

# Using Options for Price Risk Management

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Profitable & Sustainable  
AGRICULTURAL SYSTEMS  
UW Cooperative Extension Service



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## Futures, Options & Obligations

- Terminology can be confusing
  - Options on Feeders, Wheat, or Corn
  - December option
- Options are rights **but not obligations** to buy or sell a futures contract
  - Put = Sell and Call = Buy
- Futures contract carries a **joint obligation** for the buyer and seller
  - Seller must make delivery & The buyer must take delivery OR
  - **Offset contract**



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## Discussion of Terms

- CBOT Wheat Futures 12-1-10, \$7.42
- CBOT **Put** Strike Prices and Premiums, 12-1-2010

Strike	Session									Pr.Day		Expiry Date
	Open	High	Low	Last	Time	Sett	Chg	Vol	Sett	OpInt		
future	743 <sup>2</sup> / <sub>8</sub>	745 <sup>6</sup> / <sub>8</sub>	739	742	Nov 26, 16:00	742	3	1044	739	16166		
600	-	23 <sup>4</sup> / <sub>8</sub>	23 <sup>4</sup> / <sub>8</sub>	23 <sup>4</sup> / <sub>8</sub>	Nov 26, 16:43	23 <sup>4</sup> / <sub>8</sub>	-2 <sup>3</sup> / <sub>8</sub>	1	25 <sup>7</sup> / <sub>8</sub>	1		
660	-	45	45	45	Nov 26, 16:43	45	-3 <sup>3</sup> / <sub>8</sub>	1	48 <sup>3</sup> / <sub>8</sub>	1		
680	-	54 <sup>1</sup> / <sub>8</sub>	54 <sup>1</sup> / <sub>8</sub>	54 <sup>1</sup> / <sub>8</sub>	Nov 26, 16:43	54 <sup>1</sup> / <sub>8</sub>	-3 <sup>4</sup> / <sub>8</sub>	1	57 <sup>5</sup> / <sub>8</sub>	1		
700	-	64	64	64	Nov 26, 16:43	64	-3 <sup>6</sup> / <sub>8</sub>	1	67 <sup>6</sup> / <sub>8</sub>	24		
730	-	80 <sup>5</sup> / <sub>8</sub>	80 <sup>5</sup> / <sub>8</sub>	80 <sup>5</sup> / <sub>8</sub>	Nov 26, 16:43	80 <sup>5</sup> / <sub>8</sub>	-4	1	84 <sup>5</sup> / <sub>8</sub>	1		
740	-	86 <sup>4</sup> / <sub>8</sub>	86 <sup>4</sup> / <sub>8</sub>	86 <sup>4</sup> / <sub>8</sub>	Nov 26, 16:43	86 <sup>4</sup> / <sub>8</sub>	-4 <sup>1</sup> / <sub>8</sub>	1	90 <sup>5</sup> / <sub>8</sub>	1		

## Obligations With Options

- Depends on whether you are buying or selling options
- Put Option is the right **but not the obligation** to **sell** an underlying futures contract.
  - You can buy or sell put options
- Call Option is the right **but not the obligation** to **buy** and underlying futures contract.
  - You can buy or sell call options
- There is **no** joint obligation with options

## Buying vs Selling Options

- For every buyer, there is a seller.
- The typical producer will **most always buy** an option
- The buyer of an option has:
  - The right to exercise the option *but*
  - The seller can not force him to exercise the option.
- Buying Put = Right to sell a futures contract
  - Put = Sell (**PS**)
  - A true hedger wants equal and opposite positions in the cash and futures market.



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## Put = Right to Sell Futures = Short Position

- But you **typically buy a put**
  - Buy a right to sell a futures contract
  - Put = Sell (**PS**)
- Protection from falling prices
- For **producers** of a commodity
  - Small grains, calves

**Remember PS => (Put=Sell)**



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## Call = Right to Buy Futures = Long Position

- You typically buy a call
  - Buy a right to buy a futures contract
  - Call = Buy (CB)
- Protection from rising prices
- For consumers of a commodity
  - Feeders that use grain
  - Feeders that purchase calves as an input

**Remember CB => (Call=Buy)**



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## Strike Price and Premiums

- Options are bought and sold at a specified strike price
  - Set by Exchanges and willingness of “option writer”
- The premium paid for the option is set by daily trading at each exchange
  - Very similar to insurance premium
- Once you pay the premium and transactions cost (brokerage fees), you have no more costs associated with an option contract.
  - You either Exercise/Offset or the option expires worthless



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## Value of an Option

- Options derive their value from the strike price relative to the futures price for a specific commodity and time frame
- The premium paid for a particular strike price is set through daily bidding
- The premium established depends on how high or low the bidders think the futures price will get **relative to the strike price**.
- Value also depends on time to expiration and volatility of the market for a specific commodity

## In the Money or Out of the Money

- **In the money** = An option whose strike price, if exercised, would give positive returns
- **Out of the money** = a strike price that if exercised would not produce positive returns
- **Puts** are in the money when **strike price greater than futures**
- **Calls** are in the money when **strike price less than futures**
- **At the money** (Strike price = Futures price)

## Value of In the Money Option

- Has both **intrinsic value** and **time value**
  - Intrinsic value is the positive return it would generate if exercised
  - Time value is the value due to the chance it will change in value between now and when it is exercised
- Why would anyone want to buy an out of the money option?
  - Need to manage risk
  - Price expectations

## Mechanics of an Option

- How do you capture value?
- **Exercise the option**
  - Take the underlying position in the futures market
  - Once in the futures market, you offset the futures contract at the current futures price.
- **Offset the option** by selling (or buying) it back
  - The premium at the time the option is offset **should reflect its value.**
  - What happens if it does not?

## KCBT Sept 2011 **Puts** on 11-26-10

Strike	Session									Pr.Day		Expiry Date
	Open	High	Low	Last	Time	Sett	Chg	Vol	Sett	OpInt		
future	761 <sup>6</sup> / <sub>8</sub>	763 <sup>6</sup> / <sub>8</sub>	752 <sup>6</sup> / <sub>8</sub>	759 <sup>6</sup> / <sub>8</sub>	Nov 26, 14:27	759 <sup>6</sup> / <sub>8</sub>	3 <sup>6</sup> / <sub>8</sub>	475	756	8120		
720	-	66 <sup>4</sup> / <sub>8</sub>	66 <sup>4</sup> / <sub>8</sub>	66 <sup>4</sup> / <sub>8</sub>	Nov 26, 16:43	66 <sup>4</sup> / <sub>8</sub>	-1 <sup>6</sup> / <sub>8</sub>	0	68 <sup>2</sup> / <sub>8</sub>	4		

Puts are **In The Money** when  
**Strike** price is > the Current **Futures** Price,

i.e. why would I exercise the *right to sell* at  
 \$7.20 when the Futures are trading at \$7.60



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## Establishing A Floor Price Using a Put

Initial Conditions:

- KCBT **Puts** Strike Price \$7.20
- Plus Basis HRW, \$- .58
- Minus Trading cost per bushel \$ .02
- Minus Premium Cost for Put \$ .67
- Estimated Floor Price Cash \$5.93



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KCBT  
July2011  
**Puts** on Nov.  
26, 2010

Put = Sell  
**(PS)**

**In the Money**



Strike	Session								Pr.Day		Expiry Date
	Open	High	Low	Last	Time	Sett	Chg	Vol	Sett	OpInt	
future	750	756 6/8	745 6/8	752 2/8	Nov 26, 14:27	752 2/8	2 2/8	1436	750	49867	
440	-	1/8	1/8	1/8	Nov 26, 16:43	1/8	-	0	1/8	12	
480	-	4/8	4/8	4/8	Nov 26, 16:43	4/8	-0 1/8	0	5/8	10	
500	-	1 1/8	1 1/8	1 1/8	Nov 26, 16:43	1 1/8	-	0	1 1/8	31	
550	-	4 4/8	4 4/8	4 4/8	Nov 26, 16:43	4 4/8	-0 3/8	0	4 7/8	106	
570	-	7 1/8	7 1/8	7 1/8	Nov 26, 16:43	7 1/8	-0 3/8	0	7 4/8	61	
600	-	12 6/8	12 6/8	12 6/8	Nov 26, 16:43	12 6/8	-0 5/8	43	13 3/8	374	
620	-	17 7/8	17 7/8	17 7/8	Nov 26, 16:43	17 7/8	-0 5/8	0	18 4/8	22	
630	-	20 6/8	20 6/8	20 6/8	Nov 26, 16:43	20 6/8	-0 6/8	0	21 4/8	47	
640	-	24	24	24	Nov 26, 16:43	24	-0 6/8	0	24 6/8	384	
650	-	27 3/8	27 3/8	27 3/8	Nov 26, 16:43	27 3/8	-1	1	28 3/8	215	
660	-	31 2/8	31 2/8	31 2/8	Nov 26, 16:43	31 2/8	-0 7/8	0	32 1/8	238	
680	-	39 4/8	39 4/8	39 4/8	Nov 26, 16:43	39 4/8	-1 1/8	0	40 5/8	15	
690	-	44 1/8	44 1/8	44 1/8	Nov 26, 16:43	44 1/8	-1 1/8	0	45 2/8	248	
700	-	48 7/8	48 7/8	48 7/8	Nov 26, 16:43	48 7/8	-1 2/8	7	50 1/8	342	
720	-	59 3/8	59 3/8	59 3/8	Nov 26, 16:43	59 3/8	-1 3/8	0	60 6/8	32	
730	-	64 7/8	64 7/8	64 7/8	Nov 26, 16:43	64 7/8	-1 4/8	0	66 3/8	19	
740	-	70 6/8	70 6/8	70 6/8	Nov 26, 16:43	70 6/8	-1 3/8	0	72 1/8	28	
750	-	76 6/8	76 6/8	76 6/8	Nov 26, 16:43	76 6/8	-1 4/8	0	78 2/8	217	
760	-	82 7/8	82 7/8	82 7/8	Nov 26, 16:43	82 7/8	-1 4/8	0	84 3/8	18	
770	-	89 2/8	89 2/8	89 2/8	Nov 26, 16:43	89 2/8	-1 4/8	0	90 6/8	20	

KCBT Sept2011 **Calls**, 11-26-10

Strike	Session								Pr.Day		Expiry Date
	Open	High	Low	Last	Time	Sett	Chg	Vol	Sett	OpInt	
future	761 6/8	763 6/8	752 6/8	759 6/8	Nov 26, 14:27	759 6/8	3 6/8	475	756	8120	
780	-	78 5/8	78 5/8	78 5/8	Nov 26, 16:43	78 5/8	1 5/8	0	77	3	

Calls are **In The Money** when  
Strike price is < the Current **Futures** Price,

i.e. why would I exercise the right to buy at \$7.80 when the Futures are trading at \$7.60



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## KCBT July2011 Calls, 11-26-10

Strike	Session								Pr.Day		Expiry Date
	Open	High	Low	Last	Time	Sett	Chg	Vol	Sett	OpInt	
<u>future</u>	750	756 <sup>6</sup> / <sub>8</sub>	745 <sup>6</sup> / <sub>8</sub>	752 <sup>2</sup> / <sub>8</sub>	Nov 26, 14:27	752 <sup>2</sup> / <sub>8</sub>	2 <sup>2</sup> / <sub>8</sub>	1436	750	49867	
600	-	164 <sup>3</sup> / <sub>8</sub>	164 <sup>3</sup> / <sub>8</sub>	164 <sup>3</sup> / <sub>8</sub>	Nov 26, 16:43	164 <sup>3</sup> / <sub>8</sub>	1 <sup>5</sup> / <sub>8</sub>	0	162 <sup>6</sup> / <sub>8</sub>	29	
660	-	123	123	123	Nov 26, 16:43	123	1 <sup>2</sup> / <sub>8</sub>	0	121 <sup>6</sup> / <sub>8</sub>	68	
680	-	111 <sup>4</sup> / <sub>8</sub>	111 <sup>4</sup> / <sub>8</sub>	111 <sup>4</sup> / <sub>8</sub>	Nov 26, 16:43	111 <sup>4</sup> / <sub>8</sub>	1 <sup>2</sup> / <sub>8</sub>	0	110 <sup>2</sup> / <sub>8</sub>	6	
700	-	101	101	101	Nov 26, 16:43	101	1 <sup>1</sup> / <sub>8</sub>	0	99 <sup>7</sup> / <sub>8</sub>	184	
750	-	79	79	79	Nov 26, 16:43	79	0 <sup>6</sup> / <sub>8</sub>	0	78 <sup>2</sup> / <sub>8</sub>	272	
770	-	71 <sup>4</sup> / <sub>8</sub>	71 <sup>4</sup> / <sub>8</sub>	71 <sup>4</sup> / <sub>8</sub>	Nov 26, 16:43	71 <sup>4</sup> / <sub>8</sub>	0 <sup>5</sup> / <sub>8</sub>	0	70 <sup>7</sup> / <sub>8</sub>	13	
780	-	68 <sup>1</sup> / <sub>8</sub>	68 <sup>1</sup> / <sub>8</sub>	68 <sup>1</sup> / <sub>8</sub>	Nov 26, 16:43	68 <sup>1</sup> / <sub>8</sub>	0 <sup>5</sup> / <sub>8</sub>	0	67 <sup>4</sup> / <sub>8</sub>	22	
800	-	61 <sup>6</sup> / <sub>8</sub>	61 <sup>6</sup> / <sub>8</sub>	61 <sup>6</sup> / <sub>8</sub>	Nov 26, 16:43	61 <sup>6</sup> / <sub>8</sub>	0 <sup>3</sup> / <sub>8</sub>	0	60 <sup>7</sup> / <sub>8</sub>	240	
820	-	56	56	56	Nov 26, 16:43	56	0 <sup>3</sup> / <sub>8</sub>	0	55 <sup>8</sup> / <sub>8</sub>	16	
850	-	48 <sup>5</sup> / <sub>8</sub>	48 <sup>5</sup> / <sub>8</sub>	48 <sup>5</sup> / <sub>8</sub>	Nov 26, 16:43	48 <sup>5</sup> / <sub>8</sub>	0 <sup>3</sup> / <sub>8</sub>	0	48 <sup>2</sup> / <sub>8</sub>	425	
860	-	46 <sup>3</sup> / <sub>8</sub>	46 <sup>3</sup> / <sub>8</sub>	46 <sup>3</sup> / <sub>8</sub>	Nov 26, 16:43	46 <sup>3</sup> / <sub>8</sub>	0 <sup>2</sup> / <sub>8</sub>	3	46 <sup>1</sup> / <sub>8</sub>	174	
900	-	38 <sup>6</sup> / <sub>8</sub>	38 <sup>6</sup> / <sub>8</sub>	38 <sup>6</sup> / <sub>8</sub>	Nov 26, 16:43	38 <sup>6</sup> / <sub>8</sub>	0 <sup>2</sup> / <sub>8</sub>	0	38 <sup>4</sup> / <sub>8</sub>	742	
1000	-	25 <sup>5</sup> / <sub>8</sub>	25 <sup>5</sup> / <sub>8</sub>	25 <sup>5</sup> / <sub>8</sub>	Nov 26, 16:43	25 <sup>5</sup> / <sub>8</sub>	-	0	25 <sup>5</sup> / <sub>8</sub>	229	

**In the Money**

## CBOT Puts for Sept 2011 on 11-26-10

Strike	Session								Pr.Day		Expiry Date
	Open	High	Low	Last	Time	Sett	Chg	Vol	Sett	OpInt	
<u>future</u>	743 <sup>2</sup> / <sub>8</sub>	745 <sup>6</sup> / <sub>8</sub>	739	742	Nov 26, 16:00	742	3	1044	739	16166	
600	-	23 <sup>4</sup> / <sub>8</sub>	23 <sup>4</sup> / <sub>8</sub>	23 <sup>4</sup> / <sub>8</sub>	Nov 26, 16:43	23 <sup>4</sup> / <sub>8</sub>	-2 <sup>3</sup> / <sub>8</sub>	1	25 <sup>7</sup> / <sub>8</sub>	1	
660	-	45	45	45	Nov 26, 16:43	45	-3 <sup>3</sup> / <sub>8</sub>	1	48 <sup>3</sup> / <sub>8</sub>	1	
680	-	54 <sup>1</sup> / <sub>8</sub>	54 <sup>1</sup> / <sub>8</sub>	54 <sup>1</sup> / <sub>8</sub>	Nov 26, 16:43	54 <sup>1</sup> / <sub>8</sub>	-3 <sup>4</sup> / <sub>8</sub>	1	57 <sup>5</sup> / <sub>8</sub>	1	
700	-	64	64	64	Nov 26, 16:43	64	-3 <sup>6</sup> / <sub>8</sub>	1	67 <sup>6</sup> / <sub>8</sub>	24	
730	-	80 <sup>5</sup> / <sub>8</sub>	80 <sup>5</sup> / <sub>8</sub>	80 <sup>5</sup> / <sub>8</sub>	Nov 26, 16:43	80 <sup>5</sup> / <sub>8</sub>	-4	1	84 <sup>5</sup> / <sub>8</sub>	1	
740	-	86 <sup>4</sup> / <sub>8</sub>	86 <sup>4</sup> / <sub>8</sub>	86 <sup>4</sup> / <sub>8</sub>	Nov 26, 16:43	86 <sup>4</sup> / <sub>8</sub>	-4 <sup>1</sup> / <sub>8</sub>	1	90 <sup>5</sup> / <sub>8</sub>	1	


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In the Money

CBOT Calls For  
Sept 2011 on  
Nov. 26, 2010

Call = Right to Buy  
(CB)

Strike	Session									Pr.Day		Expiry Date
	Open	High	Low	Last	Time	Sett	Chg	Vol	Sett	OpInt		
future	743 2/8	745 6/8	739	742	Nov 26, 16:00	742	3	1044	739	16166		
720	-	96 6/8	96 6/8	96 6/8	Nov 26, 16:43	96 6/8	-0 7/8	1	97 3/8	23		
800	-	67 7/8	67 7/8	67 7/8	Nov 26, 16:43	67 7/8	-1 4/8	4	69 3/8	35		
850	-	54 7/8	54 7/8	54 7/8	Nov 26, 16:43	54 7/8	-1 3/8	1	56 4/8	1		
860	-	52 3/8	52 3/8	52 3/8	Nov 26, 16:43	52 3/8	-1 5/8	2	54 3/8	2		
960	-	35 2/8	35 2/8	35 2/8	Nov 26, 16:43	35 2/8	-1 4/8	25	36 6/8	25		
970	-	33 7/8	33 7/8	33 7/8	Nov 26, 16:43	33 7/8	-1 5/8	5	35 4/8	5		
980	-	32 2/8	32 2/8	32 2/8	Nov 26, 16:43	32 2/8	-1 5/8	10	34 2/8	10		
990	-	31 4/8	31 4/8	31 4/8	Nov 26, 16:43	31 4/8	-1 4/8	15	33	15		
1000	-	30 3/8	30 3/8	30 3/8	Nov 26, 16:43	30 3/8	-1 4/8	1	31 7/8	52		
1010	-	29 2/8	29 2/8	29 2/8	Nov 26, 16:43	29 2/8	-1 4/8	7	30 6/8	23		
1020	-	28 1/8	28 1/8	28 1/8	Nov 26, 16:43	28 1/8	-1 4/8	5	29 5/8	15		
1030	-	27 1/8	27 1/8	27 1/8	Nov 26, 16:43	27 1/8	-1 4/8	1	28 5/8	12		
1040	-	26 2/8	26 2/8	26 2/8	Nov 26, 16:43	26 2/8	-1 3/8	5	27 3/8	14		
1050	-	25 2/8	25 2/8	25 2/8	Nov 26, 16:43	25 2/8	-1 3/8	5	26 5/8	217		
1060	-	24 3/8	24 3/8	24 3/8	Nov 26, 16:43	24 3/8	-1 3/8	5	25 6/8	18		
1070	-	23 4/8	23 4/8	23 4/8	Nov 26, 16:43	23 4/8	-1 3/8	5	24 7/8	17		
1080	-	22 6/8	22 6/8	22 6/8	Nov 26, 16:43	22 6/8	-1 2/8	4	24	13		
1090	-	22	22	22	Nov 26, 16:43	22	-1 2/8	1	23 2/8	13		
1100	-	21 2/8	21 2/8	21 2/8	Nov 26, 16:43	21 2/8	-1 2/8	1	22 4/8	33		
1110	-	20 4/8	20 4/8	20 4/8	Nov 26, 16:43	20 4/8	-1 2/8	1	21 6/8	13		
1120	-	19 7/8	19 7/8	19 7/8	Nov 26, 16:43	19 7/8	-1 1/8	3	21	4		



## CME Feeder Quotes, 11-26-10

Month	Session									Pr.Day		Options
	Open	High	Low	Last	Time	Sett	Chg	Vol	Sett	OpInt		
Cash	-	-	-	109.930 *	Nov 24, 16:14	-	-	-	114.080	-	n/a	
<a href="#">Jan 11</a>	118.750	119.100	118.600	118.750	Nov 26, 16:07	118.750	0.475	2109	118.275	15677	<a href="#">Call Put</a>	
<a href="#">Mar 11</a>	119.125	119.500	119.125	119.375	Nov 26, 16:07	119.375	0.375	1318	119.000	8662	<a href="#">Call Put</a>	
<a href="#">Apr 11</a>	119.575	119.700	119.575	119.700	Nov 26, 16:07	119.700	0.425	495	119.275	2510	<a href="#">Call Put</a>	
<a href="#">May 11</a>	119.750	119.800	119.750	119.775	Nov 26, 16:07	119.775	0.425	310	119.350	3430	<a href="#">Call Put</a>	
<a href="#">Aug 11</a>	120.200	120.500	120.200	120.500	Nov 26, 16:07	120.500	0.250	656	120.250	3028	<a href="#">Call Put</a>	
<a href="#">Sep 11</a>	-	119.800	119.800	119.800	Nov 26, 16:07	119.800	0.300	20	119.500	188	<a href="#">Call Put</a>	
<a href="#">Oct 11</a>	-	119.300	119.300	119.300	Nov 26, 16:07	119.300	0.300	9	119.000	41	<a href="#">Call Put</a>	
<a href="#">Nov 11</a>	-	118.300	118.300	118.300	Nov 26, 16:07	118.300	0.300	2	118.000	2	<a href="#">Call Put</a>	

Do you like volatility as a producer?

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## CME Oct2011 Feeder Puts, 11-26-10

Strike	Session									Pr.Day		Expiry Date
	Open	High	Low	Last	Time	Sett	Chg	Vol	Sett	OpInt		
future	-	119.300	119.300	119.300	Nov 26, 16:07	119.300	0.300	9	119.000	41		
1100	-	3.450	3.450	3.400	Nov 26, 16:00	3.400	-0.050	-	3.450	1		

## Option Sellers (Writer)

- You are exposed to added risk if you are an option seller
  - Margin calls just like the futures market
- A person buying the option you sold can force you to provide the underlying position in the futures market.
  - Margin account balance used to cover your losses
- Can sell Puts or Calls
  - Sell right to sell = put (PS)
  - Sell right to buy = call (CB)

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**Futures, Options, Margin Accounting- Use Slideshow Mode**

# Questions

