

# Livestock Marketing: Options on Futures



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## Options on Futures

- Options are a separate contract but rely heavily on futures contracts
- Provide a lowest price (for a seller) or a highest price (for a buyer)
- Buyers of options must pay a premium which cannot be recovered
- Much like a price insurance policy, protecting against adverse price move but can capitalize on a advantageous price move



## Options on Futures

An option “purchaser” has the right -- but not the obligation -- to buy [or sell] a futures contract at a specified price on or before a certain expiration date

- PUT = right to sell a futures contract
- CALL = right to buy a futures contract



## Option Terms

- PUT & CALL
- Strike price = price that the option allows the purchaser the right to buy or sell the underlying futures contract
  - Numerous strike prices are often available for a single futures contract, both above & below current market price
- Premium = amount paid for the rights offered by the option



## Option Hedge for Sellers

*Previous module offered example of outcomes without hedging and an example with futures hedging*

In early October you buy cattle to winter graze.  
After grazing you will sell the cattle in early March at approximately 700 pounds.

Would choose PUT option on the March feeder cattle futures contract to hedge.

PUT option offers the right to sell March futures.

March futures contract price in October = \$1.17 per pound

Based on information, you expect basis to be -\$0.15 per pound

Your expected cash sell price is  $\$1.17 - \$0.15 = \$1.02$  per pound

Many STRIKE prices, assume you choose a price slightly lower than current market at \$1.12 per pound, which carries a premium of \$0.04 per pound (\$28 per head)



## Example: price decrease

When you sell your cattle the cash price is \$0.96 per pound and the March futures contract is \$1.03 per pound.

- ❑ Actual basis =  $\$0.96 - \$1.03 = -\$0.07$
- ❑ Your option contract offers the right to sell a March futures contract at \$1.12
- ❑ Realized price = Cash Price minus Option Premium plus futures gains\*
- ❑  $\$0.96 - \$0.04 + (\$1.12 - \$1.03) = \$1.01$

\* Only GAINS to futures, since options offer no obligation to trade the futures contract. Would use the maximum of the *Futures selling price minus Futures buying price* -or- \$0



## Example: price increase

When you sell your cattle the cash price is \$1.24 per pound and the March futures contract is \$1.31 per pound.

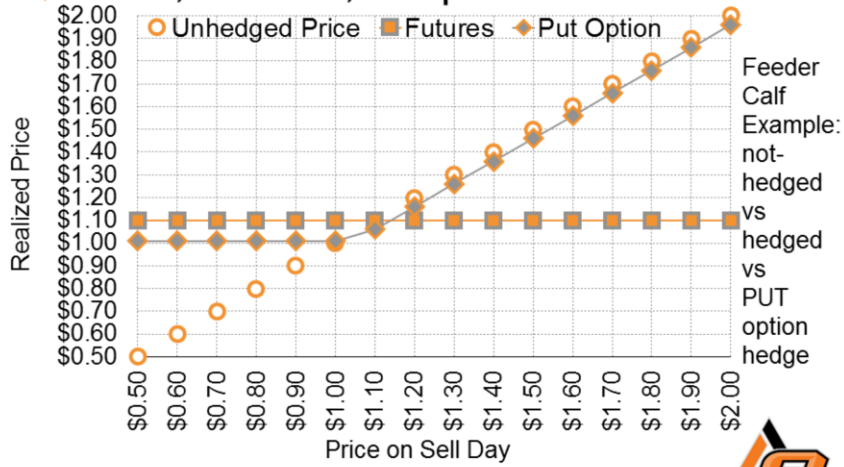
- ❑ Actual basis =  $\$1.24 - \$1.31 = -\$0.07$
- ❑ Your option contract offers the right to sell a March futures contract at \$1.12
- ❑ Realized price = Cash Price minus Option Premium plus futures gains\*
- ❑  $\$1.24 - \$0.04 + (\$1.12 - \cancel{\$1.31}) = \$1.21$

\* Only GAINS to futures, since options offer no obligation to trade the futures contract. Would use the maximum of the *Futures selling price minus Futures buying price* -or- \$0

Less than \$0, so you would not exercise the option



# Cash, Futures, & Options Outcomes





## Option Hedge for Buyers

- In April, a feedlot knows they will buy corn in August. (No August corn contract, so will use September contract month.) Will buy enough corn for 1 contract.
- Current Futures price is \$3.80 per bushel
- Expect basis to be  $-\$0.15$  (cash price is typically 15 cents lower than futures).
- To insure against a higher price, would choose a CALL option on the September futures contract. Many strike prices available, buyer chooses a strike of  $\$4.00$ /bushel which carries a premium of  $\$0.18$ /bushel.



## Option Hedge for Buyers

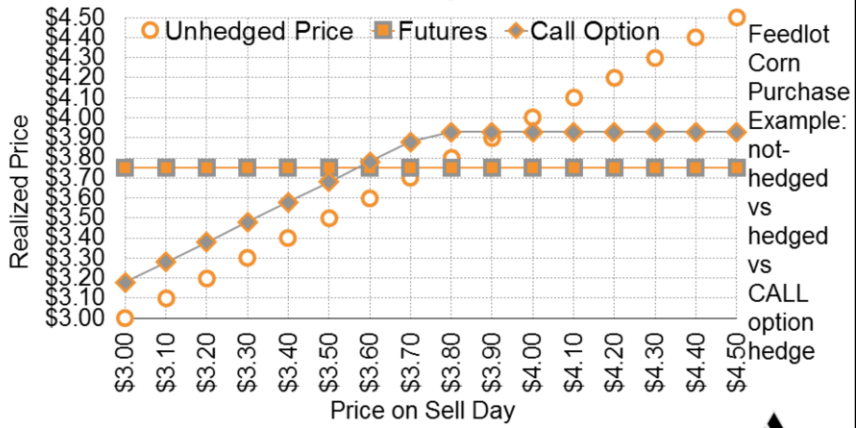
- In August, feedlot buys corn for \$4.75/bushel. September futures contract price is \$4.80/bushel (actual basis is -\$0.05).
  - Realized Price\* =  $\$4.75 + \$0.18 - (\$4.80 - \$4.00) = \$4.13$
- In August, feedlot buys corn for \$3.25/bushel. September futures contract price is \$3.30/bushel (actual basis is -\$0.05).
  - Realized Price\* =  $\$3.25 + \$0.18 - (\$3.30 - \$4.00) = \$3.43$

\* CALL calculations are reversed compared to PUT, as the premium increases the price paid and futures contract gains reduce the price.

Less than \$0, so you would not exercise the option



## Cash, Futures, & Options Outcomes



# Livestock Risk Protection

- LRP is very similar to a put option.
- Sold by crop insurance agents.
- Offered in the evening after futures markets have closed.

## Pros:

- More flexible than PUT
  - Can insure price for 1 head to 2,000 head
  - Can insure steers, heifers, dairy type cattle, and brahman type cattle
- Carries a 13% premium subsidy

## Cons:

- Must hold policy until the end of the timeframe (cannot sell back or exercise early)
- If futures market is limit up or down, then LRP is unavailable



## Additional Resources

- For more detailed information on topics discussed in this module:

OCES bulletin AGEC-548

<http://pods.dasnr.okstate.edu/docushare/dsweb/Get/Document-1726/AGEC-548web.pdf>

OCES bulletin AGEC-549

<http://pods.dasnr.okstate.edu/docushare/dsweb/Get/Document-1766/AGEC-549web.pdf>

USDA Risk Management Agency; Livestock Risk Protection

Feeder Cattle: <http://www.rma.usda.gov/pubs/rme/lrp-feedercattle.pdf>

Fed Cattle: <http://www.rma.usda.gov/pubs/rme/lrp-fedcattle.pdf>

Hogs: <http://www.rma.usda.gov/pubs/rme/lrp-swine.pdf>

Managing for Today's Cattle Business and Beyond: Futures Market Basic

<http://marketing.uwagec.org/MngTCMkt/FutrMkt.pdf>

Managing for Today's Cattle Business and Beyond: Commodity Options as Price Insurance for Cattlemen

<http://marketing.uwagec.org/MngTCMkt/CommOpts.pdf>

Managing for Today's Cattle Business and Beyond: Evaluating Forward Prices With Basis <http://marketing.uwagec.org/MngTCMkt/EvalPric.pdf>

