

## Grain Marketing Principles & Tools

### Cash Grain Basis, Forward Contracts, Marketing Loans, Futures & Options

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## Types of Grain Marketing Tools

- Cash Grain Sales
- Forward Cash Contracts
- Basis Contracts
- Hedge-to-Arrive (HTA) Contracts
- Minimum Price Contracts
- Marketing Loans (USDA – FSA)
- Short Futures Hedges
- Buying Put Options
- Selling Cash Grain & Buying Call Options
- Combinations of Buying Puts & Calls
- Price Later Contracts

## Types of Forward Contracts

### Commitment for Future Sale & Delivery of Grain

- **Forward Cash Contracts**
  - Cash Price, quantity (bu.) & delivery date are set
    - *BOTH futures selling price & local cash basis are determined*
- **Basis Contract**
  - Local Basis, quantity (bu.) & delivery date are set
- **Hedge-to-Arrive (HTA) Contract**
  - Futures Price, quantity (bu.) & delivery date are set
- **Minimum Price Contract**
  - Minimum Cash \$, quantity (bu.) & delivery date are set

## Marketing Assistance Loans (USDA-FSA)

- **Grain Sale Cash Flow Coverage**
  - Provides grain producers with interim financing to meet cash flow needs without having to sell their commodities when market prices are typically at harvest-time lows
- **Marketing Loans are “Non-Recourse”**
  - The grain is pledged as loan collateral
  - Producers have the option of delivering the grain to the Commodity Credit Corporation (CCC) as full payment for the loan at maturity
  - Under some circumstances, producers may repay marketing loans at less than principal plus accrued interest and other charges
- **Alternative: Loan Deficiency Payment (LDP)**
  - In lieu of a marketing assistance loan, grain producers may be eligible for an LDP

## 2010-2012 Grain Marketing Loan Rates for Reno County, Kansas

- Corn \$2.00 /bu
- Grain Sorghum \$3.48 /cwt (\$1.95 /bu)
- Soybeans \$4.92 /bu
- Sunflower-Oil Type \$9.59 /cwt
- Wheat (HRW) ≈\$2.92 /bu
  - U.S. Wheat Loan Rate ↑ \$0.19 /bu in 2010-2012

## Hedging Prices by “Selling” Futures

- “Short Hedges” Lock in Grain Futures \$s
  - Removing futures price variation as a source of risk
    - Are taking a “short” or “sell” position in grain futures
      - “Selling” KCBT July 2010 Wheat or CBOT DEC 2010 Corn
    - Subject to “margin calls” to maintain equity or dollar value of the futures margin account
- “Hedging” versus “Speculating” in Futures
  - Hedges work if enough grain is produced & sold in the cash market to cover the futures market position
    - However, producers would be in a speculative position IF crop production < futures contract position

## Hedging With Futures

### ■ “Pricing” 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)



## 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

## Buying Grain Put Options

### Setting Futures Price Floors by Buying Put Options

#### ■ Why Buy Put Options?

- “Puts” provide protection from falling grain futures prices
- If grain producer-sellers buy put options, they are protecting themselves from falling grain futures prices
  - But, they are leaving themselves the opportunity to still benefit if grain futures prices should rise
- Similar to “Minimum Price Contracts”

#### ■ Technical Definition of Put Options

- Puts provide “the right but not the obligation” to take “short” or “sell” positions in futures markets
- Avoiding margin calls that are possible with “Short Hedges”

## Mechanics of Buying Grain Put Options

#### ■ Strike Price = Grain Futures “Insurance” Level

- “In-the-Money” Put Strike Price > Futures Price
- “At-the-Money” Put Strike Price = Futures Price
- “Out of-the-Money” Put Strike Price < Futures Price

#### ■ Put “Premium” ⇒ Cost of Buying Put Option

#### ■ Futures Price Floor with Put Options

- $\text{Strike Price}^{(\text{Put})} - \text{Premium}^{(\text{Put})} - \text{Brokers Fee}$

#### ■ “Expected” Cash Price Floor with Put Options

- $\text{Strike Price}^{(\text{Put})} - \text{Premium}^{(\text{Put})} - \text{Brokers Fee} - \text{Basis}^{(\text{Est.})}$

## Sell Cash + Buying Grain Call Options

### Being in Position to Gain from Later Futures \$ Increases

#### ■ Why Buy Call Options?

- “Calls” provide protection from rising grain futures prices
- If grain producer-sellers buy call options after selling cash grain, they are positioning themselves to gain from rising grain futures prices
- Similar to post-harvest “Minimum Price Contracts”

#### ■ Technical Definition of Call Options

- Calls provide “the right but not the obligation” to take “long” or “buy” positions in futures markets
- Avoiding the margin calls possible with “buying futures”

## Mechanics of Selling Cash Grain + Buying Grain Call Options

#### ■ Strike Price (SP)

- “In-the-Money” Call Strike Price < Futures Price
- “At-the-Money” Call Strike Price = Futures Price
- “Out of-the-Money” Call Strike Price > Futures Price

#### ■ Call “Premium” ⇒ Cost of Buying Call Option

#### ■ Futures Price Rise Coverage with Call Options

- $\text{Gains Above: SP}^{(\text{Call})} + \text{Premium}^{(\text{Call})} + \text{Brokers Fee}$

#### ■ Minimum \$ With Cash Sale + Buy Call Options

- $\text{Cash\$} - \text{Premium}^{(\text{Call})} - \text{Brokers Fee}$

## 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
Marketing Loans (FSA)	None	(+)	(-)	(+)

## 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	Prodn. Risk if Prehvst.	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 Prehvst.	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



## 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, & Grain Delivery Opportunities
- Timing of cash flow needs



## New Crop JULY 2010 HRW Wheat Forward Pricing Examples

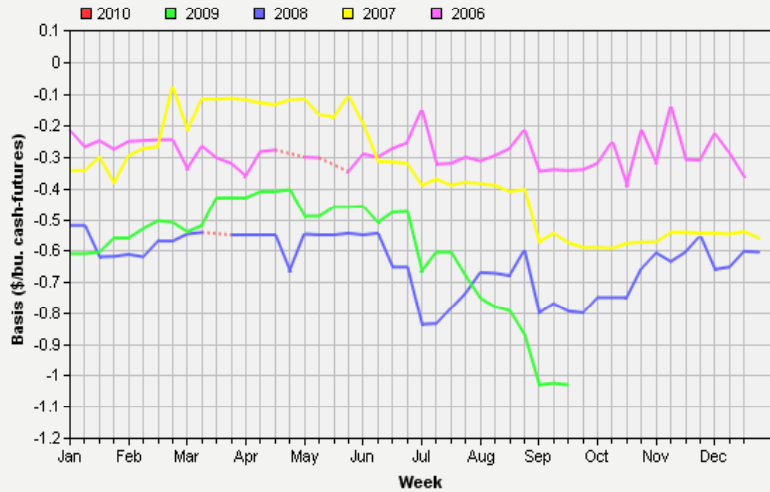
- 1) Short Hedge – *Selling Futures*
- 2) Forward Contract – *Delivery Commitment*
- 3) Put Option – *Setting a Price Floor*

## 2010 Preharvest Wheat Hedge

Hedging on February 17, 2010

- **Target Sales Date: July 1, 2010**
- **Wheat Futures Price (2/17/2010)**
  - July '10 KC Wheat = \$5.24 ¼
- **Expected Wheat Basis – Salina Kansas**
  - \$0.50-\$0.75 under July KC Wheat in on July 1<sup>st</sup> \*\*\*
- **2010 Wheat Hedge Expected Price = \$4.48 /bu**
  - JULY '10 KC Wheat - Basis - Broker
  - **\$5.24 - \$0.75 - \$0.01 = \$4.48**

Basis Information: MCPHERSON, KS - Hard Red Winter Wheat  
K-State Dept of Agricultural Economics, www.AgManager.info



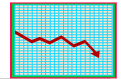
## Short Hedge - 2010 New Crop Wheat

**Scenario A: Falling Wheat Prices** (From \$5.24 to \$4.00)

Date	Cash	Futures	Basis
Expt. \$: <b>\$4.49</b> (\$5.24 - 0.75) By July 1, 2010			
On 2/17/10 No Cash Transactions		On 2/17/10 Sell JULY 10 @ \$5.24	Expt (\$0.75)
On 7/1/10 <b>Sell Cash Wheat @ \$3.25</b>		On 7/1/10 Buy JULY 10 @ \$4.00	Actual (\$0.75)
<b>Net Gain/Loss on Futures:</b> Gain of \$1.24 /bu ( - \$0.01 broker)			



**Final Net Price = \$4.49 /bu**  
Cash \$3.25 + \$1.24 Futures Gain



## Short Hedge - 2010 New Crop Wheat

**Scenario B: Rising Wheat Prices** (From \$5.24 to \$6.48 /bu)

Date	Cash	Futures	Basis
Expt. \$: <b>\$4.49</b> (\$5.24 - 0.75*) By July 1, 2010			
On 2/17/10 No Cash Transactions		On 2/17/10 Sell JULY 10 @ \$5.24	Expt (\$0.75)
On 7/1/10 <b>Sell Cash Wheat @ \$5.73</b>		On 7/1/10 Buy JULY 10 @ \$6.48	Actual (\$0.75)
<b>Net Gain/Loss on Futures:</b> Loss of \$1.24 /bu ( - \$0.01 broker)			



**Final Net Price = \$4.49 /bu**  
Cash \$5.73 - \$1.24 Futures Loss



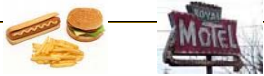
## Futures Margins

- ☑ **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 @ \$5.24/bu on 2/17/2010

Prices Trend Up		Prices Trend Down	
2/5: Sell \$5.24 KC July Wheat		2/5: Sell \$5.24 KC July Wheat	
Initial Deposit	= \$1,500	Initial Deposit	= \$1,500
Minimum Deposit	= \$1,000	Minimum Deposit	= \$1,000
6/1: KC July Wheat @ \$6.48		6/1- KC July Wheat @ \$4.00	
Loss in Futures	(\$6,200)	Gain in Futures	+\$6,200
Account balance	(\$4,700)	Account balance	\$7,700
<b>Margin Call</b>	<b>+\$3,700</b>	<b>Margin Call</b>	<b>= \$ 0</b>
New Account balance = \$1,000		New Account balance = \$7,700	

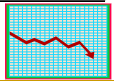


## Forward Contract - 2010 New Crop Wheat

**Scenario A: Falling Wheat Prices** (From \$5.24 to \$4.00)

Date	Cash	Futures / Contracts	Basis
Expt. \$: <b>\$4.49</b> (\$5.24 - 0.75)			
By July 1, 2010			
On 2/17/10	No Cash Transactions	On 2/6/10 (\$5.24 Futures) Contract Forward Contract @ \$4.49	(\$0.75)
On 7/1/10	<b>Deliver Cash Wheat @ \$4.49</b> <b>Vs. Cash price of \$3.25</b>	On 7/1/10 (\$4.00 Futures) Contract No futures transaction	(\$0.75)
<b>Net Gain in Cash Price:</b> Gain of \$1.24 /bu			

**Final Net Forward Contract Price = \$4.49 /bu**



## Forward Contract - 2010 New Crop Wheat

**Scenario B: Rising Wheat Prices** (From \$5.24 to \$6.48)

Date	Cash	Futures	Basis
Expt. \$: <b>\$4.49</b> (\$5.24 - 0.75)			
By July 1, 2010			
On 2/17/10	No Cash Transactions	On 2/17/10 (\$5.24 Futures) Contract Forward Contract @ \$4.32	(\$0.75)
On 7/1/10	<b>Deliver Cash Wheat @ \$4.49</b> <b>Vs. Cash price of \$5.73</b>	On 7/1/10 (\$6.48 Futures) Contract No futures transaction	(\$0.75)
<b>Net Loss in Cash Price:</b> Loss of \$1.24 /bu			

**Final Net Forward Contract Price = \$4.49 /bu**



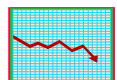
## Put Option - 2010 New Crop Wheat

**Scenario A: Falling Wheat Prices** (SEP \$5.36 to \$4.12 /bu)

Date	Cash	Futures	Basis
Floor\$: <b>\$4.07</b> by July 1, 2010		\$5.40 Futures Strike \$ - \$0.58 Put Premium Cost - \$0.75 Basis*	
On 2/17/10	No Cash Transactions	On 2/17/10 (\$5.36 SEP'10 KCBT) Buy SEP'10 \$5.40 put @ \$0.58	Expt (\$0.75)
On 7/1/10	<b>Sell Cash Wheat @ \$3.25</b>	On 7/1/10 (\$4.12 SEP'10 KCBT) Sell SEP'10 \$5.40 put @ \$1.28	Actual (\$0.87)
<b>Net Gain/Loss on Put Option:</b> Gain of \$0.70 /bu (- \$0.02 broker)			



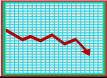


**Final Net Price = \$3.95 /bu**  
Cash \$3.25 + \$0.70 Futures Gain



## Put Option - 2010 New Crop Wheat

*Scenario B: Rising Wheat Prices* (SEP \$5.36 to \$6.60 /bu)

Date	Cash	Futures	Basis
Floor\$:	<b>\$4.07</b> by July 1, 2010	\$5.40 Futures Strike \$ - \$0.58 Put Premium Cost - \$0.75 Basis*	
On 2/17/10 No Cash Transactions		On 2/17/10 (\$5.36 SEP'10 KCBT) Buy SEP'10 \$5.40 put @ \$0.58 (\$0.75)	Expt
On 7/1/10 <b>Sell Cash Wheat @ \$5.73</b>		On 7/1/10 (\$6.60 SEP'10 KCBT) Sell SEP'10 \$5.40 put @ \$0.01 (\$0.87)	Actual
		<b>Net Gain/Loss on Put Option:</b> Loss of \$0.57 /bu ( - \$0.02 broker)	
 		<b>Final Net Price = \$5.16 /bu</b> Cash \$5.73 - \$0.57 Futures Loss 	

## Results for 2010 New Crop Wheat Forward Pricing Examples (2/17/2010)

Futures Trends	Cash Sale	Short Hedge	Forward Contract	Put Option Price Floor
<b>Falling Futures</b> (\$5.24 ⇒ \$4.00 /bu) 	<b>\$3.25</b>	<b>\$4.49</b>	<b>\$4.49</b>	<b>\$3.95</b>
	Worst	Best (tied)	Best (tied)	Middle
<b>Rising Futures</b> (\$5.24 ⇒ \$6.48 /bu) 	<b>\$5.73</b>	<b>\$4.49</b>	<b>\$4.49</b>	<b>\$5.16</b>
	Best	Worst (tied)	Worst (tied)	Middle

Questions or Comments?

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