

AGRICULTURAL COMMODITY OPTIONS:
A TEACHER'S GUIDE

Section I - Basic Concepts

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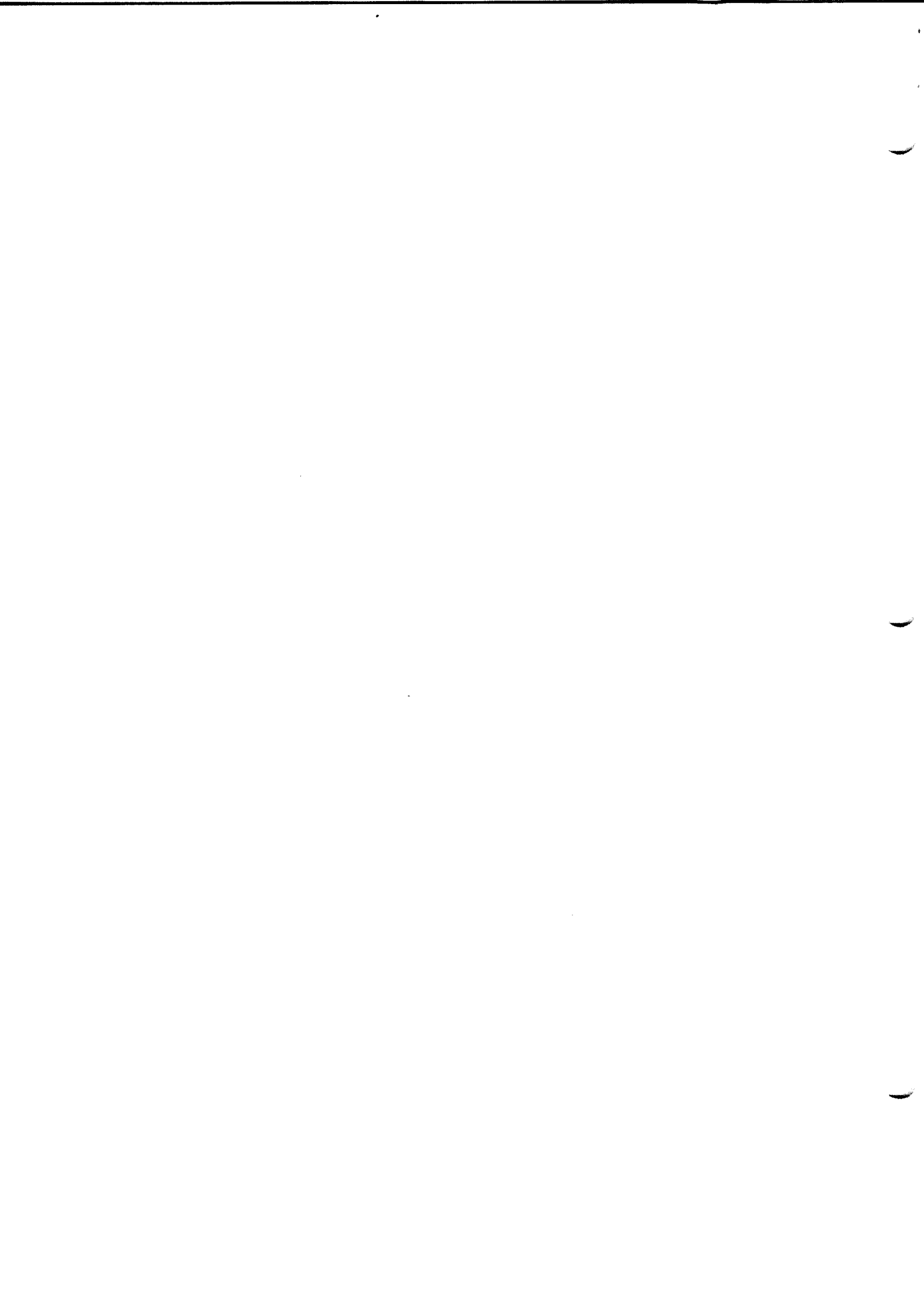
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INTRODUCTION

The workshop materials contained in Section I of this publication were developed as an introductory teacher's guide to Agricultural Commodity Options. The materials and class exercises compose a 3-4 hour program of instruction focused on teaching basic options concepts and uses to agricultural producers. The materials were developed to apply to audiences which do not have prior experience in futures trading.

A complete workshop may be presented by using the overlay originals along with copies of the class exercises and options glossary as handouts. Supplementary materials would be useful particularly in explaining local basis. Since the materials were developed prior to actual options trading, instructors will want to substitute current options quotes where applicable.

Section II of the publication "Potential Uses" contains extensive examples of options use and compares options to futures, thus assuming a knowledge of futures and hedging. By combining the basic definition contained in Section I with the futures/options comparisons in Section II, an appropriate workshop can be composed for producers who have a fundamental understanding of hedging.

Section III of the publication "Risk Management Through Options" deals with development of a marketing decision-making framework which emphasizes the difference in return patterns for cash, futures and option pricing strategies. Thus, a thorough understanding of each pricing alternative will be required to successfully teach this section.

COMMODITY OPTIONS - PRICE INSURANCE FOR THE FARMER

--Insurance Definition Visual--

Most agricultural producers are familiar with the use of insurance. People insure buildings against fire, equipment against accidents and their lives against death or injury. Insurance is purchased in order to trade a small but certain loss (insurance premium) for a large uncertain loss.

In most agricultural products, one of the greatest risk incurred in the past 10 years has been that of price change. That is, prices for the products grown or stored have been so uncertain that what appeared profitable when planted or placed on feed ended up unprofitable due to price decreases.

A related problem has been that if a forward pricing alternative (such as cash contracts or hedging in the futures market) was used to control price risk, an additional risk of uncertain final production was incurred due to over or under forward pricing of expected production.

Now there is a way to "insure" prices against declines while taking advantage of price increases. We have that opportunity by using the commodity options market.

What is the Commodity Options Market?

--Options Market Definition Visual--

The commodity options market is simply a market in which producers may purchase the opportunity to sell or buy a commodity at a specified price.

Purchasers in these options markets have the "opportunity" but not the "obligation" to exercise their agreement. Therefore, the markets are appropriately named "option markets" since they deal in an

option, not an obligation.

Just as a farmer may purchase the right from an insurance firm to collect on a policy in case his buildings burn, he can purchase the right to sell his commodities at a specific price if prices go below the specified price. A separate market exists to purchase the right to buy commodities at a specified price if prices are higher than the specified price.

--Two Market Visual--

So there are really two separate commodity options - one to insure products being sold against price declines, and another to insure products purchased against price increases.

--Options Market Usage Illustration Visual--

For instance, if one desired to buy the right to sell corn for \$3.00 per bu., the commodity options market provides the opportunity. By paying the market determined premium one could then collect on the option if prices are below \$3.00 per bushel when the corn would actually be sold. If prices are higher than \$3.00 per bu., the corn is sold for the higher price and the cost of the premium is absorbed.

While this is a simplified version of the actual way in which producers operate in the options market, the concept is a very simple one. Just as with other types of insurance, by paying a premium, insurance can be purchased against price declines or increases. One could collect on the option (policy) only if the price moves in an unfavorable direction.

OPTIONS DEFINITIONS

Puts and Calls

--Put and Call Definition Visuals--

As mentioned, there are actually two types of commodity options: a call option and a put option. The call option gives the holder the right, but not the obligation, to buy the underlying commodity from the option writer at a specified price on or before the option's expiration date. The put option gives the holder the right, but not the obligation, to sell the underlying commodity to the option writer at a specified price on or before the option's expiration date. The call option and the put option are two distinct contracts. A put option is not the opposite side of a call option. It may be helpful in distinguishing between the two types of options by using the following "memory trick". The holder of the put option can choose to "put-it-to-em", that is, sell the product while the holder of the call option can "call-upon-em" to provide the product.

Buyers and Sellers

--Option Buyer Visual--

In the option market, as in every other market, each transaction requires both a buyer and a seller. The buyer of an option is referred to as an option holder. Holders of options may be either seekers of price insurance or speculators.

--Option Seller Visual--

The seller of an option may also be either a speculator or one who desires partial price protection. Whether one chooses to buy (hold) or sell (write) an option depends primarily upon one's objectives. The market will contain many insurers and price speculators, each providing a service to the other.

Strike Price

--Strike Price Definition Visual--

The "specified price" in the option is referred to as the exercise price or strike price. This is the price at which the underlying commodity can be exchanged and is fixed for any given option, put or call. There will be several options with different strike prices traded during any period of time. As a general rule, the more volatile the price is for the underlying commodity, the greater the number of options at different strike prices that will be available for trade. If the price of the underlying commodity changes over time, then additional strike prices may be traded.

Underlying Commodity

--Underlying Commodity Definition Visual--

The "underlying commodity" for the commodity option is not the commodity itself, but rather a futures contract for that commodity. For example, a November soybean option will actually be an option to obtain a November delivery soybean futures contract. In this sense the options are on futures and not on the physical commodity. However, since option markets, futures markets and actual cash commodity markets move in the same direction, the purchaser of an option does not need to deal in the futures market to secure price insurance. The actual process will be shown later in this section.

Because options have futures contracts as their underlying commodity, each options contract will "stand" for the same quantity as it's underlying futures contract. That is, most grain options will represent 5,000 bushels while the hog option will represent 30,000 pounds of live hogs. The fed cattle option will represent 40,000 pounds of cattle. The New York Cotton Exchange cotton option will represent 50,000 pounds of cotton.

Expiration

--Expiration Date Visual--

Options on agricultural commodities have futures contracts as the underlying commodity. There will be option contracts available for several commodities for which futures contracts currently are traded. However, there generally are fewer options available than there are futures delivery months for any given commodity. An option will be designated by both month and strike price. For example, a \$7.00 November soybean option is an option to buy or sell one November soybean futures contract at \$7.00. This option (to obtain the underlying futures contract) can be executed by the holder on any business day until late in October at which time the option expires. Trading in options will likely not be conducted during the futures contract delivery month. Upon expiration the option becomes worthless.

Option Premiums

--Premium Visual--

The option (put or call) writer or grantor is willing to incur an obligation in return for some compensation. The writer of an option is an option seller. The compensation is called the option premium. Using the insurance analogy, a premium is paid on an insurance policy to gain the coverage it provides and an option premium is paid to gain the rights granted in the option. The premium is determined by public outcry and acceptance in an exchange trading pit, and like all commodity prices, it can be expected to change daily.

--Factors Affecting Premium Prices Visual--

While the interaction of supply and demand for options will ultimately determine the option premium, two major factors will

interact to affect the level of prices. The first factor is the difference between the strike price of the option and the price of the underlying commodity.

--Intrinsic Value Visual--

This differential in prices may give the option intrinsic value. For example, take a November soybean put option with a strike price of \$8.00 and the underlying commodity with a current price of \$7.75. The option could be sold for at least \$0.25 since others would be willing to purchase the right to sell at \$8.00 when the market is currently \$7.75. This \$0.25 is said to be the intrinsic value. As long as the market price on the underlying commodity is below the strike price on a put option, the option will have intrinsic value. Of course, the converse of the price relationship is true for a call option. A call option has intrinsic value when the market price is above the strike price.

--Illustration of In-The-Money,
Out-Of-The-Money Visual--

Any option that has intrinsic value is said to be "in-the-money". An option that is "in-the-money" has intrinsic value, that is, it has value to others because the market price is below the put or above the call strike price. If an option has no intrinsic value, it is said to be "out-of-the-money." That is, the current market price is above the put or below the call strike price.

When the market price of the commodity and the strike price are equal, the option is said to be "at-the-money," and the intrinsic value is zero.

--Time Value Visual--

A second factor that will influence the option premium is the length of time to expiration of the option. Assuming all else is held

constant, option premiums will usually decrease as the length of time until expiration decreases. This phenomenon is called the time value of an option. For example, in March the time premium on a \$7.00 May soybean option will be less than the premium on a \$7.00 August option, because the option with a longer time to expiration has a greater probability of moving "in-the-money" than the option with less time. Therefore, it is worth more on that factor alone. The longer the time period, the greater the chance that events will occur that could cause substantial movement in futures prices and change the value of the option. As a result, the option writer demands a greater premium to assume the larger risk of writing a longer term option.

"Out-of-the-money" options have a value which reflects time value. "In-the-money" options possess both time value and intrinsic value.

Offsetting An Option

--Offset Illustration Visual--

The method by which most holders of "in-the-money" options will realize any accrued profit is by resale of the option. This is referred to as "offsetting" an option position. Most option buyers will offset their position rather than exercise the option to avoid losing any remaining time premium and (or) assuming a futures market position and its resultant decisions, margin deposits, and commissions. The option could be resold to another trader at a premium at least equivalent to the intrinsic value that results from an "in-the-money" price relationship. Since the option markets provide the opportunity to secure price insurance, they can be expected to operate in a manner that allows for reinsurance or resale of the option to another party.

--Offset Money Flow Visual--

For example, assume a soybean grower purchased an "out-of-the-money" \$7.00 strike price November soybean put option for a premium of \$0.15 while the current market value was \$7.50. During the life of the option, the current market price falls to \$6.50 and the put option has moved "into-the-money" with a current premium of \$0.60 per bushel (\$0.50 intrinsic value and \$0.10 time value). The original option buyer could sell the option through a broker to another trader. Using the above numbers, our trader would realize a return of $\$0.60 - \$0.15 = \$0.45$. This return would help in offsetting the decline in the current market value of his crops that had occurred.

Exercising an Option

--Exercise Visual--

Another method by which the holder of an option could realize accrued profit is by exercising the option. The decision to exercise an option lies only with the holder. If the decision is made to exercise, the following procedures are followed. For a put, the holder is assigned a short (sell) position in the futures market equal to the strike price. At the same time, the option grantor is assigned a long (buy) futures position at the same price. Then both positions are adjusted to reflect the current futures settlement price. It is rational to exercise a put option only when the market price is below the strike price so the holder's futures position will show a profit. The futures position of the grantor will show an equivalent loss. At this point, the option contract has been fulfilled and both parties are free to trade their futures contracts as they see fit.

--Exercise Money Flow Visual--

Using the above example, if the put option was exercised our trader would now have a short (sell) futures position at a price of \$7.00. If, as in the previous example, the current November futures was \$6.50, our trader would realize a net return of $\$7.00 - 6.50 - .15$ (premium paid) = \$0.35, which is less than the proceeds obtained from the sale of the option. In addition, our trader may be required to post additional margin money (a form of good faith money required to trade futures) with the broker for maintenance of the futures position. Furthermore, he would incur an additional brokerage commission for liquidation of his futures contract. With a liquid options market, it appears that an offsetting trade within the options market is more advantageous than exercising under most circumstances.