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## G78-416 The Importance of the "Basis" in Trading on the Futures Market

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## The Importance of the "Basis" in Trading on the Futures Market

This NebGuide contains information on understanding the basis aspect of hedging..

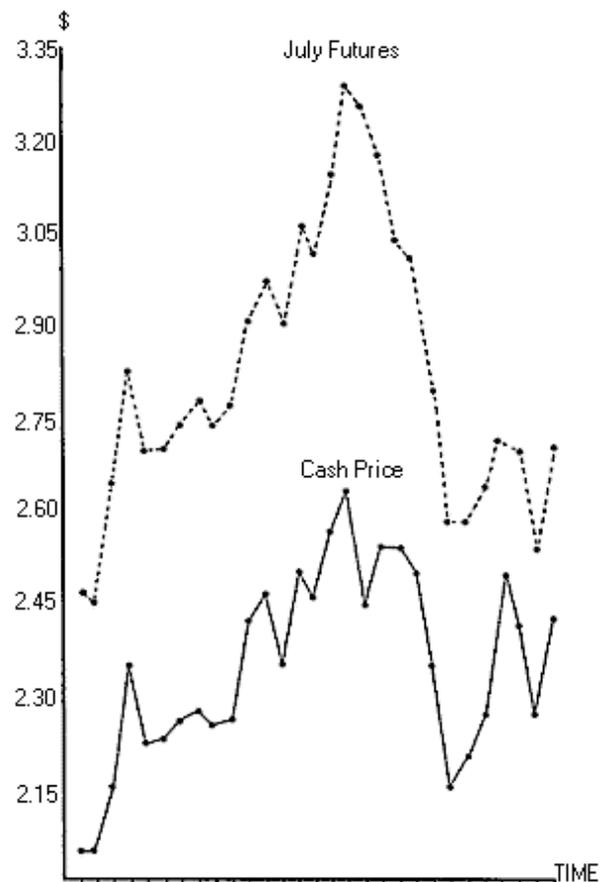
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The producer who wants to employ hedging as a marketing alternative needs to understand "basis." Hedging as used here is the selling of a futures contract to establish a price for a commodity the producer has on hand that will be sold at some later date. An example is corn held in storage in November that the producer plans to sell in May. This is formally known as a selling hedge. In hedging the producer is establishing in advance the price he will receive when the grain is sold and the hedge is lifted. The price that is received when the commodity is sold on the futures market is not the actual price the producer will ultimately receive. The futures price is the Chicago price for grain, not the Nebraska price, therefore there will be an adjustment made in the Chicago price. This adjustment is the "basis." The basis can cause the producer to either gain an additional profit or to receive a lower price for his product than he anticipated when the hedge was

### What is Basis?

Basis is the difference between the futures price and the cash price at a specific location at a particular time. Normally, the cash price will be less than the futures



price, although in specific local areas the cash price has been higher than the futures price due to a localized demand situation. When this happens, the basis is negative.

**Figure 1. Cash and July Corn Futures Prices November 1, 1973-May 16, 1974**

The basis is for the specific location where the producer will market his product. For an individual producer to determine the basis that is relevant to him, he must determine what the futures price is and then obtain a spot cash price from his local market. He subtracts this spot cash price from the futures price and the result is his basis, or he has localized the futures price to his area. The formula used for this is:  $\text{futures price} - \text{local cash price} = \text{local basis}$ .

The basis is not constant. It is greater at some points in time and less at others. An example of the fluctuations of the basis over time may be viewed in *Figure 1*. This example was developed from an elevator in eastern central Nebraska and represents a real life situation. The prices are Thursday prices.

The producer should be aware that the narrower or smaller the basis is at the time the hedge is liquidated, the higher the price received will be. A negative basis would add an additional unexpected profit over the price position established by the producer. For example, in *Figure 1*, the basis on November 1, 1973 was 42 cents and on May 16, 1974, it had narrowed to 27 3/4 cents. The basis was the widest on February 28 at 80 3/4 cents. What influence does a fluctuating basis have?

### **An Example of the Influence of the Basis**

Assume that on November 1 a producer rejects the cash bid of \$2.05 as too low and sells a July futures contract for \$2.46 (see *Table I*). In this example, the producer estimates on November 1 that when he sells his corn in May and buys back the futures contract, the basis will be 30 cents or less for his specific location. By subtracting 30 cents from \$2.46 he estimates that he will receive \$2.16 for his corn by marketing it this way. In May when the corn is sold and the hedge lifted, if the basis was 30 cents the producer would receive \$2.16 for his corn. But what happens when the estimate of basis is wrong? In the example shown in *Table I*, the basis on May 16 was actually 27 3/4 cents (vs. 30 cents). In this case, the producer received 2 cents more per bushel than was expected ( $\$2.46 - .27\ 3/4 = \$2.18$ ). Therefore, he has experienced an added profit from the narrowing of the basis. What if the basis had widened and in May was actually 45 cents instead of the estimated 30 cents? The producer would then receive  $\$2.46$  minus 45 cents, or \$2.01, instead of the \$2.16 he expected.

<b>Table I. An Example of Hedging Transaction</b>				
<b>Time Period</b>	<b>Cash Market</b>	<b>Futures Market</b>	<b>Basis</b>	<b>Price</b>
November 1, 1973	Rejects Cash Bid of \$2.05	Sells July Contract for \$2.46	Estimates May Basis of \$.30	Estimates price to be received in May at $2.46 - .30 = \$2.16$
May 16, 1974	Sells on the Cash Market at \$2.44	Buys Off Setting Contract at \$2.72	Actual Basis is 27 3/4 Cents	Actual Price Received is $\$2.46 - .27\ 3/4 = \$2.18$

### **How Can a Producer Effectively Estimate the Basis?**

There are two ways to estimate the basis: 1) the producer can try to estimate all the costs that make up the

basis, or 2) he can analyze previous basis patterns for his location.

If the producer chooses the first method, some factors he must consider are the cost of shipping to a delivery point, interest, available transportation services, the time of year as this affects the liquidation of grain stocks, and the supply and demand situation.

If the producer decides to use the second method, he can obtain past futures prices and cash prices during the year. He can then develop a basis table to determine what has happened in the past. In building a basis table, the producer may find keeping daily records for the cash prices and for all of the futures months a monumental bookkeeping task. It might be easier to start with only Thursday prices and the particular futures contracts that are of interest to him. An example of a simple basis table is shown in *Table II*.

<b>Table II. Basis Table</b>			
	<b>A</b>	<b>B</b>	<b>C</b>
<b>Date</b>	<b>Cash Price (Normally a Local Outlet)</b>	<b>July Futures</b>	<b>July Basis (B - A = C)</b>
Nov 1	\$2.05	\$2.47	+.42
Nov 8	2.05	2.45	+.40
Nov 15	2.15	2.64 1/4	+.49 1/4
Nov 22	2.35	2.83	+.48
Nov 29	2.22	2.70	+.48
Dec 6	2.23	2.70 1/2	+.47 1/2
Dec 13	2.26	2.74	+.48
Dec 20	2.27	2.77 1/2	+.50 1/2

This information can also be graphed for visual interpretation as in *Figure 1*.

The producer should remember that the basis will tend to narrow as the maturity date for the contract is approached, discouraging the actual delivery of a commodity. The threat of delivery in fulfillment of a contract causes the basis to narrow.

If the producer plans to use hedging as a marketing strategy he must first understand basis and its patterns for his local area. He must know how the basis changes over time and how much fluctuation can occur over a very short period. He must understand that hedging will not entirely eliminate price risk from marketing. The basis has to be estimated as it can be the key to receiving the expected price, or better. Once a hedge is set, it is the basis that will determine the actual price received.

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