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Options Trading in Agricultural Commodities

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Since the early 1970's, marketing has received major emphasis in Extension education, workshops by commodity groups, and farm publications. Clearly, ag producers today must establish marketing goals based upon costs of production, cash flow needs, and the level of risk they are willing to bear. Marketing workshops have discussed pricing alternatives for producers such as forward contracting, delayed pricing, hedging, basis contracting, etc. Today more farmers understand and use the futures markets than ever—due, in part, to the educational efforts in pointing to the advantages of understanding how these markets may be utilized as a pricing alternative.

Options Evolution

A new pricing alternative for ag producers became available recently. Trading in agricultural options began in October 1984 after the Commodity Futures Trading Commission (CFTC) completed hearings and the individual exchanges submitted applications for specific contracts.

Options are not new to agricultural commodities. They were traded as "privileges" in the late 1800's, and grew into the options markets which were eventually banned by Congress in the Commodity Exchange Authority (CEA) Act of 1936. These markets had not been regulated properly to protect buyers and sellers. This ban on options in agricultural commodities remained in effect until President Reagan signed into law the Futures Trading Act of 1982. This legislation authorized trading in ag options and allowed the CFTC to set up a three year pilot program with U.S. futures exchanges to initiate options trading in agricultural commodities.

This article is an elementary guide to the terms used in trading options. It should serve as an introduction to allow producers, lenders, agribusinesses, and others to assess the usefulness of options in their particular business.

In October 1982 each U.S. futures exchange was permitted to introduce one contract in non-agricultural options based upon a futures contract that was actively traded at that exchange. This was the first step toward re-introduction of options to the U.S. A great deal of negative publicity appeared, owing not only to the troubled past options

experienced in the late 1930's but also to the more recent loss of funds traders had experienced in foreign options markets, particularly London. The CFTC took the lead in developing regulations that protected buyers and sellers and limited the number of new options contracts to permit adequate surveillance of these markets. The result over the past two years has been, in general, markets that were well accepted by the trade which have continued, with some exceptions, to grow in terms of volume and open interest.

Specifically, over this period the Chicago Board of Trade introduced options in U.S. Treasury bonds, and the Chicago Mercantile Exchange introduced the Standard and Poor's 500 Stock Index. Other exchanges have initiated trade or submitted CFTC applications to trade in various stock indexes, gold, sugar, and heating oil. The success of these markets has led to the recent legislation to introduce trading in agricultural options.

The Pilot Program

The CFTC in the Futures Trading Act of 1982 was given the authority to conduct a three year pilot program to introduce trading in agricultural options. The initial phase of this program allowed each U.S. exchange to submit two applications for ag contracts based upon a futures contract already traded at that exchange. Thus, the Chicago Board of Trade will introduce soybean and corn options. Likewise, the Chicago Mercantile Exchange will trade options in two livestock contracts—hogs and live cattle. Options will utilize the futures contracts at the specific exchanges as the underlying commodity. Some options may eventually use the physical, or cash, commodity to underly an option that is exercised.

The challenge to ag producers in the next few months, as these contracts start active trading, is to investigate carefully the new marketing alternatives available from these markets. Do they serve as a complement to hedging or as a substitute for the traditional futures markets? What are the advantages and disadvantages of positions in options markets versus the traditional futures position? These and other questions are outlined in the material that follows.

Terminology of Options Markets

There are two distinct types of options which will be traded: puts and calls. A "put" gives the purchaser the right, but not the obligation, to establish a short futures position (sell) at a specific price—called the strike price. Alternatively, a "call" gives the purchaser the right, but not the obligation, to establish a long futures position (buy) at the strike price.

The soybean option might be used by a farmer to guarantee the right to sell soybean futures at \$8.00, without the obligation to sell at this level. Thus, if prices decline to \$7.00, the farmer would exercise the right to sell at \$8.00, but if prices increase to \$9.00, the farmer would not be obligated to sell at \$8.00. This process is outlined in Figure 1.

Figure 1. Farmer Selling Soybeans - Purchase an \$8.00 Put

Futures Prices	Options
\$9.00	No Obligation (Sell at Higher Cash Price) in Futures
\$8.00	
\$7.00	Right to Sell at \$8.00 in Futures
Cost = Premium Paid	

Alternatively, a cattle feeder might want the right to buy corn futures at \$3.00 without the obligation of buying at that level. If prices move up to \$3.50 the cattle feeder has the right to buy at \$3.00, but if prices move lower there is no obligation to buy at \$3.00. Corn can be purchased in the cash or futures market at the lower price. This process is outlined in Figure 2.

Figure 2. Cattle Feeder Buying Corn - Purchase a \$3.00 Call

Futures Prices	Options
\$3.50	Right to Buy at \$3.00 in Futures
\$3.00	
\$2.50	No Obligation (Buy at Lower Cash Price) in Futures
Cost = Premium Paid	

The "strike" price represents the fixed price at which an option to buy (call) or sell (put) can be exercised by the purchaser. Thus, the purchaser of a put with a strike price of, for example, \$8.00 in soybeans can establish a short position in soybean futures any time over the life of that particular option contract. These strike prices will be set by the exchanges and will be a function of the underlying futures contract price. At the Chicago Board of Trade strike prices for soybeans will be at 25 cent intervals. Strike prices for corn will be offered at 10

cent intervals. At the Chicago Mercantile Exchange, cattle and hog options will trade in strikes at \$2.00 per hundredweight intervals.

Initial listings for strike prices at the Chicago Board of Trade will be the nearest strike to the previous day's close and three strike prices above and below the initial level. In addition any strike listed for other option months can be listed initially for the new contract month. However, just because a strike is listed does not mean there is trade at that strike price. There has to be a willing buyer and seller before trade can occur. Given the rules above for initial strike listings, if March soybeans closed at \$7.00 during the initial day of trade the strikes listed would be: \$6.25, \$6.50, \$6.75, \$7.00, \$7.25, \$7.50, and \$7.75.

Options contracts, like their futures counterparts, will be traded over a distinct period of time in specific contract months. Within a given calendar year there are seven futures contract months for soybeans—January, March, May, July, August, September, and November. Options contracts, then, may be traded in these same seven months—although initially trade may be limited to a few of the high open interest months and other options contracts added as the individual exchanges and the CFTC see a need. Options contracts will have an "expiration" date like futures contracts. This represents the last day of trade in that particular option contract. Thus, the expiration day for a put represents the last day the purchaser of a put may exercise the option to establish a short position in the underlying futures contract. After expiration the option ceases to exist and has no value to the option holder. Currently, plans call for options to expire roughly ten trading days before the delivery process starts for futures at the Chicago Board of Trade and four business days prior to the first day of the delivery month at the Chicago Mercantile Exchange.

To "exercise" an option means the purchaser chooses to implement the right purchased earlier to establish a futures position. For example, if the purchaser of a put "exercises" the put, this means the trader now has a short *futures* position at the strike price established when the option was purchased. Likewise, when a call option is exercised, the purchaser trades the option contract for a long futures position at the established strike price.

Like futures markets, options markets are designed to allow inventory holders (farmers and others) to deal with price risk. If one market participant chooses to reduce market risk by taking a certain position in the market, this may only be accomplished if another market participant is willing to take the opposite position in the market. The trader with the opposite position may either be seeking speculative profits or trying to shift risk. In futures,

this concept is exemplified by the fact that the number of contracts on the long side of the market equals the number of contracts on the short side of the market. In options markets the equal and opposite market positions are held by purchasers and writers or sellers. A “writer” or option “grantor” is the individual who must provide the purchaser with appropriate futures contracts at the strike price specified in the trade.

The risk borne by the writer of an option is offset by the payment, called a “premium,” received from the option purchaser. This represents the sum of money the purchaser pays for the rights given by the option. This payment, in full, is made up-front to the writer at the time the option is purchased. Since the strike price is fixed and market prices fluctuate, what risk is the writer taking?

If, for example, the writer of a put receives a premium of \$2,000, what happens if the market price collapses? The purchaser of the option views a profitable futures position since the futures price has declined and the option gives the purchaser the right to sell at a price (the strike price) that is now higher than the current market price. The option is exercised, the purchaser has a short futures position at the strike price, and the put writer makes up the difference between the current futures price and the strike price. The option itself involves no futures position until it is exercised. Also, since premiums reflect option prices, they move up and down as the underlying commodity futures price changes.

Options premiums have two components called intrinsic value and time value. “Intrinsic value” represents the amount which futures are above the strike price of a call or below the strike price of a put. “Time value” represents the difference between the premium paid for an option and its current intrinsic value. Typically as the option approaches expiration its time value greatly diminishes. Since the strike price is fixed, traders in the few days before expiration have a clearer view of the difference between the market price and strike price—this difference has been bid into the market as time value. As expiration approaches, time value is bid close to zero.

Intrinsic value of an option is either zero or positive depending upon the relationship between the strike price and the current market price. For example, let’s assume March soybeans are trading at \$7.00. What is the intrinsic value of a March call option with a strike price of \$6.75? A futures contract represents 5,000 bushels of soybeans. A call option gives the purchaser the right to establish a long futures position at the strike price. Thus, the intrinsic value of this option is currently \$7.00 (current futures) less \$6.75 (strike price) multiplied by 5,000 bushels or \$1,250. If you purchased and exercised the option immediately its value would be

\$1,250. This value is said to be “in the money” or the current futures price is above (below) the strike price of a call (put).

When there is no intrinsic value the option is said to be “out of the money.” For example, you purchase a \$7.00 March soybean put for \$750. March soybeans are trading at \$7.10. The intrinsic value—or money value if you bought and exercised the option immediately—is zero. In this case, the entire amount of the premium, \$750, is time value. This is the payment the purchaser of the put pays to the writer for accepting the risk that soybean prices may move against the writer’s position, i.e., soybean prices may decline in the case of a put.

The examples above discuss premiums in dollar terms, but when options are traded premiums for grains will be quoted in cents per bushel and premiums in livestock will be quoted in dollars per hundredweight. Below is an example of a hypothetical option market quote for soybeans:

STRIKE	JULY FUTURES (\$7.50)	NOVEMBER FUTURES (\$7.25)
\$8.00P	56¼	-
\$8.00C	3½	1¾
\$7.75P	32¾	58⅜
\$7.75C	6¼	-

Put = Put, C = Call

Two options contracts are quoted—July and November. At a strike price of \$8.00 there is no trade in puts for November futures. Alternatively, an \$8.00 put in July options is quoted at 56¼. Options will be quoted in cents plus ⅛ cent per bushel. The value of this quote is \$2,812.50 on a 5,000 bushel contract. Of this premium value 50 cents is intrinsic value—so this option is “in the money” by 50 cents. The difference between the market premium and intrinsic value is \$312.50 or 6¼ cents per bushel. This equals the time value or risk premium paid by the purchaser of the option today.

The \$8.00 call for the November option is priced at 1¾ cents per bushel. However, it has no intrinsic value; this premium has only time value since it is “out of the money” by 75 cents—you have the right, but not the obligation, as the purchaser to buy futures at the \$8.00 strike. The futures closed at \$7.25. Thus, the market must move 75 cents before this option moves “in the money.”

Advantages of Options

There are many obvious similarities between the options and futures markets: 1) both are traded on an organized, regulated exchange, 2) contracts for

each cover a distinct period of time and cease to exist at expiration, 3) both entail the shifting of risk for ag producers, and 4) market limits will be imposed in most options as they are in futures.

In comparison to futures, however, there are also some significant differences which may make options an appealing pricing tool for farmers:

1. There are no margin calls for options purchasers. The purchaser is required to pay the entire amount of the premium up-front to the writer or grantor of the option.
2. Risk is clear for purchasers as they buy the option, i.e., the amount you have at risk is the amount paid for the option—the premium.
3. Options do not limit your profit potential in the market. If you've purchased a put and cash prices advance, you can participate fully in the price advance. Your only loss is the amount paid for the rights granted by the option.
4. You maintain flexibility; options can be exercised or offset before expiration.
5. Options represent a form of price insurance the cost of which is the premium determined in the trading pit.

Clearly, however, there are also some significant points to be carefully considered by those interested in entering the options market. Some of these significant points are outlined below:

1. Writers of options must meet specific margin requirements to be established by the exchanges.
2. The premium paid for the option may be judged "too high" by some market participants relative to the rights granted by the option. Purchasers must compare options premiums as well as view the difference in costs and risks between purchasing options and hedging or some other marketing alternative.
3. The time value of an option decreases as expiration approaches.

4. Purchasers of options who exercise the option must meet futures margin requirements. The net price received by the producer who exercises a put and is short futures is still a function of the basis. Options do not guarantee a price received necessarily equal to the initial strike price of the put.

Options: The New Marketing Alternative?

Ag options will provide a new marketing alternative with some clear-cut advantages over the traditional futures position—i.e., outright hedging. However, whether or not options should be used by producers will be determined by the cost of the options established in the marketplace. Only experience, careful comparison between the costs and benefits associated with both options and futures positions, and determination of individual market objectives will provide the producer with answers as to which alternative to use. The success of options will also be determined by the willingness of speculators to enter this market.

Well-informed producers can make better marketing decisions. Even if producers choose not to trade options, they should be aware of how these markets work and how they can be used. This will allow them to better evaluate all available marketing alternatives.

References for Further Study

Those interested in learning more about the specific options contracts should write the Exchanges directly: Chicago Board of Trade, Education Department, LaSalle at Jackson, Chicago, IL 60604; the Chicago Mercantile Exchange, Education Department, 30 South Wacker Drive, Chicago, IL 60606; or the MidAmerica Commodity Exchange, 444 West Jackson Blvd., Chicago, IL 60606.

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