

## Risk Management

# Buying Hedge with Futures

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Many bulk purchasers of agricultural commodities need price risk management tools to help stabilize input prices. Livestock feeders anticipating future feed needs or grain exporters making commitments to sell grain are two users of agricultural commodities who could benefit from input price management strategies. A common tool is a buying, or long, hedge using futures. Producers concerned with price fluctuations for agricultural inputs can use a buying hedge with futures to manage that price risk.

## What Is a Hedge?

A buying hedge involves taking a position in the futures market that is equal and opposite to the position one expects to take later in the cash market. The hedger is covered against input price increases during the intervening period. If prices rise while the hedge is in place, the higher cash price the producer must pay for his or her inputs is offset by a profit in the futures market. Conversely, if prices fall, losses in the futures market are offset by the lower cash price.

There are five steps to implementing a buying hedge that will likely meet your pricing objectives.

1. Analyze the expected profit of the enterprise in question. For example, a cattle feeder should analyze how expected profits for fed cattle change

as corn price (the input in question) changes. Only then can the producer know if the corn price he could hedge would allow the cattle feeding enterprise to achieve its corn pricing goal for the period, holding all other input prices and animal performance constant.

2. Be sure to hedge the correct quantity. Check contract quantity specifications and be sure the proper amount of inputs is hedged. For example: A cattle feeder plans to feed 120 head of steers weighing 700 pounds each. His targeted out-weight for the steers is 1,150 pounds (140 days on feed x 3.2 pounds average daily gain) and the projected feed conversion (pounds of feed per pound of gain) is 7. The cattle feeder's projected feed requirement is 6,750 bushels (54,000 pounds total gain x 7 pounds of feed per pound of gain ÷ 56 pounds per bushel). Since one Chicago Board of Trade (CBOT) corn contract is specified as 5,000 bushels, the feeder would need to hedge two contracts to fully cover the projected feed requirements.
3. Use the proper futures contract. Most widely produced agricultural commodities have a corresponding futures contract. Fed and feeder cattle,



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hogs, corn, wheat and soybeans are a few examples. A notable exception is grain sorghum. Because of grain sorghum's close price relationship to corn, producers can use corn futures to manage grain sorghum price risk. Once the proper futures contract is selected, pay close attention to the contract month. Project the date of the anticipated cash market transaction and select the nearest futures contract month after the anticipated purchase in the cash market.

4. Understand basis and develop a basis forecast. Basis (which is covered in depth in another publication in this series) is the relationship between local cash prices and futures prices. If projected basis and actual basis at the time of cash purchase are the same, then the purchase price that was hedged will be achieved. Failure to account for basis and basis risk could mean not meeting the buying hedge pricing goal.
5. Be disciplined and maintain the hedge until the commodity is purchased in the cash market or the hedge is offset by another price risk management tool. Producers should hedge only prices that are acceptable to them. Once you have initiated a hedge position, do not remove the hedge before the cash purchase date without carefully considering the risk exposure.

### Case Example: Buying Hedge for Feeder Steers

Joe has a pen of cattle on feed that he will sell in early October. He will need to purchase feeder cattle at that time to replace the fed cattle he sells. In June, Joe sees that November Chicago Mercantile Exchange (CME) Feeder Cattle futures are trading at \$105 per hundredweight. Joe knows the historical basis for 750-pound feeder cattle the first week of October is -\$1 per hundredweight (i.e., cash price is \$1 per hundredweight less than futures price). Observation of

futures prices leads him to project a feeder steer purchase price of \$104 per hundredweight (\$105 - \$1) for October 1. At that price, he projects a \$20 per head profit under normal feeding conditions. Joe fears feeder cattle prices may increase between June and October. He elects to implement a buying hedge to lock in the purchase price for 120 steers (120 steers x 750 pounds per steer ÷ 50,000 pounds per contract = two contracts) (Table 1).

**Table 1.**

	Cash market	Futures market	Basis
June 15	Objective: to realize a feeder cattle purchase price of \$104/cwt	Buys two CME November Feeder Cattle contracts at \$105/cwt	Projected at -\$1/cwt
October 1	Buys 120 head of 750-lb feeder steers at \$110/cwt	Sells two CME November Feeder Cattle contracts at \$111/cwt	Actual basis, -\$1/cwt (\$110-\$111)

**Gain or loss in futures:** *Gain* of \$6/cwt (\$111 - \$105)

Results:

Actual cash purchase price .....\$110.00  
 Futures profit ..... - \$ 6.00  
 Realized purchase price.....\$104.00\*

\*Without commission and interest

### How Did the Feeder Steer Buying Hedge Work?

Joe projected an October 1 purchase price of \$104 per hundredweight on June 15. On October 1, he purchased his feeder steers for \$110 per hundredweight and liquidated his futures position at \$111 per hundredweight, for a basis of -\$1 per hundredweight. The increase in feeder cattle prices he feared occurred; thus, the cash price he paid for the steers was greater than his projection. However, Joe realized a \$6 per hundredweight profit from the increase in the

CME November feeder cattle price. Applying the \$6 per hundredweight futures profit to the cash purchase price, the realized (or net) purchase price was \$104 per hundredweight, just as Joe projected.

Without Joe's accurate basis forecast, the projected purchase price and realized price would have been different. A favorable basis move (i.e., a widened basis) would have yielded a lower realized purchase price, while an unfavorable basis move would have increased the net buying price. In a hedged position, the producer trades price risk for basis risk. Once more, the basis forecast is a key to hedging with futures.

## What if Joe's Price Outlook Was Incorrect?

Let's examine the effects of a price decline on the performance of Joe's feeder steer buying hedge (Table 2).

**Table 2.**

	Cash market	Futures market	Basis
June 15	Objective: to realize a feeder cattle purchase price of \$104/cwt	Buys two CME November Feeder Cattle contracts at \$105/cwt	Projected at -\$1/cwt
October 1	Buys 120 head of 750-lb feeder steers at \$100/cwt	Sells two CME November Feeder Cattle contracts at \$101/cwt	Actual basis, -\$1/cwt (\$100-\$101)

**Gain or loss in Futures:** Loss of \$4/cwt (\$101 - \$105)

Results:

Actual cash purchase price .....\$100.00  
 Futures loss ..... + \$ 4.00  
 Realized purchase price.....\$104.00\*

\*Without commission and interest

Joe's pricing objective of \$104 per hundredweight was achieved. This example illustrates the discipline necessary when hedging. Although Joe might be frustrated with the results of this buying hedge in a declining market, he should remember that the decision to hedge was made after careful analysis and his best price forecast. While Joe might not be happy about a net price of \$104 per hundredweight, his plan was sound, he still made a profit feeding these cattle, and he will likely maintain, if not improve, his overall financial position.

**Table 3. Advantages and disadvantages of a buying hedge with futures.**

Advantages	Disadvantages
Reduces risk of price increases	Gains from price declines are limited
Could make it easier to obtain credit	Risk that actual basis will differ from projection
Establishing a price aids in management decisions	Futures position requires a margin deposit and margin calls are possible
Easier to cancel than a forward contract arrangement	Contract quantity is standardized and may not match cash quantity

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