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Post-Harvest Marketing Alternatives

Dean McCorkle, Mark Waller and Dan O'Brien*

The marketing time frame for crops can be divided into three parts—pre-harvest, harvest and post-harvest. Because of production risks, it is rarely a good idea to price 100 percent of expected production before harvest. Instead, it is advantageous to consider various pricing strategies that can be used for a portion of the crop(s) after harvest. The willingness to price a crop prior to planting lengthens the producer's marketing season and therefore allows more opportunities to capture a desired target price. This publication focuses on a few of the more common post-harvest marketing strategies using forward contracts, storage, futures contracts, options, and various combinations of these tools.

Storing Grain (speculative storage)

Storing unpriced grain has been a common marketing strategy for many years. Like some other post-harvest marketing strategies, storing grain that is not priced places the producer in a speculative position.

Rather than just storing grain out of habit, however, the producer needs to determine if there is an economic incentive to store. To determine this the producer first needs to know the cost associated with storing the grain (storage rates, in and out charges, shrink, interest/opportunity cost, etc.). Next, the producer needs to have an idea of how far cash prices might rise in the future. Lastly, the producer must determine if the expected cash price increase is large enough to more than offset the associated storage costs. One way this can be accomplished is by reviewing the futures prices for upcoming months along with the current futures price, local cash price, and storage costs. Table 1 summarizes the expected returns to storage for a hypothetical situation.

Based on your area's basis history, you anticipate the basis will strengthen $.05 from September to December and another $.05 from December through March. The market is offering $.18 per bushel to store until December and $.20 per bushel to store until March. After considering cumulative storage and interest costs, it is clear that there is incentive to store corn through December (+$.045 per bushel) while storing through March does not produce a positive return to storage (-$.07 per bushel). The type of storage used, commercial or on-farm, can significantly affect the returns.

One must keep in mind that this method of comparison will never show much of a return to storage since the incentive to arbitrage the market will induce market participants to store grain whenever prices near full carry (i.e., the elevator will buy the grain, hedge the position and pick up the nearly risk free price improvement itself). For the producer, the forecast may be based more on expectations that are not already built into the market price, such as better than expected exports or domestic use. The producer may also look at seasonal patterns or compare the current year to similar years from the past. While producers will come up with their own forecasts in many different ways, the important factor is whether they expect

*Extension Economist - Risk Management, and Associate Professor and Extension Economist, The Texas A&M University System; and Extension Agricultural Economist, Kansas State University Agricultural Experiment Station and Cooperative Extension Service.

the increase in market price to exceed storage costs. Another important fact to remember is that holding unpriced grain in storage is a speculative venture. If prices decline instead of rising after harvest, the producer stands to lose two ways. First, the price received for the grain when it is sold is lower than it was at harvest. Secondly, the producer must pay the storage costs.

Advantages of storing grain

- Extends the marketing season
- Can take advantage of higher prices if they occur
- Can take advantage of strengthening basis if it occurs

Disadvantages of storing grain

- Prices may not increase enough to cover storage costs
- Basis may weaken
- Stored grain can lose quality
- Producer is unprotected against falling prices

Table 1. Returns on storage.

It is Sept. now	Sept.	Dec.	Mar.
Futures price	$2.70	$2.88	$2.90
Expected basis	-$.30	-$.25	-$.20
Cash price	$2.40	$2.63	$2.70
Price spread	—	$.18	$.20
Less storage & interest*	—	$.135	$.270
Return on storage	—	+$.045	-$.07
Net price after s & i	$2.40	$2.50	$2.43

*Interest calculated at 10% of Sept. cash price; storage at $.025/bu./month

Replacing Cash with Futures

Another strategy that allows the producer to take advantage of rising prices is to sell the cash grain at harvest and buy an equal amount in the futures market (long position). This places you in a *speculative position* and you should consult with your tax advisor before initiating such a strategy. The downside to this strategy is that if prices decline very far, margin calls will be required to maintain equity in your margin account. If you are not prepared to handle them, this could cause cash flow problems. Know the amount of financial risk you can withstand before initiating a long position in the futures market. Since the cash grain has already been sold, the producer will not benefit from any basis improvement. There also are a couple of advantages to this strategy. The producer does not incur storage costs, and the margin needed to re-own the crop in the futures market is only a fraction of the crop's actual value, which allows the producer to use the remainder of the cash to pay off debt, reinvest in the farm, etc.

Forward Cash Contract

With a forward cash contract a grain elevator, or feedlot, offers the producer a set price for the specified delivery date. After determining your storage and interest cost from harvest through the delivery date, it is rather simple to determine whether or not the forward contract is a worthy marketing strategy.

Advantages of forward contracts

- Simple to use and understand
- Eliminate risk of weakening basis
- Eliminate downside price risk

Disadvantages of forward contracts

- Prevent producer from capturing higher prices (if they occur)
- Stored grain may lose quality
- Obligated to pay storage and interest costs

It is advisable to shop around for the best forward contract price (strongest basis). Unlike storing grain unpriced, forward contracting involves no price speculation because the price is fixed. The underlying purpose of post-harvest forward contracting is to earn a return on one's storage investment. Producers also may use this method as a way to move income into the next year for tax purposes.

Store Grain and Sell Futures (storage hedge)

Storing grain and selling futures is commonly referred to as a "storage hedge." The primary advantage of a storage hedge is that it locks in a general price level and reduces price risk because the hedger is short in the futures market (i.e., if prices decline, any loss suffered in the cash market will be roughly offset by a gain in the futures market). A storage hedge protects against changes in the overall level of market prices, but still allows the producer to speculate on the basis and capitalize on a strengthening basis if it should occur. You might consider this alternative if you are satisfied with the general price level but think you can add to that price by locking in a return on storage.

Advantages of storage hedge
● Can capitalize on strengthening basis
● Extends the marketing season
● Protects against downside price risk
Disadvantages of storage hedge
● Susceptible to weakening basis
● Prevents producer from capturing higher prices (if they occur)
● Stored grain may lose quality
● Obligated to pay storage and interest costs
● Margin calls can squeeze cash flows, especially when grain has not been sold yet

Assume a corn producer is contemplating a storage hedge for corn harvested in August. The local cash price today, in August, is $2.75, and the September futures price is $2.95, thus giving a basis of -$.20. The December futures price is $3.10 and the cost of storage and interest from August through December is $.20. The futures market is offering $.15 ($3.10-$2.95) to store grain through December. The questions are: 1) Are you satisfied with the current price range; and 2) Do you expect the basis to improve enough from August through December to provide a positive return to storage? The expected change in basis must be more than $.05 for there to be a positive return with the storage hedge. In this case, the producer looks at his historic basis records and sees that the cash price is usually $.03 per bushel below futures in December (a basis of -$.03 per bushel). The producer could sell December futures at $3.10 in August and store the corn until December when the hedge is lifted. Assume that by December the futures price fell to $2.60 and the cash price fell to $2.57. See the chart at the top of the next column to calculate the return to the storage hedge.

With a storage hedge, the general price level is locked in when the hedge is put on, but basis speculation continues until the producer sells the grain and gets out of the hedge. The key to using a storage hedge is to know your local basis.

Another method of managing downside price risk associated with storing grain is to *purchase a put option*. In this case the cash grain is not sold at harvest, but is stored. The cost of this strategy is the combination of storage costs and the cost of the option premium. If prices rise, the producer lets the option expire worthless and sells the grain for a higher cash price. If prices fall, the put option premium increases in value and

Placing the hedge

	Futures market	Cash market
August	Sell Dec. futures at $3.10 and store grain	Cash price offer $2.75
December	Buy Dec. futures at $2.60	Sell cash grain at $2.57

Hedge results

Cash grain price in December	$2.57
+ Futures gain/loss (3.10-2.60)	$0.50
- Storage costs	$0.20
= Final price	$2.87

Return on storage hedge

+ Difference in Dec. - Sept. futures	$0.15
+ Expected basis change (Aug. - Dec.)	$0.17
- Storage and interest cost	$0.20
= Return on storage hedge	$0.12

offsets the subsequent decrease in the cash price. This can be an attractive strategy if the producer wants downside price protection, but wants to speculate on basis improving. The producer knows that the maximum cost with this strategy is the up-front cost of the option and the associated storage costs. There are also no margin calls with this strategy.

Forward Basis Contract

The two components of price risk in the local market are the changing price level and the basis (the difference between cash and futures prices). Both the price level and basis risk should be addressed in your post-harvest marketing plan. One method of managing basis risk is with a basis contract. This is an agreement between a producer and grain elevator (or feedlot) which specifies the cash price upon future delivery as being a fixed amount in relation to the futures price (above or below), thus fixing the basis. Basis contracts eliminate the risk of the basis weakening but also eliminate the chance of further basis improvement. At the same time, the producer is unprotected against a decrease in the futures price. Other marketing tools such as a short hedge can be used in conjunction with basis contracts to manage price risk. For more discussion regarding basis contracts, please refer to RM2-3.0, “Knowing and Managing Grain Basis.”

Sell Cash and Buy Call Option

Most of the marketing strategies discussed so far do not give producers downside price protection, yet take advantage of rising prices that may occur after harvest. Selling grain at harvest and

buying a call option allows the producer to do just that, while also eliminating the cost of storage. The purchase of a call option gives the producer the right, but not the obligation, to buy the underlying futures contract at the specified strike price. Refer to RM2-2.0, "Introduction to Options," for a further explanation of options markets.

Advantages of selling at harvest and buying call option(s)
● Can capitalize on rising prices
● Avoids cost of storage
● Harvest sale makes cash available sooner
Disadvantages of selling at harvest and buying call option(s)
● Call option premiums can be costly
● Harvest time is usually when cash prices are lowest

If the futures price increases, you sell the call option and your profit is the difference in the value of the premium when sold and the cost of the premium when purchased. If the futures price decreases, you let the call option expire and your loss is limited to the cost of the premium when you purchased it. For example, assume a producer harvested corn in August. The producer sold the corn at harvest for $2.75. The March futures price is $3.10 and the producer buys an at-the-money call option for $.15. In February, the futures price is $3.70 and the value of the call option has risen to $.60 (determined by supply and demand of call options). The producer sells the call option and makes a profit of $.45 which, when added to the $2.75 cash price, yields a net price of $3.20. If the futures price had fallen, the producer would have let the option expire and would have lost $.15, which would have yielded a net price of $2.60.

Call option premiums can be costly, but are often cheaper than storage and interest. An attractive feature of this strategy is that the option premium is a one-time, up-front payment and the maximum loss possible is the cost of the option. To determine whether this strategy is favorable, compare call option premiums for the different strike prices available with your outlook for the market. What are the odds of prices rising enough to justify the cost of the call option? Because this strategy places the producer in a *speculative position* IRS rules are less favorable, and there is an upper limit on the amount of losses that can be deducted on your tax return in a given year. Consult your tax advisor for current tax regulations regarding speculative losses on options.

What Strategy is Best For You

Since the amount of production is not known with certainty until harvest time, producers usually refrain from pricing all of their anticipated production prior to harvest, leaving some portion of the crop(s) to be marketed during or after harvest. When updating and revising your marketing plan near harvest time, analyze the post-harvest marketing strategies that you feel comfortable with and weigh their advantages, disadvantages, returns to storage if applicable, and anticipated net price you think you will receive with each strategy. Making an informed decision and sticking with your marketing plan will ease the transition to the post-harvest marketing phase and make the marketing process much easier.

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