FACT SHEET

L-1039

Futures Marketing

A MANAGEMENT TOOL FOR GRAIN PRODUCERS

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Grain producers are vulnerable to risks of price change. Texas growers operating from unprotected cash positions absorbed a 50 cent per hundredweight decline in the cash grain sorghum market between August and September 1971!

As viewed by cash crop growers, cash market prices at harvest are normally at their lowest levels. Market prices are subject to demand-supply interactions and change with changing marketing conditions. Such fluctuations may result in price levels which yield little or no profits to growers.

FUTURES MARKETING

Faced with risks of price change, some producers use futures markets to lessen this risk. Successful use of futures markets depends on understanding the product and its market. Decisions based on a careful analysis of existing facts and developing situations aid in determining whether futures trading should be used and if so, when.

Information a Must!

Grain producers have access to information from crop and livestock reporting services. Daily, weekly and monthly USDA releases are reported via newspapers, magazines, radio and television. Some state universities release market information which is readily available through county Extension offices. Commodity analysts and price specialists provide detailed analyses on market trends, stocks, movements, consumption, disappearance rates and resulting price changes which are expected to occur.

Grains traded on the futures market include sorghum grain, wheat, soybeans, barley, oats and corn. While these commodities are somewhat interrelated, each has distinct characteristics and reacts differently in the marketplace at any given time.

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Hedging

Grain producers can shift some risk of price change through pre-harvest pricing. By taking a position in the futures market equal to and opposite his cash market position, a grower is hedging. Such a futures market position can defend or protect a present price level which is satisfactory—which covers costs and produces the necessary profit margin required—prior to harvest.

Futures market and cash market prices generally tend (a) to parallel each other and (b) to converge as the selected futures month approaches maturity. These conditions are followed closely by the experienced hedged. They aid in pinpointing price behavior as cash and futures react to changing market conditions. They also aid in determining under what conditions a hedged position might be beneficial.

The difference between futures market and cash market price at any given time is termed "BASIS." As changing market conditions occur, "basis" will narrow or widen depending on demand-supply relationships at various locations. The seasoned hedger follows "basis" change closely and uses this gauge to determine gains or losses from his futures trading transactions.

How Growers Use the Futures Market

Step 1. Grain producers start with their production costs. Production costs per bushel or per hundredweight give a breakeven price level—a price level which is needed to recover inputs.
Step 2. A thorough study of available market information is used by the producer to project what cash market price will be at time of sale.
Step 3. The producer adjusts the quoted futures market price of the maturity month immediately following his intended time of cash market sale.

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When evaluating the use of futures, growers adjust this price quotation by the transportation differences between their farm and local elevator with their farm and delivery points specified in the grain futures contract. Additional adjustments for added shrinkage and commissions should be made when applicable. As the following example indicates, the selected futures prices quotation is adjusted by 13 cents per hundredweight (cwt.).

	Differential Charges	
	Local Market	Futures Market
Growers transportation charges	$0.10 per cwt.	$0.20 per cwt.
Added shrinkage	—	.01 per cwt.
Added commissions, etc.	—	.02 per cwt.
Total	$0.10 per cwt.	$0.23 per cwt.
Adjusted futures market charges	$0.13 per cwt.	

With these three ingredients, (1) production costs, (2) projected cash market price at time of sale and (3) adjusted futures market price quotation, the producer is now ready to evaluate the use of futures.

Step 4. The producer determines the price margin potential to be protected from the estimated cash market price and the adjusted futures market price.

Consider a sorghum grain producer whose production costs are $1.80 per hundredweight. He projects $2 per hundredweight cash market price at harvest. The December futures price quotation is $2.14 per hundredweight—adjusted downward 13 cents by added transportation, shrinkage and commission costs.

The producer must decide whether to (1) accept his $2 projected cash market price or (2) defend $2.01 through sale of futures contracts equal to his expected production. Such decision can be made any time during the growing season. With an insufficient margin or spread, he may delay using the futures market until the necessary spread develops.

With inaction, the producer retains his cash market position and accepts all the risk of price change that may develop. Through the sale of futures equal to his expected production, he defends the $2.01 level with an expected 21 cents above production costs.

Results from Use of Hedging on a Growing Crop

While the process of hedging can defend a price level and potential profit, it can also limit gains which would accrue from unexpected rises in cash and futures market prices. The following examples show results of a hedged position in a rising and a declining cash market.

Example 1. Hedged Position in a Rising Cash Market.

During the planning of his grain crop, Producer A noted the following conditions: expected production costs of $1.80 per hundredweight, a projected cash market price at harvest of $2 and an adjusted December futures price of $2.01 per hundredweight ($2.14 minus transportation, shrinkage and commission differentials).

Producer A decides to hedge. He owns 200 acres which will produce 6,000 pounds of grain per acre (equal to three futures contracts of sorghum grain @ 400,000 pounds each). He instructs his local broker to sell three December sorghum grain contracts on March 11. His initial transactions follow:

March 11	
Cash Market	Futures Market
Owns growing inventory—200 acres of sorghum grain	Sells 3 Dec. contracts @ $2.14 (1,200,000 pounds)

Producer A deposits the required margins with his broker once the sale of three futures contracts is made. By his actions, he is attempting to defend the adjusted futures price of $2.01. During the growing season, cash prices climb and (with cash and futures prices tending to parallel each other) December futures prices also climb.

During October harvest, Producer A sells his 1.2 million pounds of sorghum grain to his local elevator at the cash market price of $2.10 per hundredweight. Simultaneously, he instructs his local broker to buy three December futures contracts which are being traded at $2.25 per hundredweight. His complete transaction appears below:

March 11	
Cash Market	Futures Market
Owns growing inventory—200 acres of sorghum grain	Sells 3 Dec. contracts @ $2.14
October 15	
Sells inventory at harvest @ $2.10 per cwt.	Buys 3 Dec. contracts @ $2.25
Gain or (Loss)	
10 cents per cwt. higher than projected	(11 cents per cwt.) loss

Disregarding interest on margin deposits and broker commission (less than 2½ cents per cwt.), Producer A received a net price of $1.99, 2 cents lower than his original target price which he attempted to defend by his futures trading action on March 11.

He missed the original projected $2 cash market price by 10 cents. In this case, Producer A defended his harvest price of $2.01 within a narrow limit, yet would have gained 10 cents per hundredweight had he remained in the rising cash market.

Example 2. Hedged Position in a Declining Cash Market.

Producer B has projected similar conditions as presented in Example 1 and decides to hedge his 200 acres of sorghum grain with a production of 1,200,000 pounds. He instructs his local broker to sell three December sorghum grain contracts on March 11, which appears as follows:

March 11

Cash Market	Futures Market
Owns growing inventory— 200 acres of sorghum grain	Sells 3 Dec. contracts @ $2.14 (1,200,000 pounds)

After depositing the required margins with his broker, he has positioned himself in the futures market to defend the adjusted price of $2.01. During the growing season, cash market prices fall and (with parallel cash and futures price movements) December futures prices also fall.

During October harvest, Producer B sells his 1,200,000 pounds of sorghum grain at $1.85 per hundredweight, the prevailing cash market price. Simultaneously, he instructs his local broker to liquidate his futures position by buying three December contracts. The complete transaction follows:

March 11

Cash Market	Futures Market
Owns growing inventory— 200 acres of sorghum grain	Sells 3 Dec. contracts @ $2.14

October 15

Sells inventory at harvest @ $1.85	Buys 3 Dec. contracts @ $2
Gain or (Loss)	
15 cents per cwt. lower than projected	14 cents per cwt. gain

Disregarding interest on margin deposits and broker commission (less than 2½ cents per cwt.), Producer B received a net price of $1.99, 2 cents lower than his original target price on March 11. He missed his original projected cash market price by 15 cents. Again, Producer B defended his harvest price within a narrow limit. He could have absorbed all risk of price change by staying in the cash market, which would have cost him 15 cents.

Example 3. Results from Use of Hedging on a Grain Crop in Storage.

A hedged position on a grain crop in storage offers similar benefits as indicated to producers on a growing crop. In principle, the technique is the same. A position is taken in the futures market equal to and opposite one taken, or to be taken, in the cash market.

Growers use this method to defend or protect a future price on their grain inventory while it is in storage. Such a technique offers a grower the alternative to protect his grain inventory value rather than selling his crop at harvest. By his actions, he attempts to protect a price level which provides insurance against a price decline.

In addition to costs of production, projected cash market price and adjusted futures price, the producer must consider storage, insurance and interest costs on the grain inventory in storage. While these costs may vary by location and time, typical costs may appear similar to these:

	Cost per cwt. per Month
Storage	$0.020
Insurance	.008
Interest	.013
Total	$0.041

Consider Producer C who harvests 200 acres of grain (6,000 pounds per acre yield) in October and elects to hold his grain in storage until January of the following year. He observes cash market price at harvest is $2 per hundredweight with a March futures market price quoted at $2.26 per hundredweight. After adjusting the futures price for location ($2.26 less 13 cents), he observes storage, insurance and interest can be protected ($2.13 less 3 month's costs at 4 cents per month) at $2.01 per hundredweight (adjusted).

Producer C instructs his local broker to sell March futures contracts equal to his owned inventory in storage. His initial postion follows:

October 15

Cash Market	Futures Market
Owns stored inventory valued @ $2	Sells 3 March contracts @ $2.26

Producer C notes a favorable "basis," one which protects his costs and provides a potential price of $2.01 per hundredweight when entering the cash market in January. During the storage period he experiences the following:

November 15	
Cash Market	**Futures Market**
Inventory value @ $2.05	March futures @ $2.28
December 15	
Inventory value @ $1.97	March futures @ $2.14
January 15	
Sells inventory to elevator @ $2.08	Buys 3 March contracts @ $2.20
Gain or (Loss)	
$0.08 per cwt. gain	$0.06 per cwt. gain

Such a condition poses several interesting situations for Producer C.

When selling in the cash market to his local elevator on January 15, he received $2.08 per hundredweight. He simultaneously bought three March futures contracts for $2.20 per hundredweight. Combined changes in the cash and futures markets produced a gain of 14 cents per hundredweight, which more than offset the accumulated storage, insurance and interest costs of 12 cents. Gain in the cash market alone did not offset these costs—but through hedging, the grower was able to obtain $2.02 per hundredweight (disregarding interest on margin deposits plus broker's commission). If he had not used futures, his cash market price less storage, insurance and interest would have produced $1.96 per hundredweight ($2.08 less 12 cents cost) on January 15.

Producer C could have elected to sell his grain inventory in November or December. Since a November sale would have yielded a net price of $1.99 per hundredweight, he could choose to hold and sell on December 15. When analyzing his position on December 15, Producer C noted a cash market price of $1.89 per hundredweight ($1.97 less 8 cents storage, interest and insurance) and a gain of 12 cents from his futures trading, producing a net price of $2.01 per hundredweight. This was the original target price he was atempting to defend!

Producer C observed a "basis" change from 26 over on October 15 (futures price less cash market price) to 23 over on November 15, 17 over on December 15 and 12 over on January 15. This declining "basis" produced protection against risks inherent in price changes—allowing him to defend a future price for his stored grain within fairly narrow limits of the original target price.

SUMMARY

Futures marketing can be used by grain producers as a marketing tool. Through hedging, they attempt to shift some risk of price change to others. A thorough study of marketing conditions and "basis" behavior is helpful in determining when to place the hedge. Risks of price change may be in either direction, up or down.

Successful hedging defends the original target price within fairly narrow limits. Such actions offer financial protection, which is of particular interest to bankers who are loaning growers production capital.

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Note: This is one of three in a series of fact sheets developed to supplement MP-918, *Futures Trading—A Grain Marketing Tool,* released and available through the Texas Agricultural Extension Service.

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