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Agricultural Commodity Commodity Options: A New Marketing Alternative

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Commodity Options:
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Beginning in the Fall of 1984, agricultural producers and agribusinesses will be confronted with another dimension of the deregulation trend in American industry. Options on domestically produced agricultural commodities once again will be traded. Current indications are that agricultural options initially will exist for the Chicago Board of Trade's corn and soybeans futures contracts and the Chicago Mercantile Exchange's fed cattle and hog futures contracts. The objectives of this article are to (1) describe a specific type of option called a "put" and (2) explore how "put" options can be used to manage agricultural price risks.

What Are Options?

The buyer of an option has the right, but not the obligation, to sell or buy a commodity at a pre-determined price on or before a specific date. A "call" option refers to the right to buy at the predetermined price, while a "put" option refers to the right to sell at a predetermined price. This issue of the newsletter focuses on "put" options--a method of purchasing price insurance by producers.

If a producer purchases an $8.50 soybean put option, s/he has purchased the right to sell the soybeans at $8.50 per bushel until the date the option expires. The $8.50 price is referred to as the strike price. This is the price at which the option buyer can sell the soybeans if he elects to exercise the right contained in the option.

To purchase a put option, the buyer of the option must pay an option premium to the seller of the option. For example, if a buyer is willing to pay 50 cents per bushel to sell soybeans at $8.50, he would buy a put option for 50 cents.

The option premium is determined by the relationship between the strike price and the cash price, the number of days before the option expires, price volatility of the commodity and interest rates. For a put option, a fall in the price of the cash commodity increases the value of the put. Because of this, put options can provide price insurance for producers. As commodity prices drop, the option increases in value--thus offsetting the loss in the cash market. This will become more clear when we examine how put options can be used in the marketing of soybeans.

Comparison of Alternative Marketing Strategies

Put options represent a method of establishing a forward price for a producer's soybeans. Producers can establish a forward price for soybeans by either signing a forward pricing contract with a local elevator or hedging the commodity on the futures market. This discussion will concentrate upon how put options compare to cash marketing and forward pricing of grain at the local elevator.

Assume that on June 1 a producer is considering the possibility of pricing 5,000 bushels of soybeans that he plans to harvest in the fall. If the producer decides to wait until November 1 to price the soybeans, he has selected a cash marketing strategy. Reasons for selecting

this strategy are the expectations of higher prices for soybeans in the fall and a producer not knowing for sure on June 1 his fall production level.

Forward pricing at a local elevator locks the producer in at a specific price. If prices go down and the producer has forward contracted a a higher price, the forward pricing decision would have been profitable. However, if cash prices increase, the producer would be unable to benefit from the price increase.

Further, if a producer has a short crop that has been contracted at the lower price, he might have to buy soybeans to meet the delivery requirements of the contract. This potential loss is unattractive from a risk management perspective, because when the producer has a short crop his net profit is likely to be either very very small or negative. To pay an elevator for every contracted bushel not produced could mean serious financial problems. To control this type of financial risk, producers often limit the percentage of future production that they forward contract.

Put options are an attractive marketing alternative because their use can partially overcome both of these limitations to forward contracting. First, a put option establishes a basement price, but leaves open the possibility for a producer to benefit from upward price movements. Second, if the producer has a crop shortfall, he can sell his put option. His maximum loss would be the put option premium--not the price for an entire bushel of grain. Let us examine how a decrease or an increase in soybean prices would affect the consequences of each marketing alternative.

Case 1: Soybeans Decrease in Price

On June 1, the producer is confronted with three marketing strategies: Cash marketing in the fall, forward contracting at the local elevator and purchasing a put option. Table 1 summarizes the prices and revenues of the producer under each alternative.

Table 1: Comparison of Cash Marketing, Forward Contracting and Put Option Marketing Strategies when Soybean Prices Increase or Decline

	Cash Marketing	Forward Contracting	Put Options
THE SOYBEAN PRICE DECREASES FROM $7.50 ON JUNE 1 TO $6.00 ON NOVEMBER 1:			
Cash Price received on November 1	$6.00	$7.50*	$6.00
Plus Premium for Put Option Sold on November 1	n/a	n/a	+ $1.60
Minus Premium for Put Option Bought on June 1	n/a	n/a	- $ .70
Total Revenue Per Bushel	$6.00	$7.50	$6.90
THE SOYBEAN PRICE INCREASES FROM $7.50 ON JUNE 1 TO $9.00 ON NOVEMBER 1:			
Cash Price received on November 1	$9.00	$7.50*	$9.00
Plus Premium for Put Option Sold on	n/a	n/a	+ $ .10
Minus Premium for Put Option Bought on June 1	n/a	n/a	- $ .70
Total Revenue Per Bushel	$9.00	$7.50	$8.40

*Producer forward contracted with elevator for November 1 delivery for a price of $7.50 per bushel.

With the cash marketing alternative, the producer does nothing to establish a price. In forward contracting, he signs a contract with a local elevator for $7.50 for delivery on November 1. If the producer selects the put option alternative, he could buy a put option on the January futures contract that is traded on the Chicago Board of Trade. The January futures contract on June 1 is trading for $8.00 per bushel. This is the price the futures contract buyer must pay for a contract specifying the delivery of 5,000 bushels of soybeans during the delivery month of January.

Assume the producer must pay 70 cents for an $8.00 January put option. This means the producer has paid 70 cents to have the right to sell the January soybean futures contract at $8.00. In buying the put option, it is important to realize that the producer is not buying price protection on the physical commodity. Rather the price protection is indirect through the futures market. This relationship between the futures market and local cash market must be understood if options are going to be used effectively.

Now let us assume it is November 1.

The producer had a good crop and has the soybeans to sell or deliver. Cash soybean prices dropped to a $6.00 a bushel and the January futures contract now is only selling for $6.50. There has been a drop of $1.50 in both the cash and futures market. The success of the alternative strategies can now be evaluated.

The worst strategy would be cash marketing. The producer would only receive $6.00 per bushel. The best strategy would be forward contracting at the local elevator with a received price of $7.50.

The put option stragtegy would require the producer to sell his soybeans for $6.00 at the local elevator. Offsetting the drop in the cash market, however, is the profit from his put purchase. Assume the producer was able to obtain $1.60 for his $8.00 January put option. Why the price increase in the put option? Remember the put option represents the right to sell the January futures contract for $8.00. If the January soybean futures contract is selling for $6.50 on November 1, the right to sell the contract at $8.00 definitely has increased in value. The profit from the put option transaction would equal the $1.60 put option premium minus the 70 cents that the producer paid for the put option. The net price received by the producer with a put option, therefore, would be $6.90. This price is intermediate between the prices he could have received from cash marketing and forward contracting.

Case 2: Soybeans Increase in Price

Assume the producer's marketing activities and the prices in the various markets are the same on June 1 as in Case 1. But instead of declining, cash soybean prices increse in the local cash market to $9.00 per bushel and the January futures contract price increases to $9.50 on November 1. The best strategy in this case was cash marketing--with the producer selling his beans at $9.00 at the local elevator. The former preferred strategy, forward contracting, would involve a price of only $7.50.

Our option trading producer would deliver his soybeans to the local elevator for $9.00. But offsetting this price is a loss in the put option transaction. With the January futures contract trading for $9.50, the right to sell the January futures contract at $8.00 would not be attractive. If you would sell a January futures contract for $9.50, why would you pay for the right to sell the contract at $8.00? You would if you felt that the January futures contract might drop below the $8.00 strike price before the expiration of the put option. Assume that a put option buyer would be willing to buy the producer's put option for 10 cents.

The net price received by the producer would equal $8.40. The loss in the options market was the 70 cents paid for the option minus the 10 cent selling price or 60 cents. Unlike the forward contracting, the put option would let the producer benefit from the price rise. However, again the option strategy was second best.

Can a put option strategy ever be the worst marketing alternative? Yes, this would happen if soybean prices do not change or the price change is small. An illustration would be soybean prices staying at $7.50 in the cash market and being $8.00 for the January soybean futures contract. Both the cash marketing and forward contracting strategies would have resulted in prices of $7.50. The option strategy would have resulted in the producer receiving $7.50 a bushel in the cash market, but the put option would have probably been sold for less than what was originally paid. This loss would have decreased the price received by the producer to a level below $7.50 or below the other two marketing alternatives.

Conclusion

Agricultural commodity options may

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represent an attractive marketing alternative for producers confronted with unpredictable prices and yields. The possible marketing strategies involving options are much more numerous than presented here. An Economics Department staff paper by Professor Schmiesing goes into more detail on how the option premiums are determined and how the options relate to marketing strategies. Interested readers should request a copy from the Economics Department.

Agri-business Day March 29, 1984 Staurolite Inn Brookings, S.D.

The theme for the 1984 Agribusiness Day is "The Future of Agricultural Finance in South Dakota." Solutions and outlook for agricultural lending will be commented on by representatives of the agricultural finance, farming, agribusiness, farm management and university communities. Examples of the questions to be addressed are:

1. What can be expected in financial services for South Dakota to meet future credit needs for agriculture and agribusiness?

2. Will South Dakota farmers and ranchers be able to effectively compete for credit in the future? What marketing and financial management skills will they need to survive?

3. What is the role of credit agencies, other agribusinesses and the university in meeting future financial needs of South Dakota agriculture?

The Economics Department will be honoring the "1984 Agribusiness Person of the Year" in South Dakota. Please contact the Economics Department for any further information concerning Agribusiness Day.