OUTLOOK FOR 2017

Robert Johansson
Chief Economist
US Department of Agriculture
February 2017
Sentiment diverges compared to 2016

2017 ISSUES

1. **Current situation**
   - Flat farm income, but debt-to-asset remains low
   - Increasingly tight credit situation
   - Land price adjustments
   - Farm programs working with mixed results

2. **Outlook**
   - Prices flat
   - Production up
   - Trade up
   - Food prices down
Real farm income down almost 30% since 2013

4-yr % change in real farm income

Data: USDA-ERS.
Net farm income expected to remain flat

Data: USDA.
Debt-to-asset ratio remains low vs. 22% in 1985

Data: USDA-ERS.
About 1 in 5 wheat, cotton, hog, poultry businesses more vulnerable to low prices

Data: USDA-ERS.
More than one-third of young farmers are highly or very highly leveraged

Data: USDA-ERS.
Debt approaching early 80’s peak

Data: USDA-ERS.
...but interest payments remain low

Data: USDA-ERS.
Loan repayment problems have begun to rise

Data: Federal Reserve Board of Governors.
... but farm bankruptcy rates remain very low
Falling rents ahead of land values

Data: USDA-NASS.
Capitalized cash rent value < land value in 1980

Data: USDA-NASS, Federal Reserve Board of Governors.
Today, capitalized values > observed land values

Capitalized value (Iowa)

Land value (Iowa)

$0

$2,000

$4,000

$6,000

$8,000

$10,000

$12,000

$14,000


Data: USDA-NASS.

2017 Assume
Rent falls by 5%
Values fall by 5%
10-yr rate = 2.5%
Farm Bill programs are working with mixed results
Revenue insurance now > 70% of liabilities

Million Acres Insured

Source: USDA-ERS using RMA data.
2015 example: Central Illinois farmer with corn base enrolled in ARC

<table>
<thead>
<tr>
<th></th>
<th>Rev guarantee</th>
<th>Yield bu/acre</th>
<th>Price $/bu</th>
<th>Actual rev $/acre</th>
<th>Payment $/acre</th>
</tr>
</thead>
<tbody>
<tr>
<td>Piatt</td>
<td>$769</td>
<td>221</td>
<td>$3.61</td>
<td>$798</td>
<td>$0</td>
</tr>
<tr>
<td>McLean</td>
<td>$787</td>
<td>199</td>
<td>$3.61</td>
<td>$718</td>
<td>$69</td>
</tr>
</tbody>
</table>

Data: USDA-FSA.
Premiums for the dairy margin program > payments

Data: USDA.
Outlook for Crops
Global 2016/17 production and consumption at record highs

Global ending stocks remain above 2002/03, moderating price volatility

## Prices expected to edge up into 2017/18

<table>
<thead>
<tr>
<th>Crop</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
<th>2017F</th>
<th>%Δ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wheat ($/bu)</td>
<td>7.77</td>
<td>6.87</td>
<td>5.99</td>
<td>4.89</td>
<td>3.85</td>
<td>4.30</td>
<td>11.7</td>
</tr>
<tr>
<td>Corn ($/bu)</td>
<td>6.89</td>
<td>4.46</td>
<td>3.70</td>
<td>3.61</td>
<td>3.40</td>
<td>3.50</td>
<td>2.9</td>
</tr>
<tr>
<td>Soybeans ($/bu)</td>
<td>14.40</td>
<td>13.00</td>
<td>10.10</td>
<td>8.95</td>
<td>9.50</td>
<td>9.60</td>
<td>1.1</td>
</tr>
<tr>
<td>Cotton (cents/lb)</td>
<td>72.50</td>
<td>77.90</td>
<td>61.30</td>
<td>61.20</td>
<td>69.00</td>
<td>65.00</td>
<td>-5.8</td>
</tr>
<tr>
<td>All Rice ($/cwt)</td>
<td>15.10</td>
<td>16.30</td>
<td>13.40</td>
<td>12.20</td>
<td>10.50</td>
<td>10.70</td>
<td>1.9</td>
</tr>
</tbody>
</table>

Data: USDA-OCE.
Red denotes record high.
8-Crop Planting and Lagged Prices

Lagged Real Price Index, 2004 = 100

Million acres Planted

Data: USDA-OCE.
New Crop Soybean-to-Corn Ratio During February

Data: USDA-OCE.
## Cropland area down again from last year

<table>
<thead>
<tr>
<th>Crop (mil. acres)</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
<th>2017F</th>
<th>%Δ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corn</td>
<td>97.3</td>
<td>95.4</td>
<td>90.6</td>
<td>88.0</td>
<td>94.0</td>
<td>90.0</td>
<td>-4.3%</td>
</tr>
<tr>
<td>Soybeans</td>
<td>77.2</td>
<td>76.8</td>
<td>83.3</td>
<td>82.7</td>
<td>83.4</td>
<td>88.0</td>
<td>5.5%</td>
</tr>
<tr>
<td>Wheat</td>
<td>55.3</td>
<td>56.2</td>
<td>56.8</td>
<td>55.0</td>
<td>50.2</td>
<td>46.0</td>
<td>-8.3%</td>
</tr>
<tr>
<td>All cotton</td>
<td>12.3</td>
<td>10.4</td>
<td>11.0</td>
<td>8.6</td>
<td>10.1</td>
<td>11.5</td>
<td>14.2%</td>
</tr>
<tr>
<td>Other feedgrains</td>
<td>12.6</td>
<td>14.6</td>
<td>12.9</td>
<td>15.2</td>
<td>12.6</td>
<td>11.7</td>
<td>-7.1%</td>
</tr>
<tr>
<td>Rice</td>
<td>2.7</td>
<td>2.5</td>
<td>3.0</td>
<td>2.6</td>
<td>3.2</td>
<td>2.6</td>
<td>-17.4%</td>
</tr>
<tr>
<td><strong>Total 8 crops</strong></td>
<td>257.4</td>
<td>255.9</td>
<td>257.6</td>
<td>252.1</td>
<td>253.4</td>
<td>249.8</td>
<td>-1.4%</td>
</tr>
<tr>
<td>CRP</td>
<td>29.5</td>
<td>26.8</td>
<td>25.5</td>
<td>24.2</td>
<td>23.8</td>
<td>23.5</td>
<td>-1.3%</td>
</tr>
<tr>
<td><strong>8 crops + CRP</strong></td>
<td>286.9</td>
<td>282.7</td>
<td>283.1</td>
<td>276.3</td>
<td>277.2</td>
<td>273.3</td>
<td>-1.7%</td>
</tr>
</tbody>
</table>

Source: USDA-OCE. All cotton, includes both upland and ELS cotton.
Outlook for Livestock and Dairy
Beef, pork, poultry, and milk production higher in 2016 and 2017

<table>
<thead>
<tr>
<th>Item</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
<th>2017F</th>
<th>%Δ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beef</td>
<td>25.9</td>
<td>25.7</td>
<td>24.3</td>
<td>23.7</td>
<td>25.2</td>
<td>26.0</td>
<td>3.1</td>
</tr>
<tr>
<td>Pork</td>
<td>23.3</td>
<td>23.2</td>
<td>22.8</td>
<td>24.5</td>
<td>24.9</td>
<td>26.2</td>
<td>4.9</td>
</tr>
<tr>
<td>Broilers</td>
<td>37.0</td>
<td>37.8</td>
<td>38.6</td>
<td>40.0</td>
<td>40.7</td>
<td>41.5</td>
<td>2.1</td>
</tr>
<tr>
<td>Total¹</td>
<td>93.0</td>
<td>93.3</td>
<td>92.2</td>
<td>94.6</td>
<td>97.6</td>
<td>100.6</td>
<td>3.1</td>
</tr>
</tbody>
</table>

| Milk     | 200.6 | 201.2 | 206.1 | 208.6 | 212.5 | 217.4 | 2.3 |

Data in red denote record levels.

¹ Total red meat and poultry

Source: USDA-OCE.
Cattle and hog prices to come down in 2016 and 2017, but broilers and dairy turn up in 2017

<table>
<thead>
<tr>
<th>Item</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
<th>2017F</th>
<th>%Δ</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Dollars per cwt</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Steers</td>
<td>122.86</td>
<td>125.89</td>
<td>154.56</td>
<td>148.12</td>
<td>120.86</td>
<td>112.00</td>
<td>-7.3</td>
</tr>
<tr>
<td>Hogs</td>
<td>60.88</td>
<td>64.05</td>
<td>76.03</td>
<td>50.23</td>
<td>46.16</td>
<td>43.50</td>
<td>-5.8</td>
</tr>
<tr>
<td>Broilers</td>
<td>86.6</td>
<td>99.7</td>
<td>104.9</td>
<td>90.5</td>
<td>84.3</td>
<td>84.8</td>
<td>0.5</td>
</tr>
<tr>
<td>Milk</td>
<td>18.52</td>
<td>20.05</td>
<td>23.97</td>
<td>17.12</td>
<td>16.24</td>
<td>18.05</td>
<td>11.1</td>
</tr>
</tbody>
</table>

*Prices in red denote record levels.*

*Source: USDA-OCE.*

Marketing
U.S. Agricultural exports dominated by top three

Billion dollars

- Everyone else
- Mexico
- Canada
- China

Data: USDA.
China imports to rise boosted by soybeans

Combined imports of grains, soybeans, and cotton.

Data: USDA-OCE.
Continued growth in China soybean imports expected

Global Soybean Imports
Million Metric Tons

Data: USDA.
“Middle Class” grows 119% From 2014 Levels

Million Households w/ Real PPP incomes > than $20,000

<table>
<thead>
<tr>
<th>Country</th>
<th>2014</th>
<th>Proj. gains by 2024</th>
</tr>
</thead>
<tbody>
<tr>
<td>China</td>
<td>154</td>
<td></td>
</tr>
<tr>
<td>India</td>
<td>149</td>
<td></td>
</tr>
<tr>
<td>Indonesia</td>
<td>27</td>
<td></td>
</tr>
<tr>
<td>Egypt</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>Brazil</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>Mexico</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Philippines</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Turkey</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Russia</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Vietnam</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Thailand</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>South Korea</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Malaysia</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Colombia</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Taiwan</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

Source: Global Insight’s Global Consumer Markets data as analyzed by USDA-FAS.
U.S. Ag Exports to China and India

Billion dollars

Source: USDA-FAS.
Corn trade driven by growth in North Africa, Middle East and Southeast Asia

Global Corn Imports
Million Metric Tons

- North Africa+Middle East
- Southeast Asia
- South America
- Mexico
- China
- Japan+South Korea
- Other

Data: USDA.
U.S. remains #1 corn exporter

Global Corn Exports
Million Metric Tons

Data: USDA.
Exports share of use grows over time

- **2008**
  - Total Red Meat and Poultry: 14.5% of supply
  - Dairy, Fat-Basis: 4.3% of supply
  - Dairy, Skim Solids-Basis: 12.2% of supply

- **2017**
  - Total Red Meat and Poultry: 14.8% of supply
  - Dairy, Fat-Basis: 3.5% of supply
  - Dairy, Skim Solids-Basis: 16.9% of supply
Outlook for Food Prices
Longest sustained fall in food prices in 60 years

Data: BLS.
Low income household spending 35% on food

Billion dollars ($2014) vs. Percent of household income spent on food

Data: USDA-ERS, BLS.
Top 40 percent of households purchase nearly 60% of food sold

Data: BLS.
Conclusion

1. Net farm income is flat and likely to remain flat until stocks-to-use starts to fall.

2. Premium of cash rents to land values likely to close with lower rents and values.

3. The soybean:corn ratio suggests more acres of soybeans and fewer to corn. Overall planted area is likely down by 3.6 million acres.

4. Record meat, poultry and dairy production will look to export markets.

5. China demand grows, while opportunities in other developing countries beckon.

6. Food inflation likely to be very low in aggregate:
   - continued marketing opportunities available to higher income households.
   - Low food prices remain important for millions of households.