

Grain Marketing Basics:

Cash Grain Basis, Forward Contracts, Futures & Options

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2008 K-State Risk Assessed Marketing Workshops

Price Trend Effects

On Cash Sales & Forward Contracts



Pricing Alternatives	Falling Futures	Rising Futures	Wider Basis	Narrower Basis
Cash Market Sales	(-)	(+)	(-)	(+)
Forward Cash Contract	None	None	None	None
Basis Contract	(-)	(+)	None	None
Hedge-to-Arrive (HTA)	None	None	(-)	(+)
Minimum Price Contract	None	(+)	None	None
Price Later Contract	(-)	(+)	(-)	(+)

Price Trend Effects

On Futures, Options & Marketing Loans

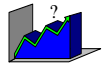


Pricing Alternatives	Falling Futures	Rising Futures	Wider Basis	Narrower Basis
Short Futures Hedge	None	None	(-)	(+)
Buy Put Options	None	(+)	(-)	(+)
Sell Cash & Buy Calls	None	(+)	None	None
Marketing Loans	None	(+)	(-)	(+)

Risk Exposure of Marketing Tools

A. Options Volatility Risk

- Risk that option premiums will not change 1-for-1 with cash/futures as the price level changes



B. Production Risk if Pre-harvest Pricing

- Risk of being unable to deliver grain to fulfill a contract

C. Counter Party Risk

- Risk that a buyer won't fulfill their contract obligations



D. Control Risk

- Risk of market actions getting "out of control" before corrective actions can be taken by the seller



Areas of Risk Exposure

For Cash Sales & Forward Contracts



Pricing Alternatives	Options Volatility	Prod. Risk if Prehvt.	Counter Party Risk	Control Risk
Cash Market Sales	---	---	---	Yes
Forward Cash Contract	---	Yes	Yes	---
Basis Contract	---	Yes	Yes	Yes
Hedge-to-Arrive (HTA)	---	Yes	Yes	Yes
Minimum Price Contract	Yes	Yes	Yes	Yes
Price Later Contract	---	---	Yes	Yes

Areas of Risk Exposure

For Futures, Options & Marketing Loans

Pricing Alternatives	Options Volatility	Prod. Risk if Prehvt.	Counter Party Risk	Control Risk
Short Futures Hedge	---	Yes	---	Yes
Buy Put Options	Yes	Yes	---	Yes
Sell Cash & Buy Calls	Yes	---	---	Yes
Marketing Loans	---	---	---	Yes



Hedging With Futures

■ Price Hedges on Grain Production

- 1) **(Prehedge) Analyze hedging opportunity**
 - **Futures less Basis less Brokers' fees**
- 2) **(Placing the Hedge) Sell futures contract(s)** nearest to the grain delivery period
 - In a "Short" or "sell" futures position
- 3) **(Closing Out the Hedge Position)**
 - Buy back futures contract(s)
 - Sell cash grain (optional)



Grain Forward Pricing Decisions

■ How Much to Forward Contract or Hedge?

- **For Pre-Harvest Pricing:**
 - Max of 50%-75% of expected production (*average yields*)
 - If have a short crop, use Crop Insurance Coverage revenues to help fill Forward Contract obligations
 - **Recommended:** A disciplined grain marketing plan

■ What Time Period to Set Grain Delivery In?

- Examine Harvest vs Post Harvest Basis, Storage Returns, and Grain Delivery Opportunities
- Timing of cash flow needs



Forward Contract Vs Futures Hedge

■ If Basis Projection is Accurate, then..

- Forward Contract \$ = Futures Hedge \$



■ Who Carries the Futures Account?

- **FC:** Elevator contacts broker & pays any margin calls
- **Hedge:** Producer works w. broker, pays margin calls

■ Delivery Commitment?

- **FC:** Delivery commitment of X bushels for \$X price
- **Hedge:** No delivery commitment to elevator



■ Basis Commitment?

- **FC:** Set cash basis / **Hedge:** Varying cash basis

New Crop DEC 2008 Corn

Examples for March 3, 2008

- CBOT December 2008 Corn Prices
- Futures Hedge for Harvest Delivery
- Forward Contract for Harvest Delivery
- Put Option Price Floor
- Call Option Price Coverage

CBOT DEC 2008 Corn

January 2006 – March 2008



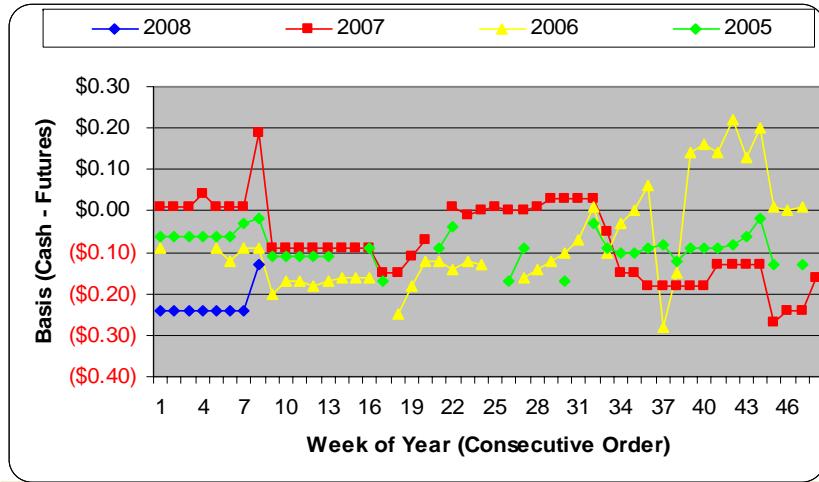
2008 Preharvest Corn Hedge

Hedging on Monday, March 3, 2008

- **Target Sales Date: November 15, 2008**
- **Corn Futures Price (3/3/08)**
 - December '08 CBOT Corn = \$5.76 ^{1/2}
- **Expected Corn Basis**
 - \$0.05-\$0.25 under DEC CBOT Corn on November 15th
- **2008 Corn Hedge Expected Price = \$5.⁵⁸/bu**
 - DEC 08 CBOT Corn - Basis - Broker
 - **\$5.⁷⁶ - \$0.¹⁷ - \$0.⁰¹ = \$5.⁵⁸**

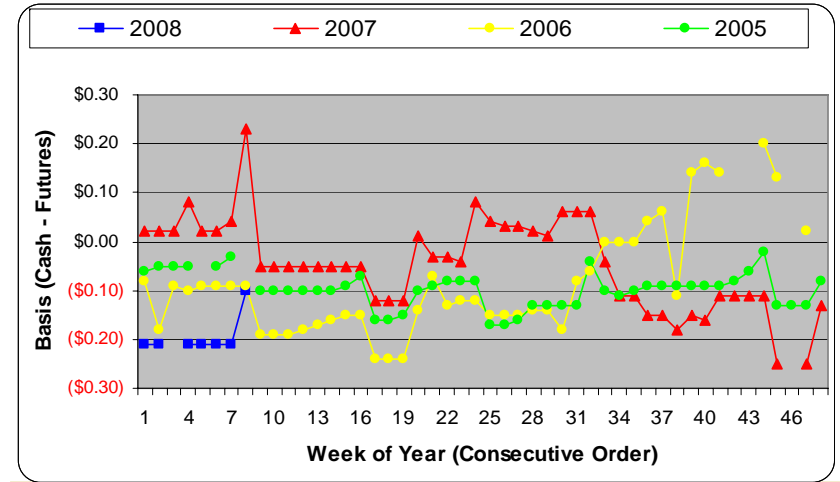
Cash Corn Basis: Dighton, KS

Years 2005-2008



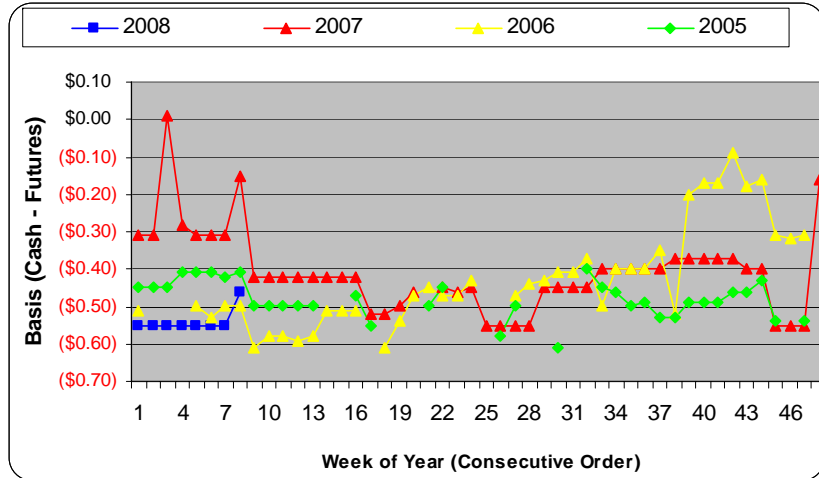
Cash Corn Basis: Scott City, KS

Years 2005-2008



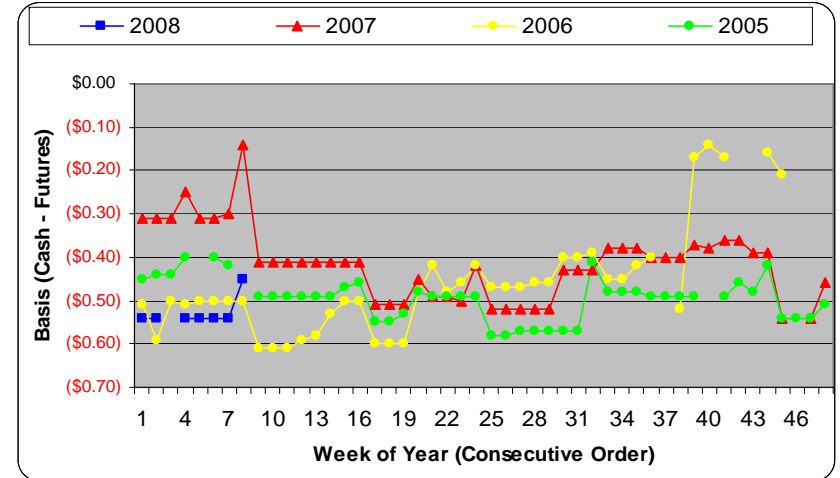
Cash Milo Basis: Dighton, KS

Years 2005-2008



Cash Milo Basis: Scott City, KS

Years 2005-2008



New Crop Corn Hedge Example

Scenario A: Falling Corn Prices

Date	Cash	Futures	Basis
Expt. \$: \$5.58 (\$5.76 - 0.18*)			
By November 15, 2008			
On 3/3/08		On 3/3/08	Expt
No Cash Transactions		Sell DEC 08 @ \$5.76	(\$0.18)
On 11/15/08		On 11/15/08	Actual
Sell Cash Corn @ \$3.58		Buy DEC 08 @ \$3.76	(\$0.18)
		Net Gain/Loss on Futures:	
		Gain of \$2.00 /bu (- \$0.01 broker)	
Final Net Price = \$5.58 /bu			
Cash \$3.58 + \$2.00 Futures Gain			

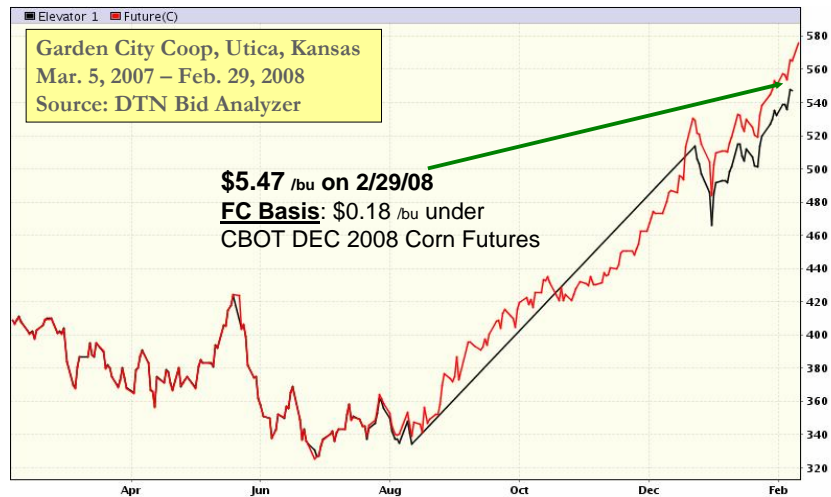
New Crop Corn Hedge Example

Scenario B: Rising Corn Prices

Date	Cash	Futures	Basis
Expt. \$: \$5.58 (\$5.76 - 0.18*)			
By November 15, 2008			
On 3/3/08		On 3/3/08	Expt
No Cash Transactions		Sell DEC 08 @ \$5.76	(\$0.18)
On 11/15/08		On 11/15/08	Actual
Sell Cash Corn @ \$7.58		Buy DEC 08 @ \$7.76	(\$0.18)
		Net Gain/Loss on Futures:	
		Loss of \$2.00 /bu (- \$0.01 broker)	
Final Net Price = \$5.58 /bu			
Cash \$7.58 - \$2.00 Futures Loss			

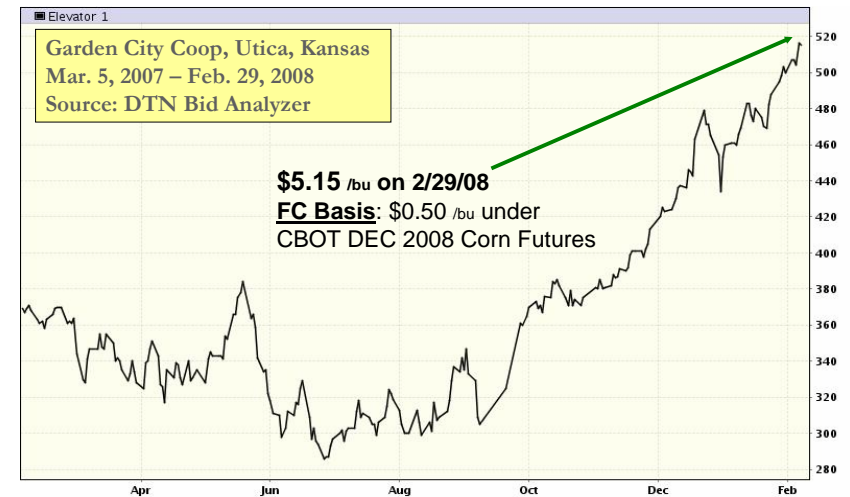
2008 New Crop Corn Forward Contract

Utica, Kansas

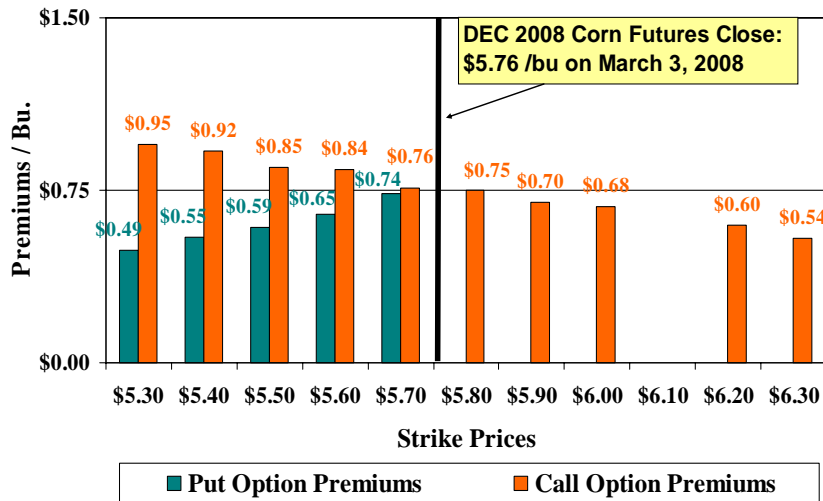


2008 New Crop Milo Forward Contract

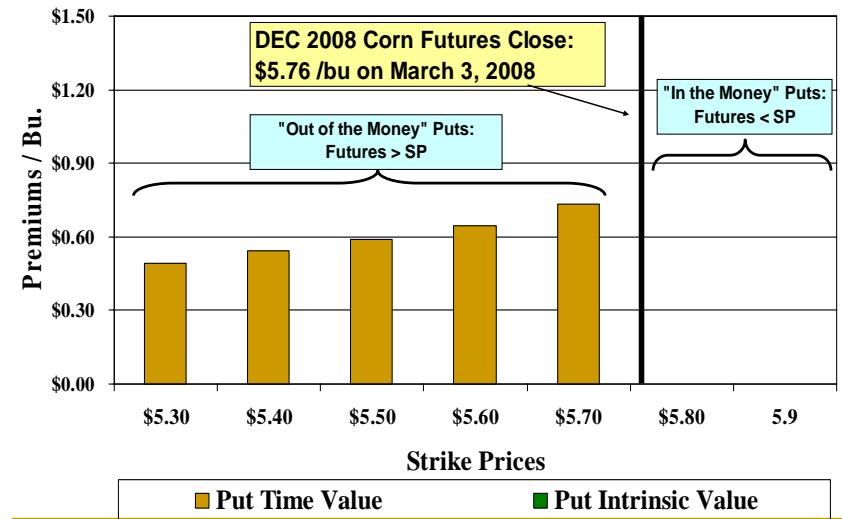
Utica, Kansas



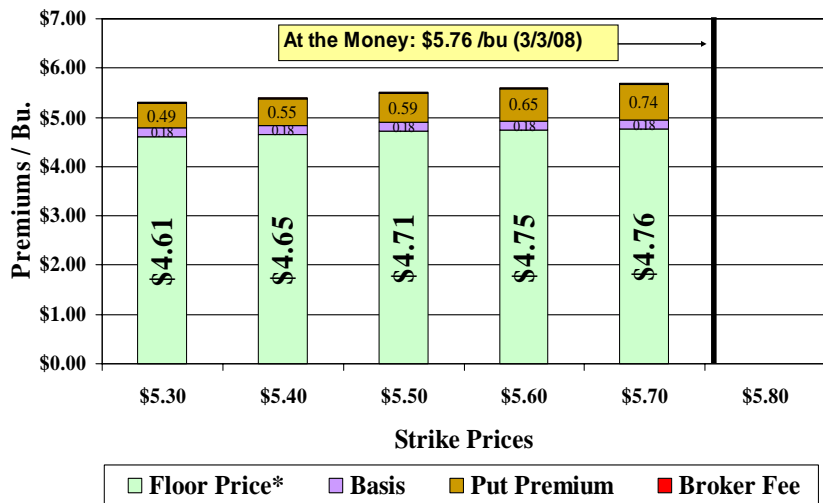
DEC 2008 Corn Put-Call Option Prices



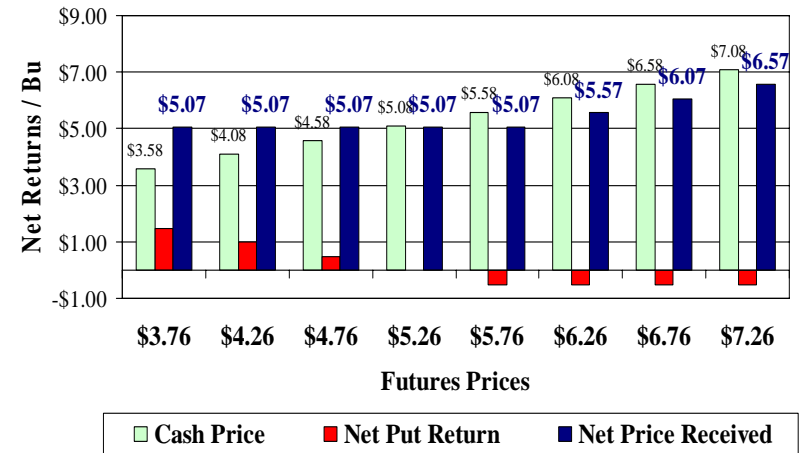
DEC 2008 Corn Put Option Values



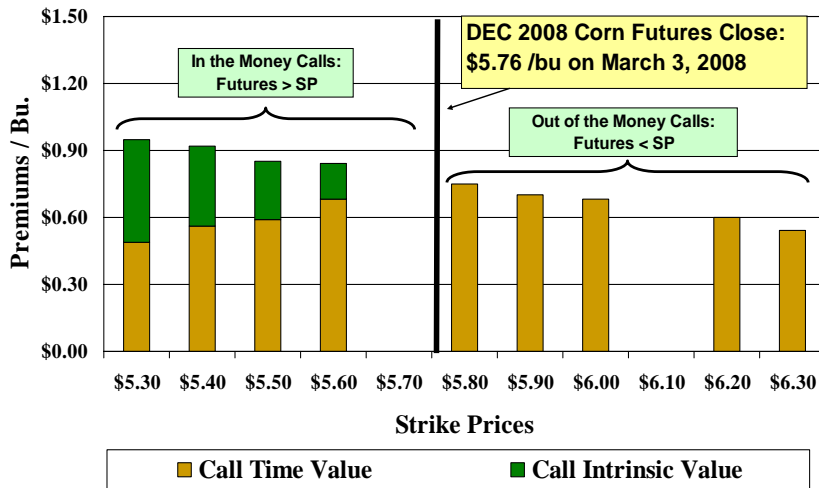
DEC 2008 Corn Put Price Floors



Results of Buying a \$5.30 DEC 2008 Corn Put Option @ \$0.49/bu

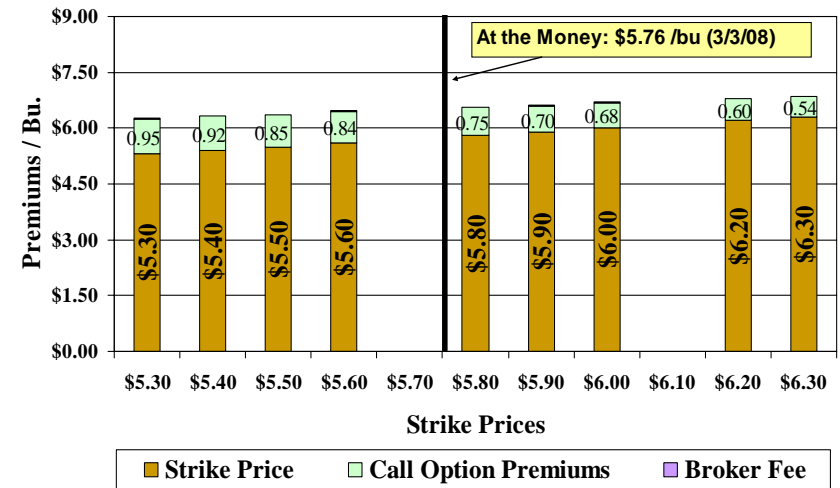


DEC 2008 Corn Call Option Values

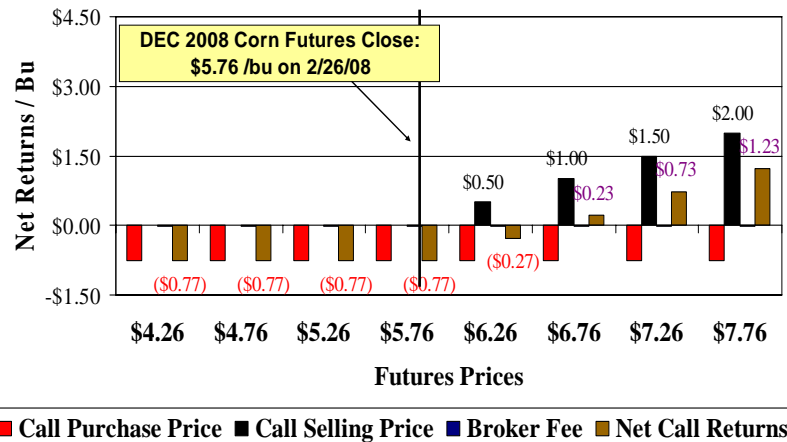


DEC 2008 Corn Call Price Coverage

Minimum Price Increase Needed to Cover Call Premium Cost



Results of Buying a \$5.80 DEC 2008 Corn Call Option @ \$0.75 /bu



New Crop NOV 2008 Soybeans

Examples for March 3, 2008

- CBOT November 2008 Soybean Prices
- Basis History (2005-2008)
- Futures Hedge for Harvest Delivery
- Put & Call Option Premiums

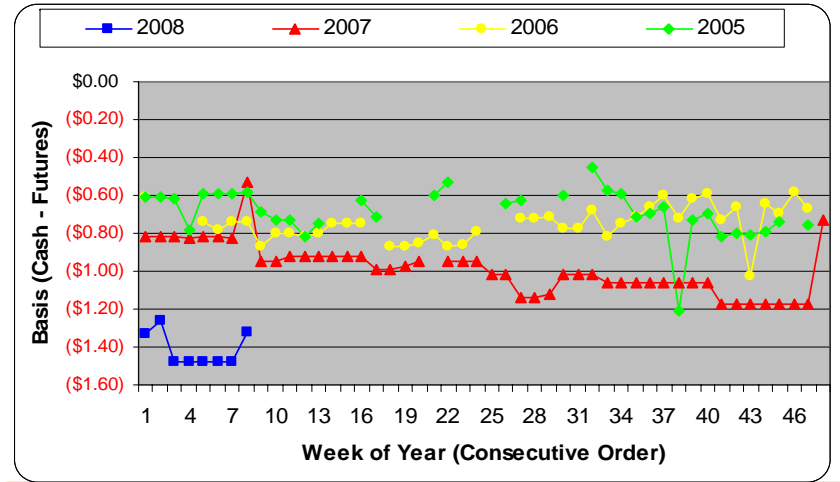
CBOT NOV 2008 Soybeans

January 2006 – March 2008



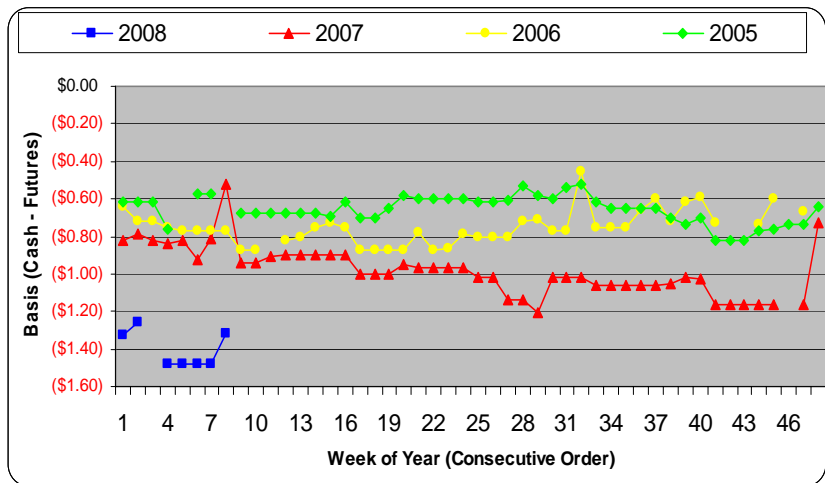
Cash Soybean Basis: Dighton, KS

Years 2005-2008

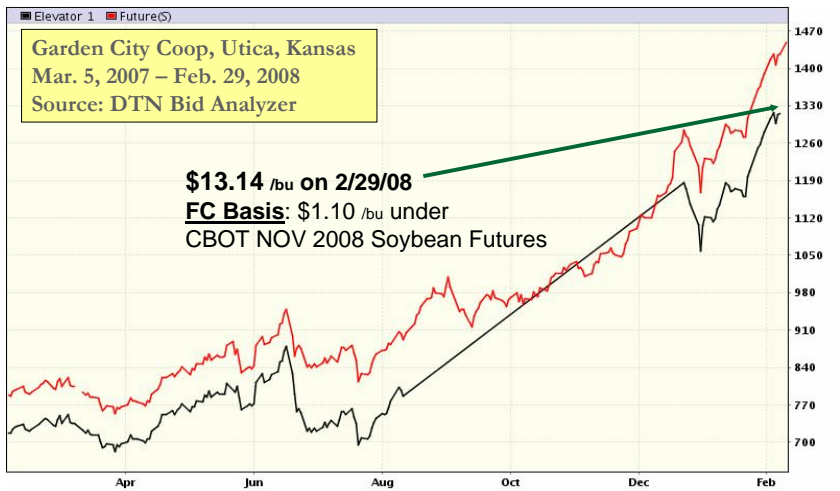


Cash Soybean Basis: Scott City, KS

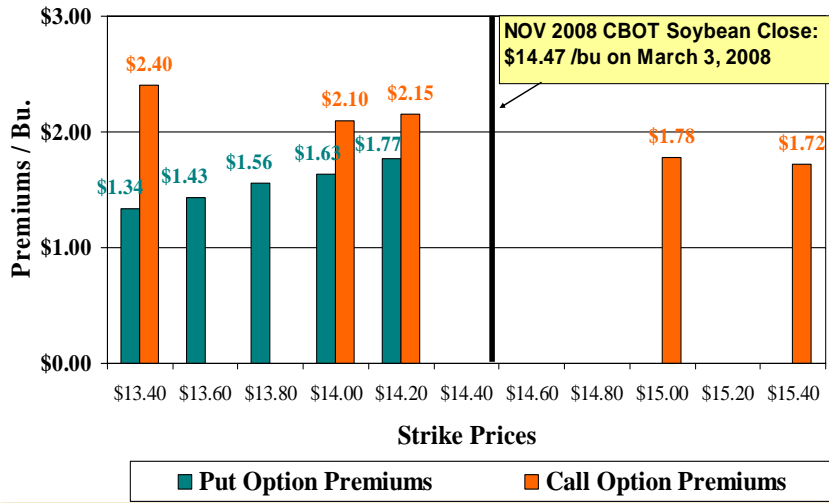
Years 2005-2008



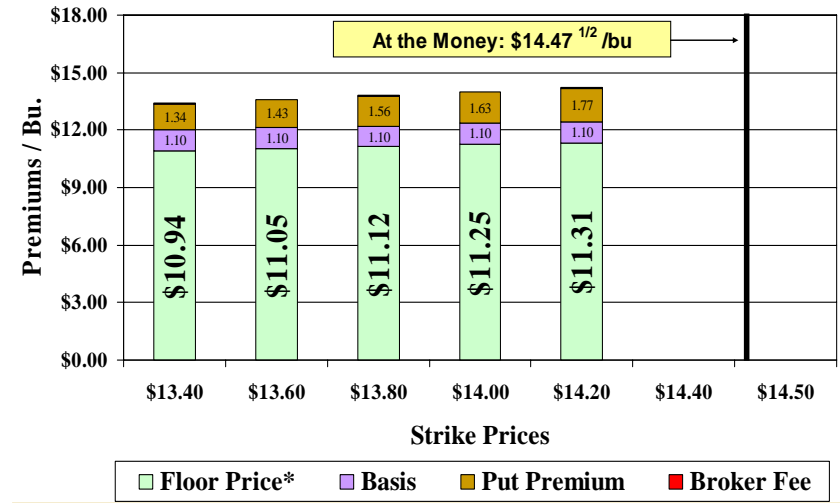
2008 New Crop Soybean Frwd. Contract Utica, Kansas



NOV '08 Soybean Put-Call Option \$s

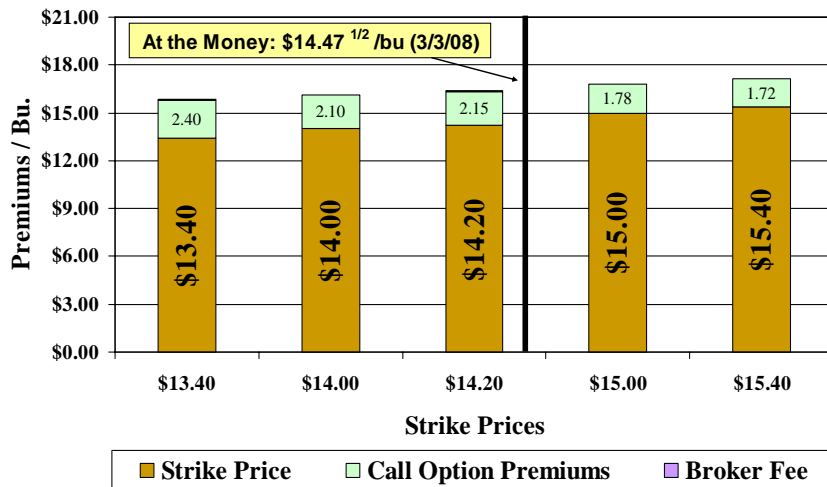


NOV 2008 Soybean Put Price Floors



NOV 2008 Soybean Call Price Coverage

Minimum Price Increase Needed to Cover Call Premium Cost



New Crop July 2008 HRW Wheat

Examples for March 3, 2008

- KCBT July 2008 HRW Wheat Prices
- Basis History (2005-2008)
- Futures Hedge for Harvest Delivery
- Put & Call Option Premiums (2/22/08)

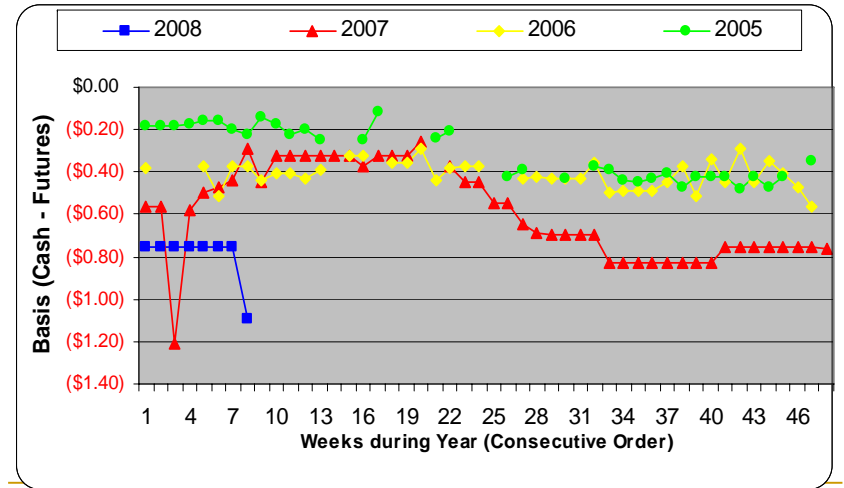
KCBT JULY 2008 HRW Wheat

February 2007 – March 2008



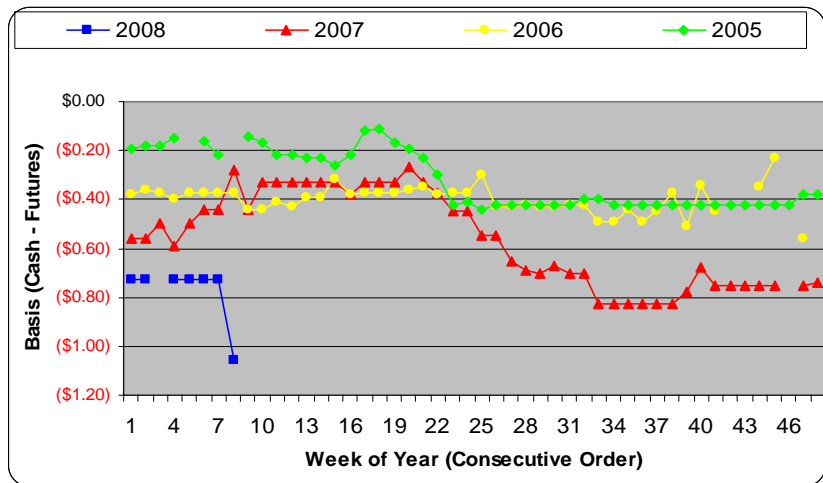
Cash Wheat Basis: Dighton, KS

Years 2005-2008

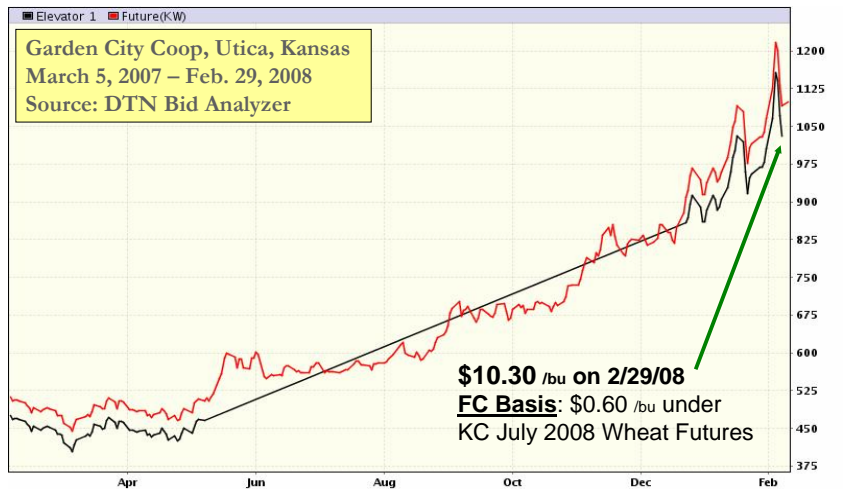


Cash Wheat Basis: Scott City, KS

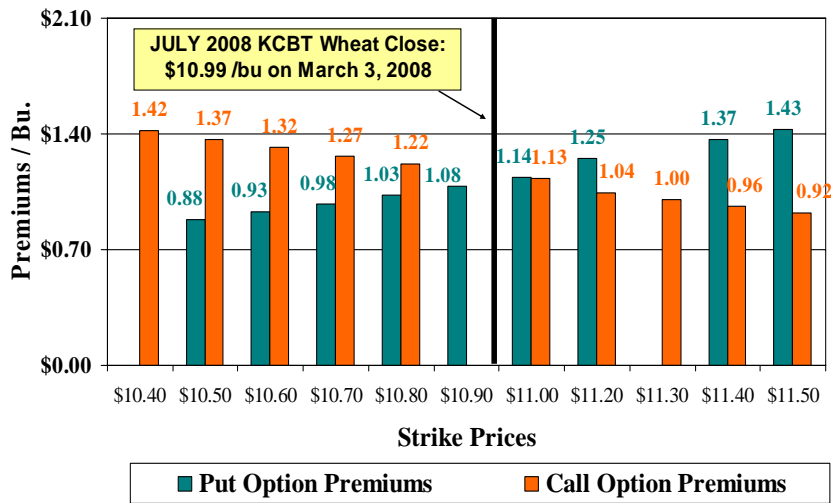
Years 2005-2008



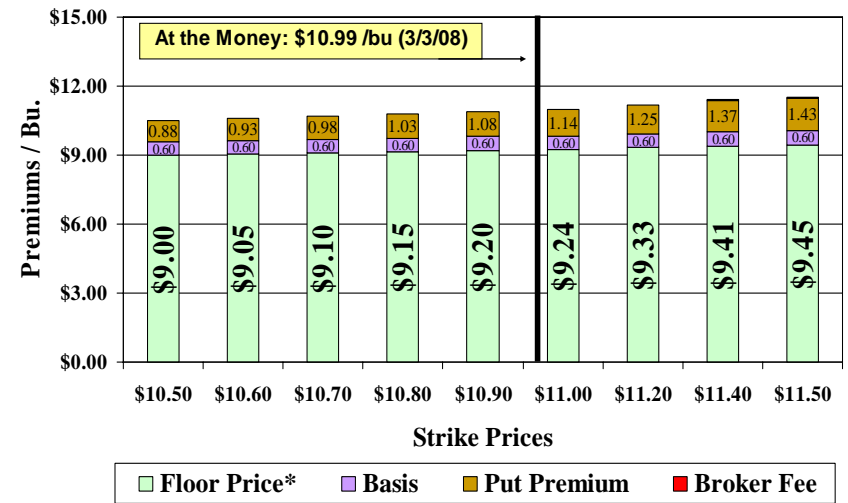
2008 New Crop Wheat Frwd. Contract Utica, Kansas



JULY '08 HRW Wheat Put-Call Option \$s

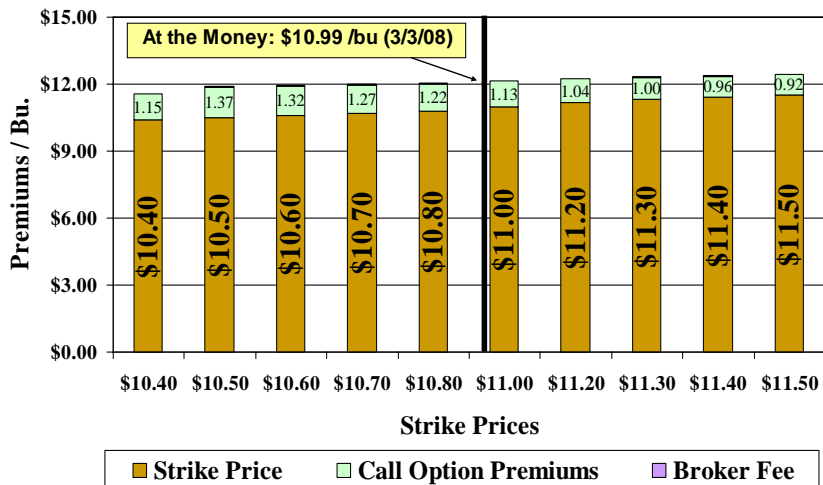


JULY 2008 KC Wheat Put Price Floors



JULY '08 KC Wheat Call Price Coverage

Minimum Price Increase Needed to Cover Call Premium Cost



Concluding Thoughts
on Grain Marketing
Goals, Plans & Strategies

Goals in Grain Marketing

A. Price Improvement

- To raise average grain selling price



B. Price Risk Reduction

- To reduce seller's downside price risk



C. Average Pricing via Sequential Sales

D. Financial Management Oriented Goals

- Enterprise cost or whole farm profit objectives

E. Combination Goals

- Difficult to enhance price **AND** reduce risk

Improving the Selling Price of Grain

■ Farmer's Most Common Marketing Goal:

- ⇒ To improve average grain selling price!
- ⇒ To maximize grain selling price subject to the need to manage harmful downside price risk

■ Specific Goals: Getting better than the...

- Average price available
- Middle (50%) price available
- Harvest price



Reducing Grain Price Risk



A. Goal: Reducing price risk by protecting from harmful price moves

- To maximize grain selling price subject to the need to manage harmful downside price risk

B. Grain Sellers are motivated to:

- Protect themselves from downside price risk
- Possibility profit from price increases

C. Tools for Reducing Grain Price Risk:

- ⇒ Forward Contracts & Hedges: To lock in prices
- ⇒ MPCs & Put Options: To set price floors

Average Pricing via Sequential Sales

■ Deliberately pricing portions of the crop at different times of the marketing year

■ Average Pricing....

- (+) AVOIDS selling 100% at market LOWS
- (-) ALSO AVOIDS selling 100% at market HIGHS

■ Benefits of Average Pricing:

- ⇒ Adds structure & discipline to marketing plans
- ⇒ Is a form of price risk management



Combining Grain Marketing Goals

- Difficult to **both Enhance Prices & Reduce Price Risk** at the same time
 - **Example:** Higher returns & price variability from pre-harvest futures hedges vs. buying put options
- **Principle of Price Risk Management**
 - Higher net grain selling prices will tend to be sacrificed in terms of **lost pricing opportunities** or the **cost of managing price risk**
 - **If Prices ↑:** Cash Sales > Options-Fwd. Contracts
 - **If Prices ↓:** Fwd. Contracts > Options-Cash Sales

Types of Grain Marketing Strategies

1) Routine Strategies

- Grain marketed each year at the same time using the same marketing tools **regardless** of market conditions
 - **Example:** Preharvest hedge 1/3 of exp. production, sell 1/3 at harvest, store rest on farm for 6 months then sell

2) Systematic Strategies

- Allowing for yearly variation in marketing actions based on **Key Market Indicators**
 - **Key #1:** Preharvest Prices vs. CCC Loan Rates
 - **Key #2:** Years following Short Crops



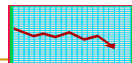
Types of Grain Mktg. Strategies (more)

3) Strategies Using Expert Forecasts

- When people profit from their superior ability to forecast grain market trends & marketing decisions
 - In general, it is difficult for individuals to predict market price direction better than other market participants

4) Strategies Using Market-Based Forecasts

- Using futures, options & basis information as key market indicators for making marketing decisions
 - **Key #1:** “Wide” Cash Grain Basis @ harvest
 - **Key #2:** “Higher / Lower than normal” preharvest hedge profits



How Efficient are Grain Futures Markets at Determining Grain Prices?

■ How Efficient are Grain Markets?

- Define “Market Efficiency”
- *Opinions: From **Very** to **Moderately Efficient***
- **Key Issue:** “Do Grain Marketing Strategies Exist that are more profitable than selling at harvest?”



- The degree of Futures Market Efficiency will affect choice of Grain Marketing Strategies

Marketing Challenges & Benefits



A. The Challenge of Grain Marketing Decisions

- It is *Difficult* to obtain higher grain selling prices!!

B. Grain Marketing's Relative Importance

(K-State Study of KFMA Farms for 1987-1996)

- **High 1/3 vs Middle 1/3:**
Yields: +17%; Costs: -37%; Prices +12%, More Notill
- **Low 1/3 vs Middle 1/3:**
Yields: -18%; Costs: +28%; Prices -12%, Less Notill
- **Study Critique:** Not measuring effectiveness of marketing practices used, only Hi/Lo Profit

C. Production is 1st priority; Marketing #1.A

Futures Margins

☑ Initial Margin Deposit:

- ♦ Required up front, good faith deposit by exchanges

☑ Margin Account

- ♦ Losses/gains in futures position reflected here
- ♦ Minimum required margin account balance

☑ Margin Deposit

- ♦ Additional money required when margin account falls below minimum balance due to losses in futures position

Wheat Margin Deposit Example

Sell 5,000 bu July KCBT Wheat @ \$10.⁵⁰/bu on 2/5/08

<u>Prices Trend Up</u>	<u>Prices Trend Down</u>
2/5: Sell \$10. ⁵⁰ KC July Wheat	2/5: Sell \$10. ⁵⁰ KC July Wheat
Initial Deposit = \$1,500	Initial Deposit = \$1,500
Minimum Deposit = \$1,000	Minimum Deposit = \$1,000
6/1: KC July Wheat @ \$11. ⁵⁰	6/1- KC July Wheat @ \$9. ⁵⁰
Loss in Futures (\$5,000)	Gain in Futures +\$5,000
Account balance (\$3,500)	Account balance \$6,500
Margin Call +\$4,500	Margin Call = \$ 0
New Account balance = \$1,000	New Account balance = \$6,500

Questions or Comments?

K-State Agricultural Economics
Department Website:

www.Agmanager.Info