

Grain Market Supply-Demand Fundamentals

2016 Texas AgriLife Master Marketer Workshop

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Key Grain Market Decisions & Issues for Kansas Farmers & Agribusinesses (Jan-Feb 2016)

- 1) Marketing the remaining 2015 Grain Crops?
- 2) Likely 2016 crop insurance coverage prices & revenue protection issues?
- 3) 2016 Crop production plans – Acres? Crop inputs?
- 4) Plans for Pre-harvest sales for 2016 Crop Production?

Topics to be discussed today.....

- 1) Key fundamental factors "*driving*" the U.S. Grain Markets since 1998
- 2) World Grain Supply-Demand situation & trends
 - Wheat, Corn, Sorghum & Soybeans
- 3) Bioenergy Market Supply-Demand & Price Trends
- 4) USDA Futures-Based Grain Price Forecast Models

Grain Market "Drivers"

Key issues affecting grain markets over 1998-2016 Period

- 1) **Major Demand Shocks** – U.S. biofuels use & Chinese soybean imports
- 2) **Market Price Responsiveness** – Inelastic ag markets
- 3) **Favorable Weather & Increased Grain Stocks**
- 4) **Chinese Agricultural Stocks Policy** – Feedgrain impacts
- 5) **Macroeconomic Factors** – U.S. & World

Grain Market “Drivers”

Key issues affecting grain markets over 1998-2016 Period

1) Major Demand Shocks

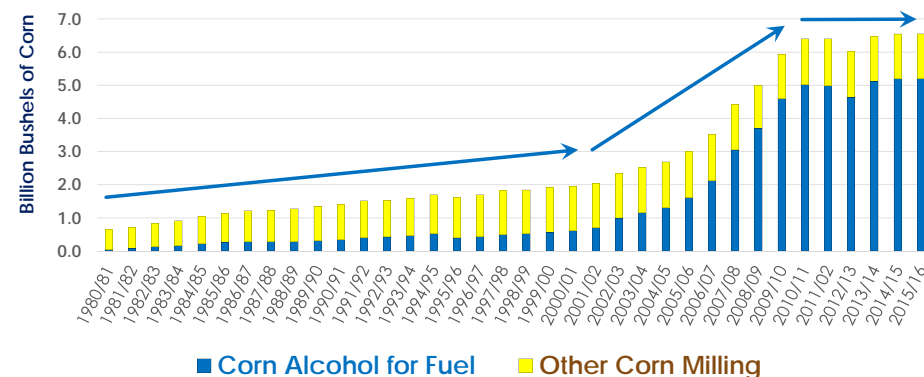
- U.S. biofuels use
- China soybean imports



FarmVest

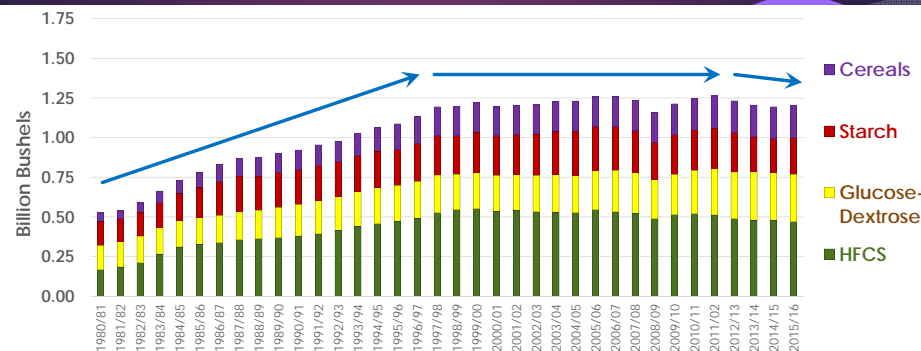
Major Demand Shocks

– U.S. Corn Biofuel & Other Processing Use



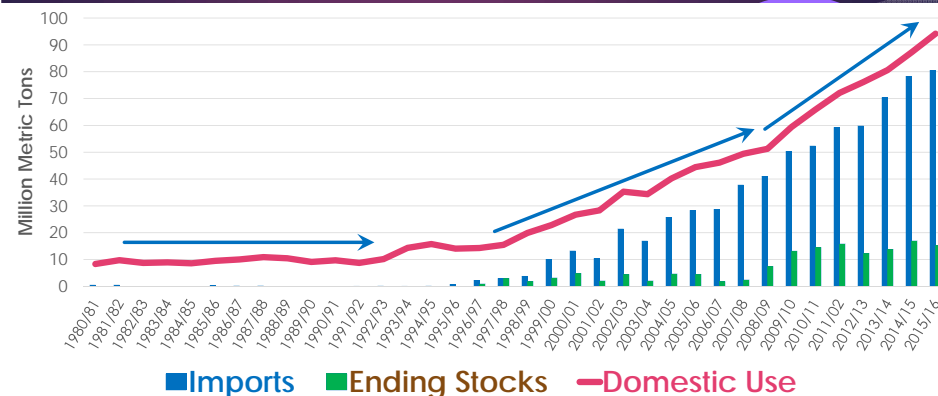
Major Demand Shocks

– Detailed U.S. Wet Corn & Other Processing



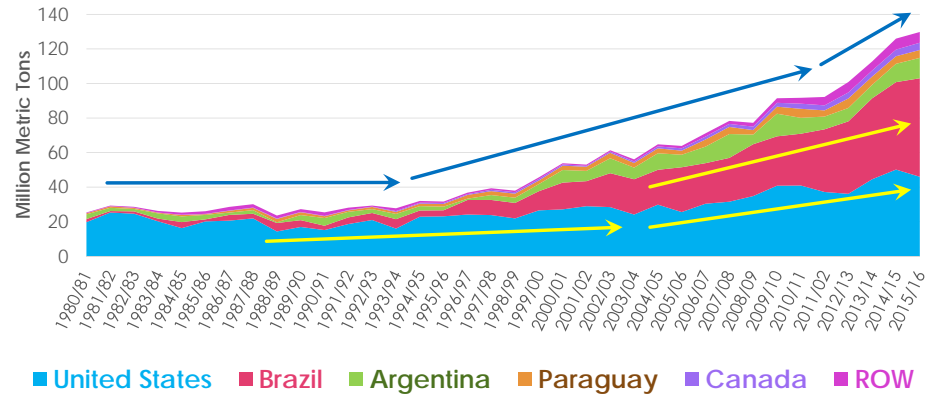
Major Demand Shocks

- China Soybean Use, Imports, Stocks



Major Demand Shocks

- World Soybean Exports



Q? What will be the future for these major demand drivers in the grain markets?

Q1? Can feedgrain use for U.S. ethanol & other milling processes begin trending higher again?

- E-15 adoption, DDGS & ethanol exports, corn products?

Q2? Will Chinese soybean imports continue to grow?

- Livestock feed demand, inelastic food use demand, continuing free trade with the U.S. & other countries?

Grain Market "Drivers"

Key issues affecting grain markets over 1998-2016 Period

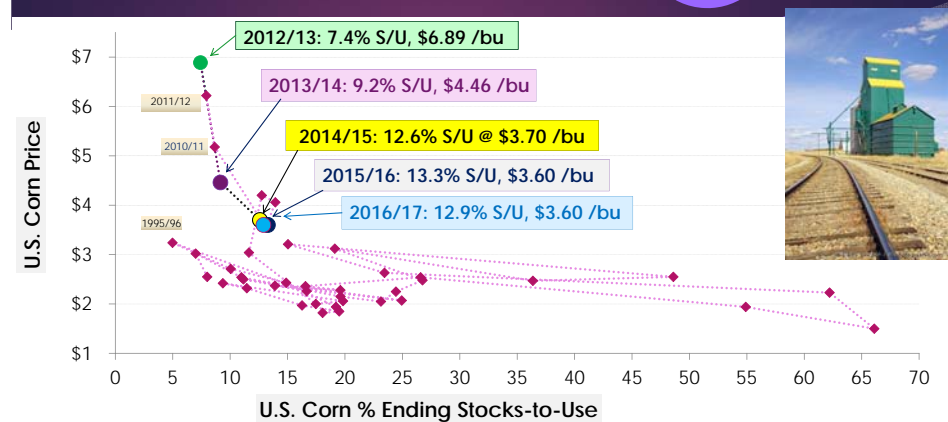
2) Market Price Responsiveness

- Inelastic agricultural market price responses



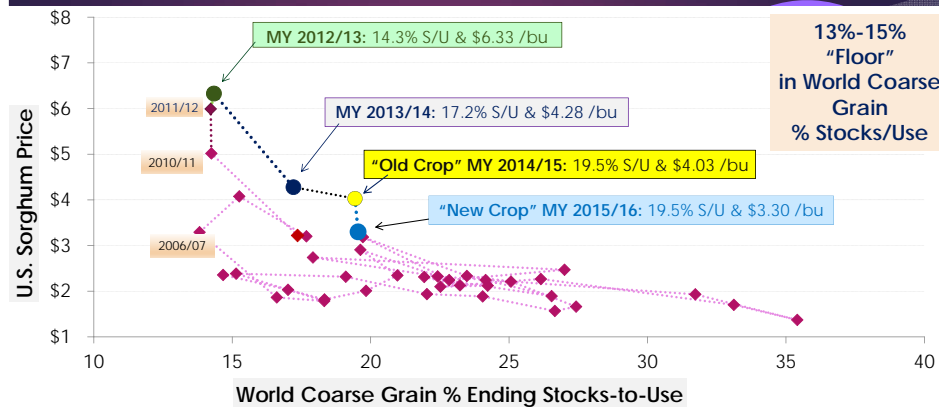
U.S. Corn Price\$ vs U.S. % Stocks-to-Use

MY 1973/74 through "Next Crop" MY 2016/17



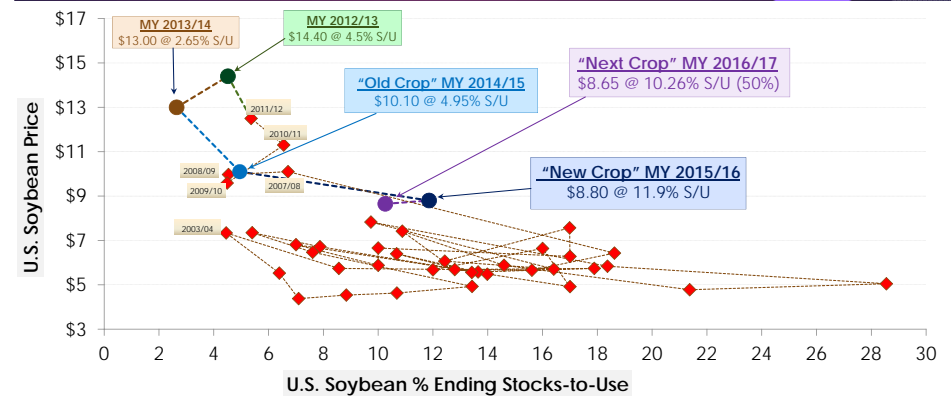
U.S. Sorghum\$ vs World Coarse Grain %S/U

MY 1973/74 through "New Crop" MY 2015/16



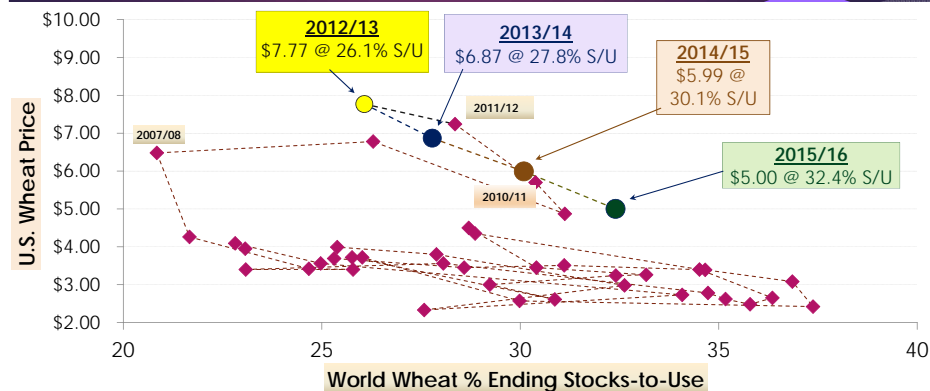
U.S. Soybean \$ vs U.S. Stx-to-Use

MY 1973/74 through "Next Crop" MY 2016/17



U.S. Wheat Price\$ vs World %Stx/Use

MY 1973/74 – "New Crop" MY 2015/16



Q? Which categories of grain demand are most "price inflexible", $p^{\$} = f(q^{bu})$

- **U.S. Corn** ⇒ Ethanol use (RFS driven) & Wet Milling
 - Livestock feed & exports more price responsive
- **U.S. Wheat** ⇒ Domestic Food use
 - Exports & Livestock feed use are more price responsive
- **U.S. Soybeans** ⇒ Crush for SoyOil & SoyMeal
 - When "growing" exports are price responsive (not currently)
- **U.S. Sorghum** ⇒ Exports (recently so – are they sustainable??)

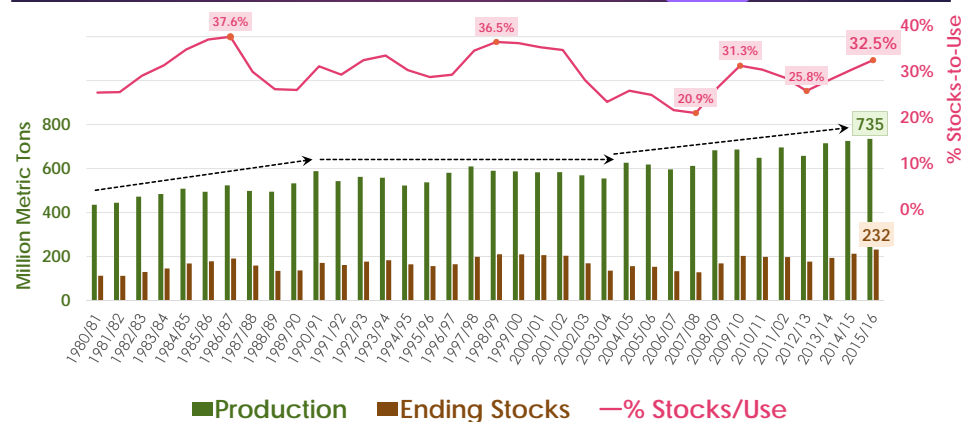
Grain Market "Drivers"

Key issues affecting grain markets over 1998-2016 Period

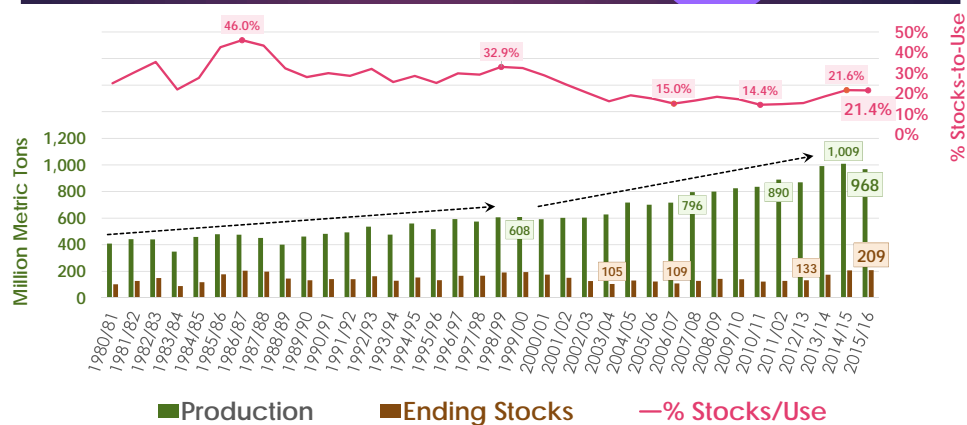
3) Favorable Weather & Increased Grain Stocks



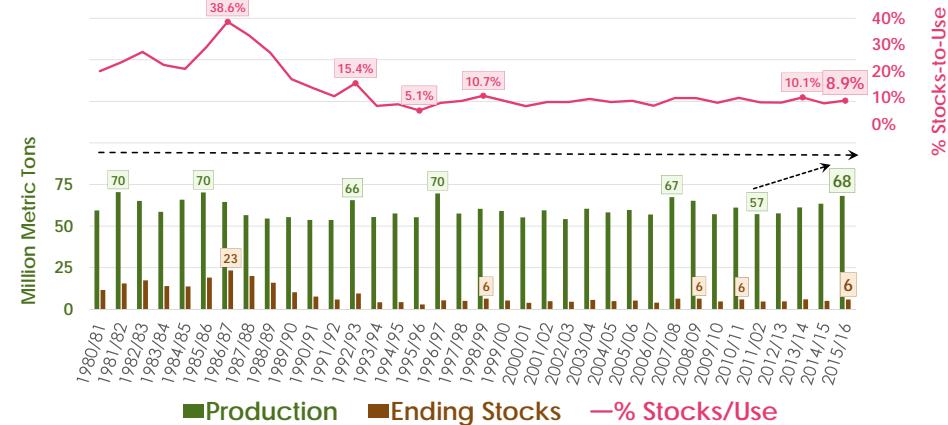
World Wheat Production & Stocks



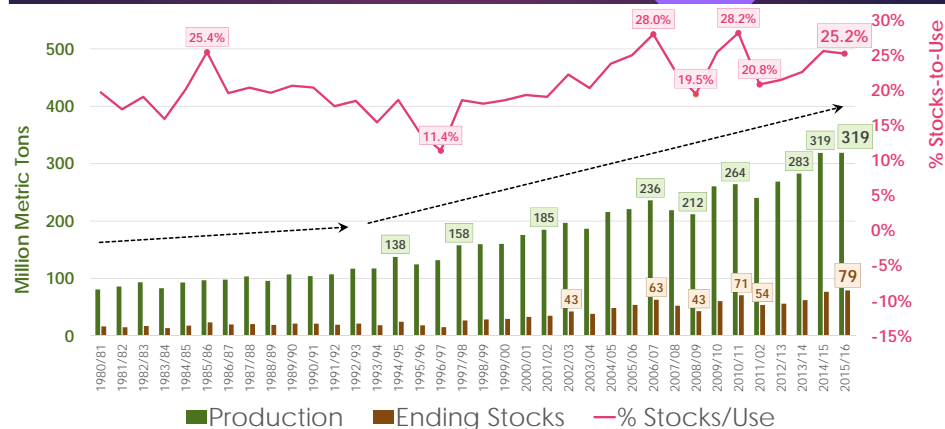
World Corn Production & Stocks



World Sorghum Production & Stocks



World Soybean Production & Stocks



Q? Will record high crop production continue in 2016-2017+

- Weather Patterns – *El Nino to La Nina Pattern Impact?*
 - “Higher likelihood than normal of U.S. crop production problems in summer of 2016” (Dr. Elwynn Taylor, Iowa State Univ. Ag Meteorologist, August 2015)
 - “...El Nino will become La Nina in December 2016. The transition will cause drought and warmer than normal temperatures throughout the Corn Belt.He anticipates dry weather one the U.S. crop is in the ground which could cause moderate to severe drought stress in June and July....” (Bill Kirk, Weather 360, Top Producer Seminar, Chicago, IL, 1/27-29/2016)

Grain Market “Drivers”

Key issues affecting grain markets over 1998-2016 Period

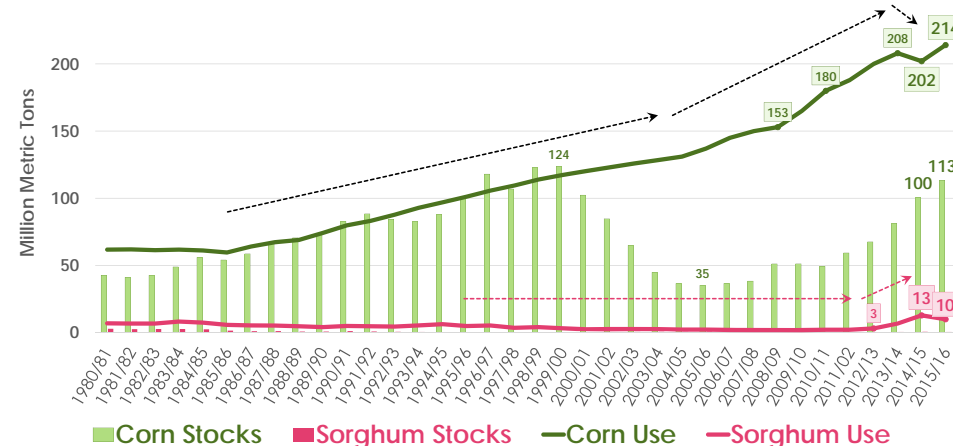
4) Chinese Agricultural Stocks Policy

- Feedgrain impacts ⇒ *Grain Sorghum Imports*

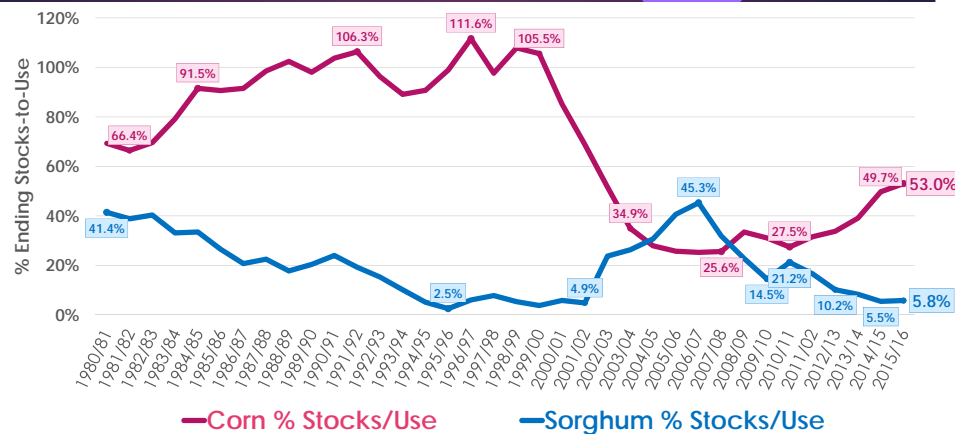


Kansas State University

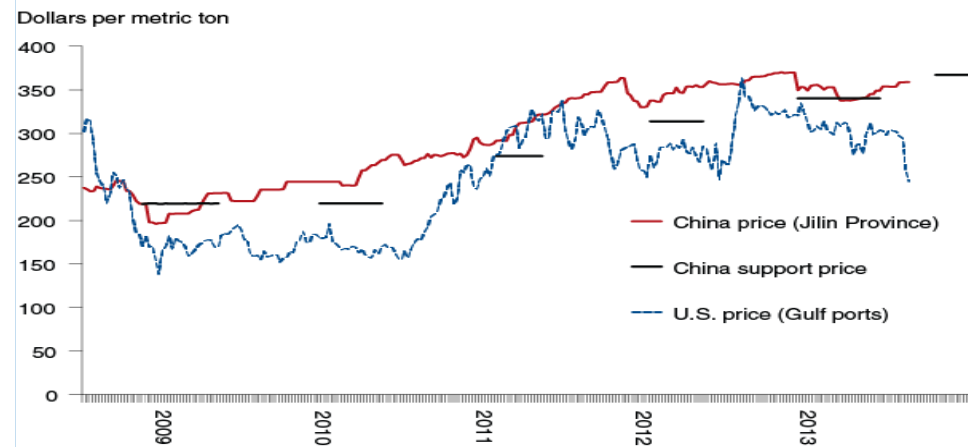
China Corn & Sorghum Use - Stocks



China Corn & Sorghum % Stocks/Use

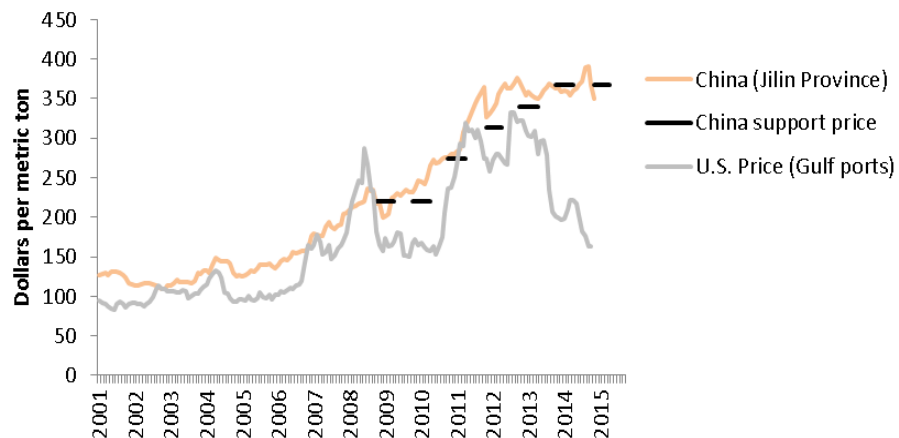


China's support price for corn rose 50 percent during 2010-13



Source: USDA, Economic Research Service using data from China National Grain and Oils Information Center and U.S. Grains Council.

China and U.S. Corn Prices, 2001-15



Q? How quickly & completely will China lower it's domestic corn support prices?

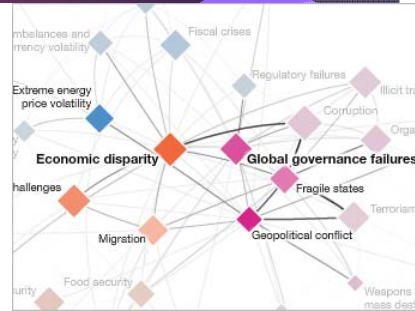
- Indications that China will make step-wise reductions in domestic corn support prices over the next several years
 - Attempting to balance "domestic production incentives" for Chinese farmers with a burdensome oversupply/stockpile problem
- Impact on U.S. grain sorghum export demand?
 - China will continue to seek the "best deal" it can find between corn & sorghum, from whatever country is the low cost, quality, reliable source.
 - But, China has now found that U.S. sorghum is a viable use option *D. O'Brien KSU*

Grain Market "Drivers"

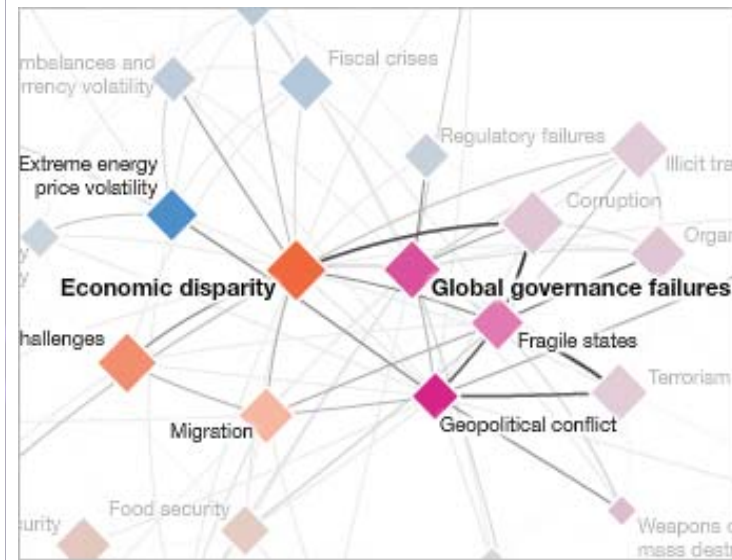
Key issues affecting grain markets over 1998-2016 Period

5) Macroeconomic Factors

- Currency Exchange Rates
- Weak World Economies & Energy Markets
- Other Risks (geopolitical, etc)



FARMER'S



FARMER'S

U.S. Dollar Index (ICE Futures)

Monthly Chart: December 2006 – January 29, 2016 + 2/3/2016

01/29/2016 C=99.652 +.907 O=98.760 H=99.950 L=98.110



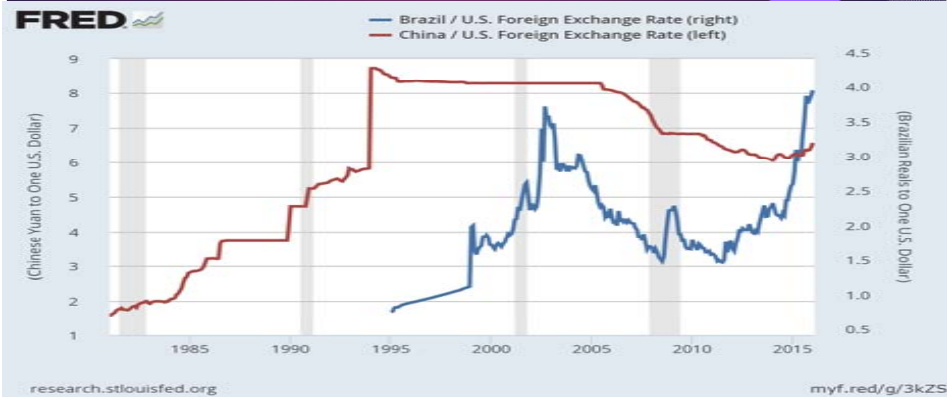
Created with SuperCharts by Omega Research © 1997

U.S. Trade Weighted Dollar Index

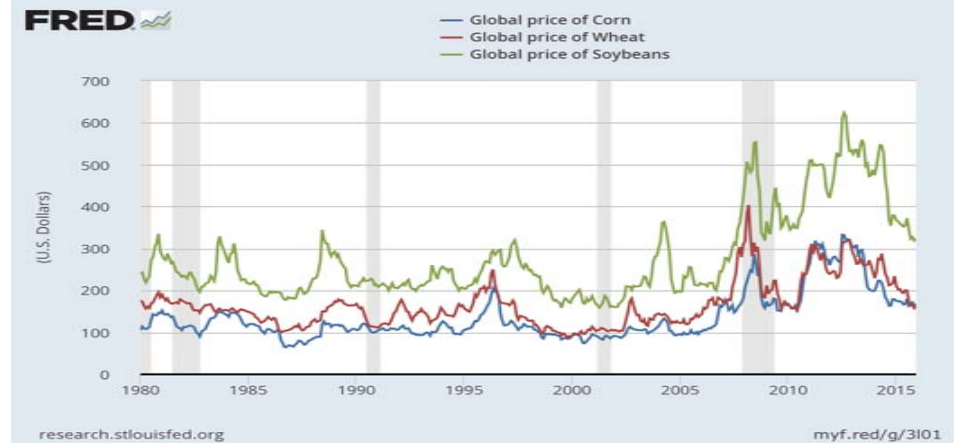
FRED — Trade Weighted U.S. Dollar Index: Major Currencies



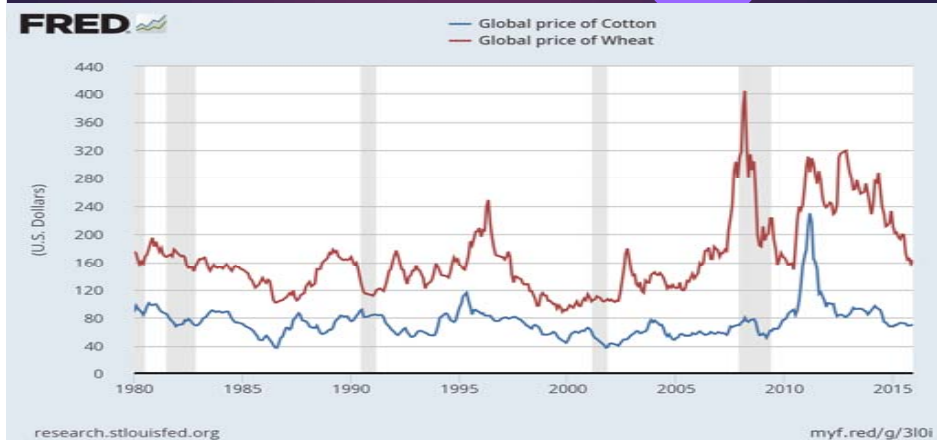
Brazil & China Currencies vs U.S. Dollar



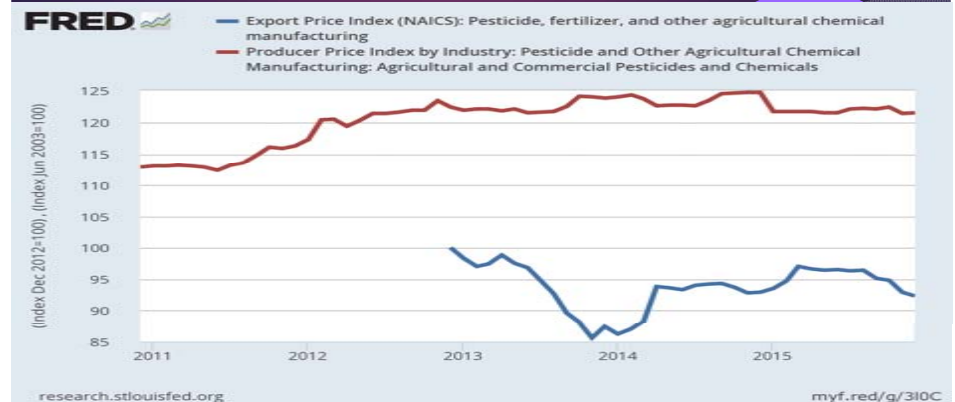
Global Prices of Major Grains



Global Prices of Cotton & Wheat



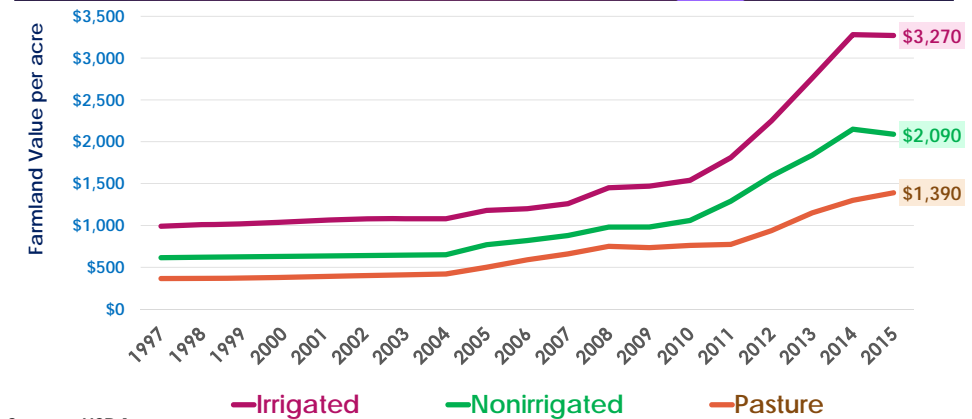
U.S. Domestic & Export Ag Price Index for Pesticides & Chemicals



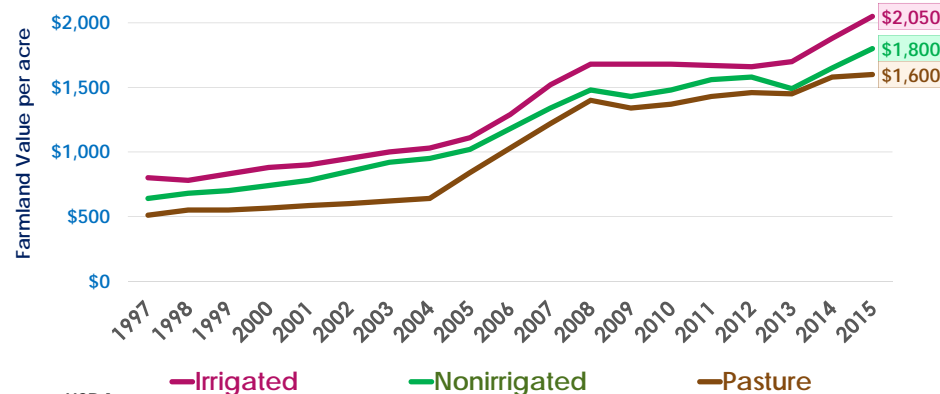
Global Prices of Grains vs WTIC Oil Price



Kansas Farmland Values: 1997-2015



Texas Farmland Values: 1997-2015



Q? Do U.S. / World financial & economic factors impact U.S. grain markets?

- Direct Impact of high U.S. dollar on Exports
 - U.S. ⇒ "high cost, last resort supplier" in World wheat exports
 - U.S. corn & soybean exports have been reduced (causing lower prices & lower crop profits)
- Indirect Impact of a poor economy on U.S. agriculture?
 - Tighter credit & higher risk – causing reductions in U.S. agricultural production capacity

Other Grain Market "Drivers"

► Transportation Logistics have Impacted Grain Exports

- ⇒ U.S. exports have been limited by higher shipping costs to key markets versus the Black Sea, Australia & other competitors
- ⇒ Panama Canal improvements & TPP may help U.S. to Asia mkts

► Wheat has been substituting for Feedgrains in World Livestock Feed Markets since 2012

- ⇒ Issues of "Food" versus "Feed" quality wheat, & the degree of adoption by foreign livestock feeders

Grain Market Price Behavior

Economic principles shown in market patterns over time

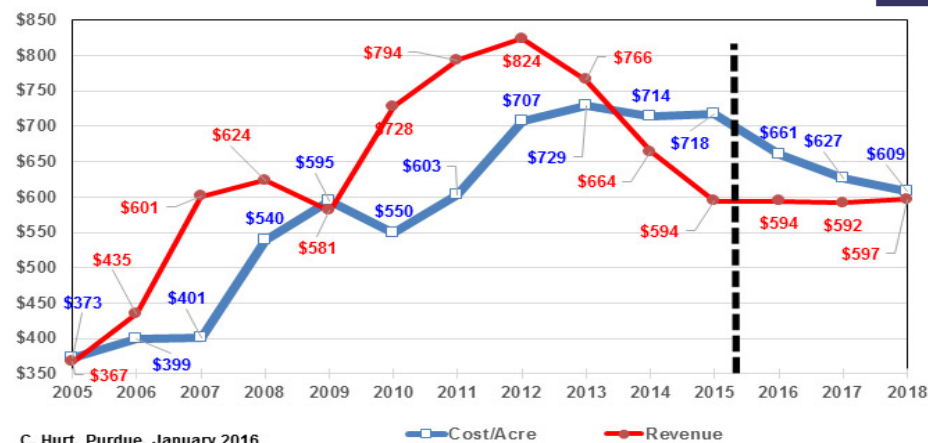
► Prices tend to return to breakeven cost over time

- ⇒ High grain prices & profits lead to economic responses that eventually cause lower prices & losses (& vice versa)
- ⇒ Evidence in Corn, Soybean & Wheat markets over 2005-2015 period

► Market response to Supply Prospects & Prices

- Price = f(Supply): Varying \$ response to "short" vs "abundant" Stocks/Use
- Use = f(Prices): Usage affected conversely by "high" vs "low" prices

Estimated Revenue and Costs/Acre on a 50/50 Corn/Soybean Farm on Average Quality Indiana Land



The Dynamic, Cyclical Nature of U.S. Agricultural Supply-Demand & Profitability

► "Thinking Beyond Stage 1" (Economist Thomas Sowell)

► D. O'Brien^{KSU} Perspective:

- "Profits & losses impact U.S. farmers' & agribusinesses' profit maximizing decisions regarding crop & livestock production choices & their use (valuation) of capital resources, & price trends over time."
- "Our managerial focus needs to be on the dynamic nature of U.S. agricultural supply-demand & profitability over time."

Questions?

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