

# TIMELY INFORMATION

## Agriculture & Natural Resources

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### Predicting The “Expected Cash Price” Of Feeder Cattle

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Have you ever wanted to predict what feeder cattle prices would be when you get ready to sell them? If so, here is a simple calculation that you can make to help you predict the “expected cash price” of feeder cattle at some future time period.

In order to predict the “expected cash price” of feeder cattle at some future time period, we need to know four pieces of information. First, we need to know the month which we expect to sell the feeder cattle. Secondly, we need to know the current price of the appropriate feeder cattle futures contract being traded today. Thirdly, we need to know approximately what the feeder cattle will weigh when we sell them. And fourth, we need to know the historical basis for the class of feeder cattle we intend to sell.

The first three pieces of information most of us can collect and/or easily estimate. The fourth piece of information, historical basis, is available only if you, the Extension Service, or some private entity has collected and tabulated this data. The historical basis is the difference between the cash market price and futures market price for a given commodity during the past several years. This term “**basis**” is the single most important factor affecting the futures market transaction. Let’s look at the answers to several questions which may help you better understand the term basis.

#### What is basis?

Basis is simply the difference between the cash market price and futures market price at the time the commodity is sold or bought. It can be either positive, negative, or zero. In other words, the basis describes how the cash and futures markets relate to each other. A positive basis means the cash market price is greater than the futures market price. Correspondingly, a negative basis means the cash market price is less than the futures market price.

$$\text{Cash Market Price} - \text{Futures Market Price} = \text{Basis}$$

#### What is the expected basis?

The expected basis is the term we use to identify the basis that was selected for a given hedge. The expected basis, also sometimes called normal basis, is the basis which is normal or expected for the market conditions under consideration. Thus,

selecting the appropriate expected basis is the most important factor affecting the futures marketing transaction. Unfortunately, the process is not an exact science. First, you need to review the current market conditions and check the current basis for recent contract months to determine if they were stronger or weaker than the average basis. Second, you need to decide if the current market conditions would be the same, improve, or decline by the time you sold or bought the commodity. After you have decided about the market conditions you will face at the time you sell or buy the commodity, you should review historical data of the cash and futures markets relationship. After reviewing both the current and historical basis data, you are ready to select the “expected basis.”

### **What is a stronger basis?**

A stronger basis occurs when the actual basis is more positive than the expected basis. It allows short hedgers to receive higher prices while long hedgers must pay a higher price. A stronger basis is caused by a number of factors such as an improvement in the local demand for a commodity, reduction in the local supply, reduced transportation costs, expectations of the current year’s production, and many others.

### **Why is basis important?**

Basis is important because it can be used to translate a given futures market price into an expected cash market price for a future time period. It can then be determined whether the futures market position is favorable or not. If it is, you establish a futures position as a short (sell) or long (buy) hedge. Thus, total price risk is reduced to the amount that the *actual basis* differs from the *expected basis* instead of the price risk of a typical market swing. In short, basis risk is much lower than the price risk of a given market.

### **Do basis values and trends change?**

Yes, the basis values and trends can change over time. The basis values and trends can change due changes in the demand and supply relationship in the local and national markets. It also is affected by changes in futures market contract specifications (weight, grade, etc.), level of production, foreign demand and supply, transportation costs, etc. In addition, there is a tendency for the basis to become narrower as the delivery month is approached which is known as convergence. Thus, at the delivery point, the cash price and futures price converge to the same price providing the specifications of the contract are met.

### **Why does hedging in the futures market work?**

Hedging in the futures market works because changes in futures market prices track changes in cash market prices.

### **Why do the futures market prices track cash market prices?**

Futures market prices track cash market prices because the delivery/settlement process links cash and futures markets. Therefore, the futures market price equals the cash market price at expiration for the futures delivery location.

## How do I incorporate basis into my risk management plan?

The expected basis is used to determine whether the futures market position is favorable or not. Therefore, total price risk is reduced to the amount that the *actual basis* differs from the *expected basis* instead of the price risk of a typical market swing.

$$\text{Futures Price}_{@ \text{placement}} + \text{Basis}_{\text{Expected}} = \text{Expected Cash Price}$$

## What is a perfect hedge?

A perfect hedge is when the expected basis equals the actual basis. In other words, the actual basis was exactly the value of the “expected basis” you projected. Also, when the expected basis equals the actual basis, the expected cash price equals the actual cash price. Therefore, this is a perfect hedge which should be a successful hedge assuming you used a price objective to place the hedge.

A successful hedge depends on a well-researched marketing plan with particular consideration given to the expected basis. The selection of the expected basis is commonly the most important decision the hedger will make. Numerous factors affect the basis that make it stronger or weaker (local and national supply and demand, seasonal fluctuations, cyclical fluctuations, transportation and handling costs, and many more. However, despite possible changes in the basis, the basis value is less volatile than either the futures market price or the cash market price. Therefore, the hedger has the opportunity to replace the risk of wide price fluctuations in these markets with the lesser risk of a change in the relationship between the cash and futures market prices of the commodity.

## Workshop Exercises Using The Futures Market Price To Predict The “Expected Cash Price” Of Feeder Cattle

This is a given:

$$\text{Cash Price} - \text{Futures Price} = \text{Basis}$$

Or

$$\text{Cash Price}_{@ \text{Delivery}} - \text{Futures Price}_{@ \text{Delivery}} = \text{Basis}_{\text{Actual}}$$

These are our assumptions:

- 1) we know the current price of the feeder cattle futures contract being traded today
- 2) we know the month when we expect to sell/deliver the feeder cattle
- 3) we know approximately what the feeder cattle will weigh when delivered
- 4) we know the “historical basis” for the class of feeder cattle

*(The "basis" value is affected by changes in demand and supply of the given commodity at the national and local levels. Basis is also influenced by sex, weight, market outlet, grade, location, time period, etc. The basis value may be either positive, negative, or zero.)*

**Now let's predict the "expected cash price" of feeder cattle:**

**Fact → Cash Price<sub>@Delivery</sub> - Futures Price<sub>@Delivery</sub> = Basis<sub>Actual</sub>**

**Estimation → Cash Price<sub>Expected</sub> = Futures Price<sub>@Placement</sub> + Basis<sub>Expected</sub>**

**Reorder Eq. → Futures Price<sub>@Placement</sub> + Basis<sub>Expected</sub> = Expected Cash Price**

**Problem 1.** It is now June 2006. We plan to sell our spring-born feeder steers at the local auction barn. We are concerned that the market may weaken before we sell them in October 2006. The expected basis for our 450-pound feeder steers during October is +\$7.00 per hundredweight. The current futures price for the October 2006 Feeder Cattle Futures Contract is about \$85.50 per hundredweight. Given this information, estimate the "expected cash price" that we would receive for the feeder steers in October 2006.

<b>Futures Price<sub>@ placement</sub> + Basis<sub>Expected</sub> =</b>	<b>Expected Cash Price</b>
+	

**Problem 2.** It is now July 2006. We plan to retain our spring-born feeder calves, graze them this winter on winter grazing, and sell them in May 2007 at the local auction barn. We are concerned that the market may weaken before we sell them in May. The expected basis for our 750-pound feeder steers during May is -\$3.00 per hundredweight. The current futures price for the May 2007 Feeder Cattle Futures Contract is about \$81.00 per hundredweight. Given this information, estimate the "expected cash price" that we would receive for the feeder steers in May 2007.

<b>Futures Price<sub>@ placement</sub> + Basis<sub>Expected</sub> =</b>	<b>Expected Cash Price</b>
+	

**Problem 3.** It is now June 2006. We plan to sell our winter-born feeder steers at the local auction barn. We are concerned that market prices will fall before we sell them in September 2006. The expected basis for our 550-pound feeder steers during September is +\$4.50 per hundredweight. The current futures price for the September 2006 Feeder Cattle Futures Contract is about \$86.50 per hundredweight. Given this information, estimate the "expected cash price" that we would receive for the feeder steers in September 2006.

<b>Futures Price<sub>@ placement</sub> + Basis<sub>Expected</sub> =</b>	<b>Expected Cash Price</b>
+	

**Problem 4.** It is now July 2006. We plan to retain our winter-born feeder steers, custom graze them on wheat pastures in Oklahoma, and sell them in April 2007 at the auction barn in Oklahoma City, Oklahoma. We are concerned that market prices will decline before we sell them in April. The Oklahoma City expected basis for 750-pound feeder steers during April is -\$1.50 per hundredweight. The current futures price for the April 2007 Feeder Cattle Futures Contract is about \$85.50 per hundredweight. Given this information, estimate the “expected cash price” that we would receive for the feeder steers in April 2007.

<b>Futures Price</b> <sub>@ placement</sub> + <b>Basis</b> <sub>Expected</sub>	<b>Expected Cash Price</b>
=	
+	

**Problem 5.** It is now January 2007. We plan to sell our fall-born feeder calves in mid-June at the local auction barn. We would like to sell our 625-pound feeder steers and 575-pound heifers during June 2007. We are unsure about which direction the market prices will move this year. The expected basis for our 625-pound feeder steers and 575-pound feeder heifers is -\$4 and -\$8 per hundredweight, respectively. The current futures price for the August 2007 Feeder Cattle Futures Contract is about \$87.00 per hundredweight. Given this information, estimate the “expected cash price” that we would receive for the feeder steers and feeder heifers in June 2007.

<b>Futures Price</b> <sub>@ placement</sub> + <b>Basis</b> <sub>Expected</sub> =	<b>Expected Cash Price</b>
+	
+	

**Problem 6.** It is now January 2007. We plan to wean our fall-born feeder calves in mid-June. We plan to use a VAC-45 day program (wean, vaccinate, feed, etc.) to prepare our feeder calves for shipping. We would like to sell our 700-pound feeder steers and 650-pound heifers during August 2007 in a satellite video auction. We are unsure about which direction the market prices will move this year. The expected basis for our 700-pound feeder steers and 650-pound feeder heifers is -\$6 and -\$9 per hundredweight, respectively. The current futures price for the August 2007 Feeder Cattle Futures Contract is about \$88.50 per hundredweight. Given this information, estimate the “expected cash price” that we would receive for the feeder steers and feeder heifers in August 2007.

<b>Futures Price</b> <sub>@ placement</sub> + <b>Basis</b> <sub>Expected</sub> =	<b>Expected Cash Price</b>
+	
+	

[Answers 1. 92.50, 2. 78.00, 3. 91.00, 4. 84.00, 5. 83.00, 79.00, 6. 82.50, 79.5