfat and protein components in the milk decrease. The annual average butterfat content of milk is 3.69 percent. During the course of the year, it will range from a high of 3.80 percent in November and January to a low of 3.56 percent in June and July (see Seasonality of Butterfat chart).



### Schools vs. Manufacturers

About 5 percent of fluid milk is consumed through schools, so raw milk supplies fluctuate throughout the year based on the school calendar. In late May, when schools are winding down for the year, school milk lines shut down and more milk is available for manufacturing. In mid-August, fluid processors begin refilling the pipeline for school milk, leaving less milk available for manufacturing. To a smaller degree, these fluctuations occur around the spring and winter school breaks as well.

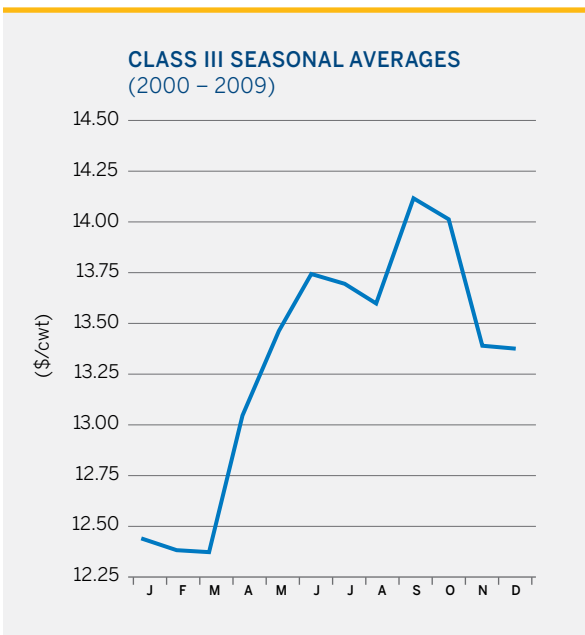
### Seasonal Price Trends and Relationships

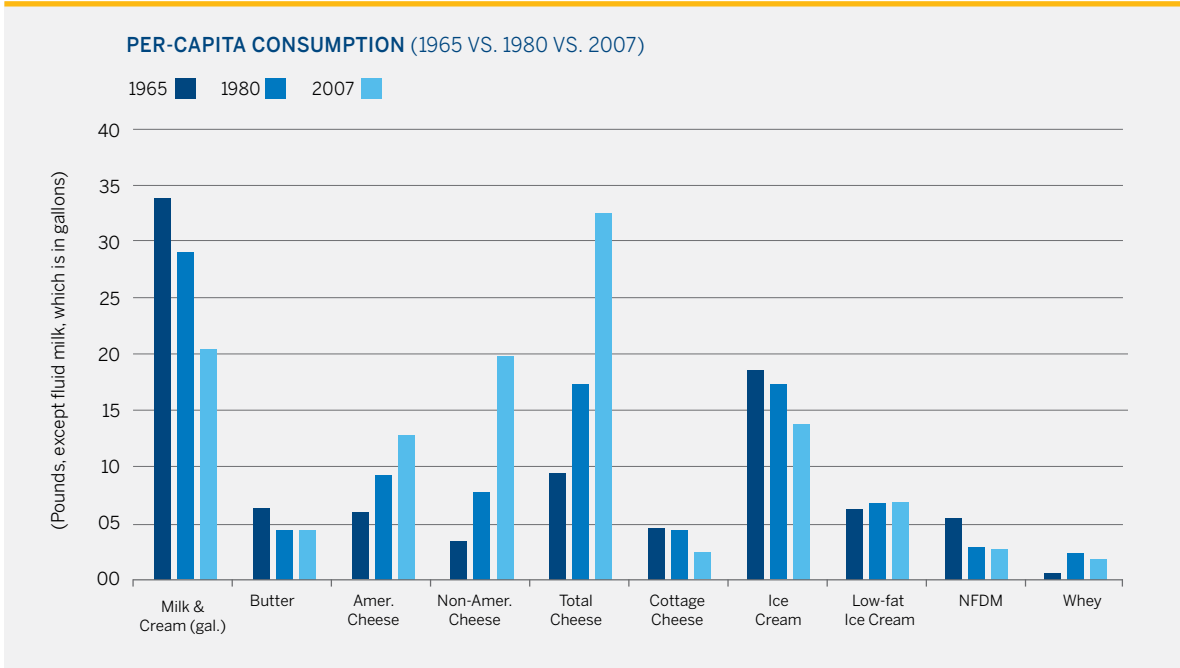
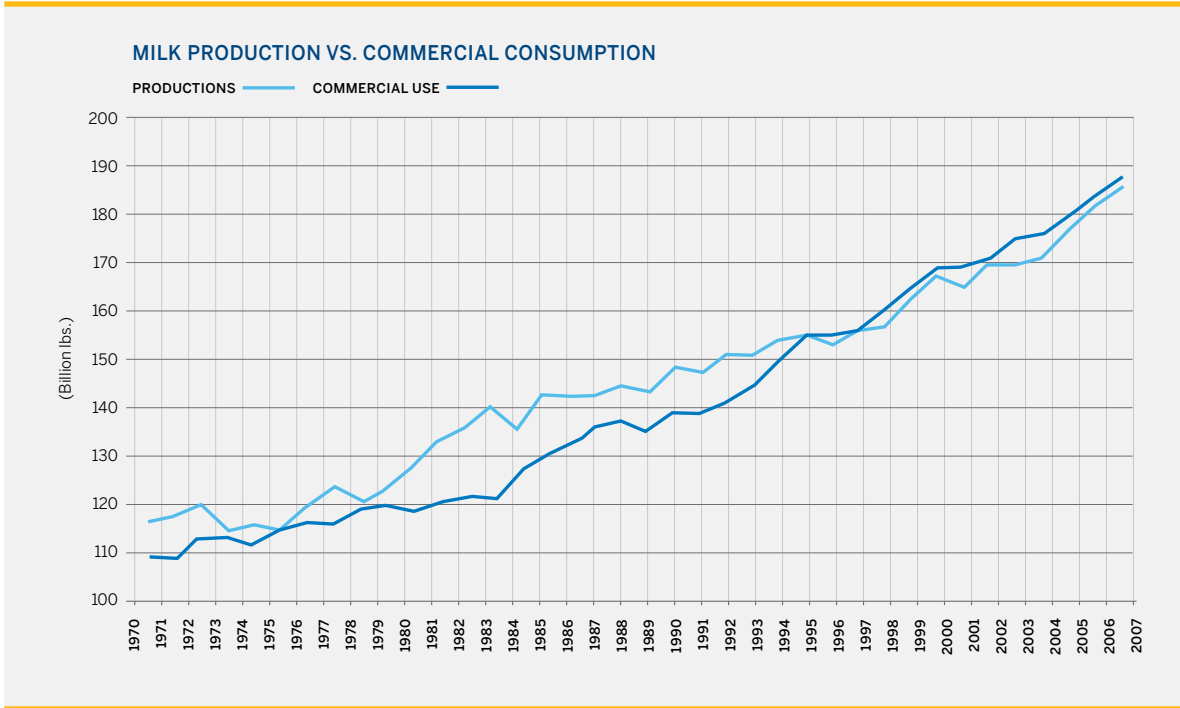
Because of the counter-seasonal movements of milk supply and demand, milk tends to be short in the summer and fall and long in the winter and spring. Therefore, on average, milk prices are highest in July through October and lowest in November through June (see Class III Seasonal Averages chart).

Many years, however, the price curve deviates from this pattern. Since 1990, the high price for the year has occurred as many times in January or December as it has in September (three each). Other annual highs have occurred in April, July, October and November.

### Price Volatility

The lowering of price supports by the government, along with increased demand, mainly for cheese and cheese products, has brought about price equilibrium between the supply of milk and the uses of milk. Thus, any seasonal changes in the production or demand for milk and milk products create volatile price swings (see Milk Production vs. Commercial Consumption and Per-capita Consumption chart).





### Federal Milk Marketing Orders

The Federal Milk Marketing Orders were established in 1937 to provide “orderly” marketing conditions for interstate commerce, income parity for farmers and to increase the bargaining power of farmers. About 70 percent of U.S. milk production is covered by the Federal Orders. California is the only major milk-producing region that is not in a Federal Order. California, however, operates its own state milk pricing plan that is similar to the Federal Orders.

Specifically the Federal Orders set the price of milk used in the following classes:

- Class I – Fluid drinking milk
- Class II – Soft products, like yogurt and ice cream and dairy-based drinks
- Class III – Cheese, including cream cheese
- Class IV – Butter and dried milk powders

A dairy manufacturer that participates in the Federal Order pays into a pool the announced class price (plus a competitive premium usually) for the milk it converts into finished dairy products. For example, a fluid milk processor who also produces ice cream would pay the Class I Milk price and butterfat price used to produce a gallon of 2 percent milk. It would pay the Class II price for milk and butterfat used to produce ice cream.

Meanwhile a dairy farmer within the Federal Order receives a market-average price or “blend price” based on the way milk is used in that market. For example, in Wisconsin, which is predominantly a cheese-production state, a dairy farmer’s blend price typically consists of about 20 percent of the Class I price, 2.5 percent of the Class II price, 75 percent of the Class III price and 2.5 percent of the Class IV price.

### Classified Pricing

All class prices within the Federal Orders are calculated from product price formulas. The Class I price is determined based on the higher of either the Class III or Class IV price using USDA surveyed price data from the first two weeks of the month. This, plus a Class I differential, determines the Class I price for the following month. The Class II price is the Class IV price, plus \$.70 per cwt. But the two key formulas are the Class III and Class IV prices – the two prices traded at CME Group. Both prices are calculated from a full month of USDA-surveyed price data and published on the Friday before the fifth of the following month. (If the fifth is a Friday, it is published on that Friday.) In other words, the July Class III and Class IV prices were calculated and published on Friday, Aug. 1. CME Group Class III and Class IV futures contracts settle to these USDA prices.

### The Class III Price Formula

The Class III price formula is determined from three components: a butterfat price, a protein price and another solids price. These prices are derived from weighted averages of USDA-surveyed cheese, butter and whey prices for the month. The formulas are:

$$\text{Butterfat Price} = \text{Round} ((\text{NASS Grade AA Butter Price} - \$0.1715) \times 1.211, 4)$$

- \$0.1715 is the butter manufacturing cost
- 1.211 equals the pounds of butter produced from one pound of butterfat
- 4 represents the number of decimal points the price is rounded to

$$\text{Protein Price} = \text{Round} \left( (\text{NASS Cheese Price} - \$0.2003) \times 1.383 + \left( (\text{NASS Cheese Price} - \$0.2003) \times 1.572 - (\text{BF} \times 0.9) \right) \times 1.17, 4 \right)$$

Note: This is a two-part formula because the first multiplier – 1.383 – represents the contribution of protein to the cheese yield, while the second multiplier – 1.572 – reflects the contribution of butterfat to the cheese yield.

- The NASS cheese price is the weighted average of the block and barrel cheese prices for the month. The USDA adds \$.03 per pound to the barrel cheese price before calculating the weighted average. The USDA does this to avoid using a different make allowance for both block and barrel cheese prices. Traditionally, the industry has recognized a \$.03 per pound discount to produce barrel cheese. This is also reflected in the USDA support prices for block and barrel cheese at \$1.1314 per pound and \$1.1014 per pound, respectively.
- \$.02003 is the cheese manufacturing cost
- 1.383 and 1.572 reflect yield factors
- 90 percent of the butterfat value is removed from the protein value to reflect the whey cream that is not used in cheese making.

$$\text{Other Solids Price} = \left( (\text{NASS Whey Price} - \$0.1991) \times 1.03, 4 \right)$$

$$\text{The Class III Price} = (3.5 \times \text{BF Price}) + \left( (3.1 \times \text{Protein Price}) + (5.9 \times \text{Other Solids Price}) \right) \times .965$$

- \$.01991 is the whey manufacturing cost
- If the NASS whey price is less than the manufacturing allowance, the other solids price can be negative
- 1.03 is the yield factor

#### The Class IV Price Formula

$$\text{Nonfat Milk Solids Price per hundredweight} = \text{Round} \left( (\text{NASS NFDM Price} - \$0.1678) \times .99, 4 \right) \times 9, 2$$

- Butterfat Price = Round  $\left( (\text{NASS Grade AA Butter Price} - .1715) \times 1.211, 4 \right)$
- The Class IV price is reported at 3.5 percent BF and 96.5 percent SNF

#### In the Nonfat Milk Solids Price:

- \$.0157 per pound is the make allowance
- 0.99 is a yield factor per pound
- 9 is the yield factor of pounds of nonfat dry milk powder produced from 100 pounds of skim milk

#### Milk Pricing Outside of the Federal Orders

California is the only major milk producing region that is not included in a Federal Milk Marketing Order. (Most of Idaho's milk is regulated in the Western Order.) The milk price received by dairy farmers and paid by processors in California is regulated by California's Department of Agriculture.

Milk pricing within California is similar to Federal Order pricing. The major differences are California has five classes of milk (Federal Orders have four) and California uses spot block cheese and butter prices in its formulas (Federal Orders use USDA NASS surveys).

Like the Federal Orders, California maintains separate manufacturing milk price classes. Class 4b is the cheese-milk price, and the Class 4a price is the butter powder. In 2003, California also added a whey value component to its 4b price. In California, 44 percent of the milk goes into cheese (Class 4b), 30 percent goes to butter powder (Class 4a), 17 percent goes to drinking milk (Class I) and the balance is split between soft dairy products and frozen dairy products.

Federal Orders are voted into existence by dairy operators and cooperatives within a region. In theory, if a majority of producers in California voted to be part of the Federal Order system, one could be established.

# TRADING DAIRY FUTURES

## What Are Dairy Futures?

Dairy futures are legally binding obligations to buy or sell a specific amount of a specific dairy commodity – milk, butter and nonfat dry milk – that meet set grades and standards on some future date. All Dairy futures contracts require a fulfillment, or binding obligation, on the part of the trader at some time before the contract expires. Traders of a Dairy contract may fulfill contract obligations by offsetting in the futures market (entering an opposite trade order) any time prior to contract expiration, or by accepting an automatic offset at the appropriate announced price on the date of the announcement.

Dairy contracts offer easy entry into the dairy markets. The futures contracts trade each month, offering both producers and processors a chance to lessen the pricing impact of the monthly dairy price announcements. The contracts can be offset at any time, or can be held through contract expiration and be automatically offset at the USDA announced price for Class III and Class IV Milk.

## Buy Low/Sell High or Vice Versa

As with all market transactions, the basic goal in trading futures is to buy low and sell high so as to make a profit. In futures, it is just as easy to initiate a trade by selling a futures contract first as it is to buy first. Dairy producers concerned about profits declining in the future can sell dairy futures; while users and manufacturers of milk and dairy products can protect against price increases by buying futures.

Some people trade Dairy futures to speculate on dairy prices, hoping to make a profit by being on the right side of trades as prices go up or down. A speculator who thinks prices will be going higher will buy – go long – Dairy futures. Speculators who think prices will be moving lower will sell Dairy futures. To close out or offset the initial transactions, they will take the opposite positions – selling contracts that they bought, or buying contracts that they sold.

Type of Positions	Price Advantage in	To Offset Position
Sell = Short	Down Markets (Loses in up markets)	Buy Back Contract
Buy = Long	Up Markets (Loses in down markets)	Sell Back Contract

Although it is risky, it is in a sense that simple. Let’s look at an example. What happens if it is April and a trader either buys or sells a July Milk futures at \$12.00 per hundredweight?

### In April, a customer trades July Milk futures at \$12/cwt

If July prices are	Assuming the contract was bought at \$12 (to close: sell)	Assuming the contract was sold at \$12 (to close: buy)
\$13	\$1 profit	\$1 loss
\$12	\$0	\$0
\$11	\$1 loss	\$1 profit

## Hedging with Dairy Futures

Hedgers use futures in a different way. While speculators take the risk, hedgers in Dairy futures are typically in businesses related to buying or selling dairy commodities. They use futures to lock in a known price for a dairy commodity, hoping that profits or losses on their futures positions will hopefully counteract their gains or losses in the cash markets.

Cash	Futures
Owner of Inventory • Risk in down markets	Seller of Contracts (Short) • Gain in down markets
User of (Needs) Inventory • Risk in up markets	Seller of Contracts (Short) • Gain in up markets

Note: Even though the correlation between Dairy futures prices and cash prices is typically close enough to offer price protection, it is unlikely that hedging will exactly offset cash price fluctuations. Knowing the relationship of price moves between the cash dairy markets and futures markets helps make hedging decisions more strategic and effective. The difference in price between the cash and futures markets is called basis.

## Trading Examples

### Short Hedge Examples (Zero Basis\*)

Suppose it is April and a producer or milk cooperative decides to protect a certain price level for milk to be sold in July in the cash market. Since the cash price risk is in down markets, the producer or cooperative decides to sell Milk futures.

Example: Sell one July futures contract at \$13

If both futures and cash prices decline ...

July Futures	Cash Price + Futures Gain =	Selling Price*
\$13	$\$13 + \$0 =$	\$13
\$12	$\$12 + \$1 =$	\$13
\$11	$\$11 + \$2 =$	\$13

If both futures and cash prices increase ...

July Futures	Cash Price + Futures Gain =	Selling Price*
\$13	$\$13 - \$0 =$	\$13
\$14	$\$14 - \$1 =$	\$13
\$15	$\$15 - \$2 =$	\$13

In a falling market, the lower cash selling price is offset by the futures gain. In either case, the hedger's goal is to establish a selling price of \$13 per hundredweight for milk.

\*Commissions and basis not reflected in example.

### The Long (Buy) Hedge

A long hedge can be used to offset the risk of price increases until a customer is ready to procure milk. Thus, by taking a long futures position (buying futures), a customer can offset price risk by being short milk (needing milk).

Cash	Futures
Need Milk (Short)	Buyer of Contracts (Long)
• Price Risk in up markets	• Gain in up markets
User of (Needs) Inventory	Buyer of Contracts (Long)
• Risk in up markets	• Gain in up markets

### Long Hedge Examples (Zero Basis\*)

In April, a dairy firm decides to protect a certain price level for milk to be bought in July in the cash market. Since the price (cash) risk is in rising markets, the dairy firm decides to buy Milk futures.

Example: Buy one July futures contract at \$13

If both futures and cash prices increase ...

July Futures	Cash Price + Futures Gain =	Selling Price*
\$13	$\$13 + \$0 =$	\$13
\$14	$\$14 + \$1 =$	\$13
\$15	$\$15 + \$2 =$	\$13

If both futures and cash prices decline ...

July Futures	Cash Price + Futures Gain =	Selling Price*
\$13	$\$13 - \$0 =$	\$13
\$12	$\$12 - \$1 =$	\$13
\$11	$\$11 - \$2 =$	\$13

In a rising market, the higher cash purchase price is offset by the futures gain. In either case, the hedger's goal is to establish a purchase price of \$13 per hundredweight for milk.

\*Commissions and basis not reflected in example.

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## How Futures Accounts Work

As with all futures trading, each open Dairy futures contract must be backed by a performance bond (margin) account. During each trading session, each account is “marked-to-the-market” (the current or closing market price of each contract) and money is transferred into or out of each account accordingly. Customers may be asked to post more performance bond funds if prices move too far against their positions. If prices move in favor of a customer, his or her account is also credited accordingly. For example, assume there is a \$1,000 performance bond requirement and a maintenance margin of \$800 for each Milk contract. (Margins are subject to change; customers need to check with their brokers.)

A customer who opens an account and deposits a \$1,000 initial margin has an account balance of \$1,000. If the customer buys (goes long) a June Milk contract at \$12.00 and the price closes up one cent at \$12.01, the customer’s account balance increases to \$1,020. On the other hand, if the milk market closes down one cent at \$11.99 at the end of the day, the account balance decreases to \$980. Similarly, a trader selling (going short) a June Milk contract at \$12.00 would see a decrease of \$20 in his or her account balance if the contract closed up 1 cent and an increase of \$20 if the Milk contract month closed down 1 cent.

## Margining a Futures Trade

Along with the initial performance bond requirements, CME Group also sets a minimum maintenance performance bond for each commodity. This level is set as a “trigger” point for margin calls. In the above example (initial performance bond \$1,000 and maintenance of \$800), a customer’s account balance would have to drop \$220 ( $\$1,000 - \$220 = \$780$ ) or ( $\$.11 \times \$20$ ) to have an account balance below \$800 and be subject to a margin call. The customer is obligated to meet the call to re-establish the account balance to \$1,000, or be subject to automatic removal from the market.

## Commodity Brokers

All futures contracts are traded the same way. Both hedgers and speculators need to establish a futures/options account with a commodities brokerage firm and comply with the firm’s contract performance bond requirements. Dairy futures are traded through registered commodity brokers, although the Cash-settled Butter contract can be traded electronically directly by customers who have accounts with futures brokerage firms and are connected to the CME Globex platform. Brokers charge a commission on each transaction and there is also a fee for trading electronically. Brokers often advise their customers on which market orders to use and help provide both fundamental and technical information on market price outlook. Customers who need a futures broker can go to the CME Group Web site at [www.cmegroup.com](http://www.cmegroup.com) or ask others for recommendations.

# TRADING OPTIONS ON DAIRY FUTURES

## What Are Options on Futures?

An option is the right, but not the obligation, to buy or sell a futures contract at a specific price within a specific expiration date. Trading options on futures is similar to trading futures, but with a great deal of additional flexibility. Options on Dairy futures are listed in the same trading months as futures contracts. Because Dairy options are based on Dairy futures, their technical specifications are almost identical. Like futures contracts, options contracts also have expiration dates. Milk options, for example, expire on the business day prior to the USDA Class III and IV announcement.

There are two types of options on futures:

- **Put** – The right to sell a futures contract at a certain price. Put options act as insurance against a down market, and thus are useful to sellers of dairy commodities.
- **Call** – The right to buy a futures contract at a certain price. Call options enable buyers of dairy commodities to purchase protection against rising dairy prices.

Puts increase in value if prices fall and decrease in value if prices rise. Puts give the buyer (holder) the right to exercise into a sell (short) futures position at a fixed price.

Calls increase in value if prices rise and decrease in value if prices fall. Calls give the buyer (holder) the right to exercise into a buy (long) futures position at a fixed price.

## Options as Price Insurance

People do not drive motor vehicles without insurance. Firms can purchase similar protection against price disaster in the dairy markets by understanding and correctly using options on Dairy futures. Options give the buyer price insurance against a market that takes a turn for the worse in terms of a current or anticipated cash position.

The cost of an option is the premium, similar to an insurance premium, which is paid up front. The amount of a premium is a function of:

- The amount of time until the option expires
- The strike price in relation to the current futures price
- The volatility of the underlying futures contract

The price at which a buyer has the right to buy or sell a specific futures contract is known as the strike price or exercise price. Buyers of Dairy puts or calls may choose from many strike prices. For example, buyers of Milk futures have access to strike prices listed at intervals of \$.25. Thus, if futures are at \$12, strike prices will be available both above and below \$12, such as \$12.50, \$12.25, \$12.00, \$11.75, \$11.50 and so on.

Put premiums cost more at higher strike prices, since a put owner can sell futures at a higher level. Call premiums cost more at lower strike prices, since a call owner can buy futures at a lower price. As futures prices change over the life of an option, so do premiums. The premium value changes every time the underlying futures price changes.

Premiums for Dairy options are quoted in terms of dollars/hundredweight (\$/cwt). Thus a \$.50 premium for a Milk contract would cost \$1,000 (\$.50 x 2000 cwt) per contract. Buyers of options can only lose the premium paid. Speculators who buy options will lose the premium paid if their estimate of market movement is wrong, but can profit substantially if they are right. Hedgers who buy options also have limited loss and unlimited gain potential. They can use options to protect their cash positions from adverse price moves, while retaining most of the gain in cash value from favorable price moves.

## Dairy Put Options

### Insurance Against Falling Markets

Sellers of dairy commodities purchase price protection against a down market by buying Dairy put options. Advantages of buying puts include:

- No performance bond (margin) requirements. A premium is paid in full up front.
- Buying puts establishes a price protection level for dairy commodities sold in the future.
- Put options gain in value as the futures price falls.
- Put options expire worthless if the market ends up higher. Holders take advantage of the higher cash market and are out only the cost of the premium.

## Dairy Call Options

### Insurance Against Rising Markets

Buyers of dairy commodities are protected against higher prices in the future by purchasing Dairy call options. Advantages of buying calls are:

- No performance bond (margin) requirements. A premium is paid in full up front.
- Buying calls sets a price protection level for dairy commodities to be purchased in the future.
- Call options gain in value as the futures price rises.
- Calls expire worthless if the market ends up lower. Holders take advantage of a lower cash market and are out only the cost of the premium.

### Exiting from Options Positions

The buyer of a Dairy option can exit the position in four ways:

- Offset the option – Sell back the same option (put or call) and receive the gain in value.
- Let the option cash-settle at expiration and collect gains in value.
- Exercise the option – Take the futures position.
- Let the option expire.

### The Underlying Contract

The futures contract which the buyer has the right to sell or buy is known as the underlying futures contract. In the following table, the underlying contract is the July Milk futures contract. The table also shows the varying amounts of put and call premiums at specific strike prices.

In April, July Milk futures at \$13

Strike Price (\$/cwt)	July Option Premiums/Value (\$/cwt)	
	PUTS	CALLS
\$14	\$1.00	\$.10
\$13	\$.50	\$.50
\$12	\$1.00	\$1.00

## Trading Examples

### Put Example

Say it is April and July Milk futures are at \$12/cwt. What happens if a trader buys a July \$12 put for \$.50/cwt? The July \$12 put will have value if futures prices fall below \$12.00; if prices go above \$12.00, however, they will expire worthless.

In April, July Milk futures = \$12/cwt

Buy July \$12 put at \$.50/cwt

PREMIUM Futures in July	Value of \$12 Put – Paid	Price Results
\$14	\$0 – \$.50	\$.50 cost
\$12	\$0 – \$.50	\$.50 cost
\$10	\$0 – \$.50	\$1.50 profit

A speculator selling back a \$12 put would have a \$3,000 ( $\$2.00 \times 2000 \text{ cwt} - \$.50 \times 2,000 \text{ cwt premium cost}$ ) per contract profit if futures prices fell \$2. There would be a \$1,000 ( $\$.50 \times 2000 \text{ cwt}$ ) per contract cost if prices stayed the same or if they rose \$2 (commission not included).

Hedgers would use this put option in a different way. If prices fall, the option profit would protect a minimum selling price and act as an insurance policy for milk. If prices rise, the option loss (cost of premium) would be offset by the better cash selling position.

### Call Example

In the same situation as above, a July \$12 Milk call may be worth \$.50/cwt in April. What would happen if a trader buys a call at that price? In July, the \$12 call will have value if prices stay above \$12, or expire worthless if the futures price falls below \$12.

In April, July futures = \$12/cwt

Buy July \$12 call at \$.50/cwt

PREMIUM Futures in July	Value of \$12 Put – Paid	Price Results
\$14	\$2 – \$.50	\$1.50 profit
\$12	\$0 – \$.50	\$.50 cost
\$10	\$0 – \$.50	\$.50 cost

A speculator selling back a \$12 call would have a \$3,000 per contract profit if futures prices rose \$2. There would be a \$1,000 per contract loss if prices stayed the same or fell \$2 (commission not included).

Hedgers would use this call option in a different way. If prices rose, the option profit would protect a maximum purchase price for milk. If prices fall, the option loss (cost of premium) would be offset by the better cash buying position.

The following are additional examples to show how put and call options can be used and how price changes affect the outcomes in both cases.

#### Put Option Example (Zero Basis\*)

In April, July futures are at \$13 and a producer/cooperative buys a July 13 Milk put option for \$.50/cwt, or \$1,000 total (\$.50 x 2000 cwt). What can happen in July?

##### PUT OPTIONS

If July Futures Purchase Price*	Cash Price	Value of 13 Put +	Cost of 13 Put -	Selling Price*
\$15	\$15	\$0 - \$.50	\$14.50	\$15
\$13	\$13	\$0 - \$.50	\$12.50	\$13
\$11	\$11	\$2 - \$.50	\$12.50	\$11

If the futures price is \$15 in July, the \$13 put option expires worthless and the producer/cooperative sells fluid milk in a higher cash market. If futures are \$11, the producer/cooperative realizes a \$2 gain which compensates for the lower cash selling price. If prices are lower than \$11, the put increases in value to hold the price protection level of \$12.50.

\*Commissions and basis not reflected in example.

#### Call Option Example (Zero Basis\*)

In April, July futures are at \$13 and a dairy processor buys a July 13 Milk call option for \$.50, or \$1,000 (\$.50 x 2000 cwt). What can happen in July?

##### CALL OPTIONS

If July Futures Purchase Price*	Cash Price	Value of 13 Put +	Cost of 13 Put -
\$15	-	\$2 + \$.50	\$13.50
\$13	-	\$0 + \$.50	\$13.50
\$11	-	\$0 + \$.50	\$11.50

If the futures price is \$11 in July, the \$13 call option expires worthless and the processor will buy milk in a lower cash market. If futures are \$15, the processor realizes a \$2 gain which compensates for the higher cash purchase price. If prices are even higher, the call gains in value to hold the price protection level of \$13.50.

\*Commissions and basis not reflected in example.

# KEY DAIRY REPORTS

Prices in the Dairy futures and options markets are primarily driven by changes in the underlying cash markets. However, traders still look to scheduled government reports to provide indications of future market direction.

### USDA – NASS Reports

Dairy product prices are reported each Friday at 7:30 a.m. Central Time (CT). These prices are used to calculate the Federal Order class prices. NASS-survey cheese and butter prices typically lag CME Group cash prices by one to two weeks – more if prices are more volatile. NASS prices also tend to run 1 to 2 cents lower than CME Group weekly averages.

<http://usda.mannlib.cornell.edu>

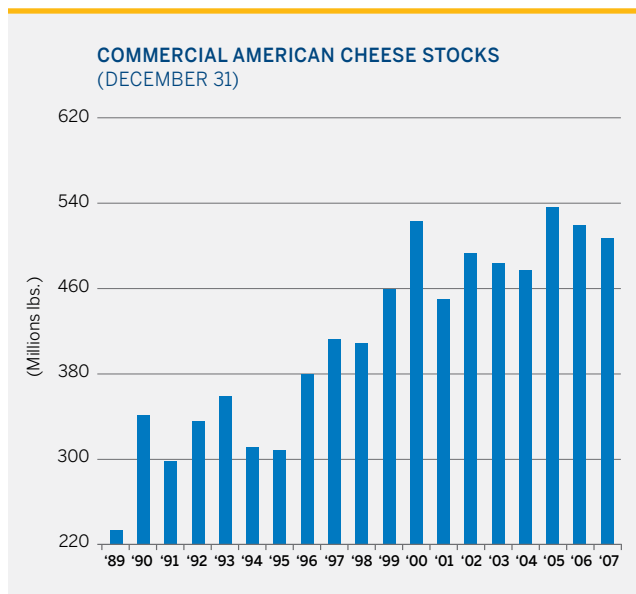
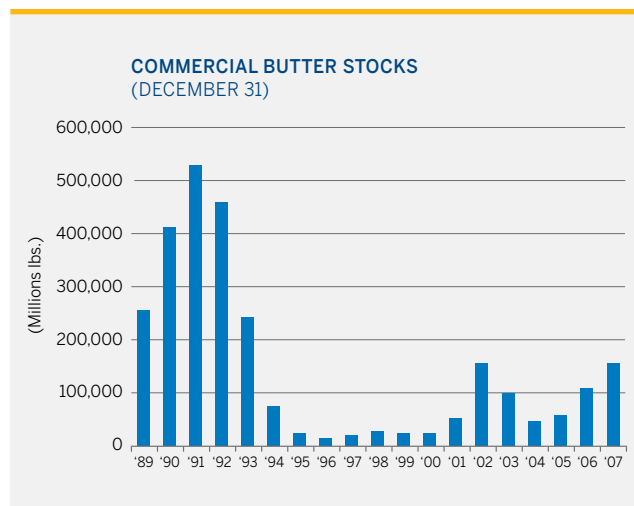
Search for NASS Reports, keywords: dairy prices

**Dairy Products** is the monthly production report for manufactured dairy products released near the fourth of each month. It contains the production data from the prior year, prior month and current month for the key dairy products like American cheese, total cheese, butter, nonfat dry milk and whey powder. Traders watch this report to identify production trends. For instance, when cheese production is reported lower than the previous year, it is interpreted as friendly for Class III prices.

**Milk Production** is the most eagerly watched government report for dairy traders. It is published on or before the 17th of each month, containing production figures for the “selected 20 states,” which produce about 85 percent of the nation’s milk (see Milk Production – Percent Change vs. Prior Year chart). From that data USDA estimates monthly U.S. milk production. The report features the number of milk cows in the selected 20 states, output per cow and total production. When production is reported less than the prior year, the report is typically interpreted as bullish; when production exceeds the prior year by more than 1 percent, it usually is interpreted as bearish. When cow numbers are increasing, it indicates the nation’s productive capacity is growing, a bearish price signal. When cow numbers are decreasing, it indicates a contraction in productive capacity, sending a bullish signal.



**Cold Storage** is released around the 20th of each month, providing information on cheese and butter inventories. Because of the seasonality of dairy production and consumption, there's significant seasonality to inventory patterns as well. Commercial American cheese stocks typically increase from Dec. 1 through July 31, then decline rapidly in August, September, October and November (see Commercial American Cheese Stocks chart). Commercial butter stocks typically build from Dec. 1 through May 31 and decline from July through November. Deviations from this normal pattern, or significant variances from previous-years' holdings (higher or lower), send signals that can move the market (see Commercial Butter Stocks chart).



**Livestock Slaughter** is released between the 17th and 24th of each month, providing information on how many dairy cows have been sent to slaughter in the previous month. When slaughter figures are above the previous year, it suggests increased culling and a future decline in cow numbers, a bullish price indicator. When the slaughter trend is down, it suggests less culling and a subsequent increase in cow numbers, a bearish indicator.

**Agricultural Prices**, which includes the Milk-feed price ratio, is released near the last day of the month. This ratio, which expresses the relationship between the price of milk and the cost of cow feed needed to produce that milk, indicates whether it's generally profitable for a farmer to expand cows. A high ratio – for instance, when the price of milk is relatively high and the cost of feed is relatively low – typically presages increased milk production. Conversely, a low ratio – such as when the price of milk is relatively low and the cost of feed is relatively high – typically is a leading indicator of decreased milk production.

### USDA – AMS Reports

**Federal Order Class Prices** are announced twice monthly – at mid-month for the Advanced Prices for the current month and at the beginning of the month for the Class and Component Prices for the previous month.

<http://www.ams.usda.gov/dairy/orders.htm>

**Dairy Market News**, published each Friday, provides weekly commentary on fundamental conditions and factors that affect supply, demand and inventories. Dairy Market News' market analysts call industry participants every week to capture the market tone of all dairy commodities. The report also summarizes official government reports, figures and programs.

<http://www.ams.usda.gov/dairy>

### USDA – ERS Reports

**World Agricultural Supply & Demand Estimates (WASDE)**, released between the 10th and 12th of each month, provides government forecasts of fiscal year crop harvests and milk supply and demand. Estimates represent USDA's fiscal year (for dairy, Oct. 1 through Sept. 30). Forecasts of corn, bean and hay supplies give early warning of where feed costs will be; higher costs could indicate a cutback in milk supplies, while lower costs could indicate an increase in milk supplies.

**Livestock, Dairy & Poultry Outlook**, released in partial form at mid-month and complete form at the end of the month, provides forecasts and analysis from USDA economists. Roughly every other month's report includes an in-depth analysis of supply, demand, stocks and price trends. Monthly tables include "Commercial Disappearance" numbers, as well as estimates of production, consumption, government purchases and prices for the upcoming year.

### CME Group Reports

**Butter Stocks**, released every Tuesday afternoon at 2 p.m. CT, captures inventories of butter at CME Group-approved warehouses for the prior week. Deliverable supply also is reported, letting traders know how much butter could potentially be offered on the cash butter market in any given week. Note that all data collected for government and CME Group reports are voluntary and unaudited. Most data are reported initially as preliminary estimates, revised a month later and then again in an annual summary.

### Daily Dairy Report

This report offers daily updates on the supplies of milk and is available online at no cost.

<http://www.dailydairyreport.com>

### Weather

Traders pay close attention to weather reports to watch how extremes might affect milk production per cow. Cows are conditioned for normal weather patterns in their region, and cow-comfort measures added in recent years, such as fans and misters in the Southern tier, have reduced the amount of stress that cows undergo. However, when weather patterns deviate from the norm – say, extended periods that are hotter than normal in the summer, wetter than normal in the spring or colder than normal in the winter – production per cow responds adversely.

Conversely, normal or milder-than-average weather generally results in improvements in production per cow.

Weather also directly impacts crop planting and harvests. Adverse weather in the Corn Belt can result in lower supplies and higher prices of feed grains.

# CONTRACT SPECIFICATIONS

## Class III Milk Futures

Trading Unit	200,000 lbs. of Class III Milk (≈ 90 metric tons)
Product Descriptions	Class III Milk
Pricing Unit	Cents per hundredweight (cwt)
Minimum Fluctuation	\$0.01 per cwt (= \$20.00 per contract)
Daily Price Limits	\$0.75 per cwt above or below the previous day's settlement price
Trading Venue	CME Globex (electronic platform) Open Outcry (trading floor)
Trading Hours (CT)	CME Globex: Sunday at 5:00 p.m. through Friday at 1:55 p.m. with daily trading halts from 4:00 p.m. – 5:00 p.m. Open Outcry: Monday through Friday from 9:05 a.m. – 1:10 p.m. (LTD 12:10 p.m.)
Last Trade Date / Time (CT)	Trading shall terminate on the business day immediately preceding the day on which the USDA announces the Class III price for that contract month (LTD 12:10 p.m.)
Contract Listing	All calendar months
Settlement Procedure	Cash settlement See CME Rule 5203.A
Position Limits	Non-spot: 1,500 contracts in any contract month Spot: N/A All months combined: N/A See CME Rule 5202.E
Ticker Symbol	Floor = DA CME Globex = DC Clearing = DA
CME Rulebook Chapter	52

## Options on Class III Milk Futures

Trading Unit	One Class III Milk futures contract
Pricing Unit	Cents per cwt
Minimum Fluctuation	Full Tick: \$0.01 per cwt (= \$20.00 per contract) Half Tick: \$0.005 per cwt (= \$10.00 per contract)
Daily Price Limits	None
Trading Venue	CME Globex (electronic platform) Open Outcry (trading floor)
Trading Hours (CT)	CME Globex: Sunday at 5:00 p.m. through Friday at 1:55 p.m. with daily trading halts from 4:00 p.m. – 5:00 p.m. Open Outcry: Monday through Friday from 9:05 a.m. – 1:12 p.m. (LTD 12:10 p.m.)
Last Trade Date / Time	Trading shall terminate on the business day immediately preceding the day on which the USDA announces the Class III price for that contract month (LTD 12:10 p.m.)
Contract Listing	All calendar months
Strike Price Intervals	All contract months: \$0.25 intervals See CME Rule 52A01.E
Exercise Procedure	American style See CME Rule 52A02
Position Limits	Non-spot: 1,500 futures-equivalent contracts in any contract month Spot: N/A All months combined: N/A See CME Rule 52A01.
Ticker Symbol	Floor = DA CME Globex = DC Clearing = DA
CME Rulebook Chapter	52

## Class IV Milk Futures

Trading Unit	200,000 lbs. of Class IV Milk (≈ 90 metric tons)
Product Description	Class IV Milk
Pricing Unit	Cents per cwt
Minimum Fluctuation	\$0.01 per cwt (= \$20.00 per contract)
Daily Price Limits	\$0.75 per cwt above or below the previous day's settlement price
Trading Venue	CME Globex (electronic platform) Open Outcry (trading floor)
Trading Hours (CT)	CME Globex: Sunday at 5:00 p.m. through Friday at 1:55 p.m. with daily trading halts from 4:00 p.m. – 5:00 p.m. Open Outcry: Monday through Friday from 9:05 a.m. – 1:10 p.m. (LTD 12:10 p.m.)
Last Trade Date / Time (CT)	Trading shall terminate on the business day immediately preceding the day on which the USDA announces the Class III price for that contract month (LTD 12:10 p.m.)
Contract Listing	All calendar months
Settlement Procedure	Cash settlement See CME Rule 5503.A
Position Limits	Non-spot: 1,500 contracts in any contract month Spot: 250 contracts All months combined: N/A See CME Rule 5502.E
Ticker Symbol	Floor = DK CME Globex = GDK Clearing = DK
CME Rulebook Chapter	52

## Class IV Milk Options

Trading Unit	One Class IV Milk futures contract
Pricing Unit	Cents per cwt
Minimum Fluctuation	Full Tick: \$0.01 per cwt (= \$20.00 per contract) Half Tick: \$0.005 per cwt (= \$10.00 per contract)
Daily Price Limits	None
Trading Venue	CME Globex (electronic platform) Open Outcry (trading floor)
Trading Hours (CT)	CME Globex: Sunday at 5:00 p.m. through Friday at 1:55 p.m. with daily trading halts from 4:00 p.m. – 5:00 p.m. Open Outcry: Monday through Friday from 9:05 a.m. – 1:12 p.m. (LTD 12:10 p.m.)
Last Trade Date / Time	Trading shall terminate on the business day immediately preceding the day on which the USDA announces the Class III price for that contract month (LTD 12:10 p.m.)
Contract Listing	All calendar months
Strike Price Intervals	All contract months: \$0.25 intervals See CME Rule 55A01.E
Exercise Procedure	American style See CME Rule 55A02
Position Limits	Non-spot: 1,500 futures-equivalent contracts in any contract month Spot: 250 futures-equivalent contracts All months combined: N/A See CME Rule 55A01.F
Ticker Symbol	Floor = DK CME Globex = GDK Clearing = DK
CME Rulebook Chapter	52

## Butter Futures

Trading Unit	40,000 lbs. of butter (≈ 18 metric tons)
Product Description	Grade AA Butter
Pricing Unit	Cents per pound
Daily Price Limits	\$0.05 per pound above or below the previous day's settlement price, multiple expansions. No limits in the spot month. See CME Rule 5102.D
Trading Venue	Open Outcry (trading floor)
Trading Hours (CT)	Monday through Friday from 9:05 a.m. – 1:10 p.m. (LTD 12:10 p.m.)
Last Trade Date / Time (CT)	Trading shall terminate on the business day immediately preceding the last seven business days of the contract month (LTD 12:10 p.m.)
Contract Listing	Mar, May, Jul, Sep, Oct and Dec
Settlement Procedure	Physical delivery See CME Rule 5103
Position Limits	Non-spot: 900 contracts in any contract month Spot: 150/50 contracts All months combined: 1,000 contracts net long or short See CME Rule 5102.E
Ticker Symbol	Floor = DB CME Globex = DB
CME Rulebook Chapter	51

## Butter Options

Trading Unit	One Butter futures contract
Pricing Unit	Cents per pound
Minimum Fluctuation	Full Tick: \$0.00025 per pound (= \$10.00 per contract) Half Tick: \$0.000125 per pound (= \$5.00 per contract)
Daily Price Limits	None
Trading Venue	Open Outcry (trading floor)
Trading Hours (CT)	Monday through Friday from 9:05 a.m. – 1:12 p.m.
Last Trade Date / Time	Trading shall terminate on the first Friday of the delivery month of the underlying futures contract. If that Friday is not a business day, then trading shall terminate on the immediately preceding business day (LTD 12:10 p.m.)
Contract Listing	Mar, May, Jul, Sep, Oct and Dec
Settlement Procedure	Physical delivery See CME Rule 5103
Position Limits	Non-spot: 1,000 contracts in any contract month Spot: 200 contracts All months combined: N/A See CME Rule 51A02.F
Ticker Symbol	Floor = DB CME Globex = DB
CME Rulebook Chapter	51A

## Cash-Settled Butter Futures

Trading Unit	20,000 lbs. of butter (≈ 9 metric tons)
Product Description	Grade AA Butter
Pricing Unit	Cents per cwt
Daily Price Limits	\$0.05 per pound above or below the previous day's settlement price, with multiple expansions. No limits in the last five days of trading. See CME Rule 5602.D
Trading Venue	CME Globex (electronic platform)
Trading Hours (CT)	CME Globex: Sunday at 5:00 p.m. through Friday at 1:55 p.m. with daily trading halts from 4:00 p.m. – 5:00 p.m.
Last Trade Date / Time (CT)	Trading shall terminate on the business day immediately preceding the day on which the USDA announces the Butter price for that contract month (LTD 12:10 p.m.)
Contract Listing	All calendar months
Settlement Procedure	Cash settlement See CME Rule 5603.A
Position Limits	Non-spot: 500 contracts in any contract month Spot: 100 contracts All months combined: N/A See CME Rule 5602.E
Ticker Symbol	Floor = CB CME Globex = CB
CME Rulebook Chapter	56

## Cash-Settled Butter Options

Trading Unit	One Cash-Settled Butter futures contract
Pricing Unit	Cents per pound
Minimum Fluctuation	Full Tick: \$0.00025 per pound (= \$5.00 per contract) Half Tick: \$0.000125 per pound (= \$2.50 per contract)
Daily Price Limits	None
Trading Venue	CME Globex (electronic platform)
Trading Hours (CT)	CME Globex: Sunday at 5:00 p.m. through Friday at 1:55 p.m. with daily trading halts from 4:00 p.m. – 5:00 p.m.
Last Trade Date / Time	Trading shall terminate on the business day immediately preceding the day on which the USDA announces the Butter price for that contract month (LTD 12:10 p.m.)
Contract Listing	All calendar months
Strike Price Intervals	All contract months: \$0.02 intervals See CME Rule 56A01.D
Exercise Procedure	American style See CME Rule 56A02
Position Limits	Non-spot: 500 futures-equivalent contracts in any contract month Spot: 100 futures-equivalent contracts All months combined: N/A See CME Rule 56A01.F
Ticker Symbol	Floor = CB CME Globex = CB
CME Rulebook Chapter	56A

## Dry Whey Futures

Trading Unit	44,000 lbs. of dry whey (≈ 20 metric tons)
Product Description	Dry Whey
Pricing Unit	Cents per pound
Daily Price Limits	\$0.04 per pound above or below the previous day's settlement price, expandable to \$0.06. No limits in the last five days of trading. See CME Rule 5702.D
Trading Venue	CME Globex (electronic platform)
Trading Hours (CT)	CME Globex: Sunday at 5:00 p.m. through Friday at 1:55 p.m. with daily trading halts from 4:00 p.m. – 5:00 p.m.
Last Trade Date / Time (CT)	Trading shall terminate on the business day immediately preceding the day on which the USDA announces the Dry Whey price for that contract month (LTD 12:10 p.m.)
Contract Listing	All calendar months
Settlement Procedure	Cash settlement See CME Rule 5703.A
Position Limits	Non-spot: 1,000 contracts in any contract month Spot: 200 contracts All months combined: N/A See CME Rule 5702.E
Ticker Symbol	Floor = DY CME Globex = DY
CME Rulebook Chapter	57

## Dry Whey Options

Trading Unit	One Dry Whey futures contract
Pricing Unit	Cents per pound
Minimum Fluctuation	Full Tick: \$0.00025 per pound (= \$11.00 per contract) Half Tick: \$0.000125 per pound (= \$5.50 per contract)
Daily Price Limits	None
Trading Venue	CME Globex (electronic platform)
Trading Hours (CT)	CME Globex: Sunday at 5:00 p.m. through Friday at 1:55 p.m. with daily trading halts from 4:00 p.m. – 5:00 p.m.
Last Trade Date / Time	Trading shall terminate on the business day immediately preceding the day on which the USDA announces the Dry Whey price for that contract month (LTD 12:10 p.m.)
Contract Listing	All calendar months
Strike Price Intervals	All contract months: \$0.01 intervals, two nearest months \$0.005 intervals See CME Rule 57A01.D
Exercise Procedure	American style See CME Rule 57A02
Position Limits	Non-spot: 1,000 futures-equivalent contracts in any contract month Spot: 200 futures equivalent contracts All months combined: N/A See CME Rule 57A01.F
Ticker Symbol	CME Globex = DY Clearing = DY
CME Rulebook Chapter	57A

## Deliverable Nonfat Dry Milk Futures

Trading Unit	44,000 lbs. of nonfat dry milk (≈ 20 metric tons)
Product Descriptions	Grade A and Extra Grade nonfat dry milk
Pricing Unit	Cents per pound
Minimum Fluctuation	\$0.00025 per pound (= \$11.00 per contract)
Daily Price Limits	\$0.025 per pound above or below the previous day's settlement price, multiple expansions. No limits in the spot month. See CME Rule 5802.D
Trading Venue	CME Globex (electronic platform)
Trading Hours (CT)	Sunday at 5:00 p.m. through Friday at 1:55 p.m. with daily trading halts from 4:00 p.m. – 5:00 p.m.
Last Trade Date / Time (CT)	Trading shall terminate on the business day immediately preceding the last seven business days of the contract month (LTD 12:10 p.m.)
Contract Listing	Jan, Feb, Mar, Apr, May, Jun, Jul, Aug, Sep, Oct, Nov and Dec
Settlement Procedure	Physical delivery See CME Rule 5803
Position Limits	Non-Spot: 1000 contracts in any contract month Spot: 500 contracts See CME Rule 5802.E
Ticker Symbol	CME Globex = GNP Clearing = GNP
CME Rulebook Chapter	58

## Deliverable Nonfat Dry Milk Options

Trading Unit	One Deliverable Nonfat Dry Milk futures contract
Pricing Unit	Cents per pound
Minimum Fluctuation	Full Tick: \$0.00025 per pound (= \$11.00 per contract) Half Tick: \$0.000125 per pound (= \$5.50 per contract)
Daily Price Limits	None
Trading Venue	CME Globex (electronic platform)
Trading Hours (CT)	Sunday at 5:00 p.m. through Friday at 1:55 p.m. with daily trading halts from 4:00 p.m. – 5:00 p.m.
Last Trade Date / Time	Trading shall terminate on the first Friday of the delivery month of the underlying futures contract. If that Friday is not a business day, then trading shall terminate on the immediately preceding business day (LTD 12:10 p.m.)
Contract Listing	All calendar months (24 months)
Strike Price Intervals	All contract months: \$0.02 intervals (See CME Rule 58A01.E)
Exercise Procedure	American style See CME Rule 58A01
Position Limits	Non-spot: 1000 futures-equivalent contracts in any contract month Spot: 500 futures-equivalent contracts All months combined: N/A See CME Rule 58A01.F
Ticker Symbol	CME Globex = GNP Clearing = GNP
CME Rulebook Chapter	58A

## Nonfat Dry Milk Futures

Trading Unit	44,000 lbs. of nonfat dry milk (≈ 20 metric tons)
Product Description	Nonfat Dry Milk
Pricing Unit	Cents per pound
Daily Price Limits	\$0.025 per pound above or below the previous day's settlement price, multiple expansions. No limits in the spot month. See CME Rule 5802.D
Trading Venue	CME Globex (electronic platform) Open Outcry (trading floor)
Trading Hours (CT)	CME Globex: Sunday at 5:00 p.m. through Friday at 1:55 p.m. with daily trading halts from 4:00 p.m. – 5:00 p.m. Open Outcry: Monday through Friday from 9:05 a.m. – 1:10 p.m. (LTD 12:10 p.m.)
Last Trade Date / Time (CT)	Trading shall terminate on the business day immediately preceding the day on which the USDA announces the Nonfat Dry Milk price for that contract month (LTD 12:10 p.m.)
Contract Listing	All calendar months
Settlement Procedure	Cash settlement See CME Rule 5403.A
Position Limits	Non-spot: 1,000 contracts in any contract month Spot: 100 contracts All months combined: N/A See CME Rule 5402.E
Ticker Symbol	Floor = GNF CME Globex = GNF Clearing = NF
CME Rulebook Chapter	54

## Nonfat Dry Milk Options

Trading Unit	One Nonfat Dry Milk futures contract
Pricing Unit	Cents per pound
Minimum Fluctuation	Full Tick: \$0.00025 per pound (= \$11.00 per contract) Half Tick: \$0.000125 per pound (= \$5.50 per contract)
Daily Price Limits	None
Trading Venue	CME Globex (electronic platform) Open Outcry (trading floor)
Trading Hours (CT)	CME Globex: Sunday at 5:00 p.m. through Friday at 1:55 p.m. with daily trading halts from 4:00 p.m. – 5:00 p.m. Open Outcry: Monday through Friday from 9:05 a.m. – 1:12 p.m. (LTD 12:10 p.m.)
Last Trade Date / Time	Trading shall terminate on the business day immediately preceding the day on which the USDA announces the Nonfat Dry Milk price for that contract month (LTD 12:10 p.m.)
Contract Listing	All calendar months
Strike Price Intervals	All contract months: \$0.02 intervals, nearest month \$0.01 intervals See CME Rule 54A01.E
Exercise Procedure	American style See CME Rule 54A02
Position Limits	Non-spot: 1,000 futures-equivalent contracts in any contract month Spot: 100 futures-equivalent contracts All months combined: N/A See CME Rule 54A01.F
Ticker Symbol	Floor = GNF CME Globex = GNF Clearing = NF
CME Rulebook Chapter	54

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## Electronic Trading and Dairy Futures and Options

As a leader in electronically traded derivatives products, CME Group offers customers access to a growing number of our commodity futures contracts on the CME Globex electronic trading platform.

In addition to their standard floor trading hours, Class III Milk, Class IV Milk and Cash-settled Nonfat Dry Milk futures now trade on CME Globex from 9:05 a.m. CT Monday through 1:55 p.m. CT Friday with daily hour-long trading halts at 4:00 p.m. CT. Cash-settled Butter, Deliverable Nonfat Dry Milk and Dry Whey futures and options trade exclusively on CME Globex during those same hours. Free real-time quotes of electronically traded Dairy products are available at [www.cmegroup.com/dairyquotes](http://www.cmegroup.com/dairyquotes).

The CME Globex platform is made available to traders through more than 1,100 direct connections in more than 86 countries and foreign jurisdictions around-the-world. In addition, we provide direct access through telecommunications hubs in London as well as Amsterdam, Dublin, Milan, Paris and Singapore. This accessibility enables traders to trade when they wish – and also to take quick action whenever major market changes take place.

The platform's open architecture enables customers to access CME Globex using their own proprietary trading applications or the systems provided by futures brokers and independent software vendors, as well as a CME Group-provided trading application. Traders are able to see the top prices and other data right on their screen and transactions are executed in less than a second. The advanced capabilities of the CME Globex platform allow traders to execute all of the traditional (outright) transactions in futures as well as a variety of spread trades, including highly complex options spreads.

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## Fully Integrated Clearing

At CME Group, we operate our own clearing house that matches and settles all trades and guarantees the creditworthiness of every transaction that takes place in our markets. Our integrated clearing function ensures the safety and soundness of our markets and helps differentiate us from our competitors.

With CME Clearing serving as counterparty to every trade – e.g., in the clearing process it becomes the buyer to each seller of a futures contract and the seller to each buyer – the risk of default is virtually eliminated. Performance bond (collateral) deposits are required at each level in the clearing process – customer to broker, broker to clearing firm, clearing firm to clearing house. The performance bond is a good-faith deposit that represents the minimum amount of protection against potential losses.

# GETTING STARTED IN DAIRY PRODUCTS

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Before trading futures or options on Dairy products, a company or individual must have a commodity broker. Commodity brokers can be located in branch offices of a CME Group clearing firm or in independent brokerage houses (IBs) associated with a CME Group clearing firm. It is important to shop around to find a broker that is the right fit for the trader.

Once the company or individual has found a broker with whom they feel comfortable and who understands their trading plan, the company or individual will need to open an account. This requires signing a customer security deposit statement, which binds an individual customer or an organization to make good on any losses incurred in the course of trading. In addition, a Risk Disclosure Document needs to be signed that indicates that the customer understand the risks of futures and options trading. Then, once the customers have deposited the required amount of performance bond, they may begin trading.

Today's greater need for risk management and hedging tools has required investors to become increasingly sophisticated about futures and options on futures products. In light of growing global demand and expanding electronic accessibility, CME Group Commodity products are generating increased opportunities for hedgers and speculators in these markets. With customers around-the-world, a diverse product line, deep, liquid markets, and strategic alliances with other exchanges, CME Group is truly a global marketplace. Why not make it yours?

For additional information about CME Group Commodity products, please visit our Web site at [www.cmegroup.com/commodities](http://www.cmegroup.com/commodities). You will be able to access a number of other brochures and marketing and education materials that can answer your questions or help you to begin trading these products. Additionally, if you would like to talk to a CME Group representative, please call our Customer Service Line, **800 331 3332**. Outside the United States, please call **312 930 2316**.

**Contract specifications and additional resources can be found at [www.cmegroup.com/commodities](http://www.cmegroup.com/commodities).**

# CME GROUP COMMODITY PRODUCTS

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Prices of these primary products are subject to factors that are difficult or impossible to control, such as weather, disease and political decisions. In addition, they are also short-term fixed-supply products offered in a context of growing worldwide demand and global economic expansion. As such, CME Group Commodity products serve commodity producers and users seeking risk management and hedging tools, alongside funds and other traders looking to capitalize on the extraordinary opportunities these markets offer.

CME Group offers the widest range of commodity futures and options of any U.S. exchange, with trading available on the following products:

## Commodity Indexes

- Dow Jones-UBS Commodity Index Excess Return futures
- S&P Goldman Sachs Commodity Index (GSCI) futures and options
- S&P GSCI Excess Return Index futures
- S&P GSCI Excess Return Index swaps

## Dairy Products

- Butter futures and options
- Cash-settled Butter futures and options
- Milk Class III futures and options
- Milk Class IV futures and options
- Nonfat Dry Milk futures and options
- Deliverable Nonfat Dry Milk futures and options
- Dry Whey futures and options

## Grains and Oilseeds

- Corn futures and options
- Mini-sized Corn futures
- Ethanol futures, options and swaps
- Oat futures and options
- Rough Rice futures and options
- Soybean futures and options
- Mini-sized Soybean futures
- Soybean Meal futures and options
- Soybean Oil futures and options
- South American Soybean futures
- Wheat futures and options
- Mini-sized Wheat futures
- Corn Calendar Swap
- Soybean Calendar Swap
- Wheat Calendar Swap
- Eastern Nebraska Basis Swap
- Eastern South Dakota Basis Swap
- Northeastern Iowa Basis Swap
- Northwestern Iowa Basis Swap
- Southern Iowa Basis Swap
- Southern Minnesota Basis Swap

## Livestock

- Feeder Cattle futures and options
- Live Cattle futures and options
- Lean Hogs futures and options
- Frozen Pork Bellies futures and options

## Lumber and Wood Pulp

- Random Length Lumber futures and options
- Hardwood Pulp futures and options
- Softwood Pulp futures and options

For more information or to begin trading, contact your broker directly  
or e-mail [commodities@cmegroup.com](mailto:commodities@cmegroup.com).





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