# Intermediate Grain Marketing

***Strategies & Analysis***

Kevin McNew

Montana State University

## TOPICS

- Buying/Selling Options
- Marketing Strategies with the LDP
- Out-of-the Money Options: When to Sell?
- Technical Analysis
- Fundamental Analysis

## Futures Prices (12/1/00)

| Contract | KCBT | MGE |
|---|---|---|
| Mar-01 | 326.25 | 331 |
| May-01 | 335 | 339 |
| Jul-01 | 342.5 | 346 |
| Sep-01 | 350 | 353.25 |
| Dec-01 | 359 | |

## KCBT Wheat Options (12/1/00)

| Strike | MarC | MarP | MayC | MayP | JulC | JulP |
|---|---|---|---|---|---|---|
| 300 | 27.5 | 1.5 | 36.75 | 2.5 | 45.125 | 3.75 |
| 310 | 20 | 3.875 | 29.375 | 4.875 | | 6.25 |
| 320 | 14.125 | 8 | 23.125 | 8.375 | | 9.625 |
| 330 | 9.75 | 13.5 | 18 | 13.125 | 26 | 19 |
| 340 | 6.625 | 20.25 | 14.125 | 18.75 | 21.375 | 24.75 |
| 350 | 4.625 | 28.125 | 10.5 | | 17.5 | |
| 360 | 3.125 | | 7.875 | | | |
| 370 | 2.25 | | 6 | | 11.625 | |
| 380 | 1.5 | | 4.5 | | 9.5 | |
| 390 | 1.125 | | 3.375 | | 7.875 | |

## MGE Wheat Options (12/1/00)

| Strike | MarC | MarP | MayC | MayP | JulC | JulP |
|---|---|---|---|---|---|---|
| 300 | 30.5 | 0.5 | | | | |
| 310 | 22.5 | 2 | | 3.75 | | |
| 320 | 15.5 | 5 | 25.5 | 7 | | |
| 330 | 9.25 | 8.75 | 19.5 | 11 | 25 | 9.5 |
| 340 | 7 | 15.75 | 14.5 | 16 | 20 | 14.5 |
| 350 | 4.5 | 24 | 11.25 | 22.75 | 16.25 | 20.75 |
| 360 | 3 | 32.5 | 8.75 | 30.25 | 13 | 27.5 |
| 370 | 2 | | 7 | | 10.5 | |
| 380 | 1.125 | | 5.5 | | 8.25 | |
| 390 | 0.75 | | 4.5 | | | |

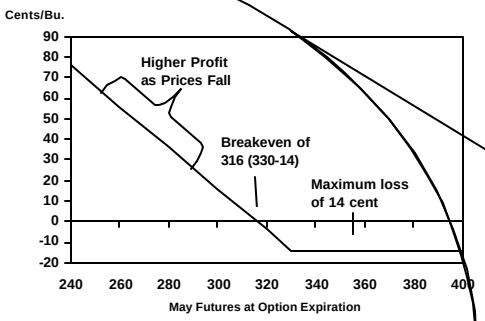
## Quick Review

- Long Position – "buying" the market
- Short Position – "selling" the market
- Put Option
  - Long pays premium to the short
  - Long has right to sell at strike price.
  - Short has obligation to buy at strike price.
  - Use to establish price floor
- Call Option
  - Long pays premium to the short
  - Long has right to buy at strike price.
  - Short has obligation to sell at strike price.
  - Use to establish upside price potential on forward contract or sell cash/reown in futures market.

## Buy a Put/Sell a Call

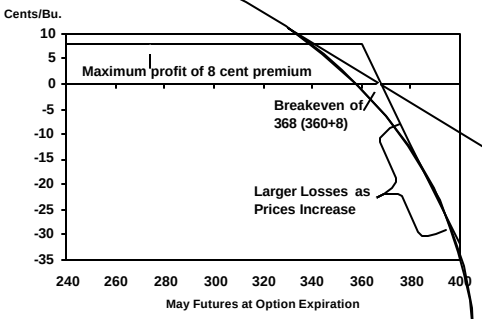
- Long May KC Wheat 330 Put @ 14
  - Long the premium
  - No Margin
  - Premium increases as price falls
  - Premium decreases as price increases
- Short May KC Wheat 360 Call @ 8
  - Short the premium
  - Margin required
  - Premium decreases as price falls
  - Premium increases as price increases

## Profit/Loss on Long 330 Put at Expiration



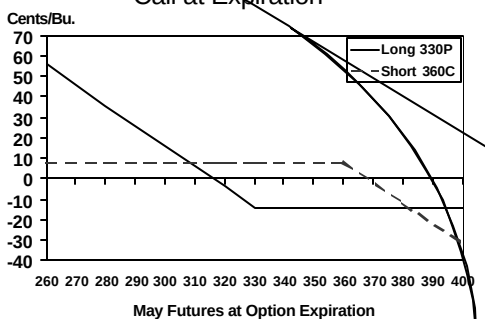

Long a May 330 Put for 14

## Profit/Loss on Short 360 Call at Expiration



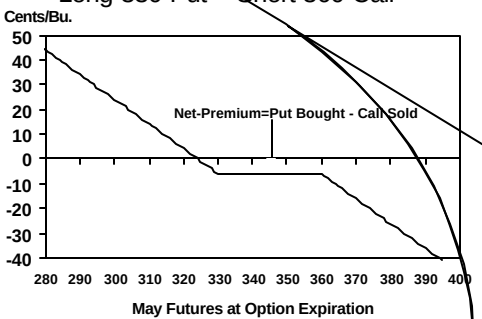

Short a May 360 Put at 8

## Profit/Loss on Long 330 Put and Short 360 Call at Expiration



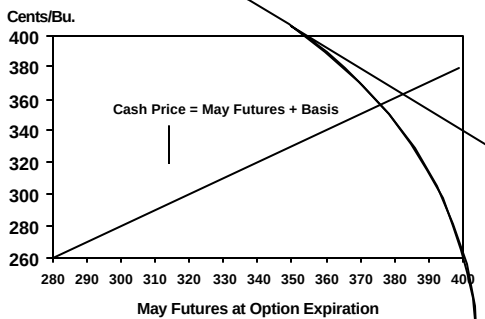

Long a May 330 Put for 14, Short a May 360 Call at 8

## Total Profit/Loss: Long 330 Put + Short 360 Call



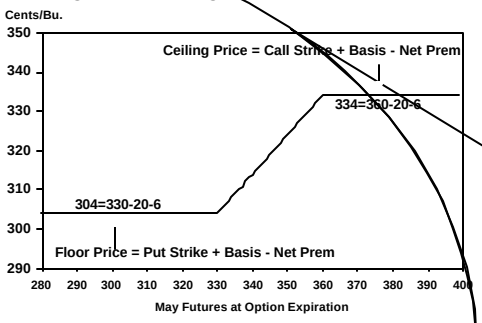

Long a May 330 Put for 14, Short a May 360 Call at 8

## Long Cash Position




Basis is assumed to be –20 when the May options expire.

## Net-Price on Grain: Long Cash+Long 330P+Short 360C




Long 330P at 14, Short 360C at 8, basis is assumed to be –20 when the May options expire

## Long Put/Short Call

- Downside Price Protection (Price Floor)
- Limited Upside Potential (Price Ceiling)
- Price Floor = Put Strike + Basis – Net Prem
- Price Ceiling = Call Strike + Basis – Net Prem
- Net Prem = Put Premium – Call Premium
- Ceiling – Floor = Call Strike – Put Strike

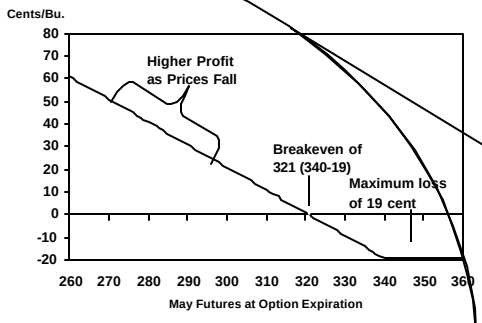
## Examples of Long May Put & Short May Call

| Put/Call Position | Price Floor | Price Ceiling |
|---|---|---|
| 310P/330C | 303 | 323 |
| 310P/350C | 296 | 336 |
| 310P/No Call | 285 | No Ceiling |
| 330P/370C | 303 | 343 |
| 330P/No Call | 297 | No Ceiling |
| 340P/370C | 307 | 337 |
| 340P/No Call | 301 | No Ceiling |

## Buy a Put/Sell a Put

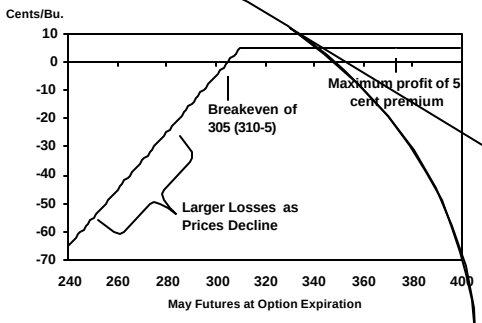
- Long May KC Wheat 340 Put @ 19
  - Long the premium
  - No Margin
  - Premium increases as price falls
  - Premium decreases as price increases
- Short May KC Wheat 310 Put @ 5
  - Short the premium
  - Margin required
  - Premium increases as price falls
  - Premium decreases as price increases

## Profit/Loss on Long 340 Put at Expiration



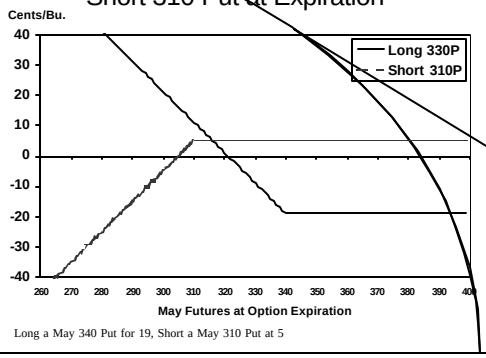

Long a May 340 Put for 19

## Profit/Loss on Short 310 Put at Expiration



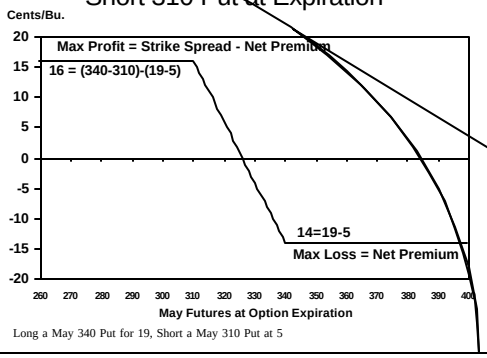

Short a May 310 Put at 5

## Profit/Loss on Long 340 Put and Short 310 Put at Expiration



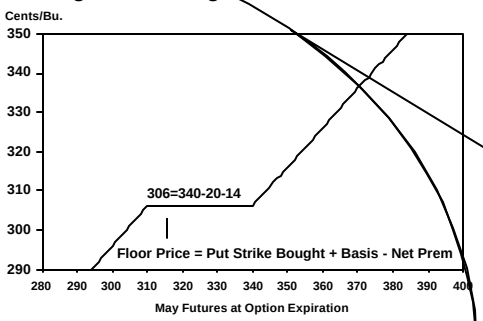

Long a May 340 Put for 19, Short a May 310 Put at 5

## Profit/Loss on Long 340 Put and Short 310 Put at Expiration




Long a May 340 Put for 19, Short a May 310 Put at 5

## Net-Price on Grain: Long Cash+Long 340P+Short 310P




Long 340P at 19, Short 310P at 5, basis is assumed to be –20 when the May options expire.

## Long Put/Short Put

- **Limited** Downside Price Protection (Price Floor)
- Price Floor in effect until Strike Price of Short Put
- Price Floor = Put Strike Bought + Basis – Net Prem
- No Price Ceiling

## Long Call/Short Call

- Used in conjunction with Forward Contract or for Re-Ownership
- Example: Long 320 Call @ 23 / Short 360 Call @ 8
- **Limited** Upside Potential
- Upside potential = Strike Sold – Net Prem = 360-15 = 345

## Protecting the LDP

- The Loan Deficiency Payment (LDP) program is a put option
- LDP Price is your put option premium.
- LDP has basis, puts and calls don't

Strategies

Wait to take LDP => Holding your put option

Take the LDP => Selling your put option

## Protecting the LDP

| 1) Take LDP/Buy a Put | 2) Don't Take LDP/Buy a Call |
|---|---|
| **Example: (8/30/00)** | **Example: (8/30/00)** |
| LDP = +0.60 | LDP = +0.60 |
| Dec 300P = 0.20 | Dec 310C = 0.09 |

## 1) Take LDP/Buy a Put

- Cashing in a high strike price option (the LDP) and buying a lower strike price option (put)
- Put provides downside price protection.
- If futures price rallies, will only lose put premium, not LDP
- If basis strengthens, won't lose LDP

## 1) Take LDP/Buy a Put

Example:

8/30/00*: Basis = -40; LDP = 60;Sep Fut = 290; Dec Fut=306; 300 Put = 20; Cash Price = 250

11/15/00: Basis = -20; LDP =10;Dec Fut =320; 300 Put = 0; Cash Price = 300

Net-Price = Cash Price in Nov + LDP in Aug + Option Profit – Storage Cost

= 300 + 60 – 20 – (5c/mon)*3 = **325**

*would have gotten 310 selling grain at harvest and collecting the LDP

## 2) Don't Take LDP/Buy a Call

- Retaining LDP still gives downside price protection.
- Call gives upside price potential (as LDP erodes).
- If futures price rallies, call option gain offsets LDP loss
- If basis strengthens, will lose LDP but no corresponding increase in call.

## 2) Don't Take LDP/Buy a Call

Example:

8/30/00*: Basis = -40; LDP = 60;Sep Fut = 290; Dec Fut=306; 310 Call = 9; Cash Price = 250

11/15/00: Basis = -20; LDP =10;Dec Fut =320; 310 Call = 10; Cash Price = 300;

Net-Price = Cash Price in Nov + LDP in Nov + Option Profit – Storage Cost

= 300 + 10 + 1 – (5c/mon)*3 = **296**

*would have gotten 310 selling grain at harvest and collecting the LDP

## Comparison

- Take LDP/Buy a Put
  - Use when you expect Good Basis Improvement and/or Lower Futures Prices
- Don't Take LDP/Buy a Call
  - Use when you expect Little Basis Improvement and/or Higher Futures Prices

## Holding or Selling Out-of-The-Money Options?

- Example 1 (7/1/00)
  - You've got a 310 Sep Put that is 6. Sep futures are 350. The March options expire in about 7 weeks. Hold or Sell?
- Example 2 (2/1/00)
  - You've got a 360 Mar Call that is 2. Mar futures are 330. The March options expire in about 3 weeks. Hold or Sell?

Probability of Out-of-the Money Options Being In-The-Money Before Expiration:
*Mar KCBT Wheat 1980-99**

| Weeks Until Expiration | 10 Cents | 20 Cents | 30 Cents | 40 Cents | 50 Cents | 60 Cents |
|---|---|---|---|---|---|---|
| **10** | 95% | 75% | 35% | 20% | 5% | 5% |
| **9** | 95% | 70% | 35% | 20% | 5% | 5% |
| **8** | 95% | 70% | 30% | 20% | 5% | 5% |
| **7** | 90% | 60% | 30% | 20% | 5% | 5% |
| **6** | 90% | 40% | 20% | 15% | 5% | 5% |
| **5** | 90% | 40% | 15% | 5% | 0% | 0% |
| **4** | 65% | 30% | 10% | 5% | 0% | 0% |
| **3** | 55% | 15% | 10% | 5% | 0% | 0% |
| **2** | 45% | 10% | 0% | 0% | 0% | 0% |
| **1** | 40% | 0% | 0% | 0% | 0% | 0% |

*Probabilities are based on the number of years out of 20 (1980 -99) in which an option that was out-of - the-money became in - the-money before expiration. For example, 60% of the time (12 out of 20 years) a 20 - cent out-of - the money option with 7 weeks until expiration eventually became an in - the-money option before expiration

Probability of Out-of-the Money Options Being In-The-Money Before Expiration:
*Sep KCBT Wheat 1980-99**

| Weeks Until Expiration | 10 Cents | 20 Cents | 30 Cents | 40 Cents | 50 Cents | 60 Cents |
|---|---|---|---|---|---|---|
| **10** | 100% | 85% | 65% | 40% | 30% | 20% |
| **9** | 100% | 75% | 60% | 35% | 15% | 10% |
| **8** | 100% | 75% | 60% | 35% | 10% | 5% |
| **7** | 100% | 75% | 60% | 35% | 10% | 0% |
| **6** | 100% | 70% | 55% | 20% | 5% | 0% |
| **5** | 95% | 60% | 40% | 0% | 0% | 0% |
| **4** | 85% | 30% | 5% | 0% | 0% | 0% |
| **3** | 70% | 25% | 5% | 0% | 0% | 0% |
| **2** | 60% | 15% | 0% | 0% | 0% | 0% |
| **1** | 35% | 0% | 0% | 0% | 0% | 0% |

*Probabilities are based on the number of years out of 20 (1980 -99) in which an option that was out-of - the-money became in - the-money before expiration. For example, 5% of the time (1 out of 20 years) a 30-cent out-of-the-money option with 4 weeks until expiration eventually became an in - the-money option before expiration

## Fundamental Analysis

**Use of commodity supply and demand data to predict prices or price direction**

## U.S. Wheat Supply and Demand

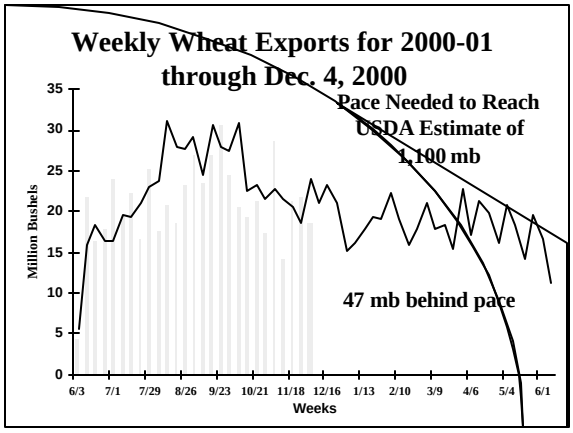
| | 1999-00 |
|---|---|
| Beg. Stocks (mb) | 946 |
| Planted Acres (mil) | 62.7 |
| Harv. Acres (mil) | 53.8 |
| Yield (bu/acre) | 42.7 |
| **Total Supply (mb)** | **3,339** |
| Food (mb) | 1,017 |
| Feed (mb) | 284 |
| Exports (mb) | 1,090 |
| **Total Use (mb)** | **2,390** |
| Ending Stocks (mb) | 950 |
| **Stocks-to-Use Ratio** | **39.7%** |

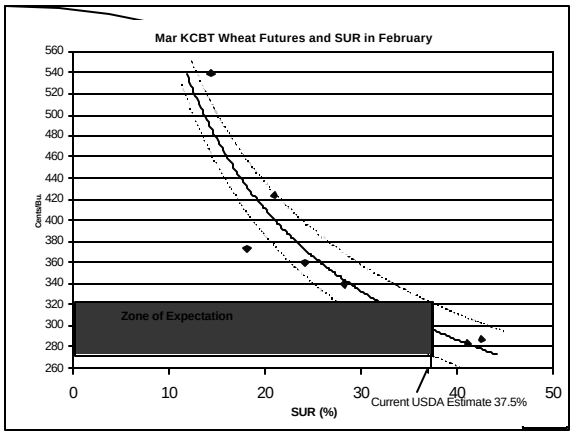
## U.S. Wheat Supply and Demand

| | 1999-00 | 2000-01(Oct) |
|---|---|---|
| Beg. Stocks (mb) | 946 | 950 |
| Planted Acres (mil) | 62.7 | 62.5 |
| Harv. Acres (mil) | 53.8 | 53.2 |
| Yield (bu/acre) | 42.7 | 42.1 |
| **Total Supply (mb)** | **3,339** | **3,289** |
| Food (mb) | 1,017 | 1,026 |
| Feed (mb) | 284 | 250 |
| Exports (mb) | 1,090 | 1,125 |
| **Total Use (mb)** | **2,390** | **2,401** |
| Ending Stocks (mb) | 950 | 888 |
| **Stocks-to-Use Ratio** | **39.7%** | **37.0%** |

## U.S. Wheat Supply and Demand

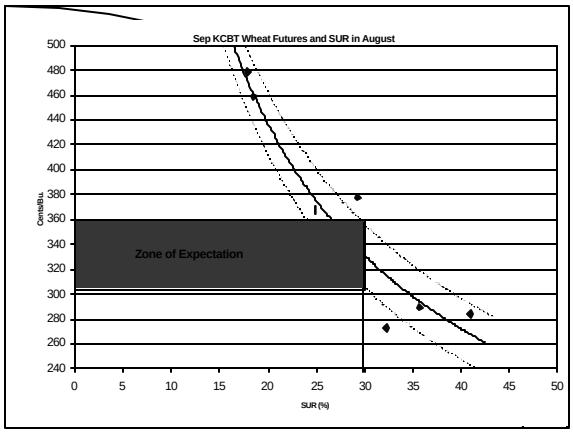
| | 1999-00 | 2000-01(Oct) | 2000-01(Nov) |
|---|---|---|---|
| Beg. Stocks (mb) | 946 | 950 | 888 |
| Planted Acres (mil) | 62.7 | 62.5 | 62.5 |
| Harv. Acres (mil) | 53.8 | 53.2 | 53.0 |
| Yield (bu/acre) | 42.7 | 42.1 | 41.9 |
| **Total Supply (mb)** | **3,339** | **3,289** | **3,268** |
| Food (mb) | 1,017 | 1,026 | 1,026 |
| Feed (mb) | 284 | 250 | 250 |
| Exports (mb) | 1,090 | 1,125 | 1,100 |
| **Total Use (mb)** | **2,390** | **2,401** | **2,376** |
| Ending Stocks (mb) | 950 | 888 | 892 |
| **Stocks-to-Use Ratio** | **39.7%** | **37.0%** | **37.5%** |



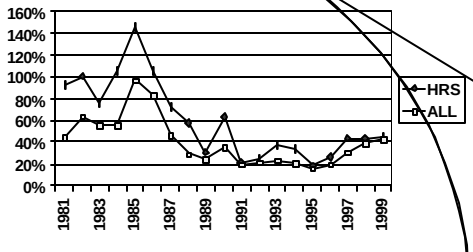




## U.S. Wheat Supply and Demand

| | 2000-01(Nov) | 2001-02(My Guess) |
|---|---|---|
| Beg. Stocks (mb) | 888 | 908 |
| Planted Acres (mil) | 62.5 | 61.0 |
| Harv. Acres (mil) | 53.0 | 52.0 |
| Yield (bu/acre) | 41.9 | 43.0 |
| **Total Supply (mb)** | **3,268** | **3,231** |
| Food (mb) | 1,026 | 1,040 |
| Feed (mb) | 250 | 250 |
| Exports (mb) | 1,100 | 1,200 |
| **Total Use (mb)** | **2,376** | **2,490** |
| Ending Stocks (mb) | 892 | 741 |
| **Stocks-to-Use Ratio** | **37.5%** | **29.8%** |

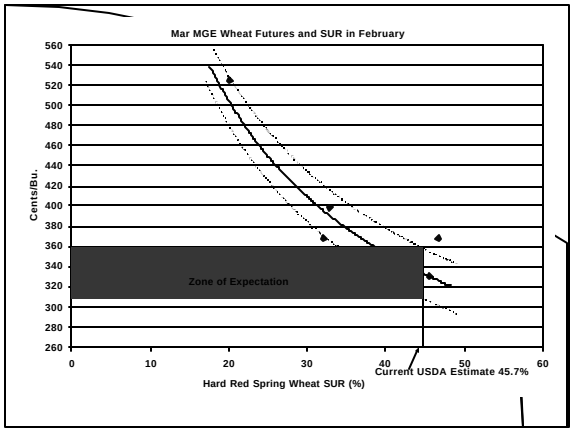


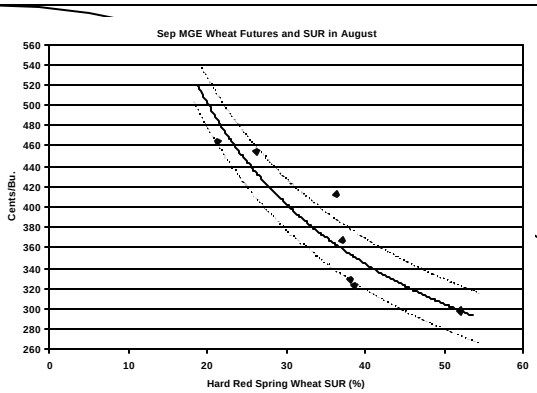

## SUR for All Wheat and Hard Red Spring Wheat: 1981-99



## U.S. Wheat Supply and Demand: All Wheat and HRS

| | 2000-01(All) | 2000-01(HRS) |
|---|---|---|
| Beg. Stocks (mb) | 950 | 218 |
| Production (mb) | 2,239 | 498 |
| **Total Supply (mb)** | **3,268** | **775** |
| Domestic Use (mb) | 1,276 | 297 |
| Exports (mb) | 1,100 | 235 |
| **Total Use (mb)** | **2,376** | **532** |
| Ending Stocks (mb) | 892 | 243 |
| **Stocks-to-Use Ratio** | **37.5%** | **45.7%** |



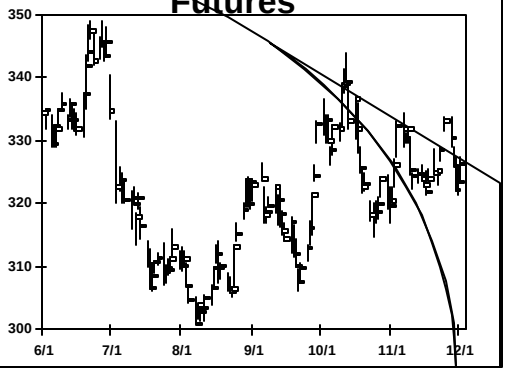




## Technical Analysis

***Use of price patterns to predict prices or price direction.***

- Trendlines
- Gaps
- Indicators

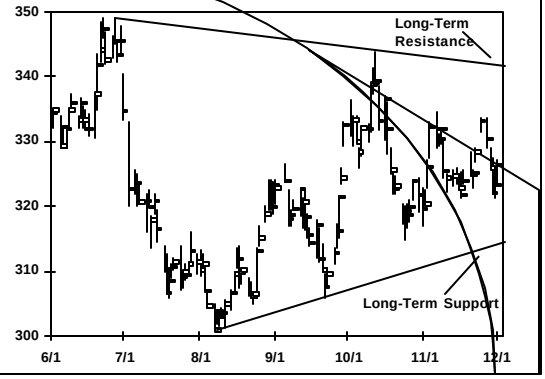
## Mar 2001 KCBT Wheat Futures



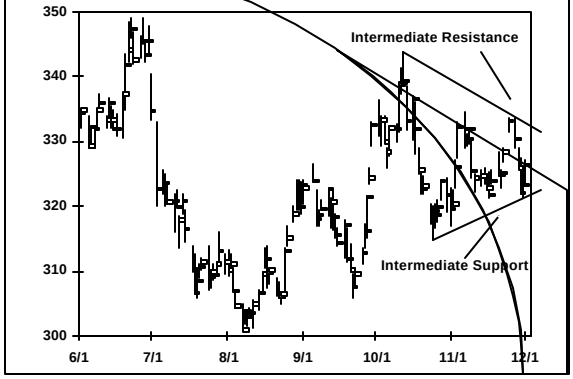

## Trendlines

- Uptrend Line – An increasing trendline that intersects significant market lows.
- Downtrend Line – A decreasing trendline that intersects significant market highs
- Use Lows or Highs that are outside the normal range of trading.
- These Lows and Highs represent the market's failed attempt to reach new price territory.
- Can have multiple trendlines signifying short and long-term trends.
- Uptrend lines act as price **support** and downtrend lines act as market **resistance**.
- When trendlines are broken, this signals a change in trend.

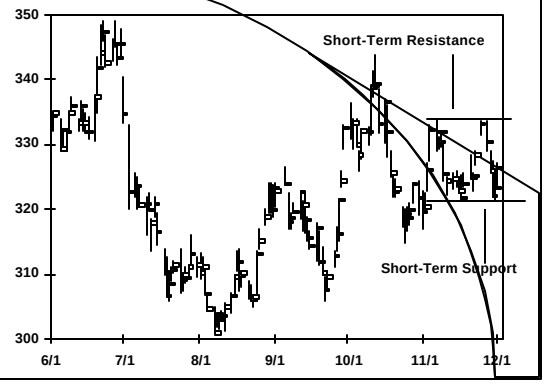
## Mar 2001 KCBT Wheat Futures




## Mar 2001 KCBT Wheat Futures

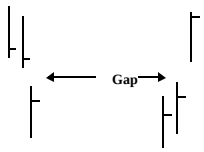



## Mar 2001 KCBT Wheat Futures




## Gaps

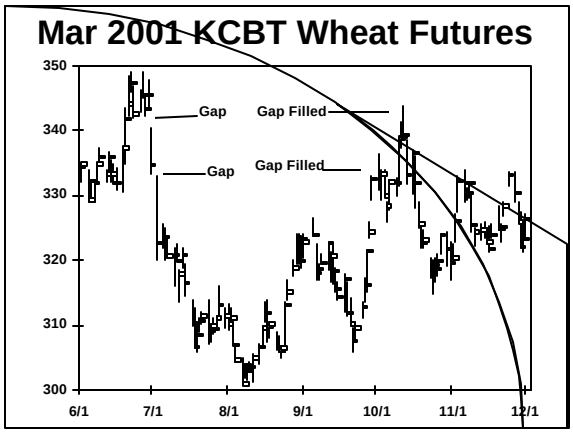
- When a day's trading range does not include the previous day's trading range.




## Gaps

- Gaps signify an abrupt change in opinion between two days of trading.
- May be driven by speculative enthusiasm
- Liquidation of positions
- Gap theory states that Gaps will eventually be filled.
- Market will return to the price where the gap was created.

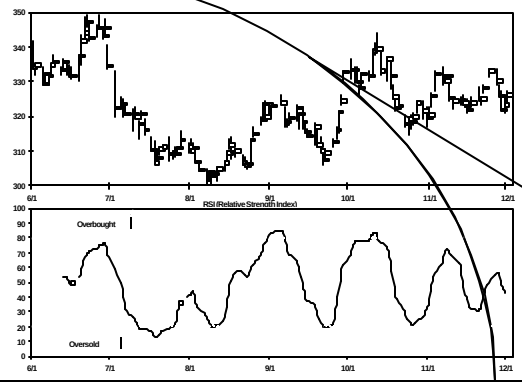
## Mar 2001 KCBT Wheat Futures



## Technical Indicators

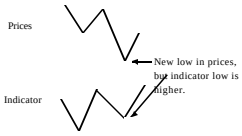
- Indices or indicators that are used to identify price trends.
- Examples: Moving Averages, RSI (Relative Strength Index), Stochastics
- RSI – Index value from 0 to 100. Measures price strength (100 Up Market; 0 Down Market)
- RSI – Identify markets that are overbought (RSI>80) or oversold (RSI<20).

## Mar 2001 KCBT Wheat Futures




## Technical Indicator – Divergence from Price Behavior

### Bullish Divergence




Prices make new lows, but indicator trending higher.

Market losing momentum to the downside

Sign that prices will move higher

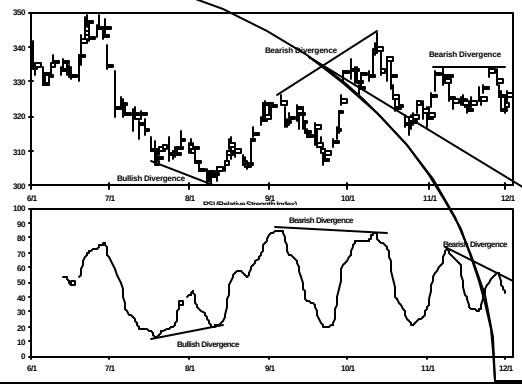
### Bearish Divergence


Prices make new high, but indicator trending lower.

Market losing momentum to the upside

Sign that prices will move lower

## Mar 2001 KCBT Wheat Futures




## Technical vs. Fundamental Analysis?

- What can you use with confidence?
- Use multiple sources of analysis which are **independent**.
- Analysis, by nature, is not a perfect science.
- Know the limits of your analysis and make back-up decisions in case you are wrong.