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STORING THE 1994 CORN AND SOYBEAN CROPS

The recent, sharp decline in new crop corn and soybean prices has resulted in prices low enough to encourage plans to store much of the crop that has not been forward priced. The crops can be physically stored on the farm or commercially, or the crops can be "stored" on paper through the use of basis contracts, delayed pricing contracts, minimum price contracts, ownership of futures, or ownership of call options. The "best" alternative depends on the availability of storage capacity, the cost of each alternative, and the amount of price risk the producer is willing to accept. Since the cash contracts (basis, delayed pricing, and minimum price) are based on the futures or options market) the choice is narrowed to three alternatives — storage, ownership of futures, and ownership of call options. Which of these alternatives represents the lowest cost alternative for storing corn and soybeans? Consider storage from October 15 to April 15 as an example.

The cost of storage in existing on-farm facilities includes interest on the value of the crop, an in/out cost, any additional conditioning costs, and storage shrink. Interest cost depends on the price of the crop and the interest rate. The interest rate depends on the source of borrowed funds or the opportunity cost of equity capital. For this example, we are using the CCC interest rate of 5.25 percent and a price of $2.10 for corn and $5.50 for soybeans. In/out costs reflect the cost of operating the equipment and handling shrink. We estimate these costs at $.05 per bushel for corn and $.07 for soybeans. An additional cost of $.02 for corn and $.04 for soybeans is assumed for storage shrink and/or additional conditioning costs. In this example, the cost of on-farm storage for six months would be about $.125 per bushel for corn and $.255 for soybeans.

Commercial storage costs include interest on the value of the crop stored, storage fees, and for corn, any additional drying and shrinkage charges for reducing the moisture level below 15 percent. Assuming storage fees of $.20 for six months, CCC interest rates, and corn dried to 14 percent moisture, commercial storage costs would be about $.305 for corn and $.455 for soybeans.

The cost of owning futures contracts to replace cash sales consists of basis appreciation from mid-October to mid-April and commission fees associated with trading futures contracts. For this example, we assume that the crop is sold at harvest at the current price of $2.07 for corn and $5.50 for soybeans and that May 1995 futures are purchased at current prices of $2.37 for corn and $5.88 for soybeans. A cost of $.02 per bushel is assumed to cover commission fees and interest cost on the futures margin account. The current basis is $.37 under May futures for corn and $.38 under May for soybeans. If, by mid-April, that basis has narrowed to a typical $.06 for

corn and $.08 for soybeans, the cost of ownership from mid-October to mid-April would be $.33 for corn, and $.32 for soybeans.

The cost of replacing cash sales with call options is very similar to the cost of owning futures, with the addition of the premium for the call options. At this writing, the premium for a May 1995 corn call option with a strike price of $2.40 was $.09 per bushel. Since that strike price is $.03 above the futures, the effective cost of owning the options is $.12 for a total cost of $.45 per bushel. The premium for May 1995 soybean call options with a strike price of $6.00 was $.20 per bushel. Since the strike price is $.12 above the futures, the effective cost of owning the call option is $.32, for a total cost of $.64 per bushel. The cost of owning call options can be reduced by selling call options with the same maturity but a higher strike price. Selling such options also establishes a ceiling on the net price received should futures prices rally sharply. Futures prices above the strike price sold would not add any net value.

The simple analysis presented here, suggests that on farm storage is the lowest cost alternative for owning corn, followed by commercial storage and ownership of futures. The highest cost alternative is ownership of call options. For soybeans, on-farm storage is lowest cost, followed by ownership of futures, then commercial storage and then ownership of call options. The advantage of using call options, even though they are the most expensive alternative, is that potential loss from lower prices is limited to the premium paid. The question then becomes, how much downside potential do corn and soybean prices have?

Darrel Good

Issued by Darrel Good
Extension Economist
University of Illinois

Cooperative Extension Service
United States Department of Agriculture
University of Illinois
At Urbana-Champaign
Urbana, Illinois 61801

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