The Scoop on U.S. Wheat

2017 Spring Technical Conference

And

IAOM Joint District Meeting

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Overview

• A quick look at current milling crop
• 2017 HRW Crop preview
  – Planted Acreage
  – Current growing conditions
• Global wheat situation
• Kansas Wheat Innovation Center tours this afternoon
US Farmers investing in their industry

- Farmers through Wheat Commission checkoffs invest in:
  - Wheat variety development
  - Quality research
  - Market promotion through US Wheat and WFC
Main Themes with 2016 HRW

• Big Crop
  – Record yields across hard red winter regions
• Lower protein
  – Quality good; kernel characteristics noted
• Lowest prices in a decades
• Planted acres expected to be down affecting next year’s harvest
2016 Kansas Wheat Yield Contest

**WINNERS**

**Eastern**
Spencer West, LeRoy, Kansas
Variety: Redhawk
87.46 bu/ac
NEW REGION RECORD

**Central**
Doug Keas, Plainville, Kansas
Variety: SY Wolf
109.38 bu/ac
NEW REGION RECORD

**Western**
Alec Horton, Leoti, Kansas
Variety: Joe
121.48 bu/ac
NEW CONTEST RECORD
Yields resulted from

• Weather: plentiful rain fall and temperatures
  – Ideal filling period for wheat crop
  – Not limited by heat, drought or disease stress
• Good management
  – Farmers invested in this crop
• Improved genetics
  – Seeing the results of competitive variety development: Private companies and public Universities
US Wheat Production Regions
### PLANTING AND HARVEST DATES

<table>
<thead>
<tr>
<th>WHEAT</th>
<th>JAN</th>
<th>FEB</th>
<th>MAR</th>
<th>APR</th>
<th>MAY</th>
<th>JUN</th>
<th>JUL</th>
<th>AUG</th>
<th>SEP</th>
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</table>
Kernel Characteristics
2016 Hard Red Winter Wheat Test Weight (lb/bu)
2016
PNW HRW - Test Weight Distribution

- 2016 Average 60.8 (lb/bu)
- 2015 Average 60.1 (lb/bu)

Percent of Samples

Test Weight (lb/bu)

- 64+: 7 (2016), 0 (2015)

2016 Average: 60.8 (lb/bu)
2015 Average: 60.1 (lb/bu)
2016 Hard Red Winter Wheat
2016

PNW HRW - TKW Distribution

- 2016 Average 31.6 (g)
- 2015 Average 30.6 (g)

Percent of Samples

- Thousand Kernel Weight (g)
  - <27
  - 27-29.9
  - 30-32.9
  - 33-35.9
  - 36-38.9
  - 39+

2016 Average: 31.6 (g)
2015 Average: 30.6 (g)
2016 Hard Red Winter Wheat Protein (12% mb), %
## 2016 PNW HRW – Bake Data

<table>
<thead>
<tr>
<th></th>
<th>Low Pro</th>
<th>Med Pro</th>
<th>High Pro</th>
<th>2016 AVG</th>
<th>2015 AVG</th>
<th>5-Year AVG</th>
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<td><strong>Pan Bread: Bake Absorption (%)</strong></td>
<td>61.4</td>
<td>64.5</td>
<td>66.1</td>
<td>63.9</td>
<td>62.0</td>
<td>62.0</td>
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<tr>
<td><strong>Crumb Grain and Texture (1-10)</strong></td>
<td>5.2</td>
<td>6.0</td>
<td>6.1</td>
<td>5.7</td>
<td>6.4</td>
<td>6.3</td>
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<td><strong>Loaf Volume (cc)</strong></td>
<td>764</td>
<td>843</td>
<td>894</td>
<td>829</td>
<td>850</td>
<td>818</td>
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</table>
Now, a quick look ahead
## U.S. Hard Red Winter

<table>
<thead>
<tr>
<th>Year</th>
<th>Beginning stocks</th>
<th>Production</th>
<th>Imports</th>
<th>Exports</th>
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<tbody>
<tr>
<td>11/12</td>
<td>10.6</td>
<td>22.6</td>
<td>6.2</td>
<td>6.2</td>
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<tr>
<td>12/13</td>
<td>10.6</td>
<td>22.6</td>
<td>6.2</td>
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<tr>
<td>13/14</td>
<td>10.6</td>
<td>22.6</td>
<td>6.2</td>
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<tr>
<td>14/15</td>
<td>10.6</td>
<td>22.6</td>
<td>6.2</td>
<td>6.2</td>
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<td>15/16</td>
<td>10.6</td>
<td>22.6</td>
<td>6.2</td>
<td>6.2</td>
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<tr>
<td>16/17</td>
<td>10.6</td>
<td>22.6</td>
<td>6.2</td>
<td>6.2</td>
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</table>
Where Wheat Prices were At the time of Planting Decisions

• According to DTN Friday, November 12th
  – Average cash prices to farmers:
    • Spring wheat = $4.69 ($172.31 per mt)
    • Soft Red Winter = $3.61 ($132.63 per mt)
    • Hard Red Winter = $3.04 ($111.69 per mt)
Sideways after harvest lows
Factors driving HRW

- Record yields
- Lower protein
- Storage
- Carry market
- Creating Buying and Blending opportunities
### U.S. Wheat Supply and Demand

<table>
<thead>
<tr>
<th></th>
<th>HRW 15/16</th>
<th>HRW 16/17</th>
<th>HRS 15/16</th>
<th>HRS 16/17</th>
<th>SRW 15/16</th>
<th>SRW 16/17</th>
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<td><strong>Beginning Stocks</strong></td>
<td>8.0</td>
<td>12.1</td>
<td>5.8</td>
<td>7.4</td>
<td>4.2</td>
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<td><strong>Production</strong></td>
<td>22.6</td>
<td>29.5</td>
<td>15.5</td>
<td>13.4</td>
<td>9.8</td>
<td>9.4</td>
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<td><strong>Imports</strong></td>
<td>0.2</td>
<td>0.2</td>
<td>1.3</td>
<td>1.1</td>
<td>0.5</td>
<td>0.9</td>
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<td><strong>Supply Total</strong></td>
<td>30.8</td>
<td>41.8</td>
<td>22.5</td>
<td>22.0</td>
<td>14.5</td>
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<td><strong>Domestic Use</strong></td>
<td>12.5</td>
<td>15.1</td>
<td>8.3</td>
<td>8.2</td>
<td>6.9</td>
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<td><strong>Exports</strong></td>
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<td>10.6</td>
<td>6.9</td>
<td>8.0</td>
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<tr>
<td><strong>Use Total</strong></td>
<td>18.6</td>
<td>25.7</td>
<td>15.1</td>
<td>16.2</td>
<td>10.2</td>
<td>9.2</td>
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<td><strong>Ending Stocks</strong></td>
<td>12.1</td>
<td>16.0</td>
<td>7.4</td>
<td>5.7</td>
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<td>5.3</td>
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<tr>
<td><strong>Stocks-to-Use</strong></td>
<td>65%</td>
<td>62%</td>
<td>49%</td>
<td>35%</td>
<td>42%</td>
<td>58%</td>
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</table>
Wheat Prices at planting time

• According to DTN Friday, November 12th
  – Average cash prices to farmers:
    • Spring wheat = $4.69 ($172.31 per mt)
    • Soft Red Winter = $3.61 ($132.63 per mt)
    • Hard Red Winter = $3.04 ($111.69 per mt)
    • Soybeans = $9.42

• Futures Prices Dec 16 contracts:
  – MGEX $5.19 (Basis back to farmers -$0.50)
  – CBOT $4.02 (Basis back to farmers -$0.41)
  – KCBT $4.09 (Basis back to farmers -$1.05)
Basis being paid back to the farmer

<table>
<thead>
<tr>
<th>Date</th>
<th>Basis</th>
<th>Dodge</th>
<th>Colby</th>
<th>Goodland</th>
<th>Protection</th>
<th>Scott City</th>
<th>Sublette</th>
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<td>-105</td>
<td>-112</td>
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<td>-115</td>
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<td>03/03</td>
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<td>02/24</td>
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Economic tough times for farmers

Net Farm Income

Source: Allen Featherstone, Kansas State University
Kansas Wheat planted acres 1996-2016

2016 est. Lowest in 100 years; less than 7.4 mi acres
2017 Winter Wheat Planted Area
(000) Acres and Change From Previous Year

[Map showing the planted acres across the United States with numbers indicating the change.]
Not only are acres down…

• Current dry conditions
  – Kansas at only 40% good to excellent vs. 43% last week
• Emergence issues, may result in abandonment
• Low prices may influence management decisions
Acres that are planted, dryness creeping in is concerning...
Situation has not improved...

U.S. Drought Monitor

March 14, 2017
(Released Thursday, Mar. 16, 2017)
Valid 8 a.m. EDT

Author: Brian Fuchs
National Drought Mitigation Center

Drought Impact Types:
- Delineates dominant impacts
- S = Short-Term, typically less than 6 months (e.g. agriculture, grasslands)
- L = Long-Term, typically greater than 6 months (e.g. hydrology, ecology)

Intensity:
- D0 Abnormally Dry
- D1 Moderate Drought
- D2 Severe Drought
- D3 Extreme Drought
- D4 Exceptional Drought

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.
KC July Futures

Trendline support needs to hold NOW, or this will become a very bearish looking chart.
Major data source: USDA World Agricultural Supply and Demand Estimates released March 9, 2017. Projections will change over the course of the year depending on weather and other developments.
Highlights of USDA’s 2016/17 Supply and Demand Estimates

1. 2016/17 global wheat production to reach new record of 751 MMT
   - Global supplies estimate to reach new record of 991 MMT; up 4% from the 2015/16 record
   - Wheat production for Australia estimated at a record high 35.0 MMT, up 45% year over year
   - Argentina wheat production estimated at 16.0 MMT, 42% above 2015/16

2. Consumption forecast at 741 MMT, the fourth consecutive record high, up 4% from 2015/16
   - Chinese feed wheat consumption to climb 52% year over year to 16.0 MMT
   - Feed wheat usage expected to reach 2.80 MMT in Vietnam, compared to the 5-year average of 640,000 MT
   - U.S. feed wheat usage to rise 48% year over year to 6.12 MMT

3. World wheat trade projected at 181 MMT, 13% above 5-year average
   - Canadian exports to fall to 20.5 MMT, 7% below 2015/16
   - Indian imports to reach 5.50 MMT, the largest since 2006/07
   - US exports to reach 27.9 MMT, up 32% from 2015/16 and 5% above the 5-year average
Highlights of USDA’s 2016/17 Supply and Demand Estimates (Continued)

4. World beginning stocks estimated at record 240 MMT, up 10% year over year
   – Beginning stocks in Australia rose to 5.64 MMT, up 21% year over year
   – U.S. beginning stocks rose to an estimated 26.5 MMT, 30% above 2015/16 levels

5. Global ending stocks projected at record 250 MMT, 4% higher than 2015/16, if realized
   – Estimated Chinese ending stocks of 111 MMT account for 44% of global ending stocks, 59% greater than the 5-year average
   – Endings stocks in Australia projected at 7.33 MMT, up 30% year over year, if realized
   – U.S. ending stocks to grow 16% year over year to 30.7 MMT

6. U.S. farm gate average price forecast 21% lower in 2016/17
   – Projected average range: $3.80 to $3.90/bushel ($140-$143/MT)*

*Average U.S. farm gate price, marketing year weighted average
World Production and Use

Using over 3 billion more bushels than a decade ago…
Historical Five Major Exporters include U.S., Canada, Australia, Argentina and EU-27. Black Sea includes Russia, Ukraine and Kazakhstan.
Global Stocks*-to-Use Ratio

*Ending stocks
Global Stocks*-to-Use Ratio w/o China

**Ending stocks**

- 02/03: 20
- 04/05: 22
- 06/07: 18
- 08/09: 27
- 10/11: 25
- 12/13: 22
- 14/15: 24
- 16/17: 22

*Note: The data includes ending stocks without China.
Historical Five Major Exporters include U.S., Canada, Australia, Argentina and EU-27. Black Sea includes Russia, Ukraine and Kazakhstan.
World and U.S. Wheat Supply and Demand

• Major Exporters
• Import Demand
• U.S. Situation by Class
• Outlook
Russia, Ukraine and Kazakhstan are the most important wheat producers in the Black Sea Region.
World and U.S. Wheat Supply and Demand

- Major Exporters
- Import Demand
- U.S. Situation by Class
- Outlook
Major World Wheat Importers
(from all origins)
Top 10 Customers for U.S. Wheat
2016/17 vs. 2015/16

Source: USDA FAS export sales report March 9, 2017.
World Wheat Imports

Trend in “other” importers denoted (  )
World and U.S. Wheat Supply and Demand

• Major Exporters
• Import Demand
• **U.S. Situation by Class**
• Outlook
U.S. Wheat Plantings by Class

2017 USDA Grain and Oilseeds Outlook, February 23-24, 2017
U.S. Crop Planted Area Comparison

*Source: USDA Acreage Report, June 30, 2016*
Summary

• Global production at 751 MMT, fourth consecutive record high, if realized
  – Argentina wheat production increased to 16.0 MMT, 32% above the 5-year average
  – Wheat production in Australia expected to exceed 5-year average by 39% at 35.0 MMT

• Global ending stocks to rise to a record 250 MMT up 4% from 2015/16
  – Ending stocks in the EU to fall to 9.94 MMT, down 29% from 2015/16 if realized
  – US ending stocks to be largest since 1987/88 at 30.7 MMT

• World consumption and trade expected to grow in 2016/17
  – Argentine exports estimated at 10.1 MMT, up 5% year over year
  – US exports to reach 27.9 MMT up 32% from 2015/16, 5% above the 5-year average
So what does it mean to you?

- A lot of old crop still around, expect slow new crop transitions
  - Kansas production last year was 467 million, may be closer to 250 million this year…
- Wheat Buyers will cram elevators full
- Protein premiums may back off so wheat buyers may load up on lower pro, cheap stuff…
- Enjoy this year’s extractions while you can
Wheat is not just wheat...

**Hard White**
The newest class of U.S. wheat, HW receives enthusiastic reviews when used for Asian noodles, whole wheat or high extraction applications, pan breads and flat breads.

**Durum**
Hardest of all wheats, durum has a rich amber color and high gluten content. It sets the “gold standard” for premium pasta products, couscous and some Mediterranean breads.

**Soft White**
A low moisture wheat with high extraction rates, providing a whiter product for exquisite cakes, pastries, and Asian-style noodles, SW is also ideally suited to Middle Eastern flat breads.

**Hard Red Winter**
Versatile, with excellent milling and baking characteristics for pan bread, HRW is also a choice wheat for Asian noodles, hard rolls, flat breads, general purpose flour and as an improver for blending.

**Hard Red Spring**
The aristocrat of wheat when it comes to “designer” wheat foods like hearth breads, rolls, croissants, bagels and pizza crust, HRS is also a valued improver in flour blends.

**Soft Red Winter**
Versatile weak gluten wheat with excellent milling and baking characteristics for cookies and crackers, also used for blending.
Kansas Hard White Wheat

- Promoting it as High Plains Platinum
- Improved varieties
- Kansas Grew about 15 million bushels this year
Wheat flows from farm to ports

Pacific: 42%

Lakes/St. Lawrence: 10%

Atlantic: 0.7%

Rail to Mexico: 3.3%

Gulf: 44%
Hard White Wheat

- Better quality
  - Test weights, absorptions
- Darn near Identity preserved
- Can be used interchangeably with hard red
- Find ways to innovate to add value. That is the “new” Science of Milling is Innovation!
Enjoy your March Madness… #wheatnribs
Go Cats!