

PRICING STRATEGY FOR SEED PRODUCERS:
EFFECTIVE USE OF THE COMMODITY FUTURES MARKET*

Dennis R. Henderson and John R. Schmelzer**

That an effective marketing plan is an important part of any successful business is patently clear to all of us. However, the daily operating problems associated with keeping the business going are equally important and often more pressing, thus marketing is relegated to some dusty corner of our already over-cluttered desk of management decisions.

Today, we want to discuss, albeit much too briefly, an integral part of any marketing plan -- pricing strategy. This is particularly important for seed producers since price uncertainty appears to be the order of the day.... price uncertainty that apparently stems from the lack of a pricing strategy on the selling side and from a firm, but highly risky, strategy on the buying side.

The prevailing pricing method in the industry appears to be one of delayed prices to growers and late prices to dealers and other customers. The common practice by producers seems to be to pay their growers some specified premium above the cash market price, and to allow growers the option of selecting any cash market price between harvest and the following spring as the base for payment.

* O.S.U. Department of Agricultural Economics paper No. ESO-218. Presented at the Certified Seed Growers School, Columbus, Ohio, January 22, 1975.

** Assistant Professor and Research Associate, respectively, Department of Agricultural Economics and Rural Sociology, The Ohio State University, Columbus, Ohio.

At harvest, the producer is unsure of exactly what his cost of seed will be. As a result, he attempts to delay establishing a price to his customers until as late as possible, in the hope that his growers will ask for payment, thus assuring him of his seed costs before he specifies his selling price.

While this may be a modest exaggeration of reality, it does dramatize the uncertainty that frequently exists in the pricing of seed. Yet, the need for an early firm price to seed buyers is readily apparent. Firm prices may substantially enhance a marketing plan by both stabilizing overall business operations and by securing additional patronage. For the seller, a firm price allows more complete financial and operational control over his business. A firm price allows him to more accurately project his revenues, thus enabling greater control over costs and profits. Firm prices also encourage early orders from customers, thus, allowing the producer to better plan his work load and the use of equipment and other facilities. The buyer gains by knowing, at an earlier date, exactly what his product costs will be. This is clearly important to his plans for remarketing and use. Furthermore, an early firm price allows him to order early for guaranteed quantities, thus assuring himself of an adequate quantity at a known price.

Clearly, the benefits to an early firm price strategy by seed producers are substantial. However, the need to offer growers a delayed price option is probably equally important, else the grower could sell in the cash market if prices rose above those specified in his seed contract, thus, disrupting the orderly supply of seed to producers and other customers.

The relevant question then becomes "how can you offer an early firm selling price, yet maintain a margin adequate to cover operating costs and return a satisfactory level of profits, when the cost of the goods sold is not known?" The answer lies in the possibility of buying insurance against an unfavorable

change in the price paid to growers between the time a firm price is set to customers and the time the grower requests payment. That is, to shift the risk associated with an unfavorable price change to someone else - to an "insurance company" who is willing to assume that risk. In marketing jargon, this is to "hedge" your market position. And it is here that the commodity futures market can be useful.

The Hedge

Let's take a closer look at the concept of hedging. Webster defines hedging as "...attempting to avoid or lessen loss associated with a bet or a risk by making counterbalancing investments". In our context, we're concerned with reducing business risks, specifically those risks associated with price changes.

To clarify the concept of a hedge, let's compare it to an example with which we're all familiar - fire insurance. Through the purchase of fire insurance, we shift some of the risk associated with a fire to others that are in the business of assuming that risk - namely the insurance underwriter. In essence, we are taking a counterbalancing position, counterbalancing the risk of financial loss due to a fire against the access to funds to offset such a loss if disaster should occur. In so doing, we forgo the use of the money that we spend for such insurance. That is, shifting risk is not a cost-free transaction. Yet, even though natural disaster does not frequently occur, most of us find it beneficial to pay the cost of hedging against the consequences of its occurrence.

It seems somewhat unusual that some of us who hedge against natural disaster are willing to accept the risk of volatile prices moving against us in a market without some "price insurance". If a natural disaster strikes, and

we are uninsured, is the loss much more serious than if prices move against us? The major difference is, destruction is swift and often complete in the case of a natural disaster, while the crunch of narrowing margins is every bit as complete, it is only less swift.

Through the commodity futures market a seed producer can hedge against the risk associated with an unanticipated increase in the price he has to pay to his growers. This enables the producer to set a firm price to his customers in advance of the date his growers actually request payment without jeopardizing his gross sales margin. Let's take a look at how a futures hedge really works. But first, an explanation of the commodity futures market is in order.

Trading in the futures market is frequently referred to as "trading in tomorrows". This is an apt description, for the futures market is actually a market in which future promises are exchanged - that is, promises or commitments to take delivery, or make delivery, of some commodity by some specified date in the future. These promises are called contracts. Each contract specifies the commodity to be delivered, its quality, the quantity and the point of delivery. The price at which the contract is traded is the price that the buyer agrees to pay to the seller, upon actual delivery. The person agreeing to make future delivery is the seller of the contract. The buyer is the person agreeing to accept delivery.

On the organized futures markets, such as the Chicago Board of Trade and the Chicago Merchantile Exchange, standardized contracts in specific commodities are traded with delivery dates in certain months. For example, a futures contract on the Chicago Board of Trade for wheat is for 5,000 bushels of No. 2 Soft Red wheat delivered to a designated warehouse in the rail switching district of Chicago or other designated point. Wheat contracts are traded that specify delivery during the months of March, May, July, September and December. Thus,

"May wheat" is a contract for wheat delivered in May. Because the contracts are standardized, one contract for May wheat is just the same as all other contracts for May wheat. Likewise, all July soybean contracts are the same, as are all March oats contracts, and so on for all the various commodity month combinations available.

The standardized contract enables a futures trader who has bought or sold a contract, or has an open position, to readily nullify his obligation by making an equal but opposite transaction anytime prior to the last trading day in the delivery month specified. That is, a trader who has made a commitment to, say, make delivery of 5,000 bushels of soybeans in May by selling one May bean contract, can cancel, or unwind, that obligation by purchasing a similar May bean contract anytime before the last trading day in May. And vice versa for a trader who had initially purchased a contract. Hence, a substantial number of contracts may be traded without any grain actually changing hands.

It is this capability to unwind one's position in the market that attracts speculators into commodity futures. For example, if a speculator thinks the price of soybeans in May is going to go up between now and next May, he would buy a contract now, at, say \$7.05 per bushel and sell that same contract sometime before the end of May. If the price is above \$7.05 when he sells it, he has made a profit, if the price is below \$7.05 when he sells he has incurred a loss.

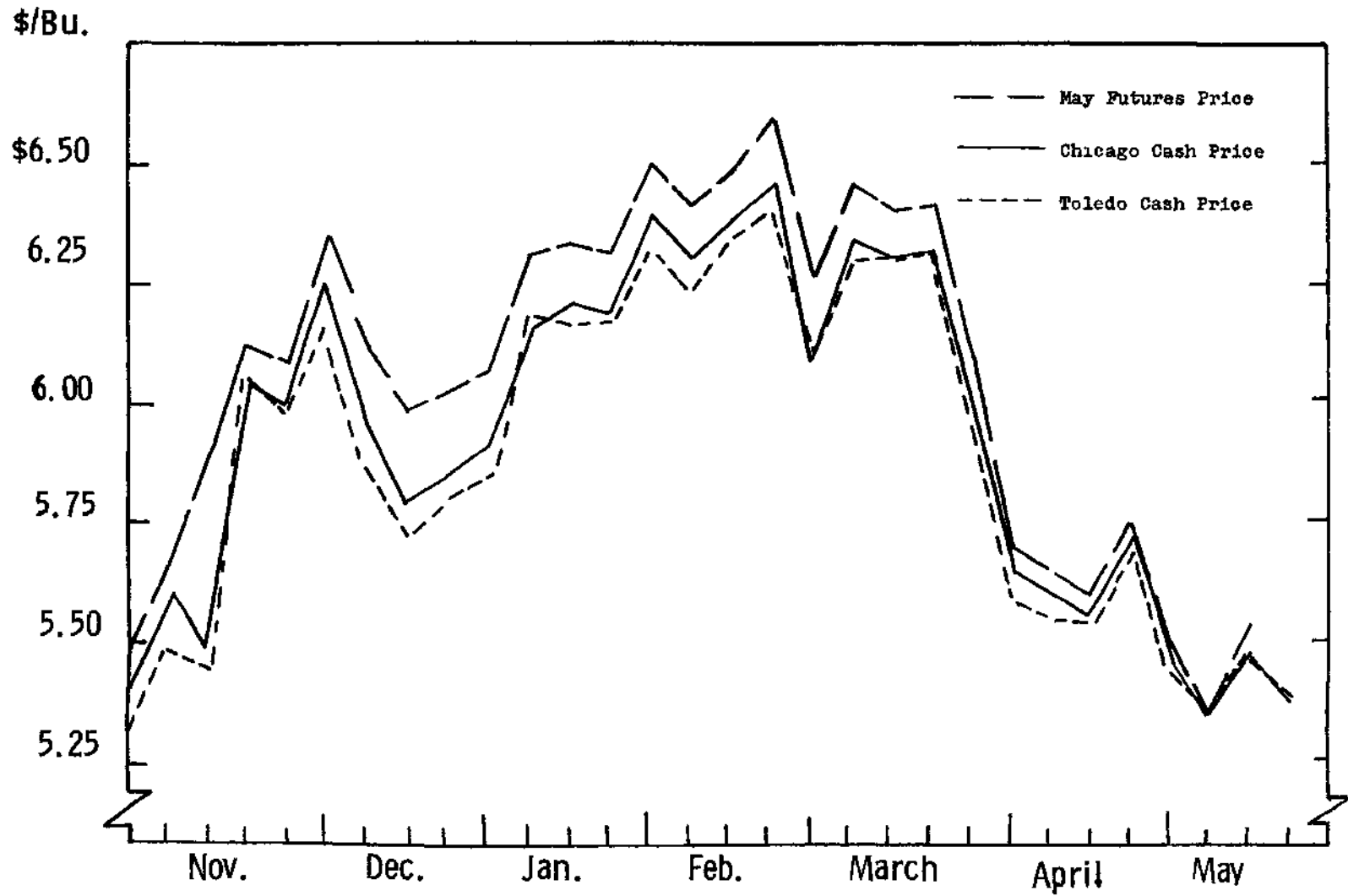
On the other hand, if he thinks the price will drop between now and May, he would sell now and buy a contract back sometime in the future to unwind his position. If he guessed correctly and the price does drop, he'll buy the contract back for less than he originally sold it for, thus realizing a profit. In fact, it is this willingness of speculators to "gamble" in the market that makes it possible for seed producers to use the futures market for price hedging.

Of course, a buyer or seller of a futures contract doesn't have to unwind his position. He has the option to hold his contract until the maturity date and then make or take delivery of the actual commodity. Relatively few traders actually do this, however, and for some very good reasons. First, speculators neither have the actual commodity nor want it, thus their incentive to unwind. Second, most "commercial interests," those traders such as seed producers who actually have or want the commodity, don't find it convenient to make or accept delivery of exactly 5,000 bushels in Chicago.

Nevertheless, the option to make or take delivery on futures contracts is a particularly important aspect of the futures market because it leads to a relatively stable relationship between the futures price for a commodity and the cash market price. The normal relationship between the current cash price for, say, wheat and the futures price in May, for example, is based upon the cost of storing wheat from now to May. That is, if the cash price of wheat in January is \$4.10 per bushel, and if it costs, on the average, 2 cents per bushel per month to store it, we would expect the May futures price of wheat to be about \$4.20 in January, or the price of wheat in January plus the cost of storing it 5 months, until May. If the cash price goes up, the futures prices will also rise and vice versa. This phenomenon is demonstrated for soybean prices between November 1, 1973 and May 31, 1974, in Figure I. Note that this diagram demonstrates the stable relationship between the May bean futures price and both the Chicago and Toledo cash prices.

An important process, called arbitrage, maintains this stable relationship between cash and futures prices. Assume, for example, that for some unexplained reason, the January cash price of wheat was \$4.00 and the May futures price, \$4.50. Arbitraders, knowing that storage costs from January to May amount to only about 10 cents, could then make riskless profit by buying wheat on the cash market, selling it for May delivery on the futures market,

FIGURE I. CASH AND FUTURES PRICES FOR SOYBEANS
(November 1, 1973 to May 31, 1974)



store it from January to May and actually make delivery at \$4.50 while their cost is only \$4.10, including storage. However, this process, as carried out by several arbitragers, tends to bid up the cash price - due to large purchases - and push down the futures price - due to large sales - thus, restoring the normal relationship between the cash and futures prices.

The price hedge is possible because of this relatively stable relationship between cash and futures prices. This allows a trader to insure, or hedge, against an unfavorable price change in the cash market by getting into a position to take advantage of a similar price change in the futures market. For example, for seed producers with delayed cash price agreements with growers, an increase in the cash price is an unfavorable price change. In the terminology of the market, the producers are "short" in the cash market. That is, they have an obligation to pay for something some time in the future. If price goes up between now and when they have to make payment, they have lost money.

However, if the price in the cash market goes up in the future, the price in the futures market also rises. Therefore, if they own a futures contract, or are "long" in the futures market, that price increase will allow them to sell the futures contract at the higher price, thus recovering on the futures market the money lost in the cash market. This is the essence of a price hedge - taking a position in the futures market that is roughly equal, but opposite, to the trader's position in the cash market.

Let's demonstrate this process with an example. A typical cash transaction is demonstrated in Figure 2. This example shows a substantial loss, relative to the necessary or expected sales margin, due to an unexpected increase in the cash price that a producer has to pay on the delayed price agreement with his contract grower. Certainly, a loss of this magnitude would cause a producer to be hesitant in setting a firm sales price to his customers. However, a price hedge protects him against this loss. The futures market

FIGURE 2. SEED PRODUCERS HEDGING EXAMPLE --
CASH TRANSACTIONS

NOVEMBER

SELL: 5,000 bu. of seed soybeans for winter delivery at \$3.00/bu.
above current cash price of \$6.00/bu. \$45,000
(\$3.00 margin covers your operating costs, premiums to
growers, profits, etc.)

RECEIVE: 5,000 bu. of soybeans from contract growers at \$0.50
above cash market price with price to be selected by grower
anytime before May 15.
Expected cost, based upon current
\$6.00 cash price 32,500

Expected gross margin..... 12,500

MARCH

BUY: Cash price rises to \$7.50/bu. and grower
requests payment. Actual cost..... 40,000

Actual gross margin..... 5,000

Loss relative to expected margin..... \$-7,500

transaction to hedge this price risk is shown in Figure 3. Here, you'll note, the producer took advantage of the price increase to realize a gain on his futures contract by going long in soybean futures at the same time that he went short in the cash market through his delayed cash price agreement with the grower. The summary of this hedging transaction is shown in Figure 4, which indicates that, with the hedge, the producer was able to guarantee, or "lock in" almost all of his expected gross margin, thus, averting major financial loss due to an unfavorable price change.

Of course, if the price had dropped in our example, rather than increase, the hedger would lose some money on his futures transaction. But, by the same token, the cash market price would also have declined and he would have had to pay less than he expected to his contract grower, thus, recovering on the cash market what he lost on the futures, and again "locking in" the desired gross margin.

Limitations

We've demonstrated how hedging through the commodity futures market can be an effective tool for reducing the risks associated with an unfavorable price change, and how this risk reduction can benefit an overall firm price strategy by producers. But, just as other risk-reducing activities have certain costs and limitations, so does hedging. These demand recognition.

One of the direct costs of hedging is the margin requirement. The margin is good faith money which is deposited with the broker who handles the futures trading. The margin acts as a guarantee that the trader will honor his financial obligations in the market. Normally, only about 10 to 20 percent of the value of the contract is required as margin. However, the value of a margin account diminishes if the futures price moves against the hedger. This may result in a "margin call," or a request from the broker for additional funds

FIGURE 3. SEED PRODUCERS HEDGING EXAMPLE --
FUTURES TRANSACTIONS

NOVEMBER

BUY: One May soybean futures contract
(5,000 bu.) at current price of \$6.20
per bu. \$31,000

MARCH

SELL: One May soybean futures contract
(5,000 bu.) at current price of \$7.65
per bu. (price increase reflects the
upward movement in cash prices)..... 38,250

Gross Gain of Futures Contract..... 7,250

Less: Costs of Futures Trading

Commission.....\$30
Interest on \$5,000 Margin
(4 mos. at 12%/yr.)..... \$200

Total 230

Net Gain of Futures.....\$7,020

FIGURE 4. SEED PRODUCERS HEDGING EXAMPLE --
SUMMARY

Expected gross margin upon which selling price for seed was based	\$12,500
Loss due to unexpected increase in cash price paid to contract grower.....	-7,500
	<hr/>
Balance.....	5,000
Gain of futures contract.....	7,020
	<hr/>
Result: Actual realized gross margin.....	\$12,020

for the margin account. If the capital isn't forthcoming, the broker is obligated to unwind the hedger's position in order to protect his own financial affairs, thus, the hedge is removed, once again exposing the trader to unfavorable price risk. Therefore, the hedger not only has the cost of the interest on the money he uses as a margin, but also has the cost of maintaining enough liquid funds to meet any margin calls that might occur during the life of his hedge.

Another cost of hedging is the potential loss of windfall profits that would be associated with a favorable price change. Just as the hedge reduces the risk associated with an unfavorable price change, it also reduces the unexpected profit opportunity associated with a favorable change in price. While the hedge helps "lock in" a desirable level of profits or gross margin, at the same time, it also tends to "lock out" unexpected gains as well as unexpected losses.

Contract size also presents somewhat of a limitation to hedging in the futures market. Because the size of a contract is standardized and specified, i.e. 5,000 bushels for most grains, a trader may not be able to hedge the exact amount he desires. Under - hedged positions reduce the risk shifting ability of the hedge while overhedged positions expose the trader to some speculative risks.

Overall, these are modest limitations, relative to the potential benefits associated with price hedging. Cautious, careful, and well-informed futures trading deserves your consideration as a part of your pricing and marketing strategy.