

CASH SALE TRANSACTIONS | BASIS CONTRACT

Who makes a higher salary? A mechanical engineer in Los Angeles, California or a mechanical engineer in Ames, Iowa – assuming their job responsibilities, education, and experience is all equal? Why do you think this is true?

It is common for the salary of a similar job to differ based upon where an individual lives. While an engineer in LA may generate a higher salary than one in the Midwest, the engineer in LA is also going to experience a higher cost of living. Generally, an area's cost of living and local demand for individuals in a particular career field affects the wages received in that area.

A similar concept applies to the cash price offered to agricultural producers. A corn producer near the Mississippi River is likely to sell corn for a higher price than a producer in central Nebraska. While both producers experience the same futures price, these producers face a different basis level. Basis is different across geographic locations and is influenced by the costs incurred to move the commodity to the next point in the supply chain.

This module dives deeper into the concept of basis, what factors affect the basis level, and explores a contract offered in the cash market for producers to lock-in a favorable basis level.

1) Cash Contracts	2) Futures Contracts	3) Option Contracts
Cash/Forward Cash	Short (sell) position	Puts
Hedge to Arrive (HTA)	Long (buy) position	Calls
Basis		
No Price Established (NPE)		

Basis Contracts

The relationship of the local cash market price and futures market price is called **basis**. Basis is calculated by subtracting the futures price from the local cash price and can be positive or negative. Basis varies from one buyer to the next because it is set by the local grain buyer, and often differs across geographic location. The basis level can make a big difference on whether or not producers decide to contract their grain with a particular buyer.



Negative Basis

Negative basis indicates a low local demand for the commodity. When basis is negative, the local cash price is less than the futures price. Basis is often negative for grains.

Example: Cash price is \$3.75 and futures price is \$4.02

$$\text{Basis} = \$3.75 - \$4.02 = -0.27$$

Positive Basis

Positive basis indicates a high local demand for the commodity. When basis is positive, the local cash price is higher than the futures price. Basis is often positive for livestock, but is less common for grains.

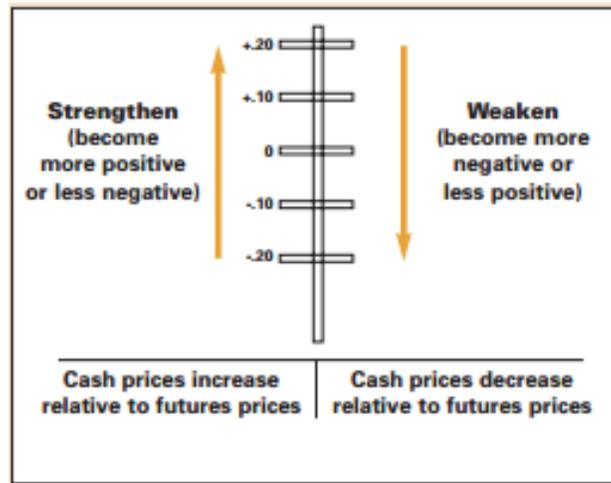
Example: Cash price is \$4.15 and futures price is \$4.02

$$\text{Basis} = \$4.15 - \$4.02 = +0.13$$

Two common terms to describe changes in basis are *strengthening* and *weakening*.

Strengthening basis is when basis becomes more positive, or the cash price increases relative to the futures price. Strengthening basis is good for the producer selling the commodity.

Weakening basis is when basis becomes less positive, or the cash price decreases relative to the futures price. Weakening basis is not helpful for the producer selling the commodity. The chart below helps visualize the changes in basis.



Basis can help producers determine:

- the best time to sell
- when to use the futures market
- the futures month in which to sell, if using a futures contract
- when to accept a buyer's bid

Factors Influencing Crop Basis

Local Supply & Demand

Transportation Costs

Interest and Storage Costs

Profit of Buyer

- **Local Supply:** Basis is typically stronger in a given location when the available supply is scarce relative to demand. For instance, light selling in the spring will tend to strengthen basis. Alternatively, basis is generally weaker when an area is experiencing abundant production and availability of the commodity. This is often the case around harvest, when basis levels tend to be weaker because there is a large supply available to the market.
- **Local Demand:** Basis will strengthen in a given location when the demand is strong relative to supply. For example, if a grain elevator has a railcar to fill and needs more grain to fill it, basis will strengthen. Alternatively, if demand is weak compared to local supply, basis is likely to widen.

- **Transportation costs:** The cost of transporting a crop can affect basis. Moving grain from point A to B costs money and long hauls are expensive. The greater the transportation costs, the weaker the basis. The buyer of the grain, who sets basis, will widen basis the more expensive it is for them to transport the grain to a processor. Therefore, basis tends to be more favorable at grain processing facilities, terminal elevators, and shipping points on major rivers compared to grain elevators in remote locations. This means that producers who are further away from areas where grain is used or exported may be at a disadvantage due to the cost of transporting the commodity.
- **Interest and storage costs:** When it becomes more costly for the grain buyer to store grain due to interest and storage costs, basis levels will weaken.
- **Profit of Buyer:** The grain buyer controls the price they pay for corn by controlling the basis level. Ultimately, the buyer will set a basis level that is profitable for the buyer. Stronger basis levels will encourage producers to move their grain and sell to a buyer with a more attractive basis level, but the buyer will always work to maintain a basis level that is profitable for their business.

Factors Influencing Livestock Basis

Unlike grain, livestock basis is not posted or tracked daily. For sellers of livestock, it is important to have an understanding of historical basis levels in order to estimate the cash selling price.

While grain basis can be computed using deferred futures months, livestock basis is always calculated using the nearby (closest to expiration) futures contract because livestock cannot be stored.

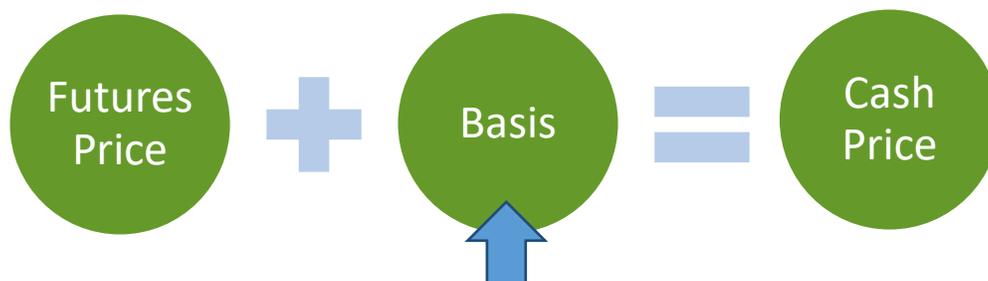


Local Supply & Demand: Basis can also be influenced by local supply and demand. If there is harsh winter locally, it can delay how soon cattle are ready for market in the local market. This local delay in supply can have a positive impact on basis (and prices) received locally.

Seasonal Price Patterns: Basis for livestock is not constant throughout the year. It is largely dependent upon seasonal patterns due to the timing of production. For example, the majority of the U.S. beef cow herd is on a spring calving system. This results in the greatest supply of calves in the fall. The increase in supply results in weaker basis levels. When these calves are placed in feedlots, they are generally ready for harvest in mid-to late summer. Thus, basis for fed cattle tends to be weakest during this time of year.

Transportation Costs: The cost of transporting livestock to the end-user or processor can also affect livestock basis. Moving a commodity from one location to another costs money and long hauls are expensive. The greater the transportation costs, the weaker the basis.

A **basis contract** is a contract provided in the cash market where the seller of grain establishes the basis portion of the cash price for a specific delivery time and quantity. The futures price is set at a later date.



A basis contract
 “locks-in” the basis level.

A basis contract allows producers to lock-in a basis level for a specific delivery period while waiting to set the futures price at a later date. The producer assumes the price risk until a futures price is locked in. Note that a basis contract is a common crop transaction, but is rarely used for livestock.

A producer will use a basis contract when the local buyer’s basis levels are stronger than normal and the producer anticipates an increase in the futures price of the commodity.

Take a look at the following cash bids for corn. In a basis contract, a producer will lock-in basis for a date of delivery. If a producer wants to contract 10,000 bushels of corn for October delivery, the producer will lock-in basis for the October delivery range.

Date	Futures	Basis	Cash
03/01/17 - 03/31/17	3.615	-0.30	3.315
04/01/17 - 04/30/17	3.615	-0.35	3.265
05/01/17 - 05/31/17	3.615	-0.35	3.265
06/01/17 - 07/31/17	3.695	-0.38	3.315
10/01/17 - 10/31/17	3.82	-0.40	3.42
11/01/17 - 11/30/17	3.82	-0.42	3.44

In this example, the producer locks-in a basis level of -0.40. The producer leaves the futures price open, in hopes that futures will improve by the time the December futures contract expires.

Advantages	Disadvantages
Seller eliminates risk of weakening basis	Seller can’t benefit from strengthening basis
Seller can benefit from futures price improvements	Seller has unlimited futures price risk
No storage costs for the seller	Risk of not producing the amount of grain under contract

Basis Contract Examples:

Pat raises corn and watches basis at the local grain elevator closely. On June 1st, Pat sees that basis for October delivery is stronger than normal at -0.20, likely due to the dry weather conditions. Pat contracts 5,000 bushels of corn with a basis contract for October delivery.

December corn futures rally in early August to \$5.00 per bushel. Pat decides to set this futures price for his basis contract.

Pat delivers his corn on October 15th for a cash price of \$4.80.

Date	Futures Price	Basis	Cash Price
June 1 st		-0.20 (locked in)	
August 1 st	5.00 (set in August)		
October 15 th			\$4.80
Net Selling Price = \$5.00 (December futures) + -0.20 (basis) = \$4.80 Cash Price			

Sydney grows and sells soybeans. She knows that basis is historically wide around harvest. She has on-farm storage available, which enables her to store her beans and sell and deliver when prices are more favorable. Sydney sees that basis for next March is -0.25. Sydney believes this basis level is favorable, so she contracts 5,000 bushels of soybeans using a basis contract on June 1st.

As the production year continues, Sydney watches March soybean futures. Soybean markets rally in late July, and Sydney locks-in a futures price of \$11.20 on July 25th.

Sydney stores her beans after harvest and delivers to the buyer on March 1st at a cash price of \$10.95.

Date	Futures Price	Basis	Cash Price
June 1 st		-0.25 (locked in)	
July 25 th	11.20 (set in July)		
March 1 st			\$10.95
Net Selling Price = \$11.20 (March futures) + -0.25 (basis) = \$10.95 Cash Price			