Next boost to productivity: Big Data?

Index: 1948 = 1.0

Source: USDA-ERS.
Record farm equity (net worth) in 2015

Data: USDA-ERS.
Real commodity prices have been trending down for the past 60+ years.

Source: USDA Agricultural Projections to 2024 and OCE, February 2015
Percent of income spent on food

Disposable personal income per capita ($2014)

Food Share (right axis)

per capita DPI (left axis)

Source: Schnepf (2013), BEA, USDA-ERS.
Recent declines in energy prices help bottom line

**Fig 5**

Dollars per barrel ($2015)

Dollars per Mcf ($2015)

Imported crude oil price (left axis)

Natural gas wellhead price (right axis)

Source: EIA.
Ethanol margin tightens but production high

**Ethanol Margin**

$ per gallon

**Ethanol Production**

annualized rate in billion gallons

Source: ¹ OCE calculations, AMS data for IA, NE, IL/eastern corn belt, ² Energy Information Agency.
Rail transport costs return to normal levels in 2015

Average secondary railcar shuttle market bids per car

Source: USDA Grain Transportation Report
The dollar strengthens, but trade still trends up

Source: InterContinental Exchange, USDA-ERS.
Drought outlook improves, but intensifies in Southwest

Area of California in Extreme to Exceptional drought (D3-D4) rose since last year (approximately 67% vs. 61% on Feb 11, 2014);

California statewide average snow water equivalent as of February 10, 2015 is 6” (27% of normal for this time of year and 19% of the April 1 end-of-season total. SOURCE: California Cooperative Snow Surveys).
Farm Bill implementation progressing

Signups for
Oct 2011-Dec 2014
livestock disaster
assistance

Base acre
reallocation; Program yield
updates

PLC, ARC-CO,
or ARC-Farm
election

2014 and 2015
program year
enrollment

First possible
2014 ARC/PLC
payments

First payments
for 2011-2014
livestock disaster
assistance

MPP-dairy
registration for
Sept-Dec 2014
and calendar 2015

Purchase of 2015
crop insurance,
SCO, and STAX
policies

First possible
MPP payments

First payments of 2015
crop insurance, SCO,
and STAX indemnities

Spring 2016

First possible
2014 ARC/PLC
payments
Second highest year for exports expected; China remains top destination

FY 2015 Ag Exports $141.5 billion
Imports $119.0 billion
Balance $22.5 billion

Source: USDA (ERS-FAS) Outlook for U.S. Agricultural Trade
Monthly Chinese soybean imports

Source: Global Trade Information Services (GTIS)
Monthly Chinese corn/barley/sorghum imports

Source: Global Trade Information Services (GTIS)
Projections down slightly for China imports, but still increasing

Imports of grains, oilseeds, cotton combined

Last year's projection

This year's baseline projection

Source: USDA Agricultural Projections to 2024
Global trade growth is expected to continue

million metric tons

Soybeans and products

Wheat

Coarse Grains

Source: USDA Agricultural Projections to 2024
**TPP*** and TTIP***: Room to grow

*TPP partners include Australia, Brunei, Canada, Chile, Japan, Malaysia, Mexico, New Zealand, Peru, Singapore, and Vietnam.

**U.S. Ag Trade**
- Exports $150.5 billion
- Imports $111.9 billion
- Total $262.4 billion

**TPP Ag Trade**
- U.S exports $62.6 billion
- U.S imports $57.2 billion
- Total $498.5 billion

**TTIP Ag Trade**
- U.S. exports $12.6 billion
- U.S. imports $19.1 billion
- Total $222 billion

*TTIP partner is EU-28.

Sources: Economic Research Service, Foreign Agriculture Service, USDA; World Trade Organization; European Commission.
Outlook for Crops
**Global grain ending stocks build strength**

<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>Wheat</td>
<td></td>
<td>112</td>
<td>97</td>
<td>113</td>
<td>111</td>
<td>104</td>
<td>93</td>
<td>98</td>
</tr>
<tr>
<td>Corn</td>
<td></td>
<td>82</td>
<td>69</td>
<td>65</td>
<td>56</td>
<td>57</td>
<td>58</td>
<td>67</td>
</tr>
<tr>
<td>Rice</td>
<td></td>
<td>115</td>
<td>77</td>
<td>79</td>
<td>82</td>
<td>86</td>
<td>86</td>
<td>82</td>
</tr>
<tr>
<td>Soybeans</td>
<td></td>
<td>74</td>
<td>71</td>
<td>93</td>
<td>103</td>
<td>77</td>
<td>80</td>
<td>89</td>
</tr>
<tr>
<td>Cotton</td>
<td></td>
<td>190</td>
<td>206</td>
<td>145</td>
<td>160</td>
<td>259</td>
<td>305</td>
<td>340</td>
</tr>
</tbody>
</table>

*Source: USDA, PSD database*

Numbers in **red** denote record levels.
Corn, wheat, and soybean prices still historically strong, given record output

<table>
<thead>
<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>Wheat</td>
<td>3.09</td>
<td>6.78</td>
<td>4.87</td>
<td>5.70</td>
<td>7.24</td>
<td><strong>7.77</strong></td>
<td>6.87</td>
<td>6.00</td>
<td>5.10</td>
</tr>
<tr>
<td>Corn</td>
<td>2.14</td>
<td>4.06</td>
<td>3.55</td>
<td>5.18</td>
<td>6.22</td>
<td><strong>6.89</strong></td>
<td>4.46</td>
<td>3.65</td>
<td>3.50</td>
</tr>
<tr>
<td>Soybeans</td>
<td>5.45</td>
<td>9.97</td>
<td>9.59</td>
<td>11.30</td>
<td>12.50</td>
<td><strong>14.40</strong></td>
<td>13.00</td>
<td>10.20</td>
<td>9.00</td>
</tr>
<tr>
<td>Upland Cotton</td>
<td>46.48</td>
<td>47.80</td>
<td>62.90</td>
<td>81.50</td>
<td><strong>88.30</strong></td>
<td>72.50</td>
<td>77.90</td>
<td>61.00</td>
<td>60.00</td>
</tr>
<tr>
<td>All Rice</td>
<td>5.61</td>
<td><strong>16.80</strong></td>
<td>14.40</td>
<td>12.70</td>
<td>14.50</td>
<td>15.10</td>
<td>16.30</td>
<td>14.00</td>
<td>13.10</td>
</tr>
</tbody>
</table>

Wheat, corn and soybeans in dollars per bushel; rice in dollars per hundredweight; upland cotton in cents per pound. Numbers in red denote record levels.

Source: USDA-NASS, Feb 2015 WASDE, and USDA-World Ag Outlook Board
Cropland area expected to remain high in 2015, but down from last year

<table>
<thead>
<tr>
<th>Crop (mil. acres)</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015F</th>
<th>Percent change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corn</td>
<td>86.4</td>
<td>88.2</td>
<td>91.9</td>
<td>97.2</td>
<td>95.4</td>
<td>90.6</td>
<td>89.0</td>
<td>-1.8%</td>
</tr>
<tr>
<td>Soybeans</td>
<td>77.5</td>
<td>77.4</td>
<td>75.0</td>
<td>77.2</td>
<td>76.8</td>
<td>83.7</td>
<td>83.5</td>
<td>-0.2%</td>
</tr>
<tr>
<td>Wheat</td>
<td>59.0</td>
<td>52.6</td>
<td>54.3</td>
<td>55.3</td>
<td>56.2</td>
<td>56.8</td>
<td>55.5</td>
<td>-2.3%</td>
</tr>
<tr>
<td>All cotton¹</td>
<td>9.1</td>
<td>11.0</td>
<td>14.7</td>
<td>12.3</td>
<td>10.4</td>
<td>11.0</td>
<td>9.7</td>
<td>-12.1%</td>
</tr>
<tr>
<td>Minor feed grains</td>
<td>13.5</td>
<td>11.4</td>
<td>10.4</td>
<td>12.6</td>
<td>14.6</td>
<td>12.8</td>
<td>14.0</td>
<td>9.1%</td>
</tr>
<tr>
<td>Rice</td>
<td>3.1</td>
<td>3.6</td>
<td>2.7</td>
<td>2.7</td>
<td>2.5</td>
<td>2.9</td>
<td>2.9</td>
<td>-1.3%</td>
</tr>
<tr>
<td>Total 8 crops¹</td>
<td>248.7</td>
<td>244.2</td>
<td>249.0</td>
<td>257.4</td>
<td>255.9</td>
<td>257.9</td>
<td>254.6</td>
<td>-1.3%</td>
</tr>
<tr>
<td>CRP</td>
<td>33.7</td>
<td>31.3</td>
<td>31.1</td>
<td>29.5</td>
<td>26.8</td>
<td>25.5</td>
<td>24.2</td>
<td>-5.1%</td>
</tr>
<tr>
<td>8 crops + CRP¹</td>
<td>282.4</td>
<td>275.5</td>
<td>280.2</td>
<td>286.9</td>
<td>282.8</td>
<td>283.5</td>
<td>278.8</td>
<td>-1.6%</td>
</tr>
</tbody>
</table>

Source: USDA-World Ag Outlook Board ¹all cotton, includes both upland and ELS cotton
Specialty crop revenues expected to drop in 2015

Source: USDA-ERS
# Pork, dairy and poultry production higher in 2015

<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>Beef</td>
<td>26.30</td>
<td>26.20</td>
<td>25.91</td>
<td>25.72</td>
<td>24.25</td>
<td>24.22</td>
<td>-0.1%</td>
</tr>
<tr>
<td>Pork</td>
<td>22.44</td>
<td>22.76</td>
<td>23.25</td>
<td>23.19</td>
<td>22.84</td>
<td>24.09</td>
<td>5.5%</td>
</tr>
<tr>
<td>Broilers</td>
<td>36.91</td>
<td>37.20</td>
<td>37.04</td>
<td>37.83</td>
<td>38.55</td>
<td>39.95</td>
<td>3.6%</td>
</tr>
<tr>
<td>Total Meat</td>
<td>92.10</td>
<td>92.75</td>
<td>92.96</td>
<td>93.33</td>
<td>92.17</td>
<td>95.13</td>
<td>3.2%</td>
</tr>
</tbody>
</table>

**Million Pounds**

<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>Milk</td>
<td>192.9</td>
<td>196.3</td>
<td>200.6</td>
<td>201.2</td>
<td>206.0</td>
<td>211.5</td>
<td>2.7%</td>
</tr>
</tbody>
</table>

Prices in red denote record levels.

Source: Office of the Chief Economist, February 2015
Feed price ratios improved since 2013

Extended period of low price ratios

Source: USDA-NASS
Cattle inventory up – January 2015

US:
Jan 2014: 88,526
Jan 2015: 89,800
Change: 1,274
% Change: 1.4%

Source: USDA-NASS Cattle report
Year-over-year declines in PEDv

New PEDv Case Reports by Week

Meat exports expected to remain high

Source: USDA PSD database
Dairy exports remain high, but down from 2014

Source: USDA PSD database
Hog, dairy, and broiler prices expected to come down from 2014; cattle prices rise

<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>Steers</td>
<td>95.38</td>
<td>114.73</td>
<td>122.86</td>
<td>125.89</td>
<td>154.56</td>
<td><strong>162.00</strong></td>
<td>4.8%</td>
</tr>
<tr>
<td>Hogs</td>
<td>55.06</td>
<td>66.11</td>
<td>60.88</td>
<td>64.05</td>
<td><strong>76.03</strong></td>
<td>56.00</td>
<td>-26.3%</td>
</tr>
<tr>
<td>Broilers</td>
<td>83.10</td>
<td>79.90</td>
<td>86.60</td>
<td>99.70</td>
<td><strong>104.90</strong></td>
<td>100.30</td>
<td>-4.4%</td>
</tr>
<tr>
<td>Milk</td>
<td>16.26</td>
<td>20.14</td>
<td>18.52</td>
<td>20.05</td>
<td><strong>23.98</strong></td>
<td>17.75</td>
<td>-26.0%</td>
</tr>
</tbody>
</table>

**Prices in red** denote record levels.

Source: Office of the Chief Economist, February 2014
Dairy margins nearing $8 per cwt

Source: NASS and AMS data for history, forecast from FSA Margin Protection Program Decision Tool, Feb 13, 2015
Farm income and land values
Net farm income is down, but debt-to-assets remain historically low

Data: USDA-ERS.
High farm incomes in 2012-14 were used to purchase land, inventory, and machinery.

Data: USDA-ERS
Farmland values coming down in some areas

Data: Federal Reserve Bank Chicago.
Outlook for Food Prices
Food CPI remains low

ERS forecast: 2.0-3.0% for 2015

Source: BLS.
Retail meat price inflation is above 10% y-o-y

Source: BLS.
AGRICULTURAL OUTLOOK FORUM

Smart Agriculture in the 21st Century

A Discussion on Innovation, Bio-technology, and Big Data

February 19-20, 2015 —
Crystal Gateway Marriott Hotel, Arlington, Virginia