

Hedging of Livestock

Hedging is one of the marketing tools livestock producers can use to forward price their livestock. Hedging protects against adverse price changes.

Two Types of Hedges

There are basically two types of hedges, one to protect against a price decline (short hedge) and the other to protect against a price rise (long hedge).

This publication will be devoted mainly to discussing short hedges.

Short Hedge

Short hedgers are producers who have livestock that they plan to market in the future but want to protect themselves against potential price declines. Producers become short hedgers if they sell a futures contract (futures contracts that are applicable to the type of livestock they plan to market).

Long Hedge

Long hedgers are just the opposite of short hedgers. Long hedgers need a product at some future date, do not want to purchase the cash product now, but want to protect themselves against a price rise. Producers become long hedgers if they buy a futures contract (futures contract applicable to the type of feed or feeder animal they plan to purchase).

An example of a long hedger would be a cattle feeder planning to place feeder cattle in their feedlot in three months but wanting to establish a feeder cattle price and protect against a price rise during the next three months. This hedger would buy feeder cattle futures to protect against a cash price rise.

Another example of a long hedge by a livestock producer would be buying corn futures to establish a price for corn and protect against a price rise.

Placing a Short Hedge

A producer who is feeding livestock, plans to market them later, and would like to establish a price now rather than risk prices declining, may want to consider hedging.

Selecting the Appropriate Futures Contract

The first step is to select the appropriate futures contract, one that will mature at the time the livestock will be marketed. Unfortunately, contracts are not available for every month of the year. For example, a producer might plan to market hogs or cattle in January. Neither hogs nor cattle have contracts that mature in January. In cases such as this, the producer should use the nearest contract to mature after the livestock are marketed. Therefore, a producer wanting to hedge hogs or fed cattle in January should use the February futures contract. The reason for selecting a contract that matures after the livestock are marketed is so the futures contract can be offset at the time the livestock are marketed.

Localizing Using Basis

The most common method of localizing the futures price is to adjust the futures price for the expected basis as shown in Example 1. The basis represents the expected difference between the local cash price and the futures price at marketing time, see [Ag Decision Maker Basis files](http://www.extension.iastate.edu/agdm/ldmarkets.html), www.extension.iastate.edu/agdm/ldmarkets.html.

Example 1. Localizing using basis

June live cattle futures	\$125	per cwt.
Expected basis	+ 4	per cwt.
Localized futures price	\$124	per cwt.

Calculating Hedge Potential

Once the localized futures price has been obtained, the hedger can estimate the potential returns from the hedge. Three additional factors need to be subtracted from the localized futures price to obtain a net return from the hedge. Computing the estimated return is shown in Example 2.

Example 2. Potential hedge returns

Localized futures price	\$124.00
Brokerage fee	-.20
Interest on margin	-.09
Cost of production	<u>-115.00</u>
Estimated return	\$8.71

In this example, it is estimated the hedge return will be \$8.71 per cwt. or \$126.30 for an 1,450 pound steer. Unless the outlook forecast gives a high probability of prices rising above this level, hedging should seriously be considered.

- Brokerage fee** - If the producer decides to hedge, the fee charged by the broker to handle futures trading will have to be paid. This fee can range from \$60 to \$100 per contract, which covers both the initial sale or purchase and the offsetting transaction at the time the hedge is completed. The brokerage fee then amounts to between \$0.15 per cwt. and \$0.25 per cwt. with a contract size of 40,000 pounds (400 cwt.) for live cattle. Brokerage fees can vary by firm and number of contracts traded.
- Interest on margin** - A deposit is required for every contract traded. The size of the initial margin deposit will vary by type of livestock futures contract. The initial margin deposit is only a small fraction of the value of the contract. If the futures market price moves in a direction that is adverse to the futures position, the hedger will have to deposit additional funds. For a short hedger, this means the futures price increases, and for a long hedger, the futures price decreases.

Since the margin deposit has to be paid as the market requires (as the loss accrues) an interest charge should be assessed as a part of the cost of hedging as shown in Example 3. The size of the interest charge will depend on the direction of futures price and how long the contract is held. The best one can do is to make a rough estimate of the interest charge.

- Cost of production** - A third factor in analyzing whether or not to hedge is to compare the adjusted futures price with the cost of production and price objectives to determine the estimated net return from the hedge. The level of desired profit and price risk one is willing to assume by not hedging varies by individual producer. Each producer must determine whether the estimated return from hedging is satisfactory.

Example 3. Interest charge on margin

Sold 40,000 pound live cattle contract for \$120 per cwt. Contract held for four months.

Interest rate is 6%

Initial deposit of \$1,400

Additional deposit of \$200 made after one month.

Additional deposit of \$400 made after two months.

Additional deposit of \$200 made after three months.

Initial margin	$\$1,400 \times 6\% \times (4/12) \text{ year} =$	\$28
Additional margin	$\$200 \times 6\% \times (3/12) \text{ year} =$	3
Additional margin	$\$400 \times 6\% \times (2/12) \text{ year} =$	4
Additional margin	$\$200 \times 6\% \times (1/12) \text{ year} =$	<u>1</u>
Total interest		\$36

Interest per cwt. = \$0.09 (\$36/400 cwt.)

Lifting the Short Hedge

Lifting a short hedge involves buying back (offsetting) the futures position and simultaneously selling the livestock on the cash market. A hedging example is shown in Example 4. From the time the hedge is placed until it is lifted, the hedger can ignore both cash and futures markets because the gain (loss) in one market will offset the loss (gain) in the other market. For example, if the price declines after the hedge is placed, the decline in the cash market is offset by the gain in the futures market. If the price rises, the rise in the cash market is offset by the loss in the futures market. To summarize, a strong basis provides a signal to short hedgers to market livestock and take the basis. In contrast, a weak basis is a signal to delay marketings, with the idea that the basis is likely to return to a more normal level.

Example 4. Hedge example

<p>Jones has 200 hogs that will be marketed in June. Jones has decided to hedge one lean hog contract on the Chicago Mercantile Exchange (40,000 carcass pounds contract or approximately 190 hogs at 210 pounds per carcass). First, calculate expected profit.</p>	<p>Assume (carcass weight costs and prices):</p> <table border="0"> <tr> <td>June futures</td> <td></td> <td>\$90.00</td> <td></td> </tr> <tr> <td>Expected June basis</td> <td></td> <td><u>- 4.00</u></td> <td></td> </tr> <tr> <td>Localized futures price</td> <td></td> <td>\$86.00</td> <td></td> </tr> <tr> <td>Brokerage fee</td> <td>\$.15</td> <td></td> <td></td> </tr> <tr> <td>Interest on margin</td> <td>.10</td> <td></td> <td></td> </tr> <tr> <td>Cost of feeding</td> <td><u>80.00</u></td> <td></td> <td></td> </tr> <tr> <td>Total</td> <td>\$80.25</td> <td></td> <td><u>- \$80.25</u></td> </tr> <tr> <td>Expected hedge profit</td> <td></td> <td></td> <td>\$5.75 per cwt.</td> </tr> </table>	June futures		\$90.00		Expected June basis		<u>- 4.00</u>		Localized futures price		\$86.00		Brokerage fee	\$.15			Interest on margin	.10			Cost of feeding	<u>80.00</u>			Total	\$80.25		<u>- \$80.25</u>	Expected hedge profit			\$5.75 per cwt.	
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<p>In situation 1, the actual hedge return is the same as the expected return because 1) the actual basis and the expected basis are the same, 2) the brokerage fee was estimated correctly, 3) interest on the margin remained the same as estimated, and 4) the cost of production was accurately estimated.</p> <p>The hedger would receive a profit of \$5.75 per cwt. for 190 hogs and only \$1.00 per cwt. for the 10 unhedged hogs (\$81.00 cash price - \$80.00 cost of feeding = \$1.00).</p>	<p>Situation 1: Prices fall after placing hedge</p> <table border="0"> <thead> <tr> <th></th> <th style="text-align: right;">Futures</th> <th style="text-align: right;">Cash</th> </tr> </thead> <tbody> <tr> <td>In February, sell June contract</td> <td style="text-align: right;">\$90.00</td> <td></td> </tr> <tr> <td>In June, buy June contract</td> <td style="text-align: right;"><u>85.00</u></td> <td>Sell cash \$81.00</td> </tr> <tr> <td>Futures profit</td> <td style="text-align: right;">\$5.00</td> <td></td> </tr> <tr> <td>Cash price</td> <td></td> <td style="text-align: right;">\$81.00</td> </tr> <tr> <td>Futures profit</td> <td></td> <td style="text-align: right;"><u>+ 5.00</u></td> </tr> <tr> <td>Final hedge price</td> <td></td> <td style="text-align: right;">\$86.00</td> </tr> <tr> <td>Cost of feeding</td> <td></td> <td style="text-align: right;"><u>- 80.00</u></td> </tr> <tr> <td>Brokerage fee</td> <td></td> <td style="text-align: right;">- .15</td> </tr> <tr> <td>Interest on margin</td> <td></td> <td style="text-align: right;"><u>- .10</u></td> </tr> <tr> <td>Actual hedge return</td> <td></td> <td style="text-align: right;">\$5.75 per cwt.</td> </tr> </tbody> </table>		Futures	Cash	In February, sell June contract	\$90.00		In June, buy June contract	<u>85.00</u>	Sell cash \$81.00	Futures profit	\$5.00		Cash price		\$81.00	Futures profit		<u>+ 5.00</u>	Final hedge price		\$86.00	Cost of feeding		<u>- 80.00</u>	Brokerage fee		- .15	Interest on margin		<u>- .10</u>	Actual hedge return		\$5.75 per cwt.
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<p>In situation 2, the actual hedge return is \$1.10 per cwt. less than the estimated return (\$5.75 - 4.65 = \$1.10) because the actual basis (\$90 - 95 = -\$5) is one dollar more negative than the expected basis, and because of the added interest on margin that was the result of additional funds having to be deposited during the price rise.</p>	<p>Situation 2: Prices rise after placing hedge</p> <table border="0"> <thead> <tr> <th></th> <th style="text-align: right;">Futures</th> <th style="text-align: right;">Cash</th> </tr> </thead> <tbody> <tr> <td>In February, sell June contract</td> <td style="text-align: right;">\$90.00</td> <td></td> </tr> <tr> <td>In June, buy June contract</td> <td style="text-align: right;"><u>95.00</u></td> <td>Sell cash \$90.00</td> </tr> <tr> <td>Futures profit</td> <td style="text-align: right;">- \$5.00</td> <td></td> </tr> <tr> <td>Cash price</td> <td></td> <td style="text-align: right;">\$90.00</td> </tr> <tr> <td>Futures profit</td> <td></td> <td style="text-align: right;"><u>- 5.00</u></td> </tr> <tr> <td>Final hedge price</td> <td></td> <td style="text-align: right;">\$85.00</td> </tr> <tr> <td>Cost of feeding</td> <td></td> <td style="text-align: right;"><u>- 80.00</u></td> </tr> <tr> <td>Brokerage fee</td> <td></td> <td style="text-align: right;">- .15</td> </tr> <tr> <td>Interest on margin</td> <td></td> <td style="text-align: right;"><u>- .20</u></td> </tr> <tr> <td>Actual hedge return</td> <td></td> <td style="text-align: right;">\$4.65 per cwt.</td> </tr> </tbody> </table>		Futures	Cash	In February, sell June contract	\$90.00		In June, buy June contract	<u>95.00</u>	Sell cash \$90.00	Futures profit	- \$5.00		Cash price		\$90.00	Futures profit		<u>- 5.00</u>	Final hedge price		\$85.00	Cost of feeding		<u>- 80.00</u>	Brokerage fee		- .15	Interest on margin		<u>- .20</u>	Actual hedge return		\$4.65 per cwt.
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How to Lift the Hedge

Live cattle futures short hedges can be lifted two ways:

1. Buying a futures contract (same contract month that was sold earlier) and simultaneously selling the cattle on the cash market.
2. Delivering the cattle on the futures contract as the contract specifies.

When lifting a short hedge, the producer should remove the futures position just prior to selling the livestock on the cash market. The sequence of events would be as follows:

1. Obtain cash price for livestock.
2. Obtain futures price for appropriate month.
3. Examine basis and compare with historical basis data.

If the decision is to lift the hedge:

4. Buy futures contract for appropriate month.
5. Sell livestock on cash market.

The greater the time between the cash sale and offsetting the hedge, the greater the basis risk.

Hold into Contract Month

Contrary to advice given to grain hedgers who are advised never to hold into the delivery period, livestock producers can hold hedge positions into the delivery period. The livestock basis is more stable during the delivery period; hence, it is more predictable than during non-delivery periods. With cash settlement contracts (lean hogs and feeder cattle) it is not necessary to lift the hedge. The hedge will be closed out at the final settlement price.

A cattle hedger holding into the delivery period should monitor open interest, or the number of contracts still open. If the open interest notably drops, the hedge should be lifted regardless of the basis.

Hedging in Non-Contract Months

Futures contracts are not available for every month of the year. Therefore, the livestock producer may have livestock going to market in months when there is no futures contract. Hedging in non-contract months is more risky than in contract months. The basis in non-contract months is less stable than in the contract months.

Hedging and Quality

Producers selling livestock that are not of the specifications in the futures contract face additional basis risk. In fed cattle, for example, price adjustments based on quality, cutability (yield grade), and weight buying programs should be factored into the basis.

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