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**Introduction to  
Options on  
Cotton Futures**



**New York Cotton Exchange**

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# INTRODUCTION

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Since the mid-70's, the financial world has witnessed an explosion in option products — exchange-listed equity options, index options and futures options have all sprung up and expanded at an accelerating pace. And with good reason. Each one of these financial products fills a specific risk management need within an increasingly complex world economy.

For participants in the cotton industry, the staple form of risk management is the cotton futures contract traded on the New York Cotton Exchange (NYCE®). Since 1870, this contract has provided a means for all sectors of the cotton trade to hedge the price of the cotton they must buy and sell, in order to protect themselves from the potentially devastating effects of unexpected price fluctuations.

Today a new set of risk management tools is available to control the effects of cotton price fluctuations. These new tools, options to buy or sell cotton futures contracts, open a wealth of new hedging

strategies built around a unique advantage:

*BUYERS OF COTTON FUTURES OPTIONS CAN ENJOY ABSOLUTE PRICE PROTECTION IN THE EVENT OF UNFAVORABLE PRICE MOVES, WHILE STILL SHARING IN THE ECONOMIC BENEFITS OF FAVORABLE ONES.*

Futures contracts alone cannot provide this combination of downside insurance and upside potential — only options can. Indeed, the remarkable variety of opportunities that options afford for reducing risk and/or enhancing returns makes them the most versatile of all hedging instruments.

In the pages that follow, we will address some of the many ways in which growers, merchants, mills and other commercial interests can use these futures options to improve their operations. In addition, we will present a general introduction to exchange traded options and to the basics of the cotton futures options in particular. A glossary of options terminology is also provided at the end of this brochure.



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# WHAT IS AN OPTION?

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An option is an agreement between two parties—one of whom is the buyer and the other of whom is the seller.

In the case of futures contract options, the buyer (also called the purchaser or holder) acquires the right but not the obligation, to buy or sell a specific futures contract at a known fixed price at any time on or before a known expiration date. In exchange for acquiring this right, the buyer makes an irrevocable payment (called the premium) to the seller of the option.

The seller (also called the writer or the grantor) receives a premium in exchange for assuming the obligation to take or make delivery of the specific futures contract should the buyer choose to exercise his or her right to it under the option contract.

Futures options are traded in two forms:

- call options (or calls), and
- put options (or puts).

With a call option, the buyer is granted the right to buy (go long) the underlying futures contract. With a put option, the buyer is granted the right to sell (go short) the underlying futures contract. In both cases, if the buyer exercises his right, the seller of the option must fulfill its terms and assume the opposite position.

In practice, we say that the buyer of any option—put or call—has a long position in that option, while the seller has a short position. (Just remember that in the case of a put, being long the option actually confers to the buyer a right to go short the underlying futures contract, while being short the option carries a contingent obligation to go long the underlying future.)

Once this contractual agreement has been entered into—that is, once the buyer has purchased an option from the seller—the obligations under the option may be fulfilled in one of three ways:

1) *The buyer may allow the option to expire unexercised:* In this case the buyer recovers none of the premium paid for the option—all of the premium is retained by the seller. With the expiration date passed, the seller's obligation is discharged.

2) *The buyer may exercise his right under the option contract on or before the expiration date:* In this case, the seller must adhere to the terms of the option and accept the other side of the futures position. The seller keeps the premium paid. The buyer recovers none of his premium. In addition, the buyer becomes subject to margin requirements on his newly acquired futures position. (Presumably the terms of his assumption under the option contract, compared to the current market price, are favorable enough to compensate him for this.)

3) *Finally, either the buyer or the seller may exercise an offsetting transaction in the options market:* This is accomplished by reversing the actions of the original agreement—selling (in the case of the buyer) or buying (in the case of the seller) another option of identical terms on the exchange. In this case, the rights or obligations under the original agreement are, in effect, transferred to a new holder or grantor. Profit or loss will depend on the current market price (premium) of the option compared to the original price (premium) paid or received.

This last alternative is extremely important to note. It means neither buyer nor seller must hold any option until expiration provided he or she is willing to accept or pay the current market premium required to close out their agreement.

Providing a liquid and flexible medium for options and futures is one of the primary functions of the New York Cotton Exchange. Through its facilities and registered floor broker system, the Exchange ensures a ready market for trading of cotton futures options.

Another primary function of the NYCE® is to see that all parties of options and futures contracts traded on the Exchange meet their commitments and obligations. To this end, all cotton futures and options contracts traded are cleared through the mechanism of the Commodity Clearing Corporation, which guarantees the performance of each and every one. In effect, through this guarantee, the clearing house becomes the buyer to every seller and the seller to every buyer.

Through margin deposits, guarantee funds and other safeguards, the Commodity Clearing Corporation ensures its ability to guarantee performance on cotton futures and options contracts. Its record is admirable.

## Summary

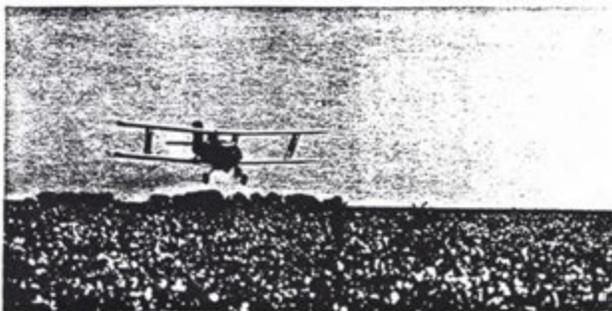
- Buyers of options pay premiums in exchange for fixed rights.
- Sellers of options receive premiums in exchange for assuming obligations.
- Call options give buyers the right to buy cotton futures contracts.
- Put options give buyers the right to sell cotton futures contracts.
- Once instituted, option obligations can be discharged through:
  - 1) expiration
  - 2) exercise, or
  - 3) transfer through an offsetting transaction in the options market.

## OPTION CONTRACT BASICS

Options basics are set by the Exchange and include:

- Type of option (put or call).
- Underlying contract month.
- Expiration date.
- Exercise or striking price (in cents per pound).
- Other exercise and assignment terms.

For example, a grower might purchase a DEC 74¢ Put option, giving him the right to short (sell) a December cotton futures contract at 74¢ per pound (the option's striking price). He may exercise this right, at his discretion, any time on or until 4:00 PM\* on the last trading day, which in this case is the first Friday in November. If he exercises his right, he will be credited through his brokerage account with having sold a December cotton futures contract of 50,000 lbs. at 74¢/lb., no matter what the actual market price of this contract as of the exercise date.



These terms, as well as the specifics of the Exchange rules covering them and the other terms of trading, are spelled out in the Contract Specifications section on page 5.

Once the basic terms are established, the interaction of buyers and sellers in the marketplace determines the final unknown term necessary to define the contract—the price or premium to be paid.

\* All references in this brochure are to New York time.

## OPTION PREMIUMS

When a cotton futures option is purchased, the premium is paid in full by the purchaser through the Commodity Clearing Corporation to the seller (the writer). Once the premium has been paid, an option purchaser has no future obligations and will neither make nor receive future payments until his long option position is closed out or exercised.

Prices for cotton futures option premiums are quoted in cents and hundredths of a cent per pound. Since one option contract controls one potential futures contract (50,000 lbs.), the total price or premium of the option is equal to the quoted price/lb. times 50,000 lbs. The table below will make this clear.

### Sample Options Premiums

| <u>Option</u> | <u>Quoted price/lb.</u> | <u>Total premium</u> |
|---------------|-------------------------|----------------------|
| DEC 70¢ Call  | 2.70¢                   | \$1350               |
| MAR 74¢ Call  | 1.30¢                   | 650                  |
| DEC 74¢ Put   | 3.60¢                   | 1800                 |
| MAR 80¢ Put   | 8.35¢                   | 4175                 |

The total premium paid for any option can be divided into two theoretic components:

- Intrinsic value—the amount by which the option's striking price is less than (in the case of a call) or exceeds (in the case of a put) the futures contract's current market price, and
- Time value—the dollar premium in excess of the intrinsic value. This is demanded by the seller to compensate him for the risk he is assuming over the life of the contract.

Intrinsic value can be thought of as (momentarily) guaranteed equity—how much you would make if you exercised the option and concurrently liquidated your newly acquired futures position at the current market price.

In the table above, if the market price for all the underlying futures contracts were 72¢/lb., all but the MAR 74¢ Call would have some intrinsic value, in addition to some degree of time value. The MAR 74¢ Call would have only time value because the holder has no incentive to "strike" at 74¢/lb. what he can buy elsewhere in the market at 72¢/lb.

There are two important points to remember about intrinsic and time value.

- Intrinsic value changes only when the price of the underlying futures contract changes, but
- Time value changes with both the price of the underlying contract and with the passage of time.

Time value normally diminishes with the passage of time. This is why options are called wasting assets. As the expiration date approaches, their time value will normally erode until, at the point of expiration, they have only their intrinsic value left (which may well be zero).

Because time value diminishes, option holders often close out their option positions before expiration, particularly if their price protection objectives have already been met or no longer apply. In this way, they recoup the time value that would be lost if they exercised or allowed their options to lapse. Holders do this by selling their long positions for the current premiums available. Conversely, option writers can close out or cover their short option positions at any time by buying back the options which they are short.

**EXAMPLE:** Following the purchase of the DEC 74¢ Put in May for a premium of 3.6¢/lb., December cotton futures decline to 69.50¢ and the put holder elects to close out this position. Over and above the option's intrinsic value of 4.50¢/lb., the holder may also be able to realize additional time value reflecting the option's remaining life. If the market price for DEC 74¢ Puts were 5.00¢/lb. in September, the put holder's sale price might include .5¢/lb. of time value in addition to the option's intrinsic value.

While the premiums actually available for an option on any day are the direct result of supply and demand in the marketplace, three factors tend to affect the value of option rights and, therefore, the supply and demand for the options. They are:

- Volatility of the underlying futures contract.
- Time remaining before expiration.
- The striking price/market price relationship.

Let's discuss these one at a time.

**Volatility of the underlying contract:** The more volatile the underlying contract, the larger the premium, and vice versa. This is because greater volatility increases the chances that the underlying contract will move substantially during the life of the option contract and decreases the chances that prices will remain unchanged. This uncertainty increases the premium that buyers are willing to pay for their price protection, while also increasing the premium that sellers demand for the potentially greater risks they are accepting.

**Time remaining:** By the same token, the more time remaining before expiration of the option contract, the greater the chances of substantial price

moves during the period covered. Again, higher uncertainty of outcome increases the premiums offered and demanded.



**Striking price/market price relationship:** Options are typically classified in one of three categories at any time, depending on their strike price/market price relationship:

- in-the-money
- at-the-money
- out-of-the-money

Call options are "in-the-money" when their strike price is below the current market price of the underlying futures contract; they are "out-of-the-money" when their strike price exceeds it. Put options are "in-the-money" when their strike price exceeds the current market price of the underlying futures contract; they are "out-of-the-money" when their strike price is below it. By definition, part of the premium on an in-the-money option is the intrinsic value, while none of the premium on an out-of-the-money option can be (because the intrinsic value is zero). All options are referred to as at-the-money when the strike price equals the current market price of the underlying futures contract.

Everything else being equal, an in-the-money option will always be worth more than an out-of-the-money option. Professional traders are always watching the relationship between premiums on options with different striking prices and expirations and will act to make sure these premiums stay in line. As the prices of the underlying futures contracts (and the other factors listed above) change, of course, so will the premiums on the put and call options.

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# COTTON FUTURES OPTIONS CONTRACT SPECIFICATIONS

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The terms of the New York Cotton Exchange's options on cotton futures are patterned after those of other successful exchange-traded options on commodities and securities. These contract terms can be summarized as follows:

## **Contract Months**

The Exchange has provided for options on March, May, July, October and December futures. The nearest seven of these contract months will be listed for trading.

## **Trading Hours, Price Quotation and Limits**

Trading Hours: 10:30 a.m. - 2:40 p.m.  
(same as cotton futures).

Price Quotation: Prices in cents and hundredths of a cent.

Daily Limit on Price Movement: None.

For other specifications, please refer to the contract specifications pamphlet.

## **Exercise (Strike) Prices**

Option exercise prices are set by the Exchange in relation to the price of the underlying futures contract. When a new contract month begins trading, there will initially be eleven exercise prices available at 1¢ intervals surrounding the futures price—five in-the-money, five out-of-the-money, and one at-the-money. As the price of the futures contract moves up or down, additional higher or lower strike prices are added.



## **Exercise and Assignment**

An option holder may exercise at any time until 4:00 PM on the last trading day by instructing his

broker to tender an exercise notice to the Commodity Clearing Corp. Upon receipt of an exercise notice, the Commodity Clearing Corp. will assign it to a writer of the same option series—that is, an option of the same type (put or call), expiration and exercise price. Prior to the opening on the next business day, the exercising option holder and the assigned option writer's positions are converted by the Commodity Clearing Corp. into futures positions. Thus, the exercise of a call option results in the assumption of a long futures position on the part of the option holder and a short futures position on the part of the option writer. Conversely, exercise of a put option places a put holder in a short futures position and the writer in a long futures position. In either case, margin may then have to be posted by the former option holder.

Any option 100 points (1¢) or more in-the-money will automatically be exercised unless the Commodity Clearing Corp. is otherwise notified.

## **Option Writer Margins**

Unlike option purchasers, option writers remain subject to margin requirements to assure fulfillment of their obligations. For writer positions that are not covered by futures positions or offset by other options (and are therefore referred to as "naked" positions), the margin requirements, as a rule, equal the sum of: 1) the initial margin requirement on the futures position that would result from the exercise of the option; plus 2) the marked-to-market value of the short position. The marked-to-market element of the requirement, in effect, freezes the premium initially received by the writer and then adds (or subtracts) any subsequent increase (or decrease) in the option's market value. A marked-to-market increase in the margin requirement on a short option position is comparable to variation margin on a futures position, but unlike futures variation margins, increased option requirements do not have to be met with cash.

**EXAMPLE:** Upon writing a DEC 74¢ Put for a premium of 3.6¢/lb., the writer's margin requirement is the futures margin plus the \$1,800 (3.6¢/lb. times 50,000 lbs.) premium received. If the DEC 74¢ Put increases to 5¢/lb., the put writer's margin requirement would increase by \$700 reflecting the 1.4¢/lb. decrease in the market value of the short option position.

# HEDGING STRATEGIES WITH COTTON FUTURES OPTIONS

## Advantages and Disadvantages of Hedging with Options

Several advantages relative to both futures hedges and unhedged positions make cotton futures options the most flexible of risk management tools:

- Buyers enjoy limited risk with unlimited profit potential. They can never lose more than the premium paid.
- Contracts can be closed out prior to expiration.
- Users and producers can fix their prices at various levels, in effect using options as price insurance.
- Option buyers are not subject to margin calls.
- Options make significant new pricing strategies available.

On the other hand, certain disadvantages may make the use of options inappropriate in certain circumstances. These include:

- Option values diminish over time. Holders may therefore suffer a daily erosion in their time value.
- Option premiums must be paid in full at time of purchase.
- Seller must meet margin requirements at all times.



Evaluating each advantage and disadvantage can only be done on an individual basis, depending on your capital, the degree of your exposure, and your willingness to accept it.

Following is a sample of some of the many pricing strategies available through the use of cotton futures options.

## HEDGING A PURCHASE

When a commitment is made to purchase cotton not yet sold (or sold on call), the purchaser's traditional hedge has been the concurrent sale of a futures contract. A futures hedge protects against a price decline but eliminates the potential to benefit from rising prices. The purchase of a put option also provides protection against a price decline, but in contrast to a futures hedge, allows the cotton holder to share in the benefits of any increase in cotton prices.

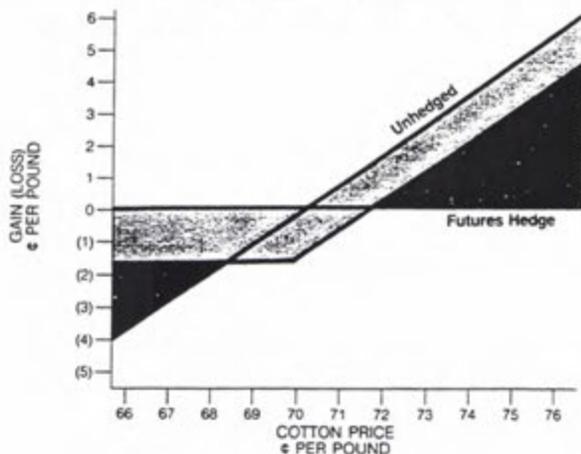
**EXAMPLE:** In August, with December futures at 70¢, a merchant seeking to hedge an inventory purchase buys a put on December futures at a strike price of 70¢ for a premium of 1.7¢/lb. (\$850 per futures contract). The DEC 70¢ Put protects him against any decline in cotton prices, but additionally, if December futures rally to, say, 66¢, the merchant can realize a 6¢/lb. gain (reduced by the 1.7¢/lb. option premium).

The results of this option hedge across a range of potential December futures prices are presented in the following chart.

| <u>Futures Price</u> | <u>Gain (Loss) on Cotton</u> | <u>Gain (Loss) on Option</u> | <u>Net Gain (Loss) on Hedged Position</u> |
|----------------------|------------------------------|------------------------------|---|
| 66¢                  | (4¢)                         | 2.3¢                         | (1.7¢)                                    |
| 68¢                  | (2¢)                         | 0.3¢                         | (1.7¢)                                    |
| 70¢                  | 0                            | (1.7¢)                       | (1.7¢)                                    |
| 72¢                  | 2¢                           | (1.7¢)                       | 0.3¢                                      |
| 74¢                  | 4¢                           | (1.7¢)                       | 2.3¢                                      |
| 76¢                  | 6¢                           | (1.7¢)                       | 4.3¢                                      |

The graph on the next page compares the results of this option hedge across a range of potential futures prices with how the merchant would have fared had he either hedged with futures or held the cotton unhedged.

## COMPARISON OF AN OPTION HEDGE



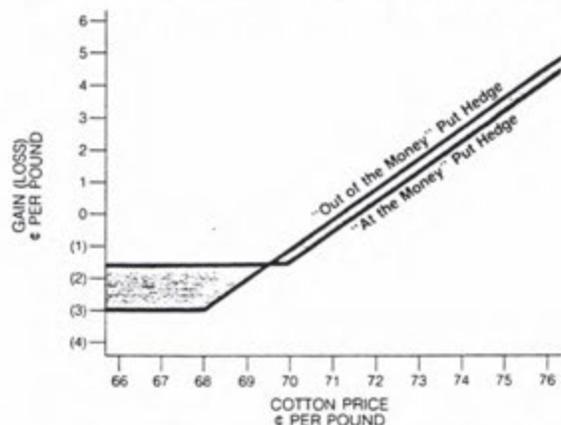
This graph illustrates the powerful opportunity options offer the hedger seeking an alternative to traditional hedging strategies.

## Changing the Risk/Benefit Relationship

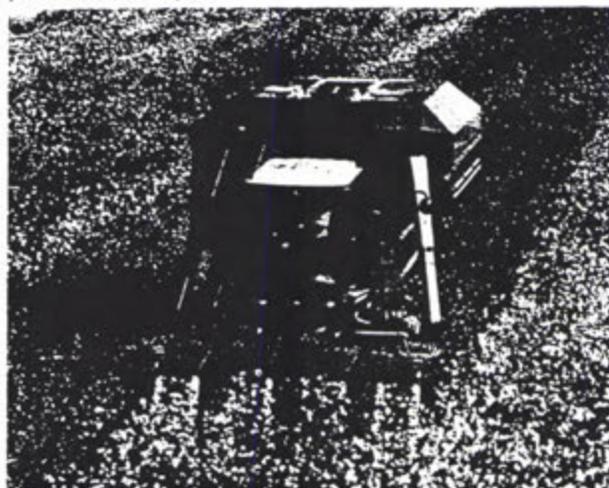
Options also offer a myriad of opportunities to alter the new cost/net benefit relationships presented in the graph above. For instance, a hedger who is prepared to bear a little more downside risk in exchange for a lower premium can purchase an out-of-the-money put. This is similar to buying collision insurance with a higher "deductible" for your car. You pay a little less for the protection, knowing it will cost you a little more if you have to file a claim (exercise your option).

**EXAMPLE:** In August, with December futures at 70¢/lb., a DEC 68¢ Put might be purchased for a premium of 1.00¢ to hedge a grower's crop. Recall from the prior example a DEC 70¢ Put could be purchased for 1.7¢. While bearing the downside risk from 70¢ to 68¢, the grower has an open-ended participation in any cotton price increase. If the price rises to 76¢, the grower's 6¢ gain is reduced only by the 1.00¢ premium for the out-of-the-money put.

## "DEDUCTIBLE INSURANCE" HEDGE



The previous graph compares the results of this "deductible insurance" hedge with the results of the at-the-money put hedge presented in the previous example.



## Potential Premium Recovery

In previous examples, we have assumed that an option purchaser only realized the option's intrinsic (in-the-money) value upon closing out or exercising his option position. Thus, net gains or losses were based upon the difference between an option's intrinsic value and its original purchase price (premium). This is, of course, all that can be realized if an option is held until its expiration. However, when option positions are closed out prior to expiration, holders can often recover some time value in addition to current intrinsic value. Any such time value recovery serves to reduce the cost, and increase the profitability, of an option hedge.

**EXAMPLE:** In August, with December futures at 70¢, a merchant buys a DEC 70¢ Put for 1.5¢ to hedge a cotton purchase. In early October, the merchant sells the hedged cotton and at the same time closes out his put position. The table below shows how much the DEC 70¢ Put might be worth in early October when December options still have a month of life remaining. The option value is broken down into its intrinsic and time value components across a range of assumed December futures prices.

Value of DEC 70¢ Put  
One Month Prior to Expiration

| DEC Futures | DEC 70¢ Put Value | Intrinsic Value | Time Value |
|-------------|-------------------|-----------------|------------|
| 66¢         | 4¢                | 4¢              | 0          |
| 68¢         | 2.25¢             | 2¢              | 0.25¢      |
| 70¢         | 1¢                | 0               | 1¢         |
| 72¢         | 0.30¢             | 0               | 0.30¢      |
| 74¢         | 0¢                | 0               | 0          |

If December futures were at 70¢ and the DEC 70¢ Put that was originally purchased for 1.5¢ could be sold for 1¢, the merchant's effective cost of the put protection would only be the 0.5¢ difference between the put's purchase price and its sale price.

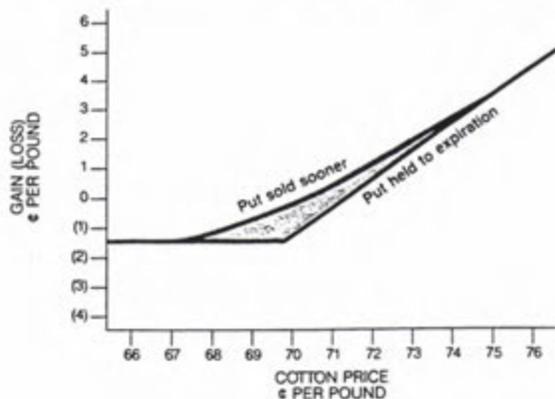
The previous table illustrates two points about option pricing that are of vital concern to the hedger:

1) When the price of the underlying commodity stands still (for example, stays at 70¢), the value of an at-the-money option does not decline in straight line fashion with the passage of time. In our example, a one month option is worth two-thirds as much as a three month option even though it only has one-third as much life remaining.

2) As the price of the underlying commodity rises above or falls below an option's striking price, the option's time value declines more rapidly than when the price stands still. This decline is about the same rate whichever the direction of the underlying price movement. In our example, the DEC 70¢ Put's time value disappeared when the underlying price either fell to 66¢ or rose to 74¢. (How far in-the-money an option can get before trading for purely its intrinsic value and how far out-of-the-money it can get before becoming entirely worthless depends upon the amount of time remaining until the option's expiration and the price volatility of the underlying commodity.)

The graph below compares the results of an option hedge closed prior to the option's expiration (per our previous example) with the results of a hedge where the option is held until expiration. In each case, the chart assumes that spot cotton is purchased at 70¢ and sold at the same time as the put is closed.

### OPTION HEDGE THAT IS CLOSED PRIOR TO THE OPTION'S EXPIRATION



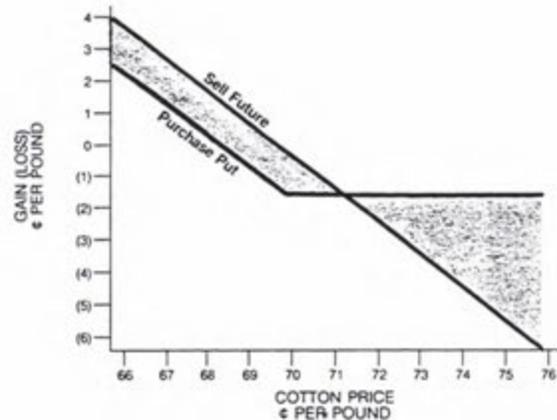
As can be seen from the chart, time value recovery can significantly reduce the cost of an option hedge if the underlying price remains relatively stable over the hedge period. On the other hand, little time value recovery and little reduction in hedge costs can be expected if the underlying price has moved substantially. This principle applies to hedges employing both calls and puts.

## Hedging Contingent Purchases

An options hedge has a unique advantage compared to a futures hedge under circumstances where a purchase commitment has been made but uncertainty remains as to whether the transaction will materialize (in whole or in part). One such circumstance might be a merchant's commitment to purchase a grower's entire crop before its size is known. The purchase of a put can protect the merchant against a price decline on the full projected crop without exposing him to the risk inherent in a futures hedge if yields turn out to be lower than projected.

**EXAMPLE:** A merchant commits to the purchase at 70¢ of a grower's crop that subsequently falls short of expectations. If futures had been sold against the short-fall, the merchant would have been exposed to the full extent of any run-up in the price of cotton. By comparison, the most he can lose on an option hedge is the premium paid for a put. Assuming the purchase of a put at 70¢ for a premium of 1.5¢ as an alternative to selling futures, the results can be compared graphically as follows:

### HEDGING A CONTINGENT PURCHASE (WHERE TRANSACTION DOESN'T MATERIALIZE)



# HEDGING A SALE

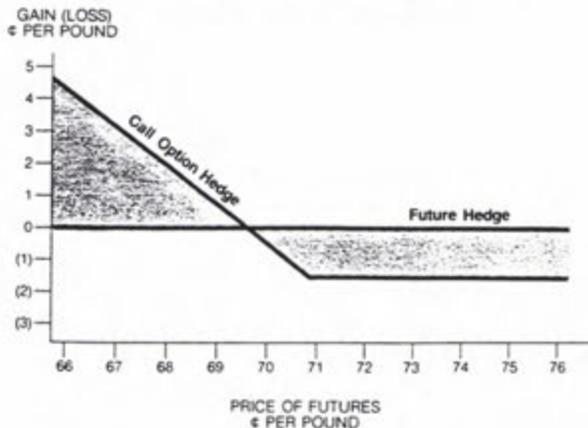
When a merchant commits to sell cotton not yet purchased (or bought on call), the purchase of a call option can serve to protect against any price increase while still allowing him to benefit from a price decline. (Such a call hedge is the logical counterpart to put hedges made to protect against price declines on unsold inventory.)

**EXAMPLE:** In November, a merchant makes a sale at 69¢ that is covered by an on call purchase versus March futures. At the time of sale, March futures are at 70¢, and a March call can be purchased for 1.5¢. The call protects the merchant against a run-up in the price of cotton without eliminating his chance to profit if prices decline. Should March futures decline to 64¢ before the on call purchase is priced, the merchant will profit by the difference between his purchase and sales prices (reduced by the premium paid for the call).

The result of the merchant's option hedge (assuming a 1¢ differential between the futures price and the merchant's on call price basis) is charted below across a range of March futures prices.

| Futures Price | Gain (Loss) on Cotton | Gain (Loss) on Option | Net Gain (Loss) on Hedged Position |
|---------------|-----------------------|-----------------------|------------------------------------|
| 64¢           | 6¢                    | (1.5¢)                | 4.5¢                               |
| 66¢           | 4¢                    | (1.5¢)                | 2.5¢                               |
| 68¢           | 2¢                    | (1.5¢)                | 0.5¢                               |
| 70¢           | 0                     | (1.5¢)                | (1.5¢)                             |
| 72¢           | (2¢)                  | 0.5¢                  | (1.5¢)                             |
| 74¢           | (4¢)                  | 2.5¢                  | (1.5¢)                             |
| 76¢           | (6¢)                  | 4.5¢                  | (1.5¢)                             |

## COMPARISON OF OPTION AND FUTURES HEDGES

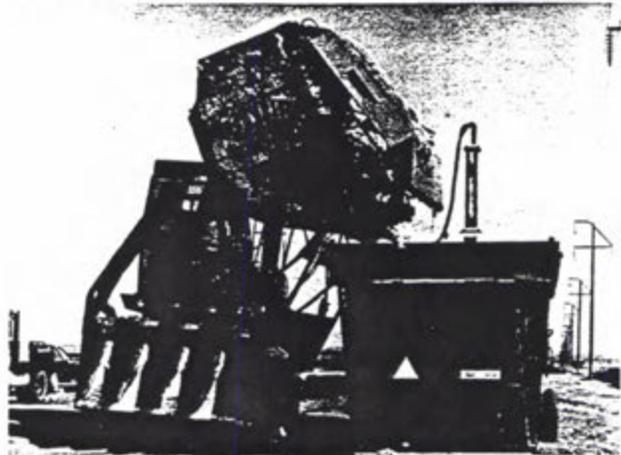


As with a put hedge of cotton purchases, the cost of a call hedge of a sale is dependent on the type of the option purchased (out-of-the-money vs. in-the-money) and whether any premium is recovered by closing out the option position prior to expiration. Additionally, a call option can also be used to hedge a contingent sale without incurring the risk of loss inherent in a futures hedge in a declining market if the transaction doesn't come to full fruition.

## How to Benefit by Post-Sale Price Moves

When a grower sells his crop at a firm price but doesn't want to miss out on a potential price increase, the purchase of a call option allows him to retain this potential. While purchasing a call option doesn't hedge the grower's sale directly, it does protect him against the opportunity cost of having sold too soon.

**EXAMPLE:** Upon selling his crop in October at 70¢, a grower purchases a MAR 70¢ Call for 1.5¢. The worst that can happen to the grower if the price of March futures does not rise above 70¢ before his call option expires is an effective reduction in his sales price from 70¢ to 68.5¢. On the other hand, if March futures run up to, say 80¢ by early February, the grower can realize the 10¢ intrinsic value of his call option, bringing his effective sale price up to 78.5¢.



## Option Writing

Writers of put and call options, like insurance underwriters, are generally seeking to generate more premium income than they pay out in "claims" on their obligations. Writers also benefit from investment income on the premiums they are paid up front. Unless a call writer owns the commodity on which a call is written, however, his open-ended exposure in the event of a large price increase makes the undertaking very risky.

However, in cases where a merchant or a mill is already holding unhedged inventory, writing call options can represent a partial hedge, at least to the extent of cushioning the inventory-holder in the event of price declines, while providing a moderate investment income during the intervening period. The downside protection is limited to the amount of the premium received when the call is written, but particularly in the case of an in-the-money option, this cushion can be meaningful.

**EXAMPLE:** In August, with December futures at 70¢, a mill wants to reduce downside exposure on its cotton inventory. By writing a DEC 68¢ Call for a premium of 2.75¢, the mill protects itself completely against a price decline as far as 65.25¢, and at the same time generates better cash flow and improved profitability if the price doesn't decline.

Assuming, for the sake of simplicity, that the mill's inventory basis is 70¢, the result of its call writing strategy can be projected across a range of potential December prices as follows:

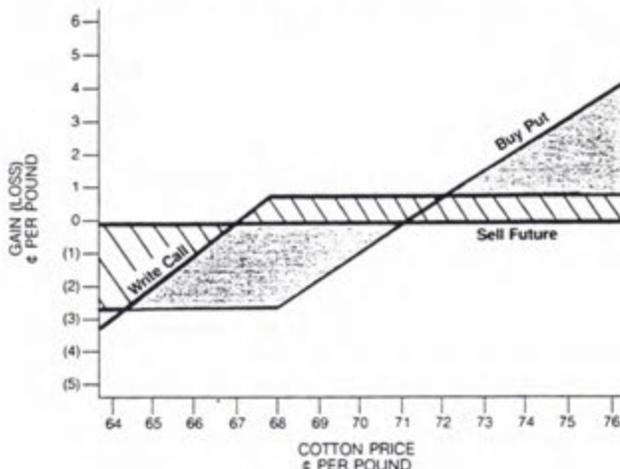
| December Price | Gain (Loss) on Inventory | Gain (Loss) on Option | Net Gain (Loss) on Hedged Position |
|----------------|--------------------------|-----------------------|------------------------------------|
| 64¢            | (6¢)                     | 2.75¢                 | (3.25¢)                            |
| 66¢            | (4¢)                     | 2.75¢                 | (1.25¢)                            |
| 68¢            | (2¢)                     | 2.75¢                 | 0.75¢                              |
| 70¢            | 0                        | 0.75¢                 | 0.75¢                              |
| 72¢            | 2¢                       | (1.25¢)               | 0.75¢                              |
| 74¢            | 4¢                       | (3.25¢)               | 0.75¢                              |
| 76¢            | 6¢                       | (5.25¢)               | 0.75¢                              |

Along with depicting the cushioning effects of such a hedge, the chart above also highlights its potential disadvantages, namely:

- The inventory holder remains exposed to loss on price declines in excess of the amount of call premium received, and
- The call writer has foregone any opportunity to benefit from rising prices since losses on his option obligation will offset any appreciation in the value of his holdings.

The graph below compares the results of this call writing hedge with a futures hedge and a put purchase hedge (assuming the purchase of an out-of-the-money DEC 68¢ Put for 0.75¢). This graph, as well as all the other graphs, does not reflect interest income or money cost associated with the respective options premiums.

### COMPARISON OF CALL WRITING HEDGE WITH PUT PURCHASE AND FUTURES HEDGES



The different configurations portrayed in this graph only begin to scratch the surface of the possibilities that options afford for reconfiguring the risks and rewards of being in the cotton business. In addition to hedging strategies involving the purchase or writing of a single option, there is also a remarkable array of strategies involving combinations of two or more options positions. Your broker can be of help to you in analyzing their potential role in your risk management strategy.



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# CONCLUSION

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These are just a few of the myriad strategies available for capitalizing on the advantages presented by cotton futures options. More involved strategies including spreads, straddles and other combinations of puts and calls can all be used profitably.

Your broker will be pleased to provide you with more detailed explanations of these strategies, as well as help you determine how they may fit in with your objectives.

Give him or her a call today — and find out about the cotton futures options market.

The New York Cotton Exchange (NYCE®),

founded in 1870, is the oldest exchange in New York and the world's largest marketplace for trading in cotton futures and options. It is affiliated with the Citrus Associates of the New York Cotton Exchange, Inc., which offers trading in frozen concentrated orange juice (FCOJ) futures and options. Through the Financial Instrument Exchange (FINEX®), a division of the New York Cotton Exchange, U.S. Dollar Index® futures and options, European Currency Unit (ECU) futures, cash settled Five Year U.S. Treasury note futures and options and cash settled Two Year U.S. Treasury note futures are offered.



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# NOTES

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# GLOSSARY OF TERMS

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**AT-THE-MONEY**—when an option's exercise price is the same as the current trading price of the underlying commodity, the option is at-the-money.

**BUYER**—a market participant who takes a long futures position or buys an option. An option buyer is also called a taker, holder, or owner.

**CALL OPTION**—a contract that entitles the buyer/taker to buy a fixed quantity of a commodity or underlying instrument at a stipulated basis or striking price at any time up to the expiration of the option. The buyer pays a premium to the seller/grantor for this contract. A call option is bought with the expectation of a rise in prices. See also PUT OPTION.

**CLEARING HOUSE**—an adjunct to a commodity exchange through which transactions executed on the floor of the exchange are settled. Also charged with assuring the proper conduct of the exchange's delivery procedures and the adequate financing of the trading.

**CLOSING-OUT**—liquidating an existing long or short futures or option position with an equal and opposite transaction. Sometimes called OFFSET.

## COMMODITY FUTURES TRADING

**COMMISSION (CFTC)**—independent federal regulatory agency established in 1974 to oversee futures trading and the operation of organized futures exchanges in the United States.

**EXERCISE**—to elect to buy or sell, taking advantage of the right (but not the obligation) conferred by an option contract.

**EXERCISE (OR STRIKE) PRICE**—the price specified in the option contract at which the buyer of a call can purchase the commodity during the life of the option, and the price specified in the option contract at which the buyer of a put can sell the commodity during the life of the option.

**EXPIRATION DATE**—the date on which an option contract automatically expires; the last day an option can be exercised.

**FLOOR BROKER**—any person who, in or surrounding any pit, ring, post or other place provided by a contract market for the meeting of persons similarly engaged, executes for another any orders for the purchase or sale of any commodity for future delivery and receives a prescribed fee or commission.

**FLOOR TRADER**—an exchange member who usually executes his own trades by being personally present in the pit or place for futures trading. Sometimes called a local.

**FUNDAMENTAL ANALYSIS**—analysis concerned with economic factors rather than price data, as are studied in TECHNICAL ANALYSIS.

**FUTURES CONTRACT**—firm commitment to deliver or to receive a specified quantity of a commodity or cash payment during a designated month with commodity price or cash payment being determined by public auction among exchange members.

**HEDGING**—taking a position in a futures market opposite to a position held in the cash market to minimize the risk of financial loss from an adverse price change; a purchase or sale of futures as a temporary substitute for a cash transaction that will occur later.

**IN-THE-MONEY**—an option with intrinsic value. For calls, the strike price must be below the current market price of the underlying futures contract. For puts, the strike price must exceed it.

**INTRINSIC VALUE**—a measure of the value of an option or a warrant if immediately exercised. The amount by which the current futures price for a commodity is above the strike price of a call option or below the strike price of a put option for the commodity.

**LAST TRADING DAY**—day on which trading ceases for the maturing (current) delivery month.

**LIQUIDATION**—a transaction that offsets or closes out a long or short position.

**LOCAL**—same as FLOOR TRADER.

**LONG**—a trader who has purchased physical commodities, financial instruments or futures contracts and has not yet offset that transaction with a sale. LONG can also be used as an adjective to describe such an open position. Opposite of SHORT.

**LONG HEDGE**—purchase of a futures contract in anticipation of a cash market purchase. Generally used to protect against a rise in the cash price.

**MARGIN**—the amount of money or collateral deposited by a client with his broker, or by a broker with the clearing house, for the purchase of insuring the broker or clearing house against loss on open futures contracts. The margin is not a partial payment on a purchase. (1) Original or initial margin is the total amount of margin per contract required by the broker when a futures position is opened; (2) Maintenance margin is a sum which must be maintained on deposit at all times. If a customer's equity in any futures position drops to or under the level because of adverse price action, the broker must issue a margin call to restore the customer's equity. See VARIABLE LIMIT MARGINS.

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**MARK-TO-MARKET**— Daily cash flow system used by U.S. futures exchanges to maintain a minimum level of margin equity for a given futures or option contract position by calculating the gain or loss in each contract position resulting from changes in the price of the futures or option contracts at the end of each trading day.

**MARGIN CALL**— (1) A request from a brokerage firm to a customer to bring margin deposits up to minimum levels; (2) A request by the clearing house to a clearing member to bring clearing margins back to minimum levels required by the clearing house rules.

**MINIMUM PRICE FLUCTUATION**— smallest allowable increments of price movement in a given contract. Same as TICK.

**NAKED POSITION**— unprotected long or short position in a cash or futures market.

**NAKED OPTION**— the sale of a call or put option without holding an offsetting position in the underlying commodity.

**NEARBY**— the nearest listed trading month of a futures market.

**OPEN INTEREST**— the sum of futures contracts in one delivery month or one market that has been entered into and not yet liquidated by an offsetting transaction or fulfilled by delivery.

**OPTION**— a commodity option is a unilateral contract which gives the buyer the right to buy or sell or a specified quantity of a commodity at a specific price within a specified period of time, regardless of the market price of that commodity. Also see PUT OPTION and CALL OPTION.

**ORIGINAL MARGIN**— total amount of margin per contract required by the broker when a futures position is opened.

**OUT-OF-THE-MONEY**— a call (or put) option in which the strike price exceeds (is less than) the current market price of the underlying futures contract.

**POSITION**— an interest in the market in the form of open commitments, either long or short.

**PREMIUM**— amount paid by the buyer of an option to its seller.

**PUT OPTION**— an option to sell a specified amount of a commodity at an agreed price and time at any time until the expiration of the option. A put option is purchased to protect against a fall in price. The buyer pays a premium to the seller/grantor of this option. The buyer has the right to sell the commodity or enter into a short position in the futures market if the option is exercised. See also CALL OPTION.

**SELLER/WRITER/GRANTOR**— an individual who sells an option, establishing a short position.

**SERIES (OF OPTIONS)**— options of the same type (i.e., either puts or calls, but not both), covering the same underlying futures contract or physical commodity, having the same strike price and expiration date.

**SETTLEMENT PRICE**— daily price at which a clearing house clears all trades. It is based on the closing range of that day's trading and is the basis for both margin calls and (if applicable) the next day's price limits.

**SHORT**— a trader who has sold physical commodities, financial instruments or futures contracts and has not yet offset that transaction with a purchase. SHORT can also be used as an adjective to describe such an open position. Opposite of LONG.

**SPREAD**— simultaneous positions in the same contract but in different months or simultaneous positions in related contracts for the same or a different month.

**STRIKE (Or Exercise) PRICE**— the price, specified in the option contract, at which the underlying futures or commodity will move from seller to buyer.

**STRIKE PRICE INCREMENTS**— intervals established by the Exchange between exercise prices on options.

**TECHNICAL ANALYSIS**— analysis concerned with price data rather than economic factors, as are studied in FUNDAMENTAL ANALYSIS.

**TICK**— Same as MINIMUM PRICE FLUCTUATION.

**TIME VALUE**— that portion of an option's premium that exceeds the intrinsic value. The time value of an option reflects the probability that the option will move into-the-money. Therefore, the longer the time remaining until expiration of the option, the greater its time value. Sometimes called EXTRINSIC VALUE.

**UNDERLYING COMMODITY**— the commodity or futures contract on which a commodity option is based, and which must be accepted or delivered if the option is exercised.

**VARIABLE LIMIT MARGINS**— the performance deposit required whenever the daily trading limits on prices of a commodity are raised in accordance with exchange rules. In periods of extreme price volatility, some exchanges permit trading at price levels that exceed regular daily limits. At such times, margins are also increased.

**VARIATION MARGIN**— payment required upon margin call.

**VOLUME OF TRADING**— the number of contracts traded during a specified period of time. It may be quoted as the number of contracts traded or in the total of physical units, such as bales, bushels, pounds or dozens.

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# NYCE® INFORMATION

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The following provides phone numbers and ticker symbols for the cotton futures and cotton futures options markets as well as for other New York Cotton Exchange and Citrus Associates' futures and options products.

## General Information

|                          |                |
|--------------------------|----------------|
| Commodity Clearing Corp. | (212) 775-0190 |
| Compliance and Rules     | (212) 938-2671 |
| Exchange Margins         | (212) 938-2632 |
| Exchange Fees            | (212) 938-2654 |
| Finex® Information       | (212) 938-2634 |
| Marketing Brochures      | (212) 938-2702 |
| Memberships/Seat Quotes  | (212) 938-2666 |
| Reportable Limits        | (212) 938-7911 |
| Statistics               | (212) 938-2668 |

## Statistical Information

Recorded information on prices, volume and open interest can be obtained 24 hours a day by telephone.

|                            |                |
|----------------------------|----------------|
| Cotton Futures             | (212) 432-2821 |
| Cotton Options             | (212) 432-7274 |
| FCOJ Futures and Options   | (212) 432-2821 |
| Finex® Futures and Options | (212) 839-9083 |

## Ticker Symbols

|                |    |
|----------------|----|
| Cotton Options | CO |
| Cotton Futures | CT |
| FCOJ Futures   | JO |
| FCOJ Options   | OJ |
| USDX® Futures  | DX |
| USDX® Options  | DO |
| ECU Futures    | EU |
| FYTR® Futures  | FY |
| FYTR® Options  | FO |
| 2YTN® Futures  | TW |

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All matters pertaining to rules and specifications herein are subject to and superseded by official Exchange rules. Current rules should always be consulted.



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# **MARKETING INFORMATION AVAILABLE**

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The following brochures on our agricultural futures and options contracts are available from the Marketing Department. Please call (212) 938-2702 or write to the New York Cotton Exchange, Four World Trade Center, Suite 5572, New York, New York 10048 to order these materials.

## **COTTON FUTURES AND OPTIONS**

Trading Guide - Cotton Futures and Options Contract Specifications  
Cotton Futures  
An Introduction to Hedging Cotton Futures (for hedgers)  
An Introduction to Cotton Futures Options (for investors)  
Cotton Deliverer's and Receiver's Guide  
Six Part Series on Cotton Futures and Options (for hedgers)  
10 Year Nearby Cotton Futures Wall Chart  
200 Year Cotton Price Chart (1791-1991).

## **FROZEN CONCENTRATED ORANGE JUICE (FCOJ) FUTURES AND OPTIONS**

Trading Guide - FCOJ Futures and Options Contract Specifications  
FCOJ Futures (for investors)  
Hedging FCOJ Futures  
An Introduction to Options on FCOJ Futures (available in English, Spanish & Portuguese)  
FCOJ Deliverer's and Receiver's Guide  
10 Year Nearby FCOJ Futures Wall Chart  
Poster Size Reproduction of "Juice It Up" Ad Campaign (for investors)  
Poster Size Reproduction of "Be Prepared" Ad Campaign (for hedgers)

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