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# Short Hedge Example With Futures

This guide describes how to place an output (short) hedge in the futures market to reduce the price risk associated with selling an output used in your business. For example, assume that John, a cattle producer, knows he will be selling a pen of cattle two months from now. John knows that by selling live cattle for over $122 per hundredweight, he can ensure a satisfactory profit. Currently, the local live cattle price is $124 per hundredweight, but John believes that the price may drop during the next few months. By knowing the cost of production of these animals, John knows that $124 per hundredweight will allow for a satisfactory profit. What can he do to reduce his risk from a potential drop in prices? John cannot sell the cattle now because the cattle are too light, but he could enter the futures market and offset any loss in value (decrease in price) with a gain in the futures market.

## How to place a hedge

Placing a hedge can be a simple process. First, knowing your cost of production helps you know when to place a hedge. To place a hedge, you need to contact a broker. Most large communities have a broker who will take your order for a set fee (as is common when placing any futures market order). The broker can help you understand how to place and exit your hedging position. The broker has a stake — a commission — in making sure you have a positive experience with hedging.

After you have placed the order, the broker will contact a brokerage house at the commodity exchange and relay the order. Through the commodity exchange, market supply and demand forces are matched so that if you want to place a short hedge, there will always be either someone wanting to place a long hedge or a speculator willing to offset your risk. This process is known as arbitrage and is discussed in more detail in MU Extension publication G602, Introduction to Hedging Agricultural Commodities With Futures (extension.missouri.edu/publications/g602).

## Possible outcomes

Any of seven scenarios can arise between the cash and futures price. One common scenario is that of the cash and futures prices not changing while the hedge is placed. In this scenario, the producer sells the output for the same price as when the hedge was placed, and therefore the only costs of hedging are the commissions. The other six common scenarios are discussed below. Because the cash and futures markets typically trend in the same direction, the scenario of the two markets moving in opposite directions is not discussed.

### *Cash and futures prices both decrease*

#### Cash price decreases faster than futures price

In this scenario, basis is said to weaken. Using Table 1, suppose you could sell live cattle today for $124 per hundredweight and the relevant futures contract is trading for $125 per hundredweight (basis is $1 under). Knowing that you will sell cattle at a later date and you want to protect against a price decrease, you take a short position in the futures market at this time. Over the next few months the local cash price decreases to $120 per hundredweight and the futures price decreases to $123 per hundredweight. At this time you decide the cattle need to go to market. You sell cattle in the cash market for $120 per hundredweight and buy back your futures position for $123 per hundredweight. Therefore, the revenue from selling cattle is $120 per hundredweight plus $2 per hundredweight gain from the futures position less any commission costs (a typical commission might be $30 for entry into the futures and $30 for exit, $60 per round-turn or about $0.15 per hundredweight). Instead of selling for $120 per hundredweight, you sell for $121.85 per hundredweight. The net price you receive is exactly equal to the original cash price plus the basis gain or loss, less commission.

Reviewed by
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**Table 1. Short hedge with futures as cash price decreases more than futures price.**

| Cash | Futures | | Basis |
|---|---|---|---|
| **Today:** $124/cwt | Sell live cattle contract at $125/cwt | | −$1/cwt (under) |
| **Later:** Sell cattle in local market at $120/cwt | Buy live cattle contract back at $123/cwt | | −$3/cwt (under) |
| **Results** | Selling price | $120/cwt | −$2/cwt basis loss |
| | Less commission | $0.15/cwt | |
| | Plus futures gain | $2/cwt | |
| | **Net selling price** | **$121.85/cwt** | |

cwt = counterweight

**Table 2. Short hedge with futures as futures price decreases more than cash price.**

| Cash | Futures | | Basis |
|---|---|---|---|
| **Today:** $124/cwt | Sell live cattle contract at $125/cwt | | −$1/cwt (under) |
| **Later:** Sell cattle in local market at $120/cwt | Buy live cattle contract back at $120/cwt | | −$0/cwt (under) |
| **Results** | Selling price | $120/cwt | $1/cwt basis gain |
| | Less commission | $0.15/cwt | |
| | Plus futures gain | $5/cwt | |
| | **Net selling price** | **$124.85/cwt** | |

cwt = counterweight

### Futures price decreases more than cash price

In this scenario, basis is said to strengthen. Again, suppose you could sell live cattle today for $124 per hundredweight and the relevant futures contract is trading for $125 per hundredweight (basis is $1 under). Knowing that you will sell cattle at a later date and you want to protect against a price decrease, you take a short position in the futures market at this time. Over the next few months, the local cash price decreases to $120 per hundredweight and the futures price decreases to $120 per hundredweight (Table 2). At this time you decide the cattle need to go to market. You sell cattle in the cash market for $120 per hundredweight and buy back your futures position for $120 per hundredweight. Therefore, the revenue from selling cattle is $120 per hundredweight plus $5 per hundredweight gain from the futures position less any commission costs. Instead of selling for $120 per hundredweight, you sell for $124.85 per hundredweight. The net price you receive is equal to the original cash price plus the basis gain or loss, less commission.

### Futures price decreases at the same rate as cash price

In this scenario, the price you receive equals the price you would have received earlier with the exception of commissions ($0.15 per hundredweight). Basis does not change in this example, so the net price is equal to the original cash price less commission.

## *Cash and futures prices both increase*

### Cash price increases more than futures price

In this scenario, basis is said to strengthen. Assume the same initial conditions as in the previous examples except that the local cash price increases to $127 per hundredweight and the futures price increases to $126 per hundredweight over the next few months (Table 3). When you decide the cattle need to go to market, you sell in the cash market for $127 per hundredweight and buy back your futures position for $126 per hundredweight. Therefore, the revenue from selling cattle is $127 per hundredweight less $1 per hundredweight lost from the futures position less any commission. Instead of selling for $127 per hundredweight, you sell for $125.85 per hundredweight.

**Table 3. Short hedge with futures as cash price increases more than futures price.**

| Cash | Futures | | Basis |
|---|---|---|---|
| **Today:** $124/cwt | Sell live cattle contract at $125/cwt | | −$1/cwt (under) |
| **Later:** Sell cattle in local market at $127/cwt | Buy live cattle contract back at $126/cwt | | $1/cwt (over) |
| **Results** | Selling price | $127/cwt | $2/cwt basis gain |
| | Less commission | $0.15/cwt | |
| | Plus futures gain | $1/cwt | |
| | **Net selling price** | **$125.85/cwt** | |

cwt = counterweight

**Table 4. Short hedge with futures as futures price increases more than cash price.**

| Cash | Futures | | Basis |
|---|---|---|---|
| **Today:** $124/cwt | Sell live cattle contract at $125/cwt | | −$1/cwt (under) |
| **Later:** Sell cattle in local market at $127/cwt | Buy live cattle contract back at $129/cwt | | −$2/cwt (under) |
| **Results** | Selling price | $127/cwt | −$1/cwt basis loss |
| | Less commission | $0.15/cwt | |
| | Plus futures gain | $4/cwt | |
| | **Net selling price** | **$122.85/cwt** | |

cwt = counterweight

## Futures price increases more than cash price

In this scenario, basis is said to weaken. Again assuming the same initial conditions as in the previous examples, suppose that the local cash price increases to $127 per hundredweight and the futures price increases to $129 per hundredweight over the next few months (Table 4). The revenue from selling cattle is $127 per hundredweight less $4 per hundredweight lost from the futures position less any commission. Instead of selling for $127 per hundredweight, you sell for $122.85 per hundredweight.

## Futures price increases at the same rate as cash price

In this scenario, the price you receive equals the price you would have received earlier with the exception of commissions ($0.15 per hundredweight). Basis did not change, so the net price received is equal to the original price less commissions.

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