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## Hedging on the Live Hog Futures Market

R. E. Schneidau  
Agricultural Economics

A new marketing tool for hog producers became a reality with the opening of trading in live hog futures. Farmers will find it possible to use futures to help reduce market risks through hedging. Some will find selective use of live hog futures contracts becoming an integral part of their marketing practices.

Basically, a futures market offers anyone the opportunity to buy or sell a contract agreeing to accept or deliver a specified commodity at a future date for an agreed price. The live hog futures contract is basically an agreement to deliver 20,000 pounds of USDA number 1 and 2 barrows and gilts averaging 200 to 230 pounds. Par delivery is made at Chicago with delivery at other specified markets allowable at a 75¢ per hundredweight discount. Though contract delivery provisions are important, few using the futures market ever deliver or accept delivery of contracted commodities. This may be because the grades specified in the contract may not be those desired, or delivery terms or place of delivery may not be satisfactory, or because trading was purely speculative.

The trader usually finds that it is to his advantage to simply offset his commitment prior to contract maturity. This feature of futures trading considerably increases the use and flexibility of this form of contracting over normal contract arrangements. As an example, a person who had previously sold a June hog futures contract can clear himself of his commitment to deliver hogs in June by simply buying back an equivalent June contract, offsetting his sale. If the price had dropped between the time of his sale and purchase, the difference is his gain. On the

other hand, if June futures had risen he would have to buy back his futures contract at the higher price and thus experience a loss in the transaction.

One of the most important functions performed by futures markets is that of hedging. Hedging is used to transfer the risk of an adverse price movement to someone willing to assume that risk, and is accomplished through the futures market mechanism. In its most simple form it is the sale of futures against the purchase of the cash commodity, or vice versa.

Farmers can use the live hog futures market to hedge against possible declines in cash hog prices. A farmer can sell futures for a month approximating the time his hogs will be ready for market. This in effect, "fixes" his returns at the time his hogs are of slaughter weight, but he still has the option of marketing his hogs at a market place of his choice. Such a transaction removes considerable price risk from the hog operation.

Hedging works because there is a tendency for both cash and futures prices to move in the same direction and by nearly the same magnitude and means that a loss in one market is offset by a gain in the other. This correlated movement of the two markets means that many of the same supply and demand forces affecting cash prices also affect futures prices. For example, if the current supply of market hogs turns out to be less than expected by an earlier pig crop report, both current cash and near futures prices would be expected to rise. If the supply were larger for some reason, the opposite price movements would be expected. Obviously cash and

futures prices do not always rise and fall together perfectly since not all forces affect both markets equally. In addition to these correlated movements between cash and futures prices, the difference between cash and futures prices, for a given contract, tends to become smaller as contract maturity is approached since uncertainty is reduced.

#### Hedging Against a Price Decline

Table 1 illustrates a hedge against a decline in cash hog prices. Note that in this example gains made in the futures market more than offset losses in the cash market. Since cash and futures do not necessarily move up and down by exactly the same magnitude, final results of the hedging transaction may show that the hedger more than offset his cash market losses in the futures market, equalled his cash losses, or did not quite recuperate his cash losses.

On October 1, farmer Brown buys 100 50 pound feeder pigs for \$40.00 per hundredweight or \$20.00 per head. He plans to feed these pigs to 200 pounds and figures his total costs of production at \$1600 per hundredweight or \$24.00 per hog. Therefore, farmer Brown must get \$22.00 per hundredweight at market time or \$44.00 per hog to break even.

At the time of the feeder pig purchase (October 1) farmer Brown sells a February live hog futures contract for \$23.25 per

hundredweight. He is now hedged against a decline in cash prices.

On February 10th, the 200 pound slaughter hogs are sold for \$20.00 per hundredweight which farmer Brown figures as a \$2.00 per hundredweight loss. However, the futures contract may now be bought back at a new lower price of \$20.75 hundredweight, a gain of \$2.50 per hundredweight in the futures market.

The result of these transactions as shown in Table 1 are a \$4.00 per head loss in the cash market and a \$5.00 per head gain in the futures market, for a net gain of \$1.00 per head or \$.50 per hundredweight. Had farmer Brown not hedged, his losses would have amounted to \$4.00 per head or \$2.00 per hundredweight. On the 100 hogs (20,000 pounds) the profit is \$100.00 vs. a possible loss of \$400.00 (exclusive of commission charges and interest).

Lastly, it is important to recognize that if cash prices had advanced rather than declined, farmer Brown would have to buy his futures contract back at a higher price than he had sold it for, offsetting some of his gains in the cash market. Even so, to farmer Brown the loss of this gain in the cash market must be recognized as a "cost" of hedging against a declining price. If it became apparent to farmer Brown that cash prices were going to rise, it may be desirable to cancel the hedge and continue in an un-hedged position.

Table 1. Hedging against price decline - hogs

|  | Price<br>per cwt. | Return and Cost per Animal  |                                |
|--|-------------------|-----------------------------|--------------------------------|
|  |                   | Cash Market<br>(at feedlot) | Futures Market<br>(at Chicago) |
| 1. On October 1, buys 50<br>pound feeder pigs  | \$40.00           | \$20.00                     |                                |
| Puts on 150 pound gain   | \$16.00           | <u>\$24.00</u>              |                                |
| Selling weight 200 pounds,<br>U.S. 1 & 2 total cost  |                   | \$44.00                     |                                |
| (Break even selling price)   | \$22.00           |                             |                                |
| 2. On October 1, he sells<br>February futures for  | \$23.25           |                             | \$46.50                        |
| 3. On February 10, he sells<br>200 pound 1 & 2 hogs for cash   | \$20.00           | \$40.00                     |                                |
| 4. On February 10, he buys<br>back February futures  | \$20.75           |                             | \$41.50                        |
| Loss or gain per head  |                   | - \$4.00                    | + \$5.00                       |
| Loss or gain per contract of<br>20,000 pound hogs  |                   | - \$400.00                  | + \$500.00                     |
| 1. Net profit from hedging = + \$1.00 per head plus interest on margin capital (6¢ per head) and commission charges (20¢ per head) equals a net gain of \$ .74 per head. |                   |                             |                                |
| 2. Net profit per contract = \$74.00.  |                   |                             |                                |