

**Montana *MarketManager***  
**A PRIMER ON UNDERSTANDING  
FUTURES AND OPTIONS MARKETS**

**Workshop 5 - Part 1**  
**Winter 2000 Marketing Workshops**  
**January 6 & 7, 2000**

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# IMPORTANT TERMINOLOGY

## 1. Cash Market

- a market which focuses on the buying and selling of the physical commodity for immediate or delayed delivery.

## 2. Futures Market

- a market which focuses on the buying and selling of futures contracts.
- a logical extension of a cash forward market.
- trades a transferable agreement to make or take delivery of a standardized amount and quality of a specified commodity at a specified point in time and location.
- view as a market offering a “temporary” sale of your commodity.
- can resolve agreements with money rather than delivery.

## **IMPORTANT TERMINOLOGY (cont.)**

### **3. Contract Specifications: (see attached)**

#### **a. Standardized Amount**

- **Contract Quantity = 5000 bu.**

#### **b. Standardized Quality**

- **Deliverable Grade**

##### **1) CBT wheat**

- **USDA #2 soft red winter.**

##### **2) MPLS spring wheat**

- **USDA #2 DNS with 13.5% protein.**

#### **c. Specified Time**

- **Contract Month**

##### **1) wheat = Jul, Sep, Dec, Mar, May.**

#### **d. Specified Location**

- **Delivery Point**

##### **1) CBT wheat = Chicago or Toledo.**

##### **2) MPLS spring wheat = Minn./St. Paul; Red Wing; Duluth/Superior.**

# IMPORTANT TERMINOLOGY (cont.)

## 4. Margin

- money deposited by all traders when entering the futures market to assure performance for all participants.
- usually a small portion of the total contract value, so;
- may receive margin calls if market moves against your position.

## 5. Commission

- fee paid to broker for executing a trade in the futures market.
- based on “round-turn” or entry and exit of a contract.
- varies by broker (\$30 and up per contract).

# ALTERNATIVES IN TRADING FUTURES

## 1. Buy a Futures Contract(s):

- “long” position.
- have a commitment to receive delivery.
- can “offset” commitment at any time.

## 2. Sell a Futures Contract(s):

- “short” position.
- have a commitment to make delivery.
- can “offset” commitment at any time.

**NOTE:** Entering short or long means you have an obligation (open position) and a margin is required.

## 3. Resolving commitment:

- a. Delivery is an obvious alternative.

OR

- b. Offset the open position before expires:

- 1) "long" - sell same futures contract at current price.

- 2) "short" - buy same futures contract at current price.

# ALTERNATIVES IN TRADING FUTURES

## 4. Results of trading futures:

- a. **Buy a futures contract (long position):**
  - price rises and offset by selling at higher price for a gain.
  - price declines and offset by selling at lower price for a loss.
  
- b. **Sell a futures contract (short position):**
  - price rises and offset by buying at higher price for a loss.
  - price declines and offset by buying at lower price for a gain.
  
- c. **Amount of gain or loss:**
  - the sell price less the buy price times the contract quantity (5,000 bu. for wheat).

# **UNDERSTANDING OPTIONS ON FUTURES CONTRACTS**

- 1. Options on futures represent the RIGHT, (but not the obligation) to enter a designated contract at a specific price.**
  - key is that options give the RIGHT to a futures position. The option owner is not required to enter a futures position.**
- 2. Types of options:**
  - a. "put" option represents right to sell.**
  - b. "call" option represents right to buy.**
- 3. Strike price is the price at which the option buyer has the right to sell (for a put) or buy (for a call) the underlying contract.**
- 4. Option premium is the "right's" market price.**
  - quoted in cents per bushel (5000 bu.).**
- 5. Option Expiration**
  - about the 3rd week of month before the underlying futures contract month.**

# OPTION EXAMPLES

## (Focus on Puts)

Early January - puts on MPLS Sep 00 HRS wheat futures.

MPLS Sep futures price = 340.00 cents/bu.

<u>Strike Price</u>	<u>Premium (cents/bu.)</u>
320	11.50
330	16.25
340	21.75
350	28.00
360	35.25

**Know:**

1. Can purchase right to sell MPLS Sep futures at several different strike prices above or below the current market price.
2. Premiums vary by strike price:
  - right to sell is more expensive as strike price goes up.
3. Options on Sep wheat expire 19 Aug 00.

# OPTION EXAMPLES

## (Focus on Puts)

MPLS Sep futures price = 340.00 cents/bu.

<u>Strike Price</u>	<u>Premium</u> <u>(cents/bu.)</u>	
320	11.50	} out of the money
330	16.25	
340	21.75	} at the money
350	28.00	} in the money
360	35.25	

Option premium influenced by:

1. Strike price relative to current futures price:
  - a. intrinsic value if above futures price:
    - 320 put has 0 cents of intrinsic value.
    - 350 put has 10 cents of intrinsic value.
2. Chance for a price change (time value):
  - a. underlying futures price can change:
    - 320 put would have intrinsic value if futures price goes below 320.
  - b. more time to expiration = more value.
  - c. more market volatility = more value.

# OPTION EXAMPLES

## (Focus on Puts)

MPLS Sep futures price = 340.00 cents/bu.

<u>Strike Price</u>	<u>Premium</u> <u>(cents/bu.)</u>
320	11.50
330	16.25
340	21.75
350	28.00
360	35.25

**Closing a put position:**

1. “Sell” at the current premium:
  - premium changes over time:
    - 1) futures price changes.
    - 2) expiration approaches.
2. Let option expire if worthless:
  - option expires with no intrinsic value.
3. Exercise and obtain futures position:
  - may be automatic if expires with value.

**HARD RED SPRING WHEAT FUTURES  
CONTRACT SPECIFICATIONS**

Contract specifications are subject to change without notice.

**TRADING HOURS:**

9:30 a.m. - 1:15 p.m. (Central Time)

**CONTRACT UNIT:**

5,000 bushels

**TICKER SYMBOL:**

MW

**DELIVERY MONTHS:**

March, May, July, September and December

**DAILY PRICE LIMITS:**

\$.20 per bushel or \$1,000 per contract. Subject to variable price limits.

**MINIMUM PRICE FLUCTUATION:**

1/4 cent per bushel or \$12.50 per contract

**SPECULATIVE POSITION LIMITS:**

Spot month: 600 contracts

Single month: 2100 contracts

All months: 3200 contracts

**DELIVERABLE GRADES:**

No. 2 or better Northern Spring Wheat with a protein content of 13.5% or higher, with 13% protein also deliverable at a discount

**DELIVERY POINTS:**

Elevators located in Minneapolis/St. Paul, Red Wing and Duluth/Superior

**LAST TRADING DAY:**

No trading may take place during the last seven business days of the month in which the contract matures

**FIRST NOTICE DAY:**

The last business day of the month preceding the delivery month

**FIRST DELIVERY DAY:**

The first business day of the delivery month

**LAST NOTICE DAY:**

The second to the last business day of the delivery month

**LAST DELIVERY DAY:**

The last business day of the delivery month

**HARD RED SPRING WHEAT OPTIONS  
CONTRACT SPECIFICATIONS****TRADING HOURS:**

9:30 a.m. - 1:30 p.m. (Central Time) except on the last day of an expiring option, when trading shall terminate at 1:00 p.m. (Central Time)

**UNDERLYING ASSET:**

One Minneapolis Grain Exchange Hard Red Spring Wheat futures contract (5,000 bushels)

**TICKER SYMBOL:**

WP - puts

WC - calls

**DELIVERY MONTHS:**

March, May, July, September and December

**MINIMUM PRICE FLUCTUATION:**

1/8 cent per bushel or \$6.25 per contract

**DAILY PRICE LIMIT:**

\$.20 per bushel (same as underlying futures). Subject to variable price limits.

**SPECULATIVE POSITION:**

Position limits shall be those limits currently in effect pursuant to Part 150 of the Regulations of the Commodity Futures Trading Commission.

**LAST TRADING DAY:**

Trading in an option class shall terminate on the last Friday which precedes by at least five business days, the First Notice Day of the underlying futures contract. If such Friday is not an Exchange business day, then trading shall terminate on the preceding business day.

**AUTOMATIC EXERCISE:**

Based upon the settlement price for Spring Wheat futures on the last day of trading for Spring Wheat options, the Clearing House shall automatically exercise all in-the-money options unless notice to cancel automatic exercise is given to the Clearing House.



Chicago Board of Trade

## Our Products

Contract Specifications

### Wheat Futures

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Also see: [Options](#)

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#### Trading Unit

5,000 bu

#### Deliverable Grades

No. 2 Soft Red, No. 2 Hard Red Winter, No. 2 Dark Northern Spring, and No. 2 Northern Spring at par. Substitutions at differentials established by the exchange.

#### Price Quote

Cents and quarter-cents/bu

#### Tick Size

1/4 cent/bu (\$12.50/contract)

#### Daily Price Limit

20 cents/bu (\$1,000/contract) above or below the previous day's settlement price (expandable to 30 cents/bu). No limit in the spot month (limits are lifted two business days before the spot month begins).

#### Contract Months

Jul, Sep, Dec, Mar, May

#### Last Trading Day

Seventh business day preceding the last business day of the delivery month

#### For contracts with delivery in March 2000 and subsequent months:

The business day prior to the 15th calendar day of the contract month.

#### Last Delivery Day

Last business day of the delivery month

#### For contracts with delivery in March 2000 and subsequent months:

Seventh business day following the last trading day of the delivery month.

**Montana *MarketManager***  
**GRAIN MARKETING ALTERNATIVES**  
**USING FUTURES AND OPTIONS**

**Workshop 5 - Part 2**  
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# THE HEDGING CONCEPT

1. Hedging is defined as offsetting the risk of an adverse change in the cash market by entering an appropriate futures market position simultaneously.
2. As an example, a wheat producer has wheat growing to sell at some time after harvest:
  - a. What is the risk of a price change?
    - price may decrease!!
  - b. What futures position will offset the loss from a price decrease?
    - sell futures (short position)
  - c. Net result if cash price changes:
    - loss on the cash market is offset by a gain on the futures position.
    - loss on the futures market is offset by a gain on the cash position.

# THE HEDGING CONCEPT (continued)

3. Hedging is based on idea that cash and futures markets are related and move up and down together:
  - a. Relationship measured by basis:
    - basis is defined as the cash price minus the futures price.
    - basis can get weaker (smaller value) or stronger (larger value).
  - b. Hedging effectiveness is strongly influenced by how the actual basis behaves relative to what is expected:
    - implies hedging involves basis risk.
  - c. Remember, are using the futures market for a temporary sale of your commodity, so the relationship is important.

# HEDGING EXAMPLE

## Short Hedge (Wheat Producer)

1. Early Jan - HRS producer will harvest 30,000 bu. of wheat (14%) in August. Plans to sell after harvest in early September.
2. Evaluate expected hedge price using MNPLS Sep HRS wheat futures contract.

"Appropriate" futures price	=	340
+ Expected basis (local)	=	- 25 (under)
- Cost of hedging	=	- 2
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= Expected hedge price	=	313 cents/bu.

3. Compare hedge to other alternatives:
  - cash forward; price with options;
  - or wait and price later.
4. Decides to hedge 20,000 bu. (67% of prod.):
  - sells (short) 4 Sep (5000 bu. each) at 340.
  - expected hedge price = 313 cents/bu.

# WHEAT HEDGE OUTCOME

## Early Sep. and Price Increases

A. Local price increases to 380 cents/bu.

<u>Cash Market</u>	<u>Futures Market</u>	<u>Actual Basis</u>
Sell wheat at 380	Sold at 340 (offset) <u>Buy at 405</u>	- 25
	Loss = 65 cents/bu.	

### Outcome

Cash Price = 380  
Loss on Futures = 65 (-)  
Cost of Hedge = 2 (-)

-----  
Net Price = 313 cents/bu.

# WHEAT HEDGE OUTCOME

## Early Sep and Price Decreases

B. Local price decreases to 290 cents/bu.

<u>Cash Market</u>	<u>Futures Market</u>	<u>Actual Basis</u>
Sell wheat at 290	Sold at 340 (offset) <u>Buy at 315</u> Gain = 25 cents/bu.	- 25

### Outcome

Cash Price = 290  
Gain on Futures = 25 (+)  
Cost of Hedge = 2 (-)

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Net Price = 313 cents/bu.

# WHEAT HEDGE OUTCOME

Early Sep; Price Drops; Basis Weakens

C. Local price drops to 290 cents/bu. and basis weakens to - 35 cents.

<u>Cash Market</u>	<u>Futures Market</u>	<u>Actual Basis</u>
Sell wheat at 290	Sold at 340 (offset) <u>Buy at 325</u> Gain = 15 cents/bu.	- 35

## Outcome

Cash Price = 290

Gain on Futures = 15 (+)

Cost of Hedge = 2 (-)

-----  
Net Price = 303 cents/bu.

**Note:** Basis weakened by 10 cents (from an expected of -25 to -35). The actual net price was 10 cents below the expected hedge price.

# WHEAT HEDGE OUTCOME

Early Sep; Price Up; Basis Strengthens

D. Local price increases to 380 cents/bu. and basis strengthens to -15 cents.

<u>Cash Market</u>	<u>Futures Market</u>	<u>Actual Basis</u>
Sell wheat at 380	Sold at 340 (offset) <u>Buy at 395</u> Loss = 55 cents/bu.	- 15

## Outcome

Cash Price = 380

Loss on Futures = 55 (-)

Cost of Hedge = 2 (-)

-----  
Net Price = 323 cents/bu.

**Note:** Basis strengthened by 10 cents (from an expected of -25 to -15). The actual net price was 10 cents above the expected hedge price.

# **PUT OPTION EXAMPLE**

## **(Purchase put to set min. price)**

**1. Mid Jan - Grain producer has 30,000 bu. of wheat in storage. Takes LDP and wants downside price protection until late spring. Thinks there is a good chance price will increase substantially by late spring.**

**2. Evaluate level of expected price protection:**

<b>Strike price of May put</b>	<b>= 330</b>
<b>+ Expected basis (local)</b>	<b>= -10 (under)</b>
<b>- Put cost (premium + fee)</b>	<b>= 17 (-)</b>

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**= Expected price protection = 303 cents/bu.**

**3. Compare to other alternatives:**

- cash forward; hedge with futures; buy put with higher or lower strike price; sell cash and buy call option; wait and price later.**

## **PUT OPTION EXAMPLE (cont.) (Purchase put to set min. price)**

**Expected price protection = 303 cents/bu.**

**4. Decides to use put option alternative:**

- buys 6 MNPLS HRS 330 May wheat puts (5000 bu. each) at 17 cents/bu. (16 cent premium + 1 cent broker fee) to obtain protection.**
- expected minimum price is 303 cents per bu. with potential to benefit if price increases.**

# PURCHASE WHEAT PUT OUTCOME

## Mid Apr. and Price Increases

A. Local price increases to 380 cents/bu.

<u>Cash Market</u>	<u>Futures Market</u>	<u>Actual Basis</u>
Sell wheat at 380	Sep Futures price = 390 330 Put premium = 0 (no intrinsic value) (put expires worthless)	- 10

### Outcome

Cash Price = 380  
Cost of Put = 17 (-)  
Sale of Put = 0

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Net Price = 363 cents/bu.

# PURCHASE WHEAT PUT OUTCOME

## Mid Apr. and Price Decreases

B. Local price decreases to 290 cents/bu.

<u>Cash Market</u>	<u>Futures Market</u>	<u>Actual Basis</u>
Sell wheat at 290	Sep Futures price = 300 330 Put premium = 30 (has intrinsic value) (sell put for premium)	- 10

### Outcome

Cash Price = 290

Cost of Put = 17 (-)

Sale of Put = 30 (+)

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Net Price = 303 cents/bu.

# **PUT OPTION OUTCOMES**

## **Basis Changes**

- 1. Changes in basis will impact put option-based strategies in the same manner that basis changes impact hedges:**
  - a. Weakening basis means the actual price protection will be lower than the expected price protection level.**
  - b. Strengthening basis means the actual price protection will be higher than the expected price protection level.**

# CALL OPTION EXAMPLE

## Purchase Call - Sell Cash Wheat

1. Mid Jan. - Grain producer has 30,000 bushels of wheat in storage. Current cash price is 300 cents/bu. Wants to eliminate holding costs, but feels some potential for price gain between now and April. Premium on 340 MNPLS HRS May wheat call = 8 cents (plus 1 cent broker fee).

2. Evaluate potential for gain:

Cost of holding cash wheat = 12

Cost of buying 340 MNPLS May Call = 9

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Min. "gain" from buying call = 3 cents/bu.

3. Compare to other alternatives:

- hold wheat in storage unprotected; buy calls with higher or lower strike prices.

# **CALL OPTION EXAMPLE**

## **Purchase Call - Sell Cash Wheat**

**Minimum gain from buying call = 3 cents/bu.**

- 4. Decides to use call option alternative:**
  - sell cash wheat at 300 cents/bu.**
  - buys 6 Chicago 340 May wheat calls (5000 bu. each) at 9 cents (8 cent premium + 1 cent broker fee).**

# PURCHASE WHEAT CALL OUTCOME

## Early April and Price Increases

**A. Local price increases to 380 cents/bu.**

<u>Cash Market</u>	<u>Futures Market</u>	<u>Actual Basis</u>
<p><b>Sold wheat at 300</b></p>	<p><b>Sep Futures price = 390 340 Call premium = 50 (has intrinsic value) (sell call for premium)</b></p>	<p><b>- 10</b></p>

### Outcome

<b>Sale of cash wheat</b>	<b>=</b>	<b>300 (+)</b>
<b>Premium paid for 300 call</b>	<b>=</b>	<b>9 (-)</b>
<b>Storage cost savings</b>	<b>=</b>	<b>12 (+)</b>
<b>Proceeds from sale of call</b>	<b>=</b>	<b>50 (+)</b>

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**Net Price = 353 cents/bu.**

# PURCHASE WHEAT CALL OUTCOME

## Early April and Price Decreases

**B. Local price decreases to 290 cents/bu.**

<u>Cash Market</u>	<u>Futures Market</u>	<u>Actual Basis</u>
<p>Sold wheat at 300</p>	<p>Sep Futures price = 300 340 Call premium = 0 (no intrinsic value) (call expires worthless)</p>	<p>- 10</p>

### Outcome

Sale of cash wheat	=	300 (+)
Premium paid for 300 call	=	9 (-)
Storage cost savings	=	12 (+)
Proceeds from sale of call	=	0 (+)

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**Net Price = 303 cents/bu.**

**Trading Hours**

9:30 a.m. - 1:15 p.m. Chicago time, Mon-Fri. Trading in expiring contracts closes at noon on the last trading day. Project A<sup>®</sup> trading hours are from 9:00 p.m. - 4:30 a.m. Chicago time, Sun-Thu.

**Ticker Symbols**

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