

Cattle Market Risk Management Informational Update

Partnership project
between:

Custom Ag Solutions
(CAS)



Kansas State
University (KSU)



USDA Risk
Management
Agency (RMA)



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Presented at
Fresno, CA. September 18, 2008.
Fallon, NV. September 23, 2008.
Elko, NV. September 24, 2008.

Questions to answer...

- How can I protect against cattle price declines?
- How can I hedge the sale of my cattle using futures and options?
- What is Livestock Risk Protection (LRP) insurance and how can it be used to manage price risk?
- What risk management tools work for my operations?

Sources of Risk in Agriculture

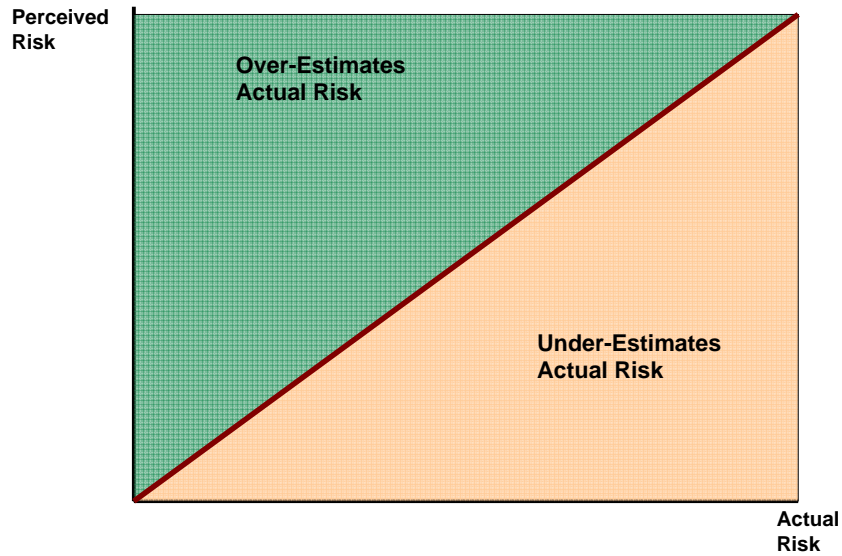
1. Price risk
2. Production risk
3. Input cost risk
4. Casualty loss risk
5. Legal, regulatory, and policy risk
6. Personal well-being/health risk
7. Risk of dependent/partner business changes

Source: Modified from Miller et al., "Risk Management for Farmers", Purdue University, Sept 2004.

Two Manager Attributes Affect Risk Management Strategy Employed

1. RISK Perception
2. RISK Attitude or Aversion Level

Together determine how manager deals with risk



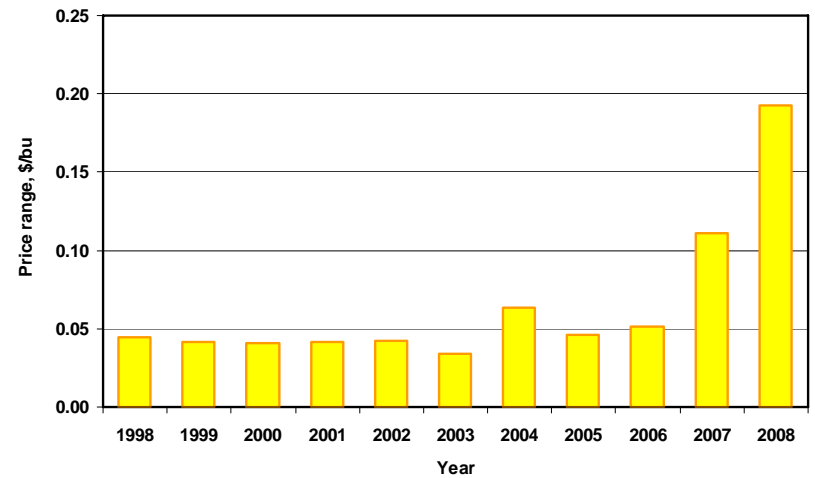
Aligning Perceived and Actual Risk

1. Education
2. Information
3. Experience

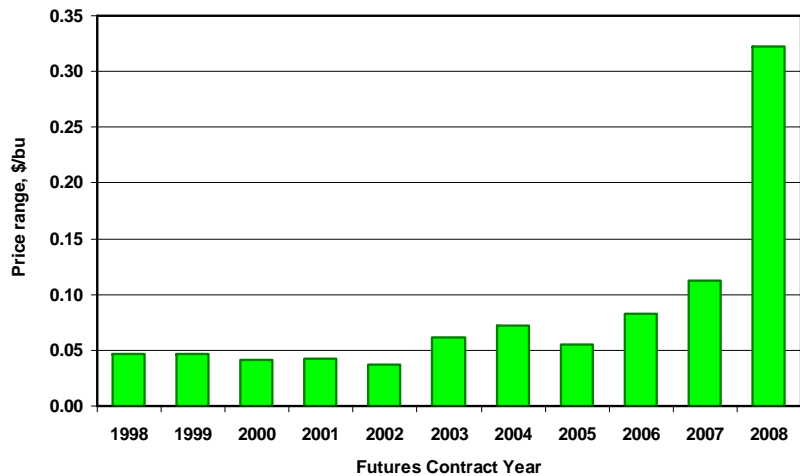
Are we in a new era of agricultural market risk?



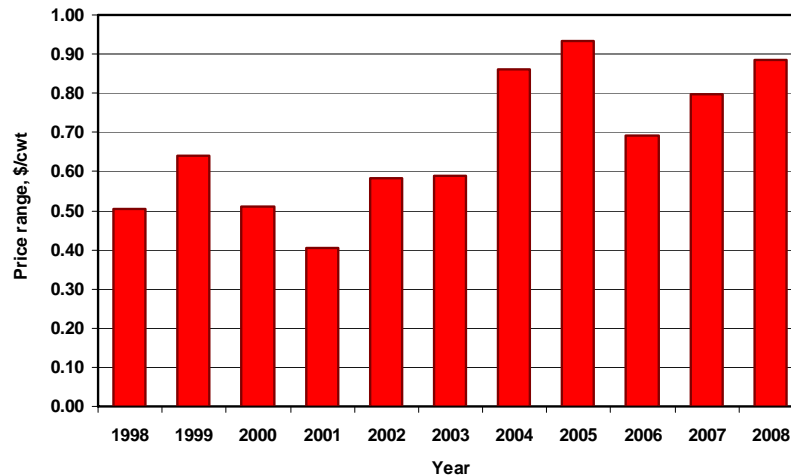
Daily Price Range (High minus Low) DEC Corn Futures Price
(Jan 1 - Oct 31 each year; 2008 through August)



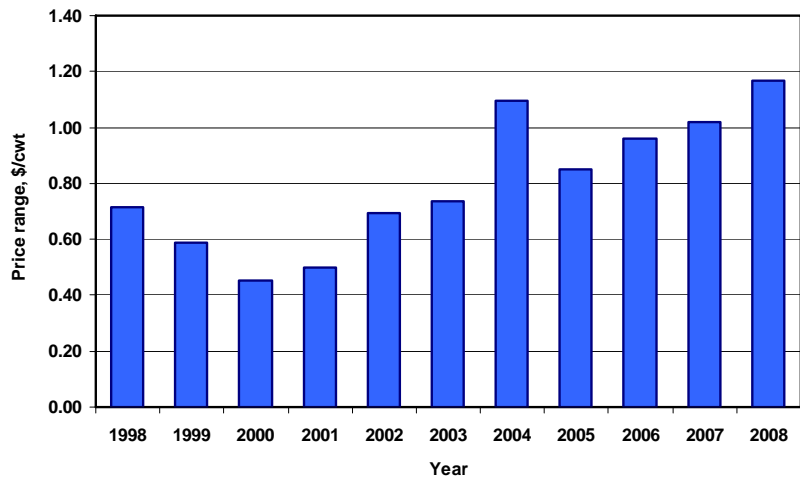
Daily Price Range (High minus Low) JUL Wheat Futures Price
(Sep 1 - Jun 30 each year)



Daily Price Range (High - Low) DEC Live Cattle Corn Futures Price
(Jan - Nov each year; 2008 through August)



Daily Price Range (High - Low) OCT Feeder Cattle Corn Futures Price
(Jan 1 - Oct 15 each year; 2008 through August)



CME feeder cattle futures prices (9-16-08) ...

Month	Last	Chg	Open	High	Low	Volume	Open Int	Trade Time
Sep-08	108.900s	-0.800	109.600	109.600	108.600	530	2740	09/16/08 12:56
Oct-08	107.675s	-1.150	108.900	108.900	107.450	1889	8322	09/16/08 00:00
Nov-08	107.500s	-1.275	---	108.300	107.400	1990	10467	09/16/08 00:00
Jan-09	106.800s	0.050	107.500	107.575	106.800	458	3953	09/16/08 13:19
Mar-09	106.900s	-0.600	107.750	107.750	107.000	43	738	09/16/08 00:00
Apr-09	107.500s	-0.700	107.750	107.750	107.500	0	403	09/16/08 13:19
May-09	108.200s	-0.800	108.850	108.850	108.000	4	520	09/16/08 13:00
Aug-09	109.500s	-0.500	---	---	109.500	3	8	09/16/08 13:19
Sep-09	---	---	---	---	---	0	0	---

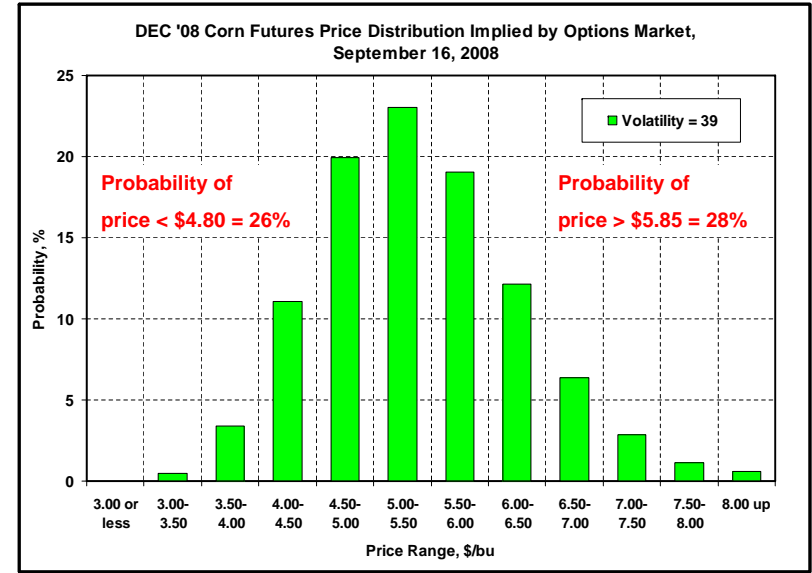
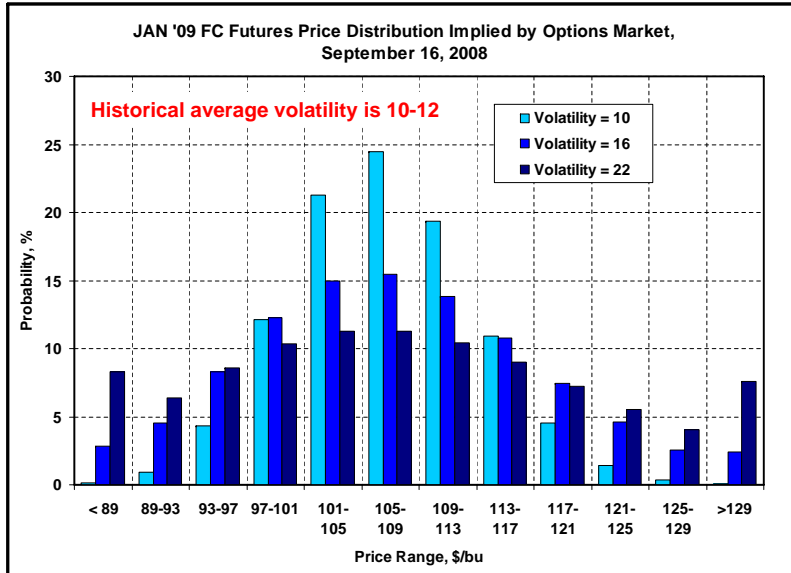
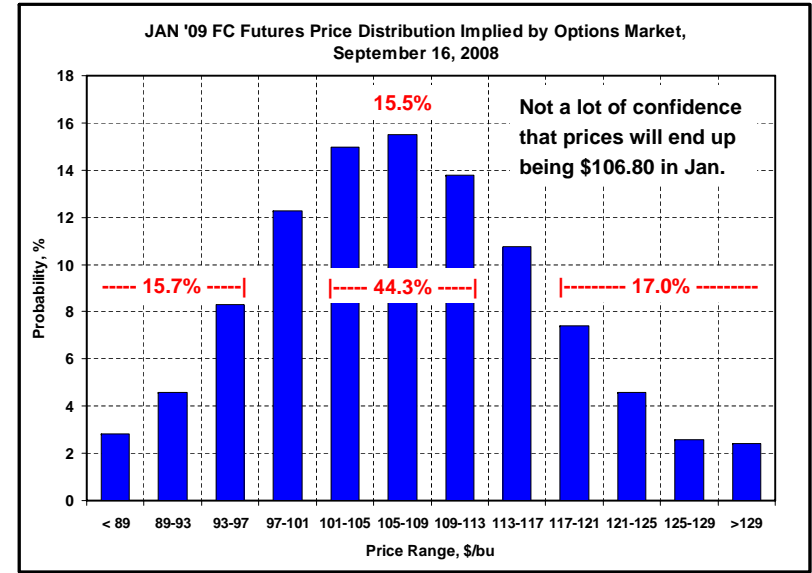
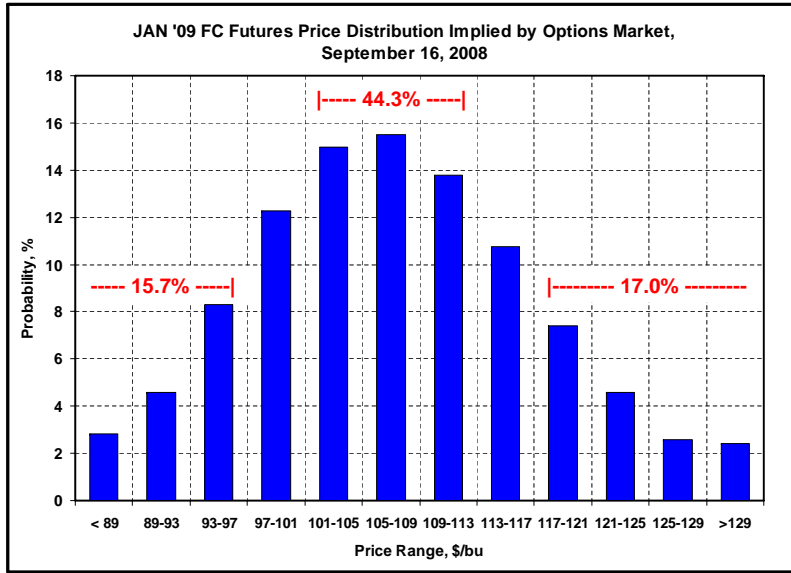
Jan-09 is trading at \$106.80
This is the market's forecast as to what prices will be, but how confident are we in this forecast?

What is the probability price will be between \$105 and \$109 (+/- \$2) in Jan?

What is the probability price will be between \$101 and \$113 (+/- \$6) in Jan?

What is the probability price will be less than \$97 (down \$10) in Jan?

What is the probability price will be greater than \$117 (up \$10) in Jan?



Are we in a new market risk era?

- Volatility is considerably higher than historical time periods (especially for grains)
- Impact of grain price variability on cattle producers will vary depending on their type of operation
- In addition to price risk, other risks have increased (e.g., input costs, leverage, regulatory, etc.)
- Important for perceived and actual risks to be similar to make sound management decisions
 - Producers and lenders tend to under-estimate market price risk (i.e., they perceive risk to be less than it is)

Managing price risk...

1. Hedging in futures market
2. Hedging in options market
3. Buying LRP insurance
-
4. Forward contracting in cash market
5. Diversifying, retaining ownership, etc.

Hedging – as defined by Webster

- to protect oneself from losing by a counterbalancing transaction
- to protect oneself financially as
 - a. to buy or sell commodity futures as a protection against loss due to price fluctuation
 - b. to minimize the risk of a bet

What is the purpose of hedging?

- To ensure price protection against adverse market moves.
- To reduce the risk of price fluctuations that can affect the value of a commodity.

How are futures hedges used?

To ensure...

- a selling price for growing crops or livestock.
- a selling price for crops in inventory.
- a purchase price for crops, feed or livestock needed in the future.

How does hedging work?

- 1) A Hedge involves taking a futures position opposite, but equal in size to, a cash position.
- 2) Selling Futures in advance of future cash market sales.
- 3) Buying Futures in advance of future cash market purchases.

Hedging, Options, LRP Insurance

Comparison and Contrast

1. Hedging with Futures

- Fixed contract specifications and size (50,000 lbs)
- Deal with broker
- Margin account and maintenance required
- Brokerage commission
- Locks in a “fixed” price
- Basis risk present
- Easy to enter & liquidate
- Transparent price quotes

What is a futures contract?



An agreement between a buyer and a seller to receive or deliver a product on a future date at a price they have negotiated TODAY.

The agreement is standardized as to...

- Delivery Period
- Contract Size
- Quality of the Product

The only negotiable terms are *price* and the *number* of contracts involved in each trade.

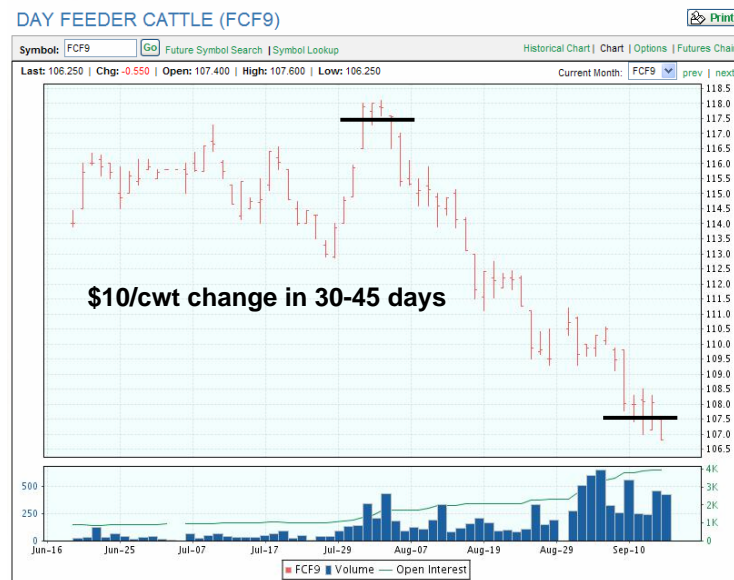
Entering and exiting a futures position

<u>Initial or entry position</u>		<u>How to exit</u>
Buy		Sell
Sell		Buy

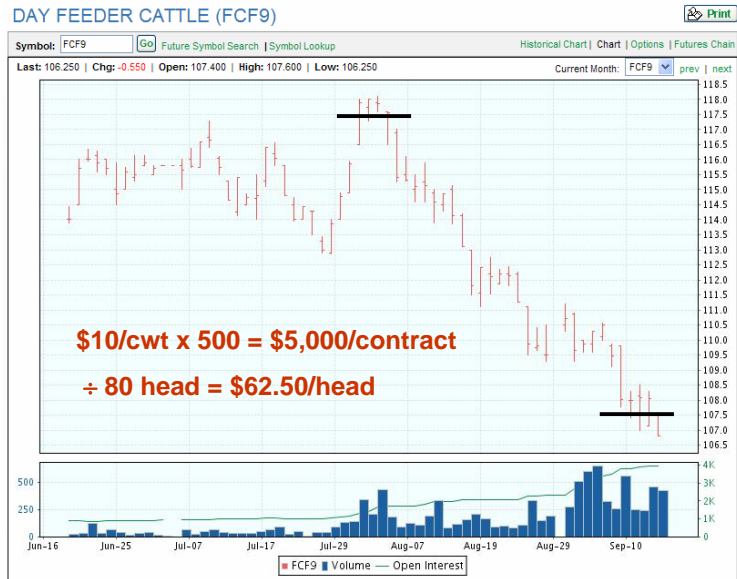
What happens as futures prices change?

Once you have established a “buy” or “sell” position in the Futures Market - The “value” of your position (gain or loss) changes each time prices change.

How much can I gain or lose in the futures market?



How much can I gain or lose in the futures market?



What Is Margin?

Margin is a deposit of earnest money similar to the performance bond required in some business transactions.

Margin account

- Must be established before trading
- Must be maintained
- Will reflect the gains (losses) incurred as futures prices change

Margin requirements change over time...

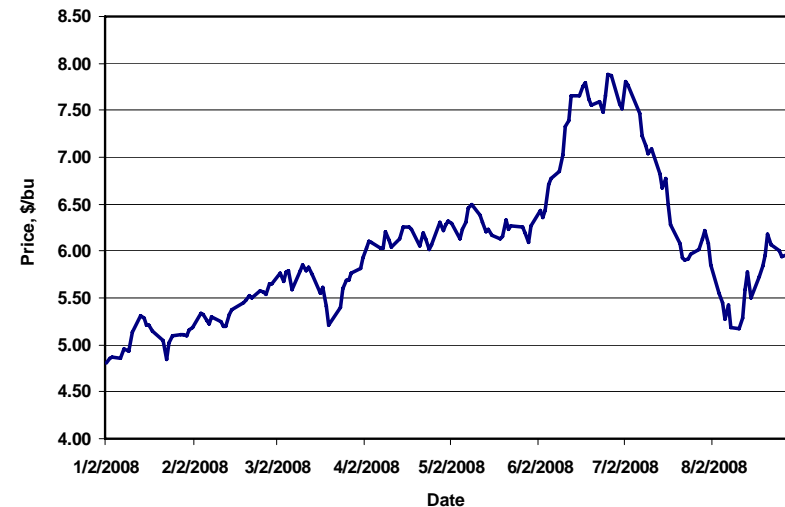
Corn Margin Requirements (per contract) Selected Dates



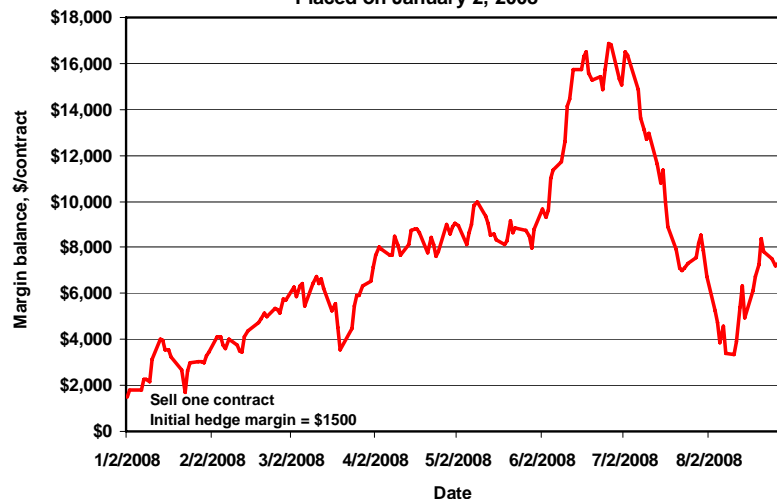
Date	Speculative		
	Initial	Maintenance	Hedging
1/25/2005	\$439	\$325	\$325
8/5/2005	\$810	\$600	\$600
9/29/2005	\$506	\$375	\$375
12/5/2005	\$338	\$250	\$250
4/4/2006	\$473	\$350	\$350
8/25/2006	\$608	\$450	\$450
10/12/2006	\$878	\$650	\$650
10/16/2006	\$1,013	\$750	\$750
11/14/2006	\$1,148	\$850	\$850
12/20/2006	\$1,013	\$750	\$750
1/17/2007	\$1,215	\$900	\$900
1/29/2007	\$1,350	\$1,000	\$1,000
9/24/2007	\$1,080	\$800	\$800
5/25/2008	\$1,350	\$1,000	\$1,000
8/8/2008	\$2,025	\$1,500	\$1,500



DEC 2008 Daily Corn Futures Closing Price, Jan 2 - Sep 16, 2008



Margin Account Balance For One DEC 2008 Corn Futures Sell Hedge
Placed on January 2, 2008



Risk Management Using Futures

Hedging defined...

Use of the futures market as a temporary substitute for an intended transaction in the cash market which will occur at a later date.

Relationship Between Cash & Futures Critical for Risk Management

- Basis = Cash Price - Futures Price
- Rearrange formula
- Basis + Futures Price = Cash Price

Decomposing A Cash Price

- Cash Price = Basis + Futures Price
- Recall definition of Hedging
- Hedging effectively “locks in” the Futures Price when the hedger sells (for a short hedger) the futures contract
- Hedging does not “lock in” the Basis
- Therefore the Cash Price is not locked in and the hedger is still exposed to basis risk, so

Expected Cash Price = Expected Basis + Futures Price

Evaluating A Hedge

At outset of hedge we calculate the *Expected Selling Price*

Expected Selling Price is what the hedger expects to receive for the commodity net of any gains or losses in the futures, minus the brokerage commission

Expected Selling Price

Futures Price at which futures contract is sold	
+ Expected Basis	
- Brokerage commission	
<hr/>	
Expected Selling Price	

Futures Hedge Example

Assume Jan FC are \$106.80 /cwt when hedge is initiated

Expect mid Dec basis will = +\$1.50 /cwt (625 lb steer)

Brokerage commission = \$60/ round turn or \$0.12/cwt

What is the Expected Selling Price?

Futures Price at which hedge is initiated	\$106.80
+ Expected Basis	+\$ 1.50
- Brokerage commission	-\$ 0.12
<hr/>	
Expected Selling Price	\$108.18/cwt

At Hedge's Conclusion

Calculate Actual Sale Price (ASP)

Price received in the cash market	
+ Net on futures transaction	
- Brokerage Commission	
<hr/>	
Actual Sale Price	

Futures Hedge Example

Assume Jan FC are \$111.80/cwt when hedge is concluded

Assume cash live cattle = \$113.30/cwt when hedge concludes

What is the net gain on your futures trade?

Sold Jan FC futures @	\$106.80
- Offset (buy) Jan FC futures @	\$111.80
<hr/>	
Net gain on futures transaction	-\$ 5.00

Futures Hedge Example

So, If Jan FC are \$111.80/cwt when hedge concludes

And cash live cattle = \$113.30/cwt when hedge concludes

What is Actual Sale Price?

Price received in cash market	\$113.30
+ Net on futures transaction	-\$ 5.00
- Brokerage commission	-\$ 0.12
<hr/>	
Actual Sale Price	\$108.18/cwt.

Expected = Actual. Why?

Because Expected Basis = Actual Basis

Basis...

- Basis is the difference between two prices.
- In commodity marketing, basis is generally referred to the difference between a specific cash price and a specific futures price.
- Mathematically: $\text{Basis} = \text{Cash} - \text{Futures}$
- Nearby and Deferred
- Typically forecasted using a historical average (forecast is needed to evaluate price when hedging)

Basis

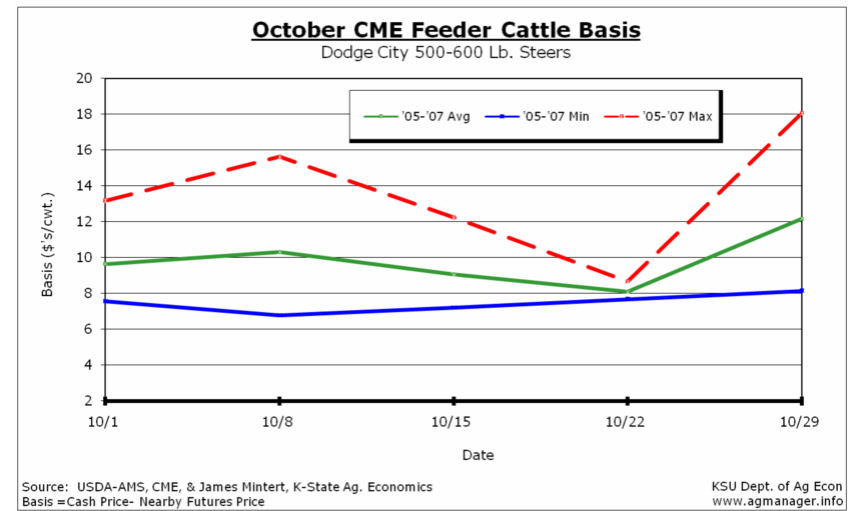
- Generally, basis is more predictable than cash or futures prices due to:
 - Convergence
 - Futures and cash prices move together (same fundamental conditions generally affect both markets)
 - Year-to-year stability implies the ability to rely upon historical data for predictions

How should basis be calculated?

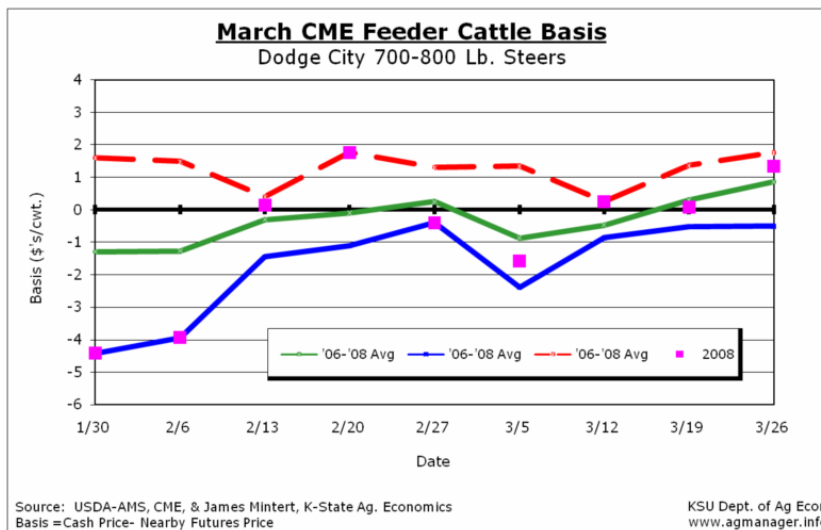
- When thinking about basis for beef cattle, important considerations are:
 - Weight of animal
 - Sex of animal
 - Time of year
 - Cash market location
 - Number of head in lot
 - Other factors ???

Forecasting basis...

- Expected value = Average
 - ➔ Optimal number of years to include in average may vary depending on commodity
- Measure variability (risk)
 - ➔ Historical range (highs and lows), standard deviation
 - ➔ Variability measure indication of risk



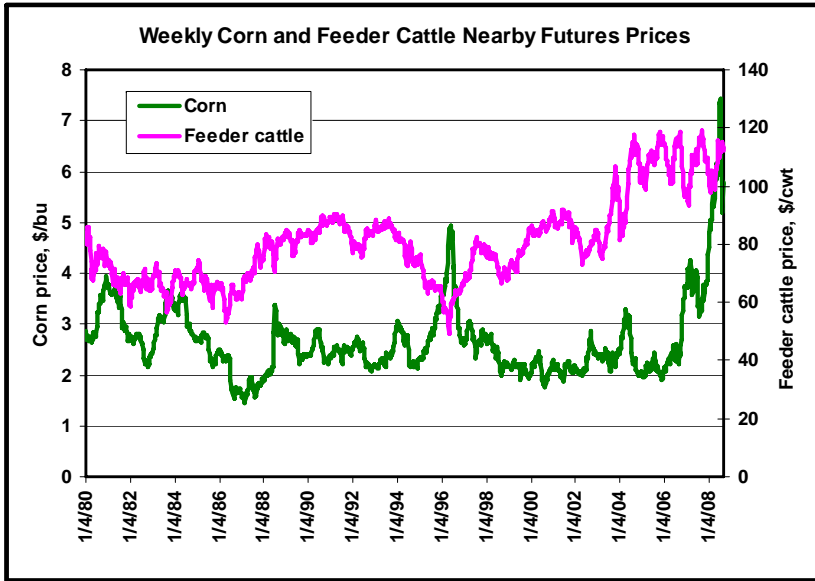
Basis chart from www.agmanager.info



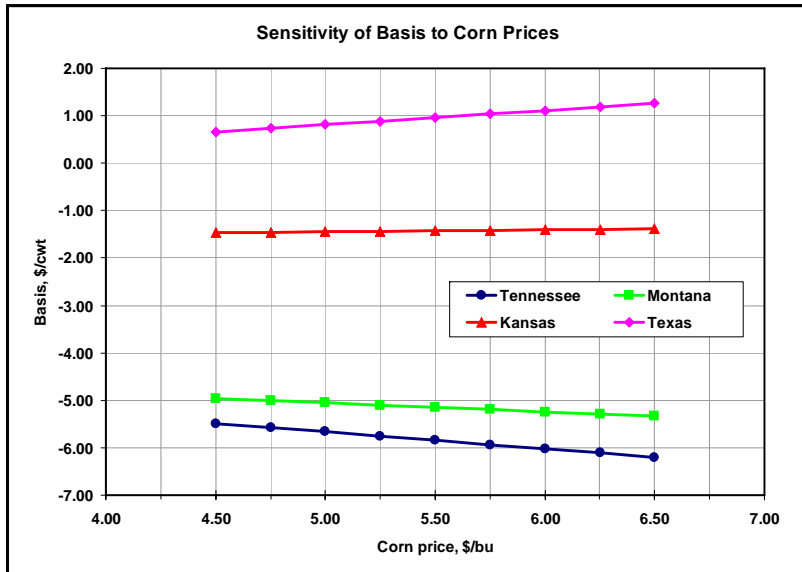
Basis chart from www.agmanager.info

What does increased price variability in corn market mean for cattle producers?

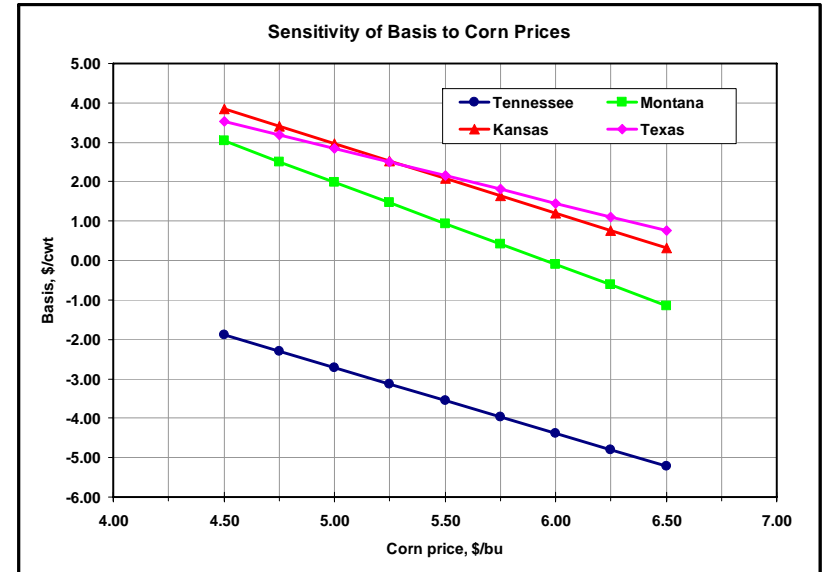
Little direct relationship between corn and feeder cattle prices...




Impact of corn price on predicted basis for 750 lb steer sold 12/16/09

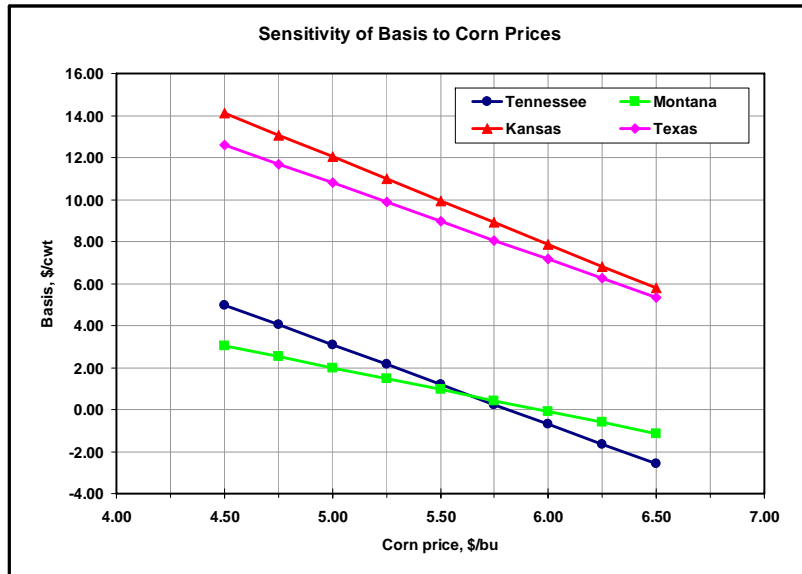


Impact of corn price on predicted basis for 625 lb steer sold 12/16/09





Impact of corn price on predicted basis for 500 lb steer sold 12/16/09



Hedging, Options, LRP Insurance

Comparison and Contrast

2. Buying (Put) Options

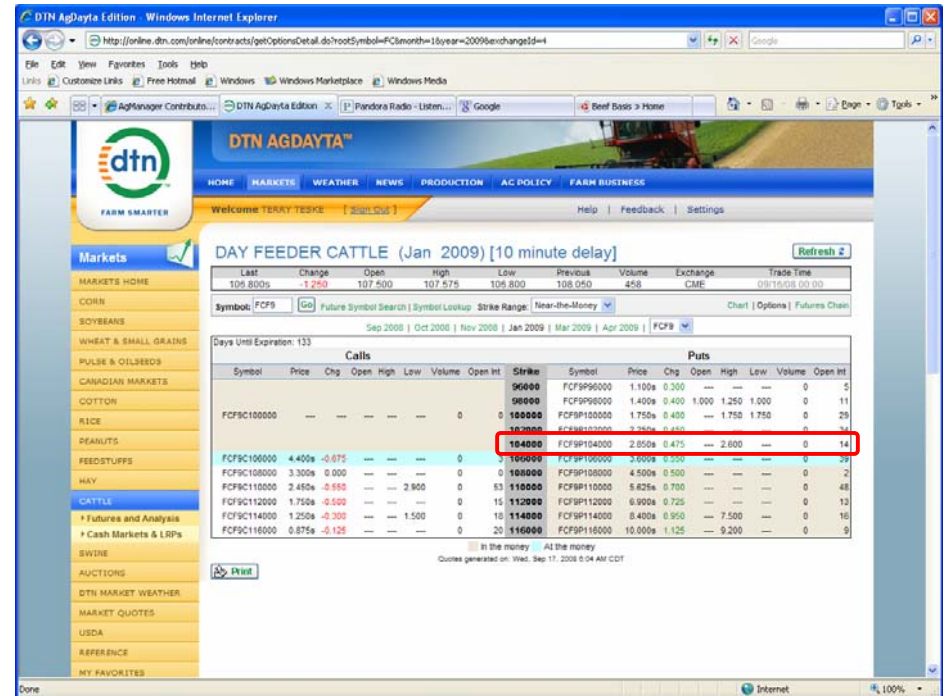
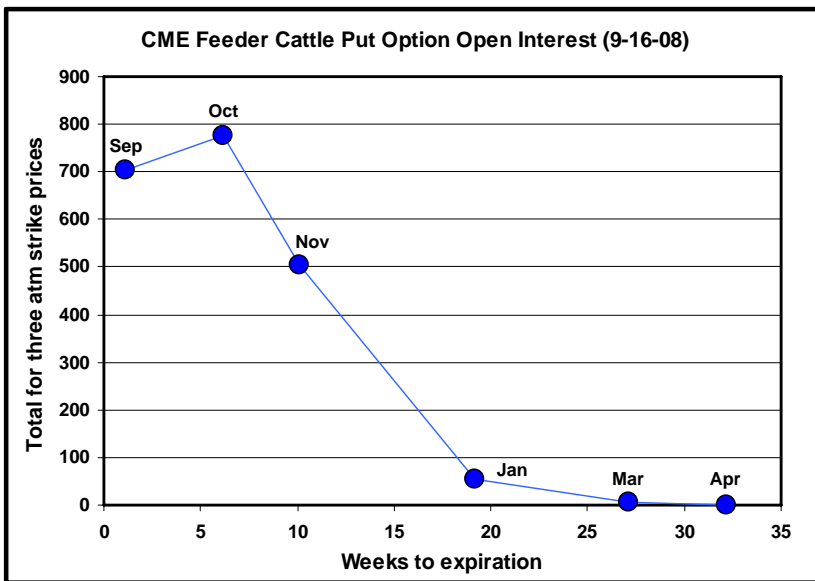
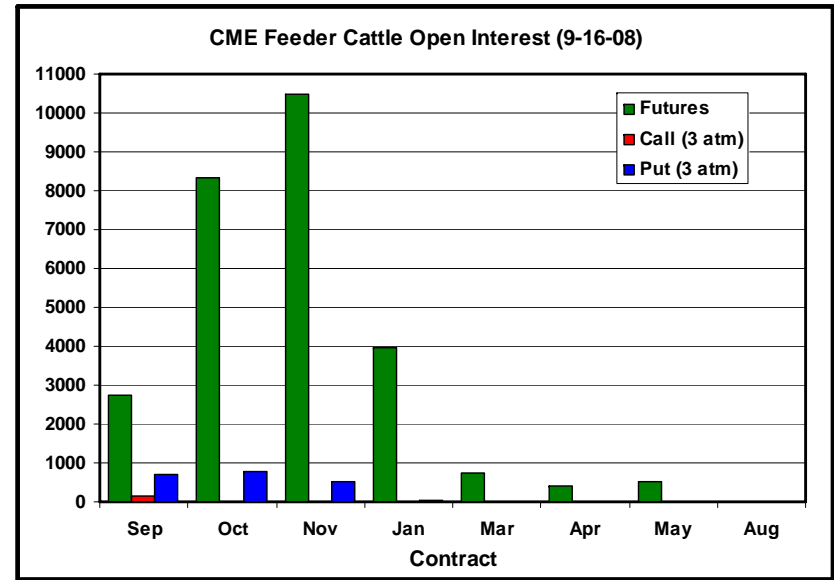
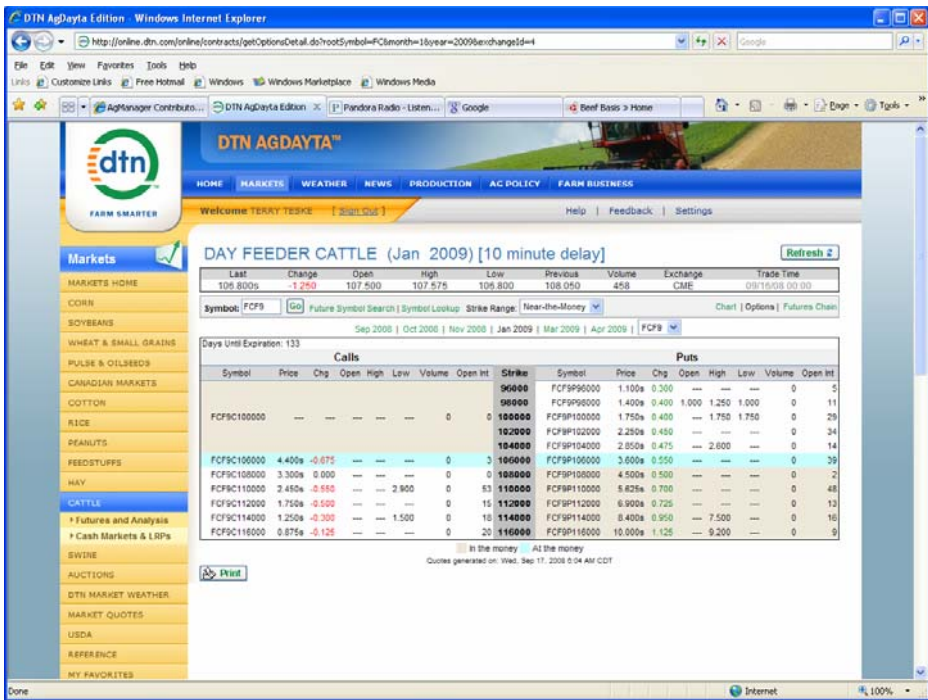
- Fixed contract specifications and size
- Deal with broker
- No Margin account or maintenance required
- Pay premium for option
- Brokerage commission
- Sets a “minimum price”
- Basis risk present
- Easy to enter & liquidate
- Transparent price quotes

Option Hedging Strategies

- Buying a PUT gives option buyer the *right*, but not the *obligation* to SELL a futures contract at a specified price known as the “strike price”
- So, we can use the purchase of a PUT in place of selling a futures contract
- Therefore, you can buy a PUT to establish a “Minimum Expected Selling Price”
 - If prices go up above the strike price you would simply allow the option to expire
- Calculations are similar to **Expected Selling Price**, but we must convert the put option’s purchase into a futures price equivalent

Minimum Expected Selling Price

- Start with put option strike price
- subtract the put option premium
- This creates a “futures equivalent”**
- then add basis forecast
- subtract brokerage commission
 - remember that most brokers charge once to buy an option and once to sell an option
 - have to account for possibility of “double” brokerage commission in calculations



Minimum Expected Selling Price

- Example: Buy CME \$104.00 Jan Feeder Cattle Put (when Nov Feeder Futures are @ \$106.80)
- Put option premium = \$2.85/cwt.
- Mid Dec basis forecast = \$1.50/cwt. (625 lb steer)
- Assume brokerage commission is \$30 to buy an option contract and \$30 to sell an option contract
- For buyer of \$104.00 Jan FC Put
What is **Minimum Expected Selling Price**?

Minimum Expected Selling Price

\$104.00	Option Strike Price
- \$ 2.85	Put Premium
<hr/>	
\$101.15	Futures Equivalent
+ \$1.50	Expected mid Dec Basis
- \$ 0.12	Max. Possible Commission
<hr/>	
\$102.53/cwt.	Min. Expected Selling Price

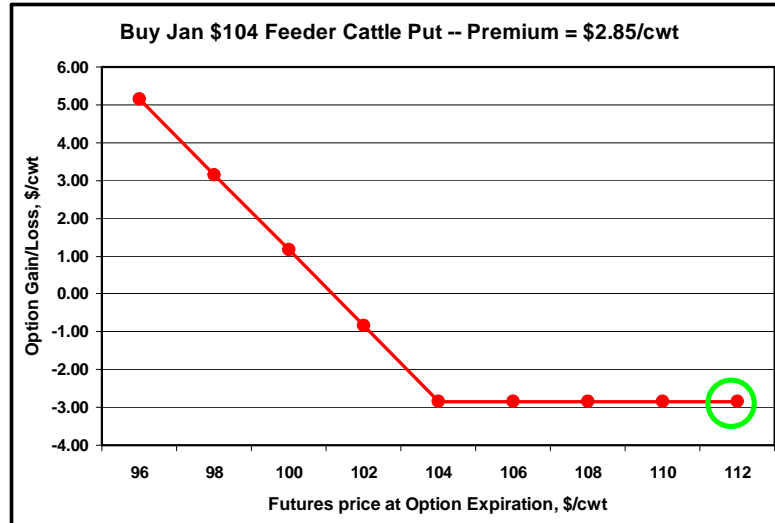
Actual Sale Price

- Start with price received in cash market
- Look at futures price and use point on profit/loss diagram to determine “net” on option trade
- add the “net” from the option trade
- subtract actual brokerage commission

Actual Sale Price

- Sell cash cattle in mid Dec for \$113.30/cwt.
- Jan feeder cattle futures are \$111.80/cwt.
- Let’s look at the Option Trades Profit/Loss diagram to view a range of possible outcomes for the option trade

Profit/Loss Graph



Actual Sale Price (for buyer of CME Put Option)

\$113.30	Cash Market Price
- 2.85	+ Net on Option Trade
- 0.06	- Brokerage Commission
<hr/>	
\$110.39	Actual Net Sale Price

Actual > Expected Minimum. Why?

Prices went up after Put Option purchase and the Put Option buyer retained the right to benefit from future price increases

Hedging, Options, LRP Insurance

Comparison and Contrast

3. Other Option Strategies...

- Synthetic put – forward contract or hedge and simultaneously buy a call option
- Buying a call option in lieu of storing grain
- Window/fence – buy a put option and sell call option(s)
- Many other possibilities...
- Selling options does require margins as potential losses are unlimited

Hedging vs. Options...

Because the various risk management tools have different characteristics (e.g., flat price vs. minimum price), it is useful to compare them under alternative price outcomes.

KSU-Option Strategies.xls is a tool that allows users to compare various strategies, specifically focusing on risk management strategies using put and call options.

Microsoft Excel - KSU-OptionStrategies.xls

KSU-Option strategies.xls -- A spreadsheet program to compare alternative marketing strategies that use the futures and options markets.

Version -- 06.03.08

Inputs vs Calculated Values

In the Strategies tab all blue numbers are inputs and all other numbers are calculated from these inputs. The spreadsheet automatically recalculates every time an additional input is entered. Thus, it is important to wait until all data have been entered and reviewed before interpreting any of the calculated results (i.e., black numbers).

Strategies

In the Strategies tab, four alternative marketing strategies can be compared side-by-side at one time. These strategies can use futures, options, or a combination of the two. It is important to note that because these strategies only consider futures and options basic risk still exists. Thus, the calculated expected net selling (buying) prices are still subject to changes in basis from the expected value entered. It is also important to note that options strategies that involve selling options (either puts or calls) requires margin money and also have potentially unlimited risk, whereas, simply purchasing options has limited risk (i.e., the cost of premium).

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 Kansas State University
 Department of Agricultural Economics

Example: Feeder cattle market (09/16/08 closing prices)

DAY FEEDER CATTLE (Jan 2009) [10 minute delay] Refresh

Last	Change	Open	High	Low	Previous	Volume	Exchange	Trade Time
106.800s	-1.250	107.500	107.575	106.800	108.050	458	CME	09/16/08 00:00

Symbol: FCF9 | Future Symbol Search | Symbol Lookup | Strike Range: Near-the-Money | Chart | Options | Futures Chain

Days Until Expiration: 133

Calls										Puts									
Symbol	Price	Chg	Open	High	Low	Volume	Open Int	Strike	Symbol	Price	Chg	Open	High	Low	Volume	Open Int			
								96000	FCF9P96000	1.100s	0.300	---	---	---	0	5			
								98000	FCF9P98000	1.400s	0.400	1.000	1.250	1.000	0	11			
								100000	FCF9P100000	1.750s	0.400	---	1.750	1.750	0	29			
								102000	FCF9P102000	2.250s	0.450	---	---	---	0	34			
								104000	FCF9P104000	2.850s	0.475	---	2.600	---	0	14			
FCF9C106000	4.400s	-0.675	---	---	---	0	3	106000	FCF9P106000	3.600s	0.550	---	---	---	0	39			
FCF9C108000	3.300s	0.000	---	---	---	0	0	108000	FCF9P108000	4.500s	0.500	---	---	---	0	2			
FCF9C110000	2.450s	-0.550	---	---	2.900	0	53	110000	FCF9P110000	5.625s	0.700	---	---	---	0	48			
FCF9C112000	1.750s	-0.500	---	---	---	0	15	112000	FCF9P112000	6.900s	0.725	---	---	---	0	13			
FCF9C114000	1.250s	-0.300	---	---	1.500	0	18	114000	FCF9P114000	8.400s	0.950	---	7.500	---	0	16			
FCF9C116000	0.875s	-0.125	---	---	---	0	20	116000	FCF9P116000	10.000s	1.125	---	9.200	---	0	9			

In the money At the money

- A. Cash (do nothing)
- B. Hedge (sell futures)
- C. Buy Put option (floor price)
- D. Hedge and buy Call option (floor price)

Microsoft Excel - KSU-OptionStrategies-Sept2008-A

Comparison of Futures and Options Market Strategies

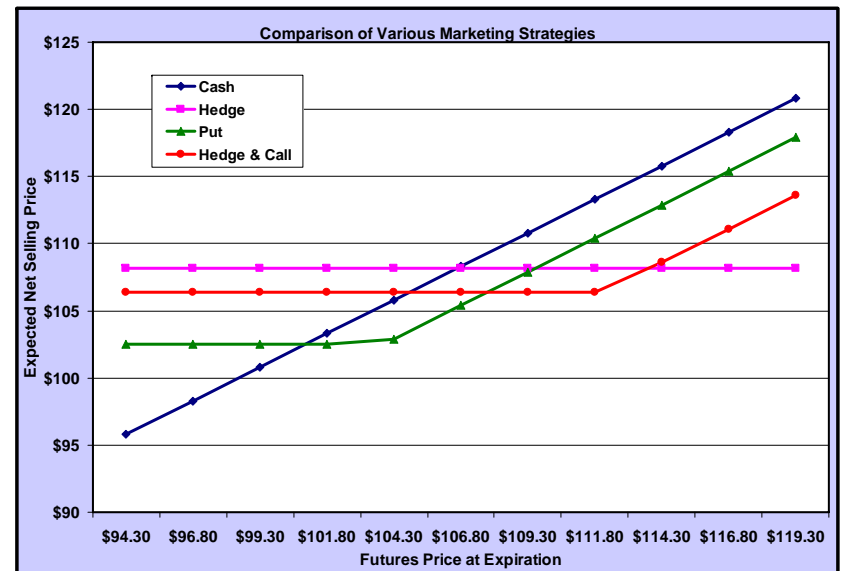
Print Report

Buying or selling (buy=1, sell=2) 2
 Futures price at time of trade \$106.80
 Expected basis \$1.50
 Interval for futures price change to consider \$2.50

Strategy	Cash	Hedge	Put	Hedge & Call
Futures (buy=1, sell=2)		2		2
Put option strike 1			\$104.00	
Premium			\$2.85	
Buy=1, Sell=2			1	
Number bought/sold			1	
Put option strike 2				
Premium				
Buy=1, Sell=2				
Number bought/sold				
Call option strike 1				\$112.00
Premium				\$1.75
Buy=1, Sell=2				1
Number bought/sold				1
Call option strike 2				
Premium				
Buy=1, Sell=2				
Number bought/sold				
Commission to buy AND sell futures, \$/unit (bu, cwt)				\$0.120
Option commission to buy OR sell an option, \$/unit				\$0.060
Total premium paid	\$0.000	\$0.000	\$2.850	\$1.750
Total premium received	\$0.000	\$0.000	\$0.000	\$0.000
Total commission	\$0.000	\$0.120	\$0.060	\$0.180
Net cost per unit	\$0.000	\$0.120	\$2.910	\$1.930

Futures Prices	Cash	Hedge	Put	Hedge & Call
\$94.30	\$0.00	\$12.38	\$6.73	\$10.57
\$96.80	\$0.00	\$9.88	\$4.23	\$8.07
\$99.30	\$0.00	\$7.38	\$1.73	\$5.57
\$101.80	\$0.00	\$4.88	-\$0.77	\$3.07
\$104.30	\$0.00	\$2.38	-\$2.91	\$0.57
\$106.80	\$0.00	-\$0.12	-\$2.91	-\$1.93
\$109.30	\$0.00	-\$2.62	-\$2.91	-\$4.43
\$111.80	\$0.00	-\$5.12	-\$2.91	-\$6.93
\$114.30	\$0.00	-\$7.62	-\$2.91	-\$9.43
\$116.80	\$0.00	-\$10.12	-\$2.91	-\$11.93
\$119.30	\$0.00	-\$12.62	-\$2.91	-\$14.43

Futures Prices	Cash	Hedge	Put	Hedge & Call
\$94.30	\$95.80	\$108.18	\$102.53	\$106.37
\$96.80	\$98.30	\$108.18	\$102.53	\$106.37
\$99.30	\$100.80	\$108.18	\$102.53	\$106.37
\$101.80	\$103.30	\$108.18	\$102.53	\$106.37
\$104.30	\$105.80	\$108.18	\$102.89	\$106.37
\$106.80	\$108.30	\$108.18	\$105.39	\$106.37
\$109.30	\$110.80	\$108.18	\$107.89	\$106.37
\$111.80	\$113.30	\$108.18	\$110.39	\$106.37
\$114.30	\$115.80	\$108.18	\$112.89	\$108.61
\$116.80	\$118.30	\$108.18	\$115.39	\$111.11
\$119.30	\$120.80	\$108.18	\$117.89	\$113.61



Comparison of additional options strategies

- A. Buy Put option (floor price)
- B. Buy Put option and sell Call option (window)
- C. Buy Put option and sell two Call options (???)
- D. Buy Put option, sell Call option, and sell Put option (???)

Microsoft Excel - KSU-OptionStrategies-Sept2008-B

Comparison of Futures and Options Market Strategies

Buying or selling (buy=1, sell=2) 2
 Futures price at time of trade \$106.80
 Expected basis \$1.50
 Interval for futures price change to consider \$1.50

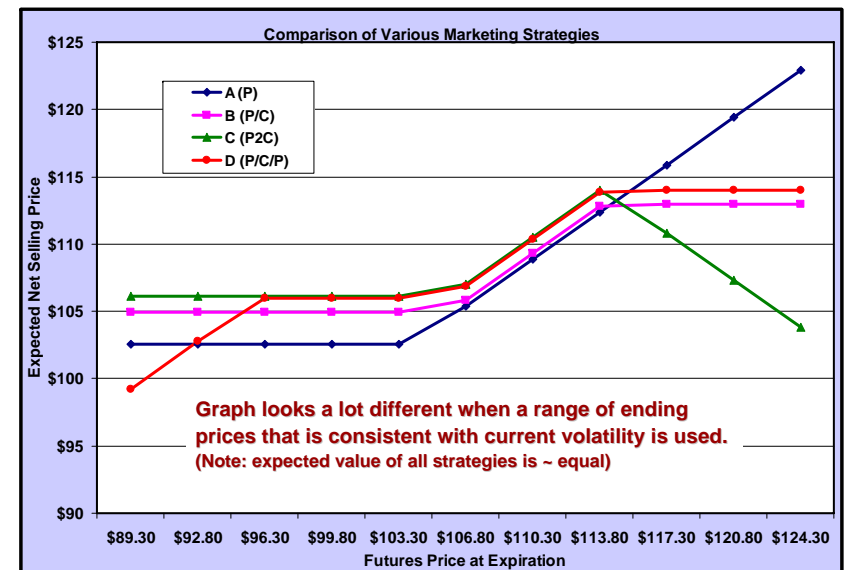
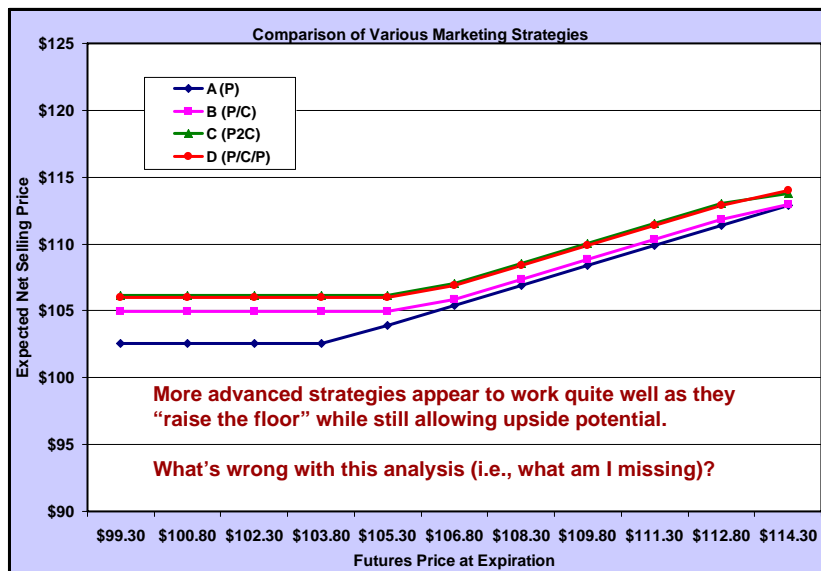
Strategy	A (P)	B (P/C)	C (P2C)	D (P/C/P)
Futures (buy=1, sell=2)				
Put option strike 1	\$104.00	\$106.00	\$106.00	\$106.00
Premium	\$2.85	\$3.60	\$3.60	\$3.60
Buy=1, Sell=2	1	1	1	1
Number bought/sold	1	1	1	1
Put option strike 2				\$96.00
Premium				\$1.10
Buy=1, Sell=2				2
Number bought/sold				1
Call option strike 1		\$114.00	\$114.00	\$114.00
Premium		\$1.25	\$1.25	\$1.25
Buy=1, Sell=2		2	2	2
Number bought/sold		1	2	1
Call option strike 2				
Premium				
Buy=1, Sell=2				
Number bought/sold				
Commission to buy AND sell futures, \$/unit (bu, cwt)				\$0.120
Option commission to buy OR sell an option, \$/unit				\$0.060
Total premium paid	\$2.850	\$3.600	\$3.600	\$3.600
Total premium received	\$0.000	\$1.250	\$2.500	\$2.350
Total commission	\$0.060	\$0.120	\$0.180	\$0.180
Net cost per unit	\$2.910	\$2.470	\$1.280	\$1.430

Futures and Options Gain/Loss

Futures Prices	A (P)	B (P/C)	C (P2C)	D (P/C/P)
\$99.30	\$1.73	\$4.17	\$5.36	\$5.21
\$100.80	\$0.23	\$2.67	\$3.86	\$3.71
\$102.30	-\$1.27	\$1.17	\$2.36	\$2.21
\$103.80	-\$2.77	-\$0.33	\$0.86	\$0.71
\$105.30	-\$4.27	-\$1.83	-\$0.64	-\$0.79
\$106.80	-\$5.77	-\$3.33	-\$2.14	-\$2.29
\$108.30	-\$7.27	-\$4.83	-\$3.64	-\$3.79
\$109.80	-\$8.77	-\$6.33	-\$5.14	-\$5.29
\$111.30	-\$10.27	-\$7.83	-\$6.64	-\$6.79
\$112.80	-\$11.77	-\$9.33	-\$8.14	-\$8.29
\$114.30	-\$13.27	-\$10.83	-\$9.64	-\$9.79

Expected Net Selling Price

Futures Prices	A (P)	B (P/C)	C (P2C)	D (P/C/P)
\$99.30	\$102.53	\$104.97	\$106.16	\$106.01
\$100.80	\$102.53	\$104.97	\$106.16	\$106.01
\$102.30	\$102.53	\$104.97	\$106.16	\$106.01
\$103.80	\$102.53	\$104.97	\$106.16	\$106.01
\$105.30	\$103.89	\$104.97	\$106.16	\$106.01
\$106.80	\$105.39	\$105.83	\$107.02	\$106.87
\$108.30	\$106.89	\$107.33	\$108.52	\$108.37
\$109.80	\$108.39	\$108.83	\$110.02	\$109.87
\$111.30	\$109.89	\$110.33	\$111.52	\$111.37
\$112.80	\$111.39	\$111.83	\$113.02	\$112.87
\$114.30	\$112.89	\$112.97	\$113.80	\$114.01



Hedging, Options, LRP Insurance

Comparison and Contrast

4. LRP Insurance

- Contract size/weight variable
- Deal with local crop insurance agent
- No margin account or maintenance required
- Pay premium for insurance policy
- No explicit commission
- Sets a “minimum price”
- Basis risk present
- Easy to enter (no liquidation option)
- Transparent price quotes

Livestock Risk Protection Insurance

- Livestock Risk Protection Insurance (LRP)
- LRP for feeder cattle available
 - Provides protection against a decline in *Chicago Mercantile Exchange (CME) Feeder Cattle Price Index* while you own cattle
 - CME Feeder Cattle Price Index is a 7-day-weighted average of cash feeder cattle prices across the U.S.
- LRP for slaughter cattle is also available
 - Provides protection against a decline in the *5 Area Weighted Average Price* reported by USDA

Buying LRP Similar to Buying Put Options

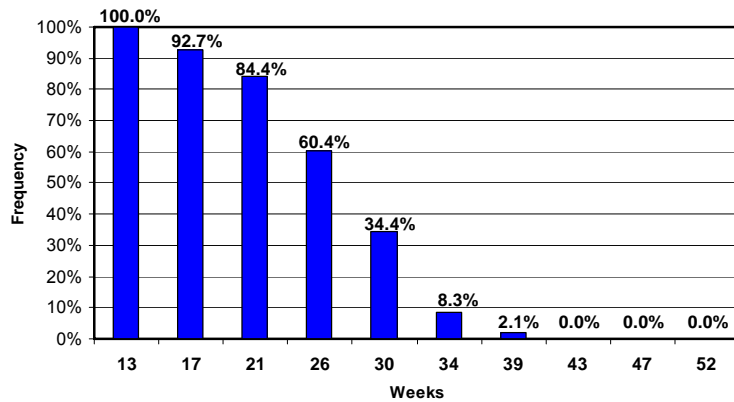
- Chicago Mercantile Exchange (CME) Feeder Cattle Index is used to cash settle Feeder Cattle Futures
- LRP also uses the CME Feeder Cattle Index to settle. So, purchase of LRP for Feeder Cattle is similar (but not identical) to purchasing a CME Feeder Cattle put option

What's Eligible for Coverage?

- Can insure steers, heifers, Brahma and dairy breeds
- Coverage is now available for 13, 17, 21, 26, 30, 34, 39, 43, 47, or 52 week periods
- Feeder cattle must weigh less than 900 lbs. at the end of the insurance period
- Cattle weighing less than 600 lbs. (at end of insurance period) can be insured and will receive a 10% price adjustment to reflect the fact that lighter weight cattle generally trade at a premium to heavier cattle

Frequency of LRP Coverage Offerings

July 2, 2007 thru November 16, 2007



Based on 96 reported days

Windows Internet Explorer
http://www3.rma.usda.gov/apps/livestock_reports/main.aspx

LRP Coverage Prices, Rates, and Actual Ending Values - Report for 09/16/2008

Weight 1: < 600 lbs

USDA subsidizes 13 percent of total LRP premium

* See notes at bottom of page

State	County	Endorsement Length	Commodity	Type	Practice	Crop Year	Exp. End Value	Coverage Price	Coverage Level	Rate	Cost Per CWT	End Date	Actual End Value
06	CALIFORNIA	998 ALL COUNTIES	0801 FEEDER CATTLE	809 STEERS WEIGHT 1	997 NO PRACTICE SPECIFIED	2009	117.826	\$110.358	0.936500	0.014773	1.635	12/16/2008	
06	CALIFORNIA	998 ALL COUNTIES	0801 FEEDER CATTLE	809 STEERS WEIGHT 1	997 NO PRACTICE SPECIFIED	2009	117.826	\$108.150	0.917900	0.011239	1.215	12/16/2008	
06	CALIFORNIA	998 ALL COUNTIES	0801 FEEDER CATTLE	809 STEERS WEIGHT 1	997 NO PRACTICE SPECIFIED	2009	117.826	\$110.850	0.936400	0.018443	2.030	01/13/2009	
06	CALIFORNIA	998 ALL COUNTIES	0801 FEEDER CATTLE	809 STEERS WEIGHT 1	997 NO PRACTICE SPECIFIED	2009	117.826	\$107.850	0.917700	0.014759	1.592	01/13/2009	

Notes:

- Some endorsement lengths may not be available due to insufficient pricing or rating information.
- For LRP Fed Cattle, Feeder Cattle and Swine, sales open from the time sales data is available (approximately 3:30 P.M. central time) until 9 A.M. central time the next day.
- For Lamb, sales available MONDAY ONLY. Sales open from the time of official release of coverage prices and rates on Monday morning (approximately 10 A.M. central time) until 7 P.M. central time Monday.
- For Lamb, preliminary coverage prices and rates may be available for viewing Friday evening and over the weekend but are subject to change at the official release time on Monday. Coverage prices and rates may also be available for viewing following sales during the week.
- Purchase of LRP must be made through an authorized livestock insurance agent.
- For LRP Fed Cattle, Feeder Cattle, and Swine, coverage levels and rates shown are available only on the selected effective date until 9 a.m. the following day.
- For LRP Lamb, coverage levels and rates shown are available only on the selected effective date until 7 p.m.
- For the Formatted Print option, Adobe Acrobat is required. For unformatted printing, use the File->Print option from your browser menu.
- Use landscape mode when doing unformatted printing for best results.

Windows Internet Explorer
http://www3.rma.usda.gov/apps/livestock_reports/main.aspx

LRP Coverage Prices, Rates, and Actual Ending Values - Report for 09/16/2008

Weight 2: > 600 lbs

USDA subsidizes 13 percent of total LRP premium

* See notes at bottom of page

State	County	Endorsement Length	Commodity	Type	Practice	Crop Year	Exp. End Value	Coverage Price	Coverage Level	Rate	Cost Per CWT	End Date	Actual End Value
06	CALIFORNIA	998 ALL COUNTIES	0801 FEEDER CATTLE	810 STEERS WEIGHT 2	997 NO PRACTICE SPECIFIED	2009	107.116	\$100.320	0.936800	0.014773	1.482	12/16/2008	
06	CALIFORNIA	998 ALL COUNTIES	0801 FEEDER CATTLE	810 STEERS WEIGHT 2	997 NO PRACTICE SPECIFIED	2009	107.116	\$99.320	0.917900	0.011239	1.105	12/16/2008	
06	CALIFORNIA	998 ALL COUNTIES	0801 FEEDER CATTLE	810 STEERS WEIGHT 2	997 NO PRACTICE SPECIFIED	2009	106.842	\$100.040	0.936300	0.018443	1.845	01/13/2009	
06	CALIFORNIA	998 ALL COUNTIES	0801 FEEDER CATTLE	810 STEERS WEIGHT 2	997 NO PRACTICE SPECIFIED	2009	106.842	\$99.040	0.917600	0.014759	1.447	01/13/2009	

Notes:

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- Use landscape mode when doing unformatted printing for best results.

Price Adjustment Factors

Weight Range	Steers	Heifers	Predominantly Brahman	Predominantly Dairy
<6.0 cwt	110%	100%	100%	100%
6.0-9.0 cwt	100%	90%	90%	80%

How Does LRP Work?

To use LRP to protect against a price decline,

- purchase LRP insurance for a particular set of cattle (# of head & ending weight)
- buyer must choose
 - Coverage Price (this is similar to an option's *Strike Price*)
 - End Date (e.g., the date coverage ends)
- price paid is known as LRP premium
 - This is similar to a premium for a CME traded option

Definitions

- **Specific Coverage Endorsement (SCE)**
 - An endorsement to the insurance policy necessary to provide coverage
- **Expected End Value**
 - The expected ending live weight times expected end price
- **Coverage Level**
 - The percent of the expected end value that is covered by the policy

Definitions

- **Coverage Price**
 - Level of protection provided by the policy on a dollar per cwt basis
 - $\text{Expected End Value} \times \text{Coverage Level} = \text{Coverage Price}$
- **End Date**
 - The date that coverage period ends for each contract (SCE)
 - LRP buyer selects weeks of coverage desired within limits set by RMA

Definitions

- **Actual ending feeder cattle value equals insured steer weight times CME Feeder Cattle Price Index**
 - If cattle weigh less than 600 lb, multiply CME index by 1.10
- **CME Feeder Cattle Price Index based upon sale prices for Medium and Large Frame #1-2 steers weighing from 650-849 pounds**

Calculating Indemnity

- Indemnity is payable if actual ending price is less than the coverage price selected
- Calculate indemnity by:
 - Subtract actual ending price from coverage price
 - Multiplying insured weight by difference between actual ending & coverage price

LRP Feeder Cattle Premium

- To calculate actual LRP premium you must know
 - Number of cattle ready for market (weighing less than 9.0 cwt) on End Date
 - Target weight per head
 - Ownership share in cattle

LRP Feeder Cattle Premium

- Insured Value Equals
 - $\text{Number of Head} \times \text{Target Weight (cwt)} \times \text{Coverage Price} \times \text{Ownership Share (\%)}$
- Total Premium Equals
 - $\text{Insured Value} \times \text{Rate}$
- Producer Premium Equals
 - $\text{Total Premium} \text{ minus } \text{USDA Subsidy}$
 - $\text{USDA Subsidy} = 13\% \text{ of Total Premium}$

LRP Premium Calculation Example

- An operation has 100 head of steer calves
- Expects to market the feeder cattle at a target weight of 625 pounds (6.25 cwt)
- Insured share is 100 percent
- Assume Expected End Price (updated daily by RMA on its website) is \$107.116 per cwt (when Jan Feeder Futures are @ \$108.60 - remember a 110% price adjustment would apply for light weight cattle)

Premium Calculation Example

- Producer selects a coverage price which is a % of the Expected End Price published by RMA
- Assume producer selects \$100.32 per cwt. coverage price (e.g., 93.67% of RMA's expected ending price)
- For this coverage price, the LRP Premium is \$1.482/cwt.
- Which totals \$9.62/head (6.25 cwt X \$1.482)

Minimum Expected Selling Price

- Start with LRP coverage price
- subtract the LRP premium

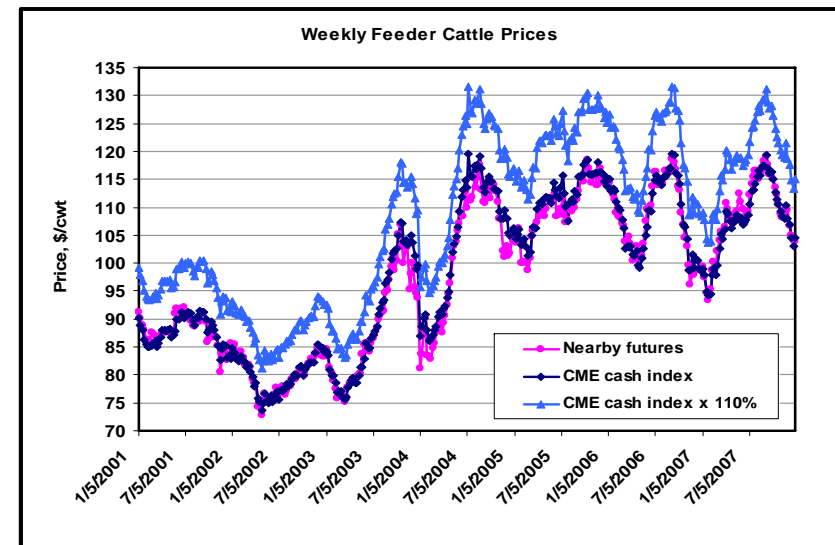
This creates a “CME cash index equivalent”

- then add basis forecast
- but is this the same basis forecast we used for futures and options?

How should basis be calculated?

- When thinking about basis for beef cattle, important considerations are:
 - ➔ Weight of animal
 - ➔ Sex of animal
 - ➔ Time of year
 - ➔ Cash market location
 - ➔ Risk management tool being used
 - Futures and options use CME futures
 - Livestock Risk Protection (LRP) uses CME cash index
 - (LRP basis = Cash – CME cash index)

CME futures and cash index prices



Futures and cash index prices move together quite well

Minimum Expected Selling Price?

- \$100.32/cwt. coverage price (similar to \$100 option strike price)
- Producer Paid Premium = \$1.482/cwt.
- LRP Basis forecast = + \$1.50/cwt.

\$100.32

- \$ 1.48

+\$ 1.50

\$ 100.34/cwt. Min. Expected Selling Price

Actual Sale Price (for buyer of LRP Insurance)

- Start with price received in cash market
- add the “net” from the LRP Insurance purchase
- Sell cash cattle in mid Dec for \$113.30/cwt.
- Jan feeder cattle futures are \$111.80/cwt., which would imply that ending value in mid Dec would be greater than \$100.32 coverage level

Actual Sale Price

\$113.30

Cash Market Price

- 1.48

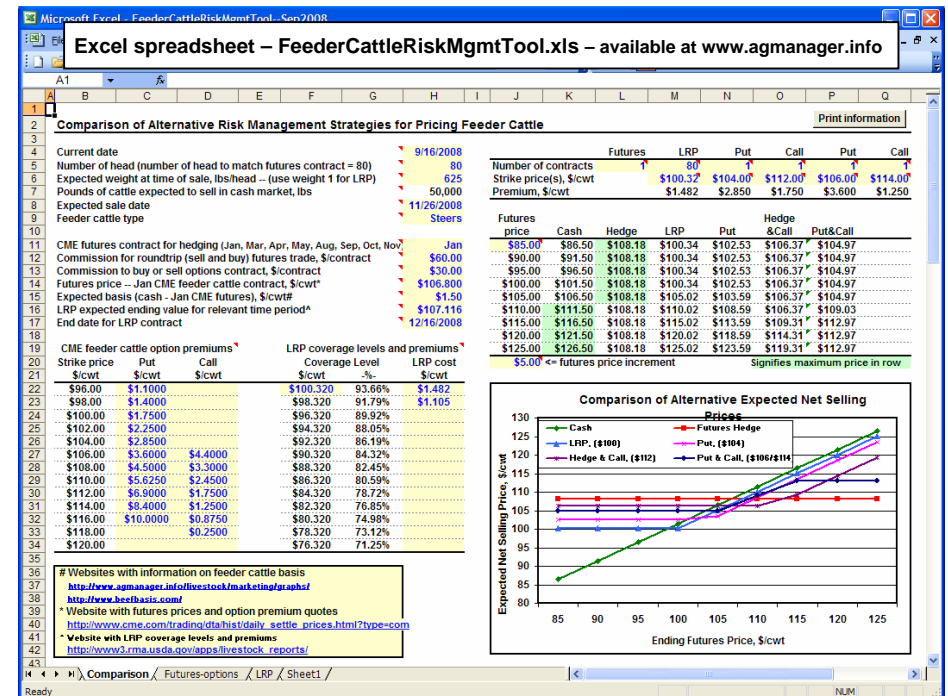
+ Net from LRP Insurance

\$111.82

Actual Sale Price

Actual > Expected Minimum. Why?

Prices went up after LRP purchase and the LRP buyer retained the right to benefit from future price increases



LRP Summary

- LRP protects against a decline in
 - Feeder cattle price level as measured by CME Feeder Cattle Price Index
 - Fed cattle price level as measured by USDA's 5-Area Weighted Average Price
- LRP does NOT guarantee the basis
- LRP does not guarantee a cash price
- Policy does not cover any other peril

LRP Summary

- Insure the exact number of head that you choose
- Flexible contract size matches “small” operations vs.
 - feeder cattle futures that represents about 67 (100) steers weighing 750 (500) pounds
 - live cattle futures that represents about 33 steers weighing 1200 pounds
- Can incrementally minimum price a few head at a time

Livestock Risk Protection (LRP) Premiums vs. CME Put Option Premiums for Similar Coverage

- LRP premiums are “fair” but they are priced similar to “market value”
- LRP advantage is its flexible contract size
- Will get an LRP order filled at the stated premium
 - Sometimes difficult to do with CME options
- LRP is insurance and fully tax deductible
- Lenders might prefer insurance to options



The screenshot shows the AgManager.info website interface. The header includes the site logo and navigation links. The main content area features several promotional banners and news items. A prominent banner for MAST (Market Analysis and Statistics Tool) is visible, along with a 'REGISTER NOW!' call to action for a 2008 Risk and Profit Conference. The right sidebar contains a 'Recent Updates' section with a list of articles and their dates. A large black box with the word 'Questions?' is overlaid on the bottom right corner of the screenshot.