

AGRICULTURE



UNDERSTANDING BASIS



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Basis = Cash Price - Futures Price

A simple equation. And the answer is a key to improving your profitability.

Basis is used to determine:

- the best time to buy or sell
- when to use the futures market to hedge a purchase or sale
- the futures month in which to place a hedge
- when to accept a supplier's offer or a buyer's bid
- resale bids

If you're not familiar with how to use basis information or you're wondering

where to get basis information, read on. It's never too late to begin using basis—

a key to making informed business decisions.

Understanding Basis

Basis is the difference between the local cash price of a commodity and the price of a specific futures contract of the same commodity at any given point in time. $\text{Local cash price} - \text{futures price} = \text{basis}$.

Local cash price	\$2.00
Dec futures price	<u>-\$2.20</u>
Basis	-\$.20 Dec

In this example, the cash price is 20 cents lower than the December futures price. In market “lingo” you’d say the basis is “20 under December.” On the other hand, if the cash price is 20 cents higher than the December futures price, you’d say the basis is “20 over December.”

Local cash price	\$2.20
Dec futures price	<u>-\$2.00</u>
Basis	+\$.20 Dec

Note: If a futures contract does not exist for a specific commodity, the price of a related futures contract may be used; e.g., corn futures is used to calculate the basis for sorghum.

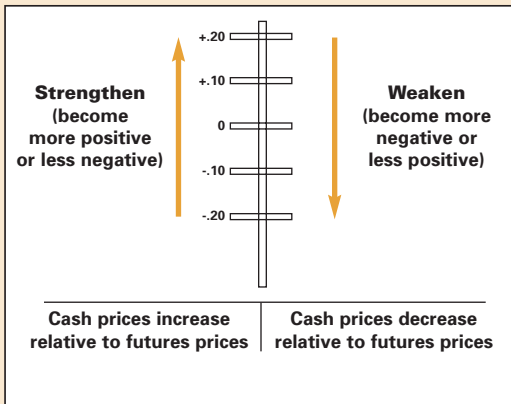
Actually, you can think of basis as “localizing” a futures price. The futures market price represents the world price for grain and is used as a benchmark in determining the value of grain at the local level.

Because basis reflects local market conditions, it’s directly influenced by several factors including:

- transportation costs
- local supply and demand conditions, such as grain quality, availability, need, local weather
- interest/storage costs
- handling costs and profit margins

Basis Movement

The basis changes as the factors affecting cash and/or futures markets change. Two terms used to describe a changing



basis are strengthening and weakening. If basis becomes more positive or less negative, the basis is said to be strengthening; and if the basis becomes less positive or more negative, the basis is said to be weakening. A strengthening basis occurs when the cash price increases relative to the futures. In this instance, the cash price is becoming strong relative to the futures. A weakening basis occurs when the cash price decreases relative to the futures over time. In this instance, the cash price is becoming weak relative to the futures.

Example 1: Strengthening Basis

	Cash	-	July Wheat Futures	=	Basis
Jun 1	\$3.25	-	\$3.70	=	-\$0.45
Jun 15	\$3.55	-	\$3.95	=	-\$0.40
Jul 1	\$3.50	-	\$3.85	=	-\$0.35

From June 1 to June 15 the basis strengthened, moving from 45 cents under July futures to 40 cents under. Then, from June 15 to July 1, the basis continued to strengthen, moving from 40 cents under to 35 cents under July. What is interesting to note is cash and futures prices increased from June 1 to June 15 and decreased from June 15 to July 1. Even so, the basis continued to strengthen. This example illustrates basis can strengthen regardless of prices moving higher or lower. A strengthening basis works to a seller's (or short hedger's) advantage.

Example 2: Weakening Basis

	Cash	-	March Corn Futures	=	Basis
Jan 30	\$2.60	-	\$2.30	=	+\$0.30
Feb 15	\$2.45	-	\$2.20	=	+\$0.25
Mar 1	\$2.50	-	\$2.35	=	+\$0.15

From January 30 to February 15, the basis weakened, moving from 30 cents over to 25 cents over March corn futures. Then, from February 15 to March 1, the basis continued to weaken, moving from 25 cents over to 15 cents over March. Notice that cash and futures prices decreased from January 30 to February 15 and increased from February 15 to March 1. Regardless, the basis continued to weaken. This example illustrates basis can weaken regardless of prices moving higher or lower. A weakening basis works to a buyer's (or a long hedger's) advantage.

Since these factors vary from one location to another, basis also varies from one location to the next. It's not uncommon for the basis in central Iowa to average -30 while a Gulf basis of +30 is common. One of the major factors

influencing this number is transportation costs. Sellers further away from areas where grain is used or exported may be at a disadvantage due to the cost of transporting a commodity to a customer.

Another major component of basis is the supply and demand of the local cash market. When there is a shortage of grain in an area, the local cash price increases relative to the futures price. In other words, the difference between the cash price and futures price becomes less negative (or more positive). This type of basis movement is referred to as a *strengthening basis*. A strengthening basis works to a seller's advantage. **Note:** A strengthening basis refers to a change in the price *relationship* between the cash and futures markets—it is not referring to a change in price direction. See the sidebar entitled *Basis Movement* for more information.

The opposite is also true. When local demand is low or a large supply of a commodity is expected in the region, the local cash price decreases relative to the

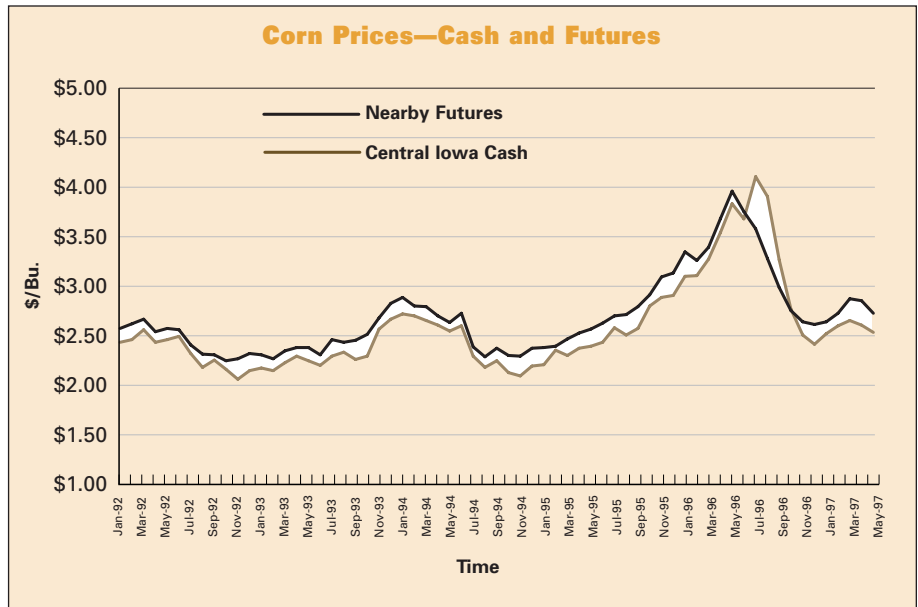
futures price. In this scenario, the difference between the cash price and futures price becomes more negative (or less positive). This type of basis movement is referred to as a *weakening basis*. A weakening basis works to the buyer's advantage. **Note:** A weakening basis refers to a change in the price *relationship* between the cash and futures market—it is not referring to a change in price direction. See the sidebar entitled *Basis Movement* for more information.

Commodity and Month Codes

It is not unusual to see a price quote followed by a commodity and month code. Listed below are the commodity and month codes used for CBOT agricultural futures contracts.

Commodity Codes		Month Codes (Current Contract Year)	
C	Corn	F	January
S	Soybeans	G	February
W	Wheat	H	March
RR	Rough Rice	J	April
O	Oats	K	May
BO	Soybean Oil	M	June
SM	Soybean Meal	N	July
		Q	August
		U	September
		V	October
		X	November
		Z	December

Below is the basis average value in central Iowa for a five-and-a-half-year period. The black line is the nearby CBOT corn futures price and the blue line is the average cash price for corn in central Iowa. The white area indicates the basis value. You'll notice the basis tended to weaken around harvest when local supplies were abundant and strengthened throughout the balance of the year. Another characteristic of basis is it tends to be fairly steady, while prices often fluctuate greatly. During the time frame charted, basis had only a 26-cent price range whereas cash prices moved a total of \$2.



Keeping History

The ability to evaluate whether a particular bid or offer is competitive depends on basis history. Even though prices can vary greatly from year to year, the basis typically does not change dramatically and generally can be predictable based on historical patterns. As a result, developing a basis history will help you in evaluating a cash price and is important to the performance of your overall hedging program.

There are a variety of different methods used to collect and eventually chart basis. You may decide to chart basis daily or weekly. Whatever method you choose to use, tracking basis should become part of your routine. The information gained from this practice can be used to significantly improve your bottom line.

To begin tracking basis, nothing elaborate is necessary. A table created by dividing a sheet of lined notebook paper into vertical columns works well. (An example of a basis worksheet is on the next page.) Next, select a particular day of the week (usually a day during the middle of the week, often a Thursday is used) and begin keeping a record of the local cash prices, the nearby futures price, and the basis (cash price - nearby futures price).

For our purposes, let's assume we've decided to develop a weekly record of cash and futures prices for the commodities you typically sell or purchase.

Food processors, crushers, feed manufacturers, millers, and other buyers purchasing ingredients often from distant suppliers should note that the most useful basis is calculated using a cash price as close to your source of supply as possible.

On page 8, we took the initial steps in constructing a basis table. Beginning with Thursday, October 7, the cash and futures prices were recorded and the basis calculated. For example purposes, we continued keeping records by writing down the cash and futures prices every Thursday and calculating the basis weekly.

Example: Tracking Basis

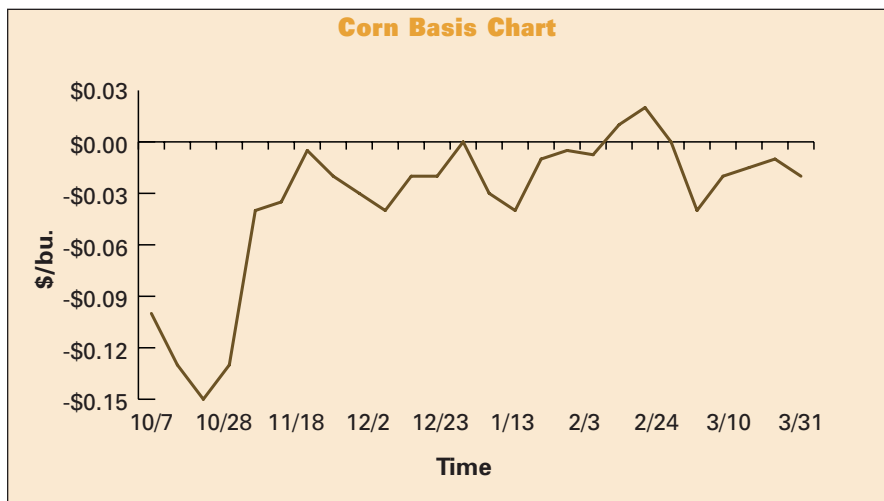
Commodity: Corn

Date	Cash Price	-	Nearby Futures Price	=	Basis	Factors Affecting Basis
Dec						
Oct. 7	\$2.20		\$2.30		-.10Z	_____
Oct. 14	\$2.17		\$2.30		-.13Z	_____
Oct. 21	\$2.19		\$2.34		-.15Z	_____
Oct. 28	\$2.22		\$2.35		-.13Z	_____
Nov. 4	\$2.28		\$2.32		-.04Z	_____
Nov. 11	\$2.27		\$2.30 ^{1/2}		-.03 ^{1/2} Z	_____
Nov. 18	\$2.33 ^{1/2}		\$2.34		-.00 ^{1/2} Z	_____
Nov. 25	\$2.32		\$2.34		-.02Z	_____
Mar						
Dec. 2	\$2.39 ^{1/4}		\$2.42 ^{1/4}		-.03H	_____
Dec. 9	\$2.39		\$2.43		-.04H	_____
Dec. 16	\$2.43 ^{1/4}		\$2.45 ^{1/4}		-.02H	_____
Dec. 23	\$2.44 ^{1/2}		\$2.46 ^{1/2}		-.02H	_____
Dec. 30	\$2.49		\$2.49		-.00H	_____
Jan. 6	\$2.45 ^{1/2}		\$2.48 ^{1/2}		-.03H	_____
Jan. 13	\$2.44 ^{3/4}		\$2.48 ^{3/4}		-.04H	_____
Jan. 20	\$2.46 ^{1/4}		\$2.47 ^{1/4}		-.01H	_____
Jan. 27	\$2.44 ^{3/4}		\$2.45 ^{1/4}		-.00 ^{1/2} H	_____
Feb. 3	\$2.47 ^{1/2}		\$2.48 ^{1/4}		-.00 ^{3/4} H	_____
Feb. 10	\$2.48 ^{1/2}		\$2.47 ^{1/2}		+.01H	_____
Feb. 17	\$2.48 ^{1/2}		\$2.46		+.02 ^{1/2} H	_____
Feb. 24	\$2.42 ^{1/2}		\$2.42 ^{1/2}		.00H	_____
May						
Mar. 3	\$2.42 ^{3/4}		\$2.46 ^{3/4}		-.04K	_____
Mar. 10	\$2.45 ^{1/4}		\$2.47 ^{1/4}		-.02K	_____
Mar. 17	\$2.47 ^{3/4}		\$2.49 ^{1/4}		-.01 ^{1/2} K	_____
Mar. 24	\$2.49		\$2.50		-.01K	_____
Mar. 31	\$2.46 ^{1/2}		\$2.48 ^{1/2}		-.02K	_____

Note: When the nearby futures contract month approaches delivery time, merchandisers begin basing their cash bids and offers off of the nearest deferred contract month. This usually occurs close to the first calendar day of a futures contract month; e.g., around the first business day of March cash bids and offers are based off the May contract. When the cash bids and offers shift to the next futures month, you also will want to use the price of the next futures contract month for calculating basis. The price difference between the nearby and the next futures month is included in the basis chart. You'll need to contact your local elevator or supplier to know when their bids and offers reflect the next futures contract month.

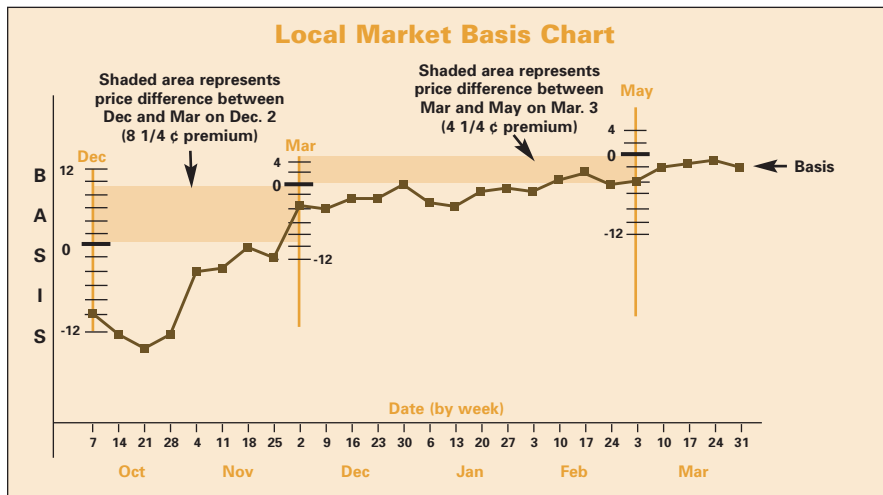
With a little research, you can construct basis records for past years by obtaining local cash prices from your elevator, commodity broker, or a grain marketing specialist from your state extension service. (Three to five years of history is a good start.) Historical futures prices are available from the Chicago Board of Trade or private companies that sell computerized data sheets.

Once you have the data, the next step is constructing a graph. A computerized spread sheet program works well in generating basis charts from data tables and keeping the information updated. If you don't have access to a computerized spread sheet, it is also possible to graph the charts by hand with basis plotted on the vertical axis and the time period (day, week) plotted on the horizontal axis. The chart below graphs the basis values using the information collected in the table on page 8.



This is one of the most fundamental basis charts. Generally, the price difference between different futures contract months is also plotted along with basis movement. With this type of chart, a vertical line is drawn on the first day you begin recording basis. Then, about half way up, a horizontal bar intersects the vertical line. The horizontal bar indicates the "zero" value.

Continue plotting basis until the bids and offers switch to the next futures contract month. On that day, draw another vertical line. Add a horizontal bar intersecting the vertical line at a point representing the price difference between the two futures contract months. Continue the same procedure throughout your chart. This chart not only shows you basis movement but plots the price difference (i.e., spread) between futures contract months. See the example below. As you'll learn, grain buyers and sellers use both basis and spread values in making marketing decisions.



Using Basis to Determine Expected Price

Since basis is fairly stable and predictable, it is a common practice among buyers and sellers to use current fundamentals in conjunction with historical basis information to calculate anticipated buying and selling prices. To determine an expected buying or selling price, you add the expected basis to the price of a futures contract.

Futures price + expected basis = expected price

For example, assume you normally sell the bulk of your soybean crop in October. On May 15, you see the November futures contract (contract month closest to, but not before, the time you plan on delivering soybeans) is trading at \$5.75.

From your basis records you determine the three-year-average local basis is -.25 during October, and current supply and demand variables indicate nothing out of the ordinary. This is enough information to calculate an expected selling price:

Nov Futures Price on May 15	+	Expected Basis in October	=	Expected Selling Price
\$5.75		-\$0.25		\$5.50

The same idea can be applied if you're a commodity buyer. By analyzing current fundamentals and knowing the expected basis for the time you plan to purchase a commodity, you can determine an expected buying price. Assume it is February and you're going to need soybean oil in June to meet your manufacturing requirements. July soybean oil futures are trading at 21 cents/pound, and the local basis for June delivery averages 1 cent over July futures for June delivery. Based on what is occurring in the market and using historical basis information, you project the following:

Jul Futures Price on Feb. 2	+	Expected Basis in June	=	Expected Buying Price
\$.21		+.01		\$.22

Using historical basis information to calculate an expected buying or selling price is just one example of how basis is used. History is a useful gauge in determining an expected price and in evaluating today's bids and offers as you'll see in the next section.

Average Weekly Gulf Basis for Soybeans

Basis tables can include as much information as you need to track. A perfect example is the basis table below, which includes basis figures for the 52 weeks in a year dating back to 1989. Not only are the averages included, but so are the minimum and maximum values. It's not uncommon to use the average basis or disregard the minimum and maximum values and recalculate the average basis levels.

week	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	avg	min	max
1	18.25	37.88	25.00	32.13	25.85	23.63	37.38	47.08	37.56	25.40	31.01	18.25	47.08
2	19.20	34.95	28.25	29.81	27.85	26.81	47.25	51.63	38.50	28.20	33.25	19.20	51.63
3	21.81	34.25	30.45	28.13	27.31	29.30	49.00	50.90	39.40	31.25	34.18	21.81	50.90
4	22.35	34.20	29.50	28.20	29.92	31.71	48.45	43.35	37.70	31.65	33.70	22.35	48.45
5	26.80	34.65	33.05	29.25	29.10	30.85	43.60	43.65	38.33	28.60	33.79	26.80	43.65
6	32.94	37.05	34.40	30.00	28.38	30.44	41.95	44.20	36.20	27.50	34.31	27.50	44.20
7	39.50	36.95	34.38	29.00	29.88	31.75	43.05	42.86	34.13	30.35	35.18	29.00	43.05
8	44.44	37.56	33.94	31.15	29.95	32.50	43.50	38.63	34.60	29.60	35.59	29.60	44.44
9	35.50	34.63	35.40	32.88	24.25	28.35	36.65	39.70	35.33	24.06	32.67	24.06	39.70
10	31.65	22.40	22.45	22.10	25.00	27.55	30.55	33.75	29.80	27.88	27.31	22.10	33.75
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39	28.95	19.80	33.90	32.00	27.30	25.00	33.90	46.88	56.80	28.15	33.27	19.80	56.80
40	26.55	18.30	34.05	28.75	22.10	25.05	33.90	34.10	41.20	30.90	29.49	18.30	41.20
41	27.85	21.15	36.45	27.85	23.00	24.90	35.60	35.60	37.00	26.10	29.55	21.15	37.00
42	29.55	21.20	36.95	25.75	22.45	26.55	37.05	36.35	34.10	28.30	29.83	21.20	37.05
43	36.20	21.15	39.75	27.50	24.71	27.63	39.35	39.80	29.35	28.20	31.36	21.15	39.80
44	34.30	19.50	38.35	25.25	17.05	21.20	39.80	38.58	26.23	25.40	28.57	17.05	39.80
45	28.88	11.69	35.75	22.88	16.42	23.75	36.43	37.95	23.38	23.50	26.06	11.69	37.95
46	30.90	19.69	34.00	23.00	19.60	30.50	35.10	37.30	27.20	25.70	28.30	19.60	37.30
47	32.00	22.08	32.70	20.35	21.17	32.00	37.72	37.70	26.70	28.08	29.05	20.35	37.72
48	32.85	26.70	34.75	28.00	24.60	36.25	37.90	37.81	26.19	27.50	31.26	24.60	37.90
49	36.70	27.85	34.75	30.05	27.40	40.75	40.05	35.90	28.60	28.50	33.06	27.40	40.75
50	43.40	30.05	32.90	26.55	30.80	42.40	42.35	36.25	29.60	29.60	34.39	26.55	43.40
51	50.10	29.15	34.88	28.25	30.94	41.38	40.00	39.00	27.80	31.60	35.31	27.80	50.10
52	49.92	29.00	33.00	27.83	30.44	44.38	42.28	38.00	28.40	33.40	35.66	27.83	49.92
avg	34.50	23.76	32.50	28.32	25.08	27.60	37.32	34.89	43.94	30.86	31.88	23.76	43.94
min	14.60	7.20	22.45	18.00	16.42	19.20	20.05	18.10	17.56	23.30			
max	55.95	37.88	40.13	37.63	35.15	44.38	49.70	56.30	163.80	50.63			

With the amount of information given in this table, it can really make your life easier when it comes time to evaluating a basis value. Let's assume it is the first week in January. Sellers in the Gulf area are offering a sell basis of 19 over for soybeans. Do you take the offer?

After reviewing the table, you know the weakest level in 10 years has been 18¼ over and the strongest has been 47 over. So if you're buying soybeans, history tells you it doesn't get much better than an offer of 19 over.

Another advantage of having several years of history is you can compare years with similar fundamentals. Suppose the Midwest is experiencing above average rainfall throughout the planting season. You can study the basis movement during a spring that experienced above average rainfall and use this information to help project future basis movement for the upcoming crop. **Note:** Gulf basis for soybeans and other ag commodities is generally above the futures price; i.e., a positive basis.

Putting Basis to Work

Knowing the usual basis and basis pattern for the commodities you buy or sell will help you make more informed decisions about:

- **whether to accept or reject a given price**

Using historical basis information, is a particular cash bid or offer attractive? Or would you be better off hedging your price risks and waiting for the basis to improve?

- **which buyer or seller to use**

Bids and offers reflect different basis levels. Check around to see which buyer or supplier is bidding or offering the most attractive basis.

- **when to purchase, sell, or store a crop**

Does the current price reflect the average basis or is it stronger or weaker? What do you anticipate happening in the market?

- **when to close, or “lift,” a hedge**

If the basis improves or equals your estimated basis level, it could be a sign to purchase or sell a commodity and close your hedge.

- **whether, when, and in what delivery month to hedge**

Is the basis quoted off of a deferred futures month more attractive than the nearby futures month.

- **and when and how to turn an unusual basis situation into a possible profit opportunity**

Merchandisers and basis traders make a living managing basis levels. They must keep their eyes open for unusual basis patterns to improve profit margins or avoid losses, while maintaining their bids and offers at a competitive level.

The examples that follow illustrate how basis is used to one's advantage.

Timing Your Purchases and Sales

Five characteristics of basis to consider when timing your purchases or sales:

1. Basis tends to have a consistent historical pattern.
2. Basis gives a good frame of reference for evaluating current prices.
3. Basis usually weakens around harvest.
4. Basis tends to strengthen after harvest.
5. Basis tends to be consistent even as prices fluctuate.

Example #1: Short Hedger Because there is a certain amount of “predictability” with basis, it is continually used by the grain industry to make buying and selling decisions. Let’s say you have three years of basis history and know the local elevator’s basis in early November averages 30 under (\$-.30) the December futures contract. In the spring, you call your elevator and find out he’s bidding \$1.95 a bushel for corn through a cash forward contract. Delivery is required by November 15. At the time, December corn futures are trading at \$2.35. You calculate the basis for early November delivery at 40 under December:

Forward cash price Nov. 15 delivery	\$1.95
Dec futures price	<u>-\$2.35</u>
Basis	-\$.40 Dec

Would you take the forward bid? Because the basis is historically weak (-.40 compared to -.30) and there is potential for the basis to strengthen, you might consider passing on this bid. However, if you like the current futures price level you could hedge your price risk using futures. Should the basis strengthen, you would unwind (offset) your futures hedge and sell corn through a forward contract or a spot cash sale.

If you hedge, the expected selling price is:

Dec futures price	\$2.35
Expected basis early November delivery	<u>+(-\$.30)</u>
Expected sale price	\$2.05

The only factor that will affect the final sale price will be a change in basis from what is expected. If the basis is stronger than expected, you will receive more than \$2.05 for your corn. If the basis is weaker than expected, you will receive less than \$2.05.

What if the cash forward bid was \$2.15? With December futures at \$2.35 this equates to a basis of -20.

Forward cash price Nov. 15 delivery	\$2.15
Dec futures price	-\$2.35
Basis	<u>-\$.20 Dec</u>

A basis of 20 under is significantly stronger than the historical average of 30 under, so you decide to sell a portion of your anticipated corn crop and take the cash forward bid of \$2.15.

Example # 2: Long Hedger Suppose you purchase soybean oil for Tastee Foods Company. It is September, and you are interested in protecting the price the company will pay for its January soybean oil needs, given the price level of the current market. After checking with your usual suppliers, the most attractive offer is:

The current cash offer for January delivery	\$.28
The January futures contract	<u>\$.25</u>
Therefore, the current basis	+\$.03

From your years of basis history, you determine by January the basis is typically about $\frac{1}{2}$ cent per pound, or $2\frac{1}{2}$ cents weaker than the present basis. Given current fundamentals, you believe the basis will move toward the historical average. At this point, you can protect your buying price by hedging in the futures market—purchasing futures and later offsetting the futures position—or entering a forward contract purchasing soybean oil for 28 cents per pound. If you establish a long hedge to protect your buying price level, the expected buying price can be calculated as follows:

$$\text{Futures price} + \text{Expected basis} = \text{Expected buying price}$$

Keeping Records— Part of the Daily Routine

Deb and Ken Heidzig of Auburn, Nebraska, believe basis is as important to their farm operation as fertilizer. “We don’t even think twice about keeping basis records,” says Deb. “Without them we’d be lost when it comes to making marketing decisions.”

Every year is a little different. Looking back at 1998, the basis was very weak in southeast Nebraska. This was a result of large supplies following a good crop and limited storage space. From January 15, 1998, to January 15, 1999, the local basis ranged from -8 to -51 cents—with the basis at its weakest range from August to December (-19 to -51), averaging about -29 cents. As a comparison, from August to December 1997 the basis range was -10 to -31 cents, averaging about -20. Prior to 1998, the five-year basis average was -18 in the Auburn area.

On February 4 new-crop cash bids were around the \$2.59 price range, reflecting a new-crop basis of $-26\frac{3}{4}$ cents—significantly weaker than the historical average. Instead of using forward cash contracts that would have locked in the basis, Deb decided to price the farm’s corn crop using options. She established a floor price on 100 percent of their estimated production using an option strategy of buying a put and selling a call. This way she took advantage of the current price but wasn’t locked in to a basis weaker than the historical average.

“If prices never rallied, we set a floor in the \$2.50 range provided the basis was near the historical average. And if we were lucky and prices rose, the options gave us enough flexibility to benefit from a rally.”

By the time the Heidzigs sold their crops in the fall, the local cash price for corn was \$1.98 and the option position netted 51 cents—giving the Heidzigs a final sale price of \$2.49 for corn. “It’s true we could have received a higher price for the corn through the forward contract in February, but we would have taken on significant production risk if we sold 100% of our expected production through a forward that early in the season. We also knew the basis was historically weak. You have to remember that back in February, we had no idea the basis was going to weaken to record levels.”

“It really comes down to managing basis,” Deb explains. “You can’t always hit the highs, but basis information helps me evaluate a cash price and do a better job marketing.” As it turned out, Deb waited until the middle of November before she made the cash sale. There was a week during November when the local basis moved from its extremes, and Deb took that opportunity to sell the 1998 crop. The Heidzig’s final selling price of \$2.49 was still significantly higher than the average price for corn that fall.

Using this formula, you calculate your expected buying price:

$$\$0.25/\text{lb} \quad + \quad (+\$0.005) \quad = \quad \$0.255/\text{lb}$$

This is lower than the cash forward offer of 28 cents per pound. Since the expected buying price with futures is below the cash offer, due to an expected lower basis, you decide to initiate the long hedge and buy January soybean oil futures.

Assume in late December the futures price has increased to 27 cents. Also, assume the basis weakens from 3 cents to 1/2 cent. You purchase your January cash soybean oil requirements for 27 1/2 cents (\$0.27 futures + +\$0.005 basis) = \$0.275/lb from your supplier. At the same time, you unwind the hedge, or offset the futures position, by selling January futures for 27 cents. The results are:

Long Hedge		
Local Cash Price	Futures Market Price	Basis
Sep		
Cash forward offer @ \$.280/lb	Buys CBOT Jan futures contracts @ \$.250/lb	+\$0.030/lb
Dec		
Buy cash soybean oil @ \$.275/lb	Sells CBOT Jan futures contracts @ \$.270/lb	+\$0.005/lb
	\$.020/lb gain	\$.025/lb gain
Net Result		
Cash soybean oil	\$.275/lb	
Futures gain (sells \$.27 - buys \$.25)	\$.020/lb	
Net purchase price	\$.255/lb	

Making the Leap

Another way to calculate the net price is by subtracting (or adding) the net basis gain (or loss) from the original offer. In this instance, the 2½ cent basis gain is subtracted from the original cash offer of 28 cents resulting in the same price—

25½ cents. Actually, this is the more common approach to use in determining net price once you become proficient in using and thinking in terms of basis.

This hedge provided protection from the possibility of rising soybean oil prices. The actual purchase price was below the original cash offer, because the basis weakened as expected. This is ideally how a hedge should work. There will be times when the basis does not behave as anticipated, and this will affect the actual results of the hedge.

Also, at times, a cash offer may reflect a weaker-than-expected basis. In such a case, a buyer may prefer to enter a forward cash contract to take advantage of a weaker basis and lock in pricing.

If you typically work with a variety of suppliers, check with each of them.

One may be offering a more attractive basis. Whatever the situation, a working knowledge of basis provides useful insight when deciding how to price commodities.

Basis: A Benchmark in Evaluating Price

by Bruce Roskens

Quaker Oats

Basis is extremely valuable information to our business as it is to any grain miller. In fact, it's really key to anyone involved in the grain business. As a buyer of commodities, we continually look back and use history to evaluate current basis levels. Based on our records, we know whether a particular supplier is offering a competitive price. The company also has its own expectation of where basis may be going by analyzing producer selling patterns and the current local demand situation.

In addition to the standard factors that affect basis (freight, competition, storage capacity), grain quality really comes into play for us. The nature of our business requires specific grain qualities for end-user needs. As a result, our industry is becoming increasingly dependent on educating producers and suppliers and possibly contracting with them for a required quality.

Basis contracts that offer premiums and discounts for a given quality are valuable pricing tools. Actually, I see the use of them increasing. Basis contracts are useful to us, and if producers are astute in using basis it can work to their advantage as well.

Taking Basis to the Next Level

Determining expected buying and selling prices is one of the more common uses of basis. What you will discover is that the grain industry keeps extensive basis records and uses that information to make buying and selling decisions throughout the year.

More extensive basis tables are created comparing a current cash quote to deferred futures contract months in addition to the nearby contract month. Take a cash quote for the middle of the week. Compare that price to the nearby futures month and the deferred months of the same crop year. What this information gives you is the equivalent basis versus a distant futures month. The table below illustrates the equivalent basis value for each cash price given. The basis is the number in parentheses following the futures price.

Example: Equivalent Basis

Date	Cash Price	Futures Price	Futures Price	Futures Price	Futures Price
		Mar	May	Jul	Sep
Jan. 7	\$2.65	\$2.63 1/2 (+.01 1/2)	\$2.70 (-.05)	\$2.74 1/2 (-.09 1/2)	\$2.73 3/4 (-.08 3/4)
Jan. 14	\$2.74	\$2.77 1/2 (-.03 1/2)	\$2.84 1/2 (-.10 1/2)	\$2.89 3/4 (-.15 3/4)	\$2.85 1/4 (-.11 1/4)
•					
•		Dec	Mar	May	Jul
Oct. 2	\$1.93 1/2	\$2.17 1/4 (-.23 3/4)	\$2.28 1/2 (-.35)	\$2.35 3/4 (-.42 1/4)	\$2.42 (-.48 1/2)
Oct. 9	\$1.92 1/2	\$2.19 (-.26 1/2)	\$2.30 1/2 (-.38)	\$2.38 1/4 (-.45 3/4)	\$2.43 1/2 (-.51)

You'll notice that on a given day, all of the basis quotes reflect the same cash price versus a different futures month. Take a look at the January 7 cash price of \$2.65. A basis of:

- "1 1/2 cents over March"
- "5 cents under May"
- "9 1/2 cents under July"
- "8 3/4 cents under September"

equates to a January cash price of \$2.65.

How Merchandisers Manage Basis

Grain merchandisers are the intermediaries between producers who sell commodities and end users who buy commodities. Satisfying both ends of the market chain—sellers wanting the highest possible price and buyers wanting the lowest—becomes a balancing act for merchandisers that would be nearly impossible if it wasn't for basis.

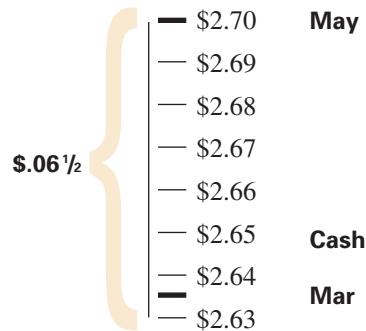
Typically, merchandisers quote sellers of commodities a “buy basis” and buyers a “sell basis.” The difference between the two equates to the merchandisers profit margin, but managing that equation to stay competitive is not an easy task. In essence, merchandisers are basis traders. Their merchandising decisions are based on basis movement and not dependent on price fluctuations.

You can actually think of merchandisers as being “price neutral.” They hedge their price risk by taking on a temporary futures hedge until an offsetting cash transaction can be made. That leaves only basis to manage. A merchandiser's objective then is to profit from basis changes so the savings can be passed along to the customers—offering competitive bids and offers.

There are a variety of sophisticated merchandising techniques used including rolling hedges (closing out one futures position and moving it into another month) and spreading (simultaneously buying and selling different futures contract months) to help merchandisers achieve their market goals.

As you calculate the price difference, or “spread” between a nearby and deferred contract month, you'll see the equivalent basis reflects this difference. On January 7:

March futures are	\$2.63½
May futures are	-\$2.70
The spread is	\$.06½



Equivalent basis information gives market participants a vehicle to compare different basis quotes. They use it to determine whether to store or sell grain, the value of grain, and to take advantage of basis opportunities.

Using Futures Spreads to Make Marketing Decisions

A futures spread is an indication to buyers and sellers whether the market is willing to purchase grain now or if it is encouraging grain to be stored. If the spread is less than the cost to store grain, it's an indication the market wants

grain now. If the spread is equal to or greater than the cost to store, it's an indication the market is encouraging storage.

Let's say the average spread, or "carry," between March and May is about 8 cents (May trading at a premium to March). In our January 7 example, May is trading at a 6½ cent premium to March—a penny and a half less than the average spread between these two months.

If you were holding corn on January 7, would you store or sell?

Since the market is not willing to pay the additional storage costs, you could consider selling corn today. Or if you anticipate the basis improving to a level that would cover the cost of storage and more, then you might hold off selling corn.

In either case, having historical information and comparing it to today's market conditions is a valuable asset when it comes time to make buying, selling, and merchandising decisions.

This same type of analysis can be used in selecting a particular month to establish your hedge. For one reason or another, one futures month may be trading at an unusual premium or discount to another. Based on your market objectives, you would establish your hedge in the futures month that will work best for you.

For example, let's assume on November 10 you can buy cash corn from your supplier at \$2.48. At the time, the December futures are trading at \$2.50 and March futures are at \$2.60. The \$2.48 cash price can be quoted as:

- "2 under December"

or

- "12 under March"

After considering storage costs and historical basis patterns, you find the quote of 2 under December acceptable but feel 12 under March provides an

even better basis. So you buy corn today at \$2.48 and hedge the purchase in March futures rather than December. This way, you've locked in a basis of 12 under March and hold corn for early February delivery.

We encourage you to learn more about using basis and spreads. There are a variety of excellent texts and marketing specialists who can help you in your study.

For More Information

For anyone in the grain industry who sells or buys grain there are two factors that ultimately determine the final sale or purchase price of a commodity. One of those factors is the futures price and the other is basis. The futures price is a market projection of how current world fundamentals will affect the supply and demand for a commodity in the near and distant future. It's this price agribusinesses use as a benchmark to gauge cash bids and offers for commodities at the local level. Basis, on the other hand, is the price difference between the local cash price of grain and the futures price.

Basis is a local phenomenon and is influenced by different variables, including transportation costs, local supply and demand conditions, as well as storage and handling expenses. Because of the affect basis can have on the final price for a given commodity, it is a common practice within the grain industry to track basis and use basis information in making marketing decisions. So, if you've gained anything from this book—we hope you'll have a better appreciation of basis and will begin tracking and using basis in making buying and selling decisions.

If you'd like to learn more about futures and options contracts on agricultural commodities at the Chicago Board of Trade, contact a commodity broker of your choice or call one of the Chicago Board of Trade's agricultural product managers at 312-341-7955.

We also offer a number of free publications on agricultural futures and options. To see current listings, visit www.cbott.com.

Most Commonly Used Terms

basis—the difference between the local cash price of a commodity and the price of a related futures contract; i.e., cash price – futures price = basis.

basis contract—a privately negotiated cash market contract in which the buyer and the seller initially lock in the basis but not the price level. Other terms of the contract—such as delivery time and place, premiums and discounts for grain quality—are negotiable.

buy basis—the basis level quoted to sellers.

deferred—a futures contract further from expiration than the nearby contract.

equivalent basis—comparing the nearby basis to the deferred basis levels.

forward contract—a privately negotiated cash market contract in which a seller agrees to deliver a specific cash commodity to a buyer sometime in the future at a predetermined price. Terms of the contract are not standardized.

futures contract—a contract traded on a futures exchange for the delivery of a specified commodity at a future time. The contract terms are standardized and state the item to be delivered and the terms and conditions of delivery. Price is negotiable.

long hedger—a commodity buyer; one who uses futures or options contracts for protection against rising prices.

nearby—the futures contract closest to expiration.

sell basis—the basis level quoted to buyers.

short hedger—a commodity seller; one who uses futures or options contracts for protection against falling prices.

spread—the price difference between two related futures markets.

strengthen—refers to basis movement where the price of a cash commodity rises relative to a related futures contract. A short hedger benefits from a strengthening basis.

weaken—refers to basis movement where the price of a cash commodity declines relative to a related futures contract. A long hedger benefits from a weakening basis.

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EM12-4R2 03.04.2000 04-03600



Chicago Board of Trade

Business Development

141 W. Jackson Blvd.
Chicago, IL 60604-2994
312-341-7955 • fax: 312-341-3027

New York Office

One Exchange Plaza
55 Broadway, Suite 2602
New York, NY 10006
212-943-0102 • fax: 212-943-0109

European Office

St. Michael's House
1 George Yard
London EC3V 9DH
United Kingdom
44-20-7929-0021 • fax: 44-20-7929-0558

Latin American Contact

52-55-5605-1136 • fax: 52-55-5605-4381

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