FAPRI agricultural commodity outlook

By
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FAPRI at MU

UN DESA Expert Group Meeting on the World Economy
21 October 2013
New York, NY
World Bank food, energy, metals price indices, 1/00 to 7/13, 2005=100
With such volatility, what are US midwest farmer expectations?

Source: Farmer meeting in the midwest August, 2013

$275/tonne
Agenda

- Some perspective
  - On the near term
  - On the longer term
- Market outlook as of August 2013
- Possible impacts of policy developments
Drop in US corn yield, bu/ac
--three years in a row!

Source: FAPRI calculations based on NASS data, October 2012
U.S. corn yields and prices

U.S. corn yield

U.S. corn farm price

Source: USDA WASDE, August 2013
Global grain supply, use and stocks

World grain production

World grain ending stocks

Source: USDA WASDE, August 2013
Last year's BIG decline (USDA WASDE Sept 12, 2013)

<table>
<thead>
<tr>
<th>Production (mil mt)</th>
<th>2011/12</th>
<th>2012/13</th>
<th>change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coarse Grains</td>
<td>1154.0</td>
<td>1128.5</td>
<td>-25.5</td>
</tr>
<tr>
<td>USA</td>
<td>323.7</td>
<td>286.0</td>
<td>-37.7</td>
</tr>
<tr>
<td>FSU-12</td>
<td>78.7</td>
<td>69.0</td>
<td>-9.7</td>
</tr>
<tr>
<td>EU-27</td>
<td>150.0</td>
<td>145.1</td>
<td>-4.9</td>
</tr>
<tr>
<td>Wheat</td>
<td>697.2</td>
<td>655.3</td>
<td>-41.9</td>
</tr>
<tr>
<td>FSU-12</td>
<td>115.0</td>
<td>77.2</td>
<td>-37.8</td>
</tr>
<tr>
<td>EU-27 and Aus.</td>
<td>168.0</td>
<td>155.1</td>
<td>-12.9</td>
</tr>
<tr>
<td>USA</td>
<td>54.4</td>
<td>61.8</td>
<td>7.4</td>
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This year’s BIGGER increase
(USDA WASDE Sept 12, 2013)

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<td>81.8</td>
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<td>85.2</td>
<td>16.2</td>
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<td>708.9</td>
<td>53.6</td>
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Recent corn price movements

FAPRI baseline 13/14
$4.64
Things happen, recent soybeans.....

FAPRI baseline 13/14
$11.33
Success in growth, food consumption/security, rural incomes

Rising constraints raise issue on how sustainable growth is
- Land, water, labor are in tight supply
- Real exchange rates are rising
- Increasing government support

How much will demand grow??
- Slowing population growth, but rapid urbanization
- High income growth continues
- Consumption base – room to grow but nearing saturation?
China grain and oilseed imports

Grain imports

Oilseed sector imports

Source: OECD/FAO outlook, June 2013
Global crop use per capita

<table>
<thead>
<tr>
<th></th>
<th>2010-12 average</th>
<th>Annual growth rate</th>
<th>Percent growth rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maize</td>
<td>123 Kg/yr</td>
<td>1.6 Kg/yr</td>
<td>1.3%</td>
</tr>
<tr>
<td>Wheat</td>
<td>96 Kg/yr</td>
<td>-0.2 Kg/yr</td>
<td>-0.2%</td>
</tr>
<tr>
<td>Milled rice</td>
<td>65 Kg/yr</td>
<td>0.0 Kg/yr</td>
<td>0.0%</td>
</tr>
<tr>
<td>Soybeans</td>
<td>37 Kg/yr</td>
<td>0.8 Kg/yr</td>
<td>2.3%</td>
</tr>
</tbody>
</table>

Increases in per-capita feed use account for about 39% of the increase in per-capita use since 1990. Ethanol and other uses account for the rest.

Increased use of soymeal in livestock rations and soyoil in both food and industrial uses contributed to the growth in per-capita use.

Source: author calculations from PSD Online data. Trend is simple linear trend fit over 1990-2012.
World grain and oilseed production and use per capita

Sources: Westhoff calculations based on USDA PSD Online, June 2013 and U.S. Census Bureau estimates of world population.
World grain and oilseed production and use per capita minus US ethanol

Sources: Westhoff calculations based on USDA PSD Online, June 2013 and U.S. Census Bureau estimates of world population.
World less China grain and oilseed production and use per capita

Kilograms per capita

Sources: Westhoff calculations based on USDA PSD Online, June 2013 and U.S. Census Bureau estimates of world population.
U.S. maize ethanol & coproduct use

Increase from 2005/06 to 2010/11: 87 mil. mt
Increase from 2010/11 to 2022/23: 14 mil. mt

Sources:
FAPRI-MU baseline, January 2013 and USDA WASDE, July 2013.
China real GDP per capita

Doubled from 2004-2012 (10%/yr.)
Doubles again from 2012-2022 (7%/yr.)

Source: IHS Global Insight, Jan. 2013
China: Per capita meat + fish consumption rises to OECD levels

Source: Holger Matthey, FAO, based on the OECD/FAO Agricultural Outlook, June 2013
Agenda

• Some perspective
  • On the near term
  • On the longer term
• Market outlook as of August 2013
Real GDP growth rates

Source: IHS Global Insight, July 2013
Oil and Natural Gas prices

Source: IHS Global Insight, July 2013
U.S. corn prices
Farm and futures prices

U.S. soybean prices
Farm and futures prices

Sharp Price Drop Expected After 3 Years of Low Yield

Feed grains prices, $/mt

- Corn, #2 yellow, U.S. Gulf
- Barley, Alberta
- Sorghum, #2 yellow, U.S. Gulf
Farmer expectations and FAPRI’s

Source: Farmer meeting in the midwest
August, 2013

FAPRI Outlook

$180/tonne  $275/tonne
Improved Supplies After 2012 Ease Wheat Price

Wheat price, U.S. Gulf, $/mt
Oilseed Prices Stay Strong But Not at Record Levels

Oilseed prices, $/mt

- Soybeans, #2 yellow, Central Illinois
- Rapeseed, cif Hamburg
Vegetable oils among the strongest due to demand growth. $/mt
Has come off of 10/11 high and slightly above past levels, $/mt
Doing stochastic simulations

- Need to select a set of exogenous variables and get joint distributions
  - US crop yields
  - Energy and input prices
  - Demand equation errors
  - Stock equation errors
  - Export equation errors which combine all foreign origin shocks such as supply, demand and exchange rate shocks
- 500 Random draws from these to generate 500 scenarios

(Meyer et al paper in JIATD)
U.S. corn yields and prices
Average and 3 of the 500 stochastic outcomes

U.S. corn yield

<table>
<thead>
<tr>
<th>Year</th>
<th>U.S. corn yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>2009</td>
<td>160</td>
</tr>
<tr>
<td>2011</td>
<td>150</td>
</tr>
<tr>
<td>2013</td>
<td>170</td>
</tr>
<tr>
<td>2015</td>
<td>180</td>
</tr>
<tr>
<td>2017</td>
<td>190</td>
</tr>
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</table>

U.S. corn prices

<table>
<thead>
<tr>
<th>Year</th>
<th>U.S. corn prices</th>
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<tbody>
<tr>
<td>2009</td>
<td>2.00</td>
</tr>
<tr>
<td>2011</td>
<td>3.00</td>
</tr>
<tr>
<td>2013</td>
<td>4.00</td>
</tr>
<tr>
<td>2015</td>
<td>5.00</td>
</tr>
<tr>
<td>2017</td>
<td>6.00</td>
</tr>
</tbody>
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Source: FAPRI-MU stochastic baseline, Jan. 2013
Some alternative US corn price outcomes

Source: Rough calculations based on FAPRI-MU projections August 2013 and January 2013 stochastic baseline
U.S. farm level corn price

Source: Rough calculations based on FAPRI-MU projections August 2013 and January 2013 stochastic baseline
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Renewable Fuel Standard

- Energy Independence and Security Act

- Establishes annual Renewable Fuel Standard
  - Mandates for biodiesel, cellulosic biofuels, all advanced biofuels and a total
  - No specific “corn ethanol mandate”

- EPA can waive portions of mandate
  - Have done so for cellulosic, but without changing other mandates
  - For 2014, expected to change other mandates, too
  - Perhaps (for first time) including share that can be met with corn ethanol
Renewable fuel standard, ethanol use and the blend wall

Source: FAPRI-MU baseline, Aug. 2013, based on provisions of the EISA and projected levels of motor gasoline use
Possible impacts of policies

- US farm bill changes unlikely to have much market impact but RFS might
- EU policy changes may reduce production but also small impact
- Little chance for Doha Round changes
- Larger impacts from energy prices, weather/climate change, and macro developments
An example from alternative views on oil prices

- IHS Global Insight*
- OECD/FAO**
- June futures, 5/8***
- BFAP assumption

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* U.S. refiner's acquisition price, Jan. 2013 estimate
** Brent crude as reported in OECD/FAO outlook publication
*** Brent crude futures, June contracts, 5 August 2013.
Recent FAPRI analyses

- August baseline update:

- Senate and House Ag. Committee farm bill:

- RFS and analysis of RINs:

- Or just visit [www.fapri.missouri.edu](http://www.fapri.missouri.edu) to see what’s new
Thank you!

Contact information:

meyersw@missouri.edu

Analysis of outlook and US farm bill impacts at:

www.fapri.missouri.edu

farm bill analysis: