

Staff Papers Series

P83-16

June 1983

EXPLORING OPTIONS ON DOMESTIC
AGRICULTURAL COMMODITIES

by

Reynold P. Dahl and Jay S. Strohmaier



Department of Agricultural and Applied Economics

University of Minnesota
Institute of Agriculture, Forestry and Home Economics
St. Paul, Minnesota 55108

Exploring Options on Domestic
Agricultural Commodities

by

Reynold P. Dahl and Jay S. Strohmaier

June 1983

Professor and Research Assistant, respectively,
Department of Agricultural and Applied Economics,
University of Minnesota

Staff Papers are published without formal review by the
Department of Agricultural and Applied Economics.

Exploring Options on Domestic
Agricultural Commodities

Reynold P. Dahl and Jay S. Strohmaier

INTRODUCTION

Agricultural producers may soon have a new marketing tool: options on domestic agricultural commodities. The Futures Trading Act of 1982 amended the Commodity Exchange Act of 1936, lifting the longstanding prohibition on agricultural options. The Commodity Futures Trading Commission (CFTC) is now considering a three year pilot program for exchange traded options on selected domestic agricultural commodities.

The CFTC has recently conducted a series of informational meetings throughout the United States to solicit comments and assess interest among potential option users. It reports that the response from the agribusiness sector, producer groups, and state extension services has been fairly positive. (CFTC AgReport, May 1983).

It is likely that the CFTC will soon move ahead with its proposed three year pilot program. Trading in agricultural options could begin late this year or early in 1984. The purpose of this paper is to analyze the potential of options as an effective marketing tools for agricultural producers. The specific objectives of the analysis are to address the following questions:

- (1) How do options differ from futures contracts?
- (2) How could agricultural producers use options in pricing their products?
- (3) What are the possible advantages and disadvantages of options?
- (4) How will the new options be regulated?

NEW OPTIONS TO DIFFER FROM OLD

Option trading on commodities has a history that is clouded with abuse and controversy. Allegations that options promoted excessive speculation and caused unwarranted fluctuations in prices of domestic agricultural commodities prompted the Congressional ban in 1936. (Federal Register, February 10, 1983). During the 1970's there were widespread scandals associated with the marketing of options on London traded futures contracts through high-pressure sales tactics as practiced by so-called "boiler room" operations. Many people were swindled. As a result, in 1978 Congress extended the ban on options trading to all commodities, agricultural and otherwise. Subsequently, the CFTC continued to study the possible conditions under which options could be traded and regulated on organized commodity exchanges. It developed new regulatory provisions, designed to meet Congressional demands for stiffer regulations to avoid the recurrence of past problems associated with options.

Late last year the CFTC, with Congressional approval, authorized a three year pilot program for the trading of options on several stock index futures, U.S. Treasury bond futures, gold futures, and sugar futures. Finally, the Futures Trading Act of 1982 lifted the options trading ban on domestic agricultural commodities. Thus, the CFTC has authorized a similar three year pilot program for agricultural options.

The CFTC emphasizes that the proposed agricultural options will differ from the old ones in several key respects:

- (1) They will be exchange traded and subject to exchange rules and regulations,
- (2) Prices will be competitively determined on the exchange and quoted for public dissemination, and
- (3) New regulations will govern their marketing.

OPTIONS - WHAT ARE THEY?

Types of Options

Options come in two varieties: puts and calls. A put option gives the buyer the right to sell the underlying futures contract at a specific price (strike price or exercise price) anytime before the expiration date. ^{1/} A call option gives its buyer the right to buy the underlying futures contract at a specific price anytime before the expiration date. Unlike a futures contract which creates an obligation, an option creates a right or opportunity. For this opportunity, the option buyer pays a "premium" to the option seller (option writer or grantor). Option premiums will be determined competitively by public outcry on the trading floor of the organized commodity exchange offering the underlying futures contract.

^{1/} The underlying market could just as easily be the actual "physical" commodity. At this time, the CFTC has not decided whether the pilot program will permit options trading on either futures or physicals, or both. For simplicity, this analysis will focus on options on futures contracts only.

Puts and Calls are Distinctly Separate

Unlike futures trading in which each long position is accommodated by a corresponding short position, puts and calls are not opposite sides of the same transaction. Bids and offers on puts and calls with various strike prices and expiration dates are conducted simultaneously, but independently (Sheldon and Choi, 1983). In other words, the purchase of a put option means that a put option was written (sold). Similarly, call options are purchased from call writers (sellers), not from put option holders. With these peculiarities in mind, liquidating or offsetting a purchased put (call) option requires writing a put (call) option with the same exercise price and expiration date.

Responsibilities of Option Market Participants

The option writer is obligated to deliver a futures contract to the buyer at the strike price should the buyer choose to exercise his option. That is, upon exercise a put option holder is provided a short futures position - a call option holder is provided a long futures position. In either case, the clearinghouse assigns the option writer a futures position opposite of that provided the option holder at the strike price. Thus, the writer or grantor of a call option assumes the risk of a short futures position at the strike price. Put writers, on the other hand, are providing their customers with the right to sell futures, and as such, assume the risk of a long futures position at the strike price. The option writer's compensation for this risk is the premium received from the sale of the option.

Margins on Options

Since the option writer may be required to deliver futures contracts at the strike price, he must deposit margin money with the clearinghouse when the option is granted. Margin must be maintained as the underlying market price fluctuates relative to the strike price. In contrast, the option buyer simply pays the lump sum premium at the time of purchase and is not required to post margin. He can, therefore, withstand unfavorable price swings without worrying about margin calls as he awaits an opportunity to exercise the option. If the option is exercised, thereby establishing a futures position, margin must be deposited and maintained.

Options Can Provide Price Insurance

An Iowa farmer, responding to the CFTC request for comments regarding its proposed pilot program, summarized the most appealing feature of agricultural options to American farmers. According to Brad Petersburg, "options on agricultural commodities would be a valuable tool to the farmer. There is no other way, at present, to purchase some form of price insurance for the grains we are producing without completely closing the door to...gain from a possible increase in prices later on." (Education Quarterly, June 1983) Whereas a short futures hedge fixes price given a constant basis, a put option can be allowed to expire unexercised if market prices rise. ^{2/} Of course, market prices must rise (fall) in excess of the premium paid if the put (call) option is to be profitable. As sellers of agricultural products, farmers would typically be interested in buying put options -- the right or opportunity to sell futures contracts at a specific price (strike price).

^{2/} The logic applies in reverse for a long hedge placed to protect upcoming purchases from rising prices. However, in this case, the call option is allowed to expire unexercised to take advantage of lower prices when market prices fall during the life of the option.

USING OPTIONS IN PRICING

The nomenclature of options trading can be sufficiently complex to frustrate and confuse even the most meticulous reader. An illustration of how a hypothetical put option on November soybeans could be used in pricing soybeans may clarify how options work.

Example One: Rising Market Prices

Assume a southern Minnesota farmer has just planted his soybean crop and is considering pricing his soybeans through the sale of November soybean futures or the purchase of a November soybean put option as protection against a possible price decline. He estimates his harvesttime basis to be \$.35 under November soybean futures which are priced at \$6.35/bu. today (May 26). The sale of November futures would yield him a lock-in price of \$6.00/bu. for his cash soybeans at harvest. Alternatively, he can purchase a November soybean put option with a \$6.35/bu. strike price for a premium of \$.61/bu.^{3/} (See Illustration 1) By harvesttime in November cash and futures prices have risen \$.75/bu.- precisely the market scenario in which put options are attractive. Note the results on the bottom line of Illustration 1. The put option outperformed the short hedge by \$.14/bu. This difference equals the excess of the appreciation in market prices (\$.75) over the option premium paid (\$.61). The example clearly illustrates that market prices must rise more than enough to offset the premium paid if the put option is to be profitable.

^{3/} The rationale for the \$.61/bu. premium is presented later in this paper.

Illustration 1

SHORT FUTURES HEDGE

PUT OPTION

DATE	Cash	Futures	Basis	
May 26	Cash soybeans \$6.00/bu. (lock-in price)	Sell November soybean futures at \$6.35/bu.	-\$.35 (estimated)	Buy a November soybean put option \$6.35/bu. strike price, premium paid is \$.61/bu.
Nov. 1	Sell cash soybeans at \$6.75/bu.	Buy November futures at \$7.10/bu.	-\$.35 (actual)	Allow option to expire or offset by writing (selling) a put option. Sell cash soybeans at \$6.75/bu.
Results	Cash price received from short futures hedge, \$6.75 - \$.75 = \$6.00/bu.			Cash price received from put option. \$6.75 - .61 = \$6.14/bu.

This example raises two important questions. First, how much movement in market prices can one reasonably expect during the life of the option? The CFTC cited the example of soybean futures prices rising from \$3.00/bu. to nearly \$13.00/bu. in 1973. (CFTC AgReport, Feb. 1983) Obviously, being locked into a short futures position during a period of successive limit upward price moves would prove disastrous for this farmer because he could not profit from the substantial rise in soybean prices. But, a price rise of this magnitude may not occur very often. The second question concerns the option premium. How costly will agricultural options actually be? Had the premium in the above example been one half as much, i.e., \$.30/bu., the put option would have outperformed the futures hedge by \$.45/bu. ($\$6.75 - \$.30 = \6.45). ^{4/} We shall address these critical questions further, but first let's compare the performance of the two alternative pricing strategies during a period in which market prices fall.

^{4/} The option holder may be able to sell the option before expiration (write a November \$6.35 put option) and recover some premium, thus reducing the effective cost of the option below \$.30/bu.

Example Two: Falling Market Prices

Assume the same scenario as in example one. However, this time market prices fall 75 cents per bushel between May and November.

Illustration 2

SHORT FUTURES HEDGE

PUT OPTION

DATE	Cash	Futures	Basis	
May 26	Cash soybeans \$6.00/bu. (lock-in price)	Sell November futures at \$6.35/bu.	-\$.35 (estimated)	Buy a November soybean put option \$6.35/bu. strike price, premium paid is \$.61/bu.
Nov. 1	Sell cash soybeans at \$5.25/bu.	Buy November futures at \$5.60/bu.	-\$.35 (actual)	Exercise the option Sell November at \$6.35/bu. <u>Buy November at</u> <u>\$5.60/bu.</u> , gain on futures \$.75/bu. Sell cash soybeans at \$5.25/bu.
Results	Cash price received: $\$5.25 + .75 = \$6.00/\text{bu.}$			Cash price received: $\$5.25 + .75 - .61 =$ \$5.39

The put option holder would find it advantageous to exercise the option since the strike price is higher than the futures price ("in the money") on November 1. The short position established at the \$6.35/bu. strike price upon exercise can immediately be covered by buying back the November futures at the prevailing price of \$5.60/bu., generating a \$.75/bu. profit. Adding the \$5.25/ bu. cash price and subtracting the \$.61/bu. premium paid yields an effective price of \$5.39/bu., while the short futures hedge yields a cash soybean price of \$6.00/bu. Clearly, the direct futures hedge is most attractive when market prices fall. The \$.61/bu. disparity in realized prices between the two marketing alternatives illustrates that downside price protection with a put option is limited by the premium paid for the option.

Basis Effect

Both of the above examples assume that the actual selling basis in November equals the basis estimated on May 26. But, even though they may differ, the price disparity between the two marketing alternatives would remain the same. In example one, had the actual selling basis been $-\$.10$ rather than $-\$.35$, the short hedger would have received $\$.25/\text{bu}$ more than expected for his cash soybeans. On the other hand, the option holder would still have abandoned or sold his option, but would have sold his soybeans on a $\$.25/\text{bu}$ stronger cash basis. Hence, the relative desirability of the two alternatives remains unchanged. Similar arguments can be developed showing that basis changes in both rising and falling markets affect short hedgers and put option holders equally.

Fluctuation in the Underlying Market

Both examples indicate, given a constant premium, that options become increasingly attractive marketing tools as the volatility of the underlying market increases. Indeed, a decision maker must weigh the risks associated with various degrees of price variability when considering the purchase of an option in much the same manner as any insurance decision. Costs, benefits, and probabilities all figure in the final decision. Historical price data can prove helpful in forming estimates of expected future price variation. Many agricultural markets exhibit fairly predictable price variation patterns over time. This information, coupled with simple economic analysis of fundamental market conditions and a little common sense can go a long way in producing reasonable estimates of the range in which prices may be expected to fluctuate in the near term. However, at this point in time, estimating the size of the premiums forthcoming on agricultural options is considerably more difficult and pretentious.

Importance of Option Premiums

The premium, which represents the market price or value of a particular option at a specific time, will inevitably be the single most important determinant of success or failure in agricultural option trading. It should be reiterated that the premiums on puts and calls will be determined competitively by public outcry. As such, they must be large enough to induce writers to sell options, yet small enough not to discourage buyers from purchasing them (CSCE pamphlet, 1983).

Components of Option Premiums

The option premium is most easily understood by breaking it into its two components - intrinsic value and time value. An option has intrinsic value only if it is profitable to exercise. If the price of the underlying futures contract is below (above) the strike price, the put (call) option is said to be "in the money" and may be exercised profitably. If the underlying futures price is equal to the strike price ("at the money") or above (below) the strike price ("out of the money"), the put (call) is unprofitable to exercise and has no intrinsic value. For example, when the futures price is \$6.00/bu. a \$6.30 put option is 30 cents "in the money" - a \$5.80 put is 20 cents "out of the money."

The time value of an option is a catchall for that portion of the premium not accounted for by intrinsic value. Thus, premiums for "at the money" and "out of the money" options consist entirely of time value. An option is, by definition, a wasting asset. The longer an option has until expiration, the greater its time value. That is, an option which can work longer is more likely to generate profitable opportunities for its owner. Therefore, it is more valuable to its owner and potentially more costly to its writer, and as

such, requires a higher premium. It follows that increased volatility in the underlying market also increases the likelihood that an option will be exercised, resulting in a higher premium. Short term interest rates also affect the size of the premium since option writers must maintain margins against options they have sold.

Less tangible market factors may also influence the size of option premiums at particular times. For instance, during periods of generally rising prices, demand for call options may increase relative to demand for puts, and vice-versa. Consequently, relative premiums for puts and calls may rise or fall reflecting changes in market sentiment.

ESTIMATING AGRICULTURAL OPTION PREMIUMS

Other Approaches

Although technical theories which attempt to explain the pricing of options have been developed, the mathematical equations are abstract and difficult to apply. ^{5/} For the most part, exchange pamphlets, newsletters, and other papers which constitute the public's primary informational resource neglect to justify or support premiums used in option illustrations. In some cases, premiums are so low that the examples are unduly enticing. ^{6/} Of course, examples and illustrations should never be used without caution.

^{5/} For example, see Black and Scholes, The Pricing of Options and Corporate Liabilities, Journal of Political Economy, May-June 1973, or R.C. Merton, Theory of Rational Option Pricing, Bell Journal of Economics and Management Science, Spring 1973.

^{6/} In its Minneapolis informational meeting, March 28, 1983, the CFTC presented one example of a call option on farmland. The premium cited was equal to 1.25% of the strike price. As you will soon discover, such a small premium may not be very realistic.

Such a caveat also applies to this paper. However, the premium is the single most important determinant of the probable success or failure of option trading. We feel that it is an error to represent examples as realistic without clearly defining the basis upon which premiums are estimated.

Premiums on Sugar Options

Accurate prediction of premiums on a prospective soybean option is virtually impossible. Estimation, on the other hand, is not. Although options on futures contracts are currently being traded in gold, treasury bonds, and three major stock indices, the only agricultural commodity with option trading currently permitted is sugar futures. Hence, premiums on sugar options may provide a basis for estimating premiums on other agricultural options.

The October 1983 sugar option settlement prices as reported by the New York Coffee, Sugar, and Cocoa Exchange were taken for several consecutive trading days. ^{7/} Table 1 lists the premiums for puts and calls at several strike prices on May 26, 1983, when the October 1983 sugar futures contract was trading at 12.5 cents per pound. For example, a call option, the right to buy an October sugar futures contract at 11.0 cents per pound anytime before the expiration date would have cost 1.80 cents per pound (premium) on May 26th. ^{8/} Note that the cherished right to sell at high strike prices and buy at low strike prices indicates that put premiums are directly related to the strike price, while call premiums move inversely with the strike price.

^{7/} Ideally, November sugar options should be used to compare to the November soybean option developed in examples one and two. However, sugar options are traded for October, March and July futures contracts only. Since a November option would contain more time value than an October option, our estimates of November soybean option premiums should be conservative.

^{8/} Options on futures contracts typically expire several weeks before trading in the futures contract itself ceases. For instance, an October sugar option expires on the second Friday in September.

In Table 2, each strike price from Table 1 is calculated as a percentage of the October futures price (12.5¢/lb.). Each call and put is expressed as a percentage of its respective strike price. In other words, when the strike price is 11.0¢/lb. or 88% of the futures price, the call premium is 16.4% of the strike price ($1.80 \div 11.0$) and the put premium is 3.2% of the strike price ($.35 \div 11.0$). You should recognize this as an "in the money" call option - an "out of the money" put option. When the strike price equals the futures price (100%), both options are "at the money" and both premiums are 1.2¢/lb. or 9.6% of the strike price (market price). ^{9/}

Keep in mind that these are relationships among puts, calls, strike prices and the futures price at the close of one specific trading day. Prices and premiums are in constant motion as the marketplace continually interprets changing supply and demand fundamentals. But, is it possible that these relationships display a tendency to remain within a narrow range over short periods of time?

TABLE 1. PRICES OF OCTOBER SUGAR OPTIONS (5/26/83)

<u>OCTOBER FUTURES PRICE</u>	<u>STRIKE PRICES</u>	<u>CALLS</u>	<u>PUTS</u>
12.5¢/lb.	11.0¢/lb.	1.80	0.35
	11.5	1.60	0.60
	12.0	1.50	0.85
	12.5	1.20	1.20
	13.0	0.90	1.50

Volume: 63

Open Interest: 1,744 calls, 171 puts

Source: New York Coffee, Sugar, and Cocoa Exchange

TABLE 2. STRIKE PRICES OF OCTOBER SUGAR OPTIONS AS PERCENTAGES OF OCTOBER FUTURES PRICE AND PRICES OF PUTS AND CALLS AS PERCENTAGES OF THE STRIKE PRICES. (5/26/83)

<u>OCTOBER FUTURES PRICE</u>	<u>STRIKE PRICE % OF OCTOBER FUTURES</u>	<u>CALLS % OF STRIKE PRICE</u>	<u>PUTS % OF STRIKE PRICE</u>
12.5¢/lb.	88%	16.4%	3.2%
	92%	13.9%	5.2%
	96%	12.5%	7.1%
	100%	9.6%	9.6%
	104%	6.9%	11.5%

In Table 3, these same relationships are calculated for five consecutive trading days, May 23 to May 27, 1983. One group of observations on each side of the "at the money" strike price is shown for each day. It is only coincidental (and convenient) that the October sugar futures price happened to increase 0.5 cents per pound and also settle exactly on one of the strike prices on each of the last three days. The data indicate a fairly well-defined trading range. For example, when the strike price is 95-96% of the October futures price, put premiums tend to command an average 7.6% of the strike price. Similarly, "at the money" put options exhibit a tendency to trade at 8.5 to 10.7% of the strike price (futures price), or an average of 9.6%. Of course, these price relationships pertain to a specific sugar price range and only five trading days during one year. ^{10/}

^{9/} "At the money" puts and calls are not always equal. Recall, bullish or bearish sentiment often affects relative demand for puts and calls and skews relative premiums up and down.

^{10/} Since options on futures contracts have been trading for less than one year, price data is very limited.

Nevertheless, they provide a plausible basis from which to extrapolate estimates for premiums on other agricultural options.

Deriving November Soybean Options

Estimated premiums for prospective soybean options can be derived from sugar option premiums by assuming similar percentage price relationships. Strike prices are calculated by multiplying the percentages in the first column of Table 2 by the May 26 November soybean futures price. The resulting strike prices are then used to derive call and put premiums from the percentages in the second and third columns of Table 2, respectively. Table 4 summarizes the results. ^{11/}

TABLE 3. PRICE RELATIONSHIPS AMONG OCTOBER SUGAR OPTION PRICES, MAY 23 - May 27, 1983

<u>DATE</u>	<u>OCTOBER FUTURES</u>	<u>STRIKE PRICES</u>	<u>STRIKE PRICE % OF OCTOBER FUTURES</u>	<u>CALLS % OF STRIKE PRICE</u>	<u>PUTS % OF STRIKE PRICE</u>
May 23	11.61¢/lb.	11.0	95%	11.4%	7.1%
		11.5	99%	8.7%	8.5%
		12.0	103%	5.4%	11.3%
May 24	11.50¢/lb.	11.0	96%	10.9%	7.4%
		11.5	100%	8.3%	8.8%
		12.0	104%	*	11.7%
May 25	12.0¢/lb.	11.5	96%	10.4%	7.4%
		12.0	100%	9.6%	10.2%
		12.5	104%	7.0%	13.2%
May 26	12.5¢/lb.	12.0	96%	12.5%	7.1%
		12.5	100%	9.6%	9.6%
		13.0	104%	7.0%	11.5%
May 27	13.0¢/lb.	12.5	96%	10.0%	9.2%
		13.0	100%	*	10.7%
		13.5	104%	8.0%	11.5%

* Missing or incorrect quotation.

Derived from New York Coffee, Sugar, and Cocoa Exchange Prices

^{11/} Recall from the examples, November soybean futures closed at about \$6.35/bu. May 26. Rounding errors in the strike prices of one to two cents were allowed for simplicity.

TABLE 2. STRIKE PRICES OF OCTOBER SUGAR OPTIONS AS PERCENTAGES OF OCTOBER SUGAR FUTURES PRICE AND PRICES OF PUTS AND CALLS AS PERCENTAGES OF THE STRIKE PRICES (5/26/83).

<u>OCTOBER FUTURES PRICE</u>	<u>STRIKE PRICE % OF OCTOBER FUTURES</u>	<u>CALLS % OF STRIKE PRICE</u>	<u>PUTS % OF STRIKE PRICE</u>
12.5¢/lb.	88%	16.4%	3.2%
	92%	13.9%	5.2%
	96%	12.5%	7.1%
	100%	9.6%	9.6%
	104%	6.9%	11.5%

TABLE 4. PROSPECTIVE NOVEMBER SOYBEAN OPTION PRICES DERIVED FROM OCTOBER SUGAR OPTION PRICE RELATIONSHIPS (5/26/83)

<u>NOVEMBER FUTURES PRICE</u>	<u>STRIKE PRICE</u>	<u>CALLS</u>	<u>PUTS</u>
\$6.35/bushel	\$5.60/bu.	.92/bu.	.18/bu.
	5.85	.81	.30
	6.10	.76	.43
	6.35	.61	.61
	6.60	.46	.76

Table 2 is reproduced above Table 4 so that the derivations are easier to follow. For example, the \$.92 premium for the \$5.60 call option is equal to 16.4% of the \$5.60 strike price. The \$.61 premium for the \$6.35 "at the money" put option is calculated by multiplying \$6.35 times 9.6%.

PROSPECTS FOR SUCCESS OF AGRICULTURAL OPTIONS

If options on soybean futures were to bear the same relationships among puts, calls, and strike prices as those of sugar options, the resulting premiums would be those shown in Table 4. It is evident upon examination of Table 4 that soybean options may not sell at bargain prices. We can not assert that soybean options (or other agricultural options) will trade exactly like

sugar options. However, if they do, it is difficult to visualize that they will be attractive to hedgers. A \$.61 premium for a \$6.35/bu. soybean put option is expensive price insurance - almost 10% of the soybean price. Remember, the premium must be deducted from any gains realized by exercising the option to determine the final net price. ^{12/} How many farmers or commercial users would be willing to pay this price? Probably very few.

A potential option purchaser does, of course, have several strike prices and premiums to choose from. But, like anything else, the less one pays the less one receives. For example, the \$6.35 put option guarantees a \$5.74/bu. minimum price (\$6.35 - .61), whereas the \$6.10 put option assures a minimum price of \$5.67/bu. (\$6.10 - .43), and so on.

The costly premiums are perhaps one of the main reasons that trading volume and open interest in sugar options at the New York Coffee, Sugar, and Cocoa Exchange have been so low. It is interesting to note that options on stock index futures and gold futures have attracted more trading activity. Although it is difficult to compare various commodity options since expiration dates differ, similar "at the money" put options on Comex gold futures and the Chicago Mercantile Exchange's S & P 500 Stock Index futures appear to cost 3% - 5% of the strike price (market price).

The profitability and success of options trading is closely linked to the size of the premiums. It is unlikely that adequate volume or liquidity in agricultural options trading could be achieved with premiums similar to those of sugar options (5% - 10% of contract value). Carefully placed stop-loss orders on the sale of futures contracts could achieve the same results

^{12/} Commission costs and tax implications are ignored here.

at lower cost than the purchase of put options. Further, in a market with very little movement in prices, the option premium may be entirely lost. On the other hand, margin on futures contracts in a flat market is recovered.

WHY ALL THE INTEREST IN OPTIONS?

The proposed pilot program in exchange traded agricultural options has generated a great deal of interest among members of the agricultural community. Options have been widely touted as a promising, flexible, new price risk management tool for agricultural producers and commodity merchandisers. Some authors have likened put options to federal price supports established by non-recourse loans and have suggested that options trading might be a viable and economically preferable means of stabilizing farm income. (Gardner 1977)

Advantages of Options

Options are an attractive hedging (and speculative) medium for several reasons.

1) Limited risk. Whether a purchased option is exercised, sold, or allowed to expire, the most that can be lost is the one time premium paid to the option seller at the time of purchase. 2) Flexible price insurance. Farmers can purchase options for price insurance without relinquishing the right to benefit from favorable price changes. An option can be profitably exercised if it will enable its owner to sell at higher than market prices or buy at lower than market prices. Otherwise, it can be abandoned or sold (written) to recoup any remaining time value. 3) Absence of margin calls. Option purchasers need not worry about untimely margin calls since no margin is required of them. Only upon exercise and the assumption of a long or short

futures position must margin be deposited and maintained. 4) Uncertain magnitude of risk. Options can be beneficial when the degree of protection needed is uncertain. Consider a farmer who overestimates his upcoming production and oversells futures contracts in his hedging program. He becomes an involuntary speculator in the excess short futures positions. Using put options instead, or in conjunction with futures reduces the likelihood that a speculative loss will occur. The only risk is that additional premiums may be paid. (CFTC AgReport, Feb. 1983).

5) Generating additional income. Whether or not one has a position in the underlying market, numerous opportunities exist to earn premium income by writing options. The hedging and speculative strategies possible are virtually limitless when options are written in combination with existing futures positions and other purchased option positions. Spreads and straddles are among the many strategies which enable experienced traders to earn premiums while hedging or speculating in bearish, bullish, or flat markets.

Disadvantages of Options

Several obstacles are likely to surface once agricultural options trading gets underway. 1) Educational needs. Many farmers are reluctant to use futures markets as a pricing tool because they don't understand them. Options on futures contracts will surely compound this problem. Without adequate educational programs and materials, we run the risk of discouraging even more farmers from using futures markets as part of their marketing programs. 2) Confusion about premiums. Farmers may equate the option premium with the margin requirements on a futures contract. However, in flat

trading markets the entire option premium may be lost, whereas futures margin is returned. 3) Options may be costly. In the case of a put option, downside price protection and upside profit opportunities are limited by the premium paid. Carefully placed stop-loss orders to buy back futures contracts if market prices rise could achieve the same results without initially limiting protection on the downside. 4) Unlimited risk for writers. Since option writers are responsible for the total price move of the underlying futures, considerable risk is involved. Such risk will effectively restrict most option writing to large commercials and professional traders.

HOW WILL AGRICULTURAL OPTIONS BE REGULATED

This is a matter of considerable concern because of the many abuses and scandals that have occurred in the past. Bitter memories of boiler room operations associated with the sale of London options in the mid-1970's are vivid in the minds of many.

The CFTC points out that the new options are different because they will be exchange traded and subject to exchange rules and regulations. In addition to the regulatory protections utilized in the futures industry, further safeguards will be extended to options trading:

- 1) Brokers selling options to the public must be members of the exchange and subject to its rules and regulations, or members of the National Futures Association.
- 2) Promotional materials distributed by brokers must be reviewed by the sponsoring exchange for accuracy.

- 3) A detailed disclosure statement must be provided to prospective clients and a written statement acknowledging their understanding of this document must be signed.
- 4) Brokers or futures commission merchants (FCM's) must have written sales procedures which are approved by the sponsoring exchange.
- 5) Brokers must provide customers with trade confirmation notices and monthly account statements with each option position marked-to-market.
- 6) Brokers must meet financial integrity requirements similar to those in futures trading. (Education Quarterly, Nov. 1982)

The exchanges must monitor broker's activities and provide the CFTC with documentation of regulatory compliance. The burden placed upon exchanges to protect the public interest is indeed, heavy.

CONCLUSION

There has been considerable discussion of options on agricultural futures contracts since late 1982 when Congress lifted the ban on options trading. The CFTC is now considering a three year pilot program for exchange traded and regulated options on domestic agricultural commodities.

Many believe that options will fulfill farmers' needs and desires for price insurance and marketing flexibility. Among the most attractive features of purchased options are limited risk and the opportunity to profit from substantial increases in market prices. Other advantages include absence of margin calls and managing uncertain degrees of risk.

The success of options as an effective hedging medium is largely contingent upon their cost: the option premium. Early experience with sugar

options indicates that agricultural options may not sell at bargain prices. Premiums at 5-10% of contract value have kept volume and open interest in sugar options low. We can not assert that other agricultural options will command such costly premiums. However, if they do, direct use of futures markets may continue to be the most effective and economical means of hedging price risks.

Once implemented, the CFTC pilot program will subject agricultural options to the test of economic purpose. The economic value of options in the pricing and marketing of agricultural commodities will ultimately be determined by competitive forces within the marketplace.

REFERENCES

CFTC AgReport, Commodity Futures Trading Commission, February 1983
Volume 4 Number 1, May 1983 Volume 4 Number 2.

Education Quarterly, Commodity Futures Trading Commission, November 1982
Volume 1 Number 2, June 1983 Volume 2 Number 2.

Federal Register, U.S. Government Printing Office, February 10, 1983,
Volume 48 Number 29.

Gardner, Bruce L., "Commodity Options for Agriculture," American Journal
of Agricultural Economics, December 1977, Volume 59 Number 5.

Sheldon, R. E. and J. W. Choi, "Agricultural Options," Chicago Board of
Trade, January 1983.

"Understanding Options on Futures," Coffee, Sugar and Cocoa Exchange, Inc.,
New York, CSCE Pamphlet, April 1983.