The Secret Drivers of Food Innovation

Prepared by Stephen S. Nicholson
Chief Economist, International Food Products

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What is Economics?

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What is Innovation?

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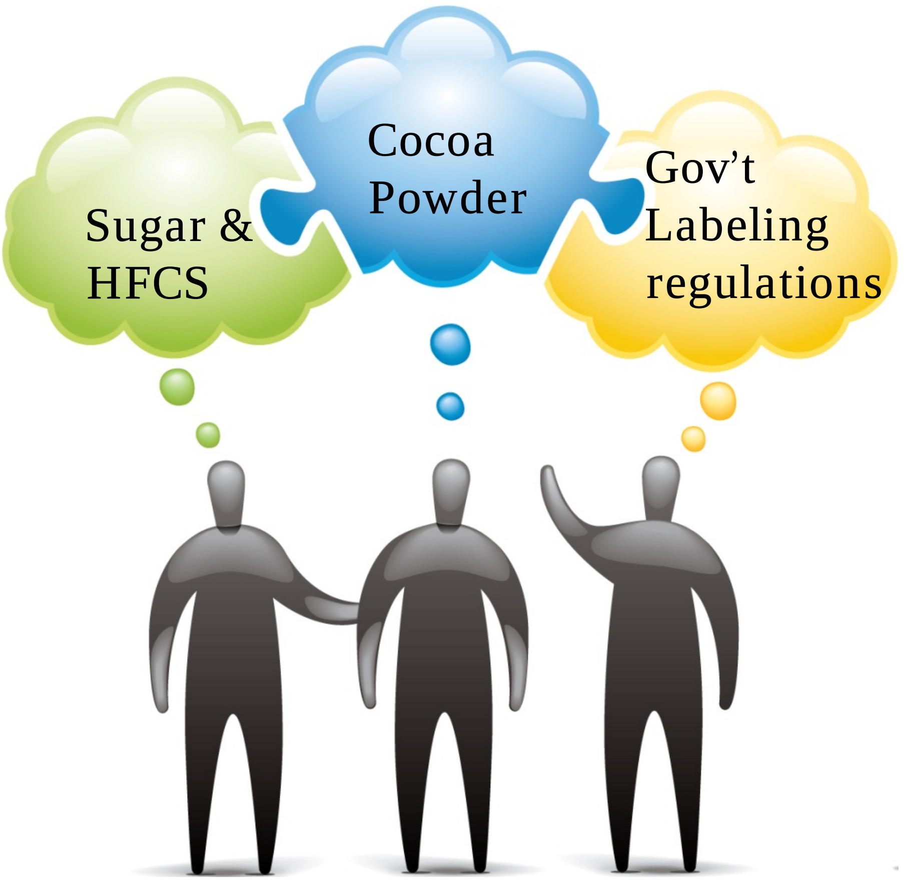
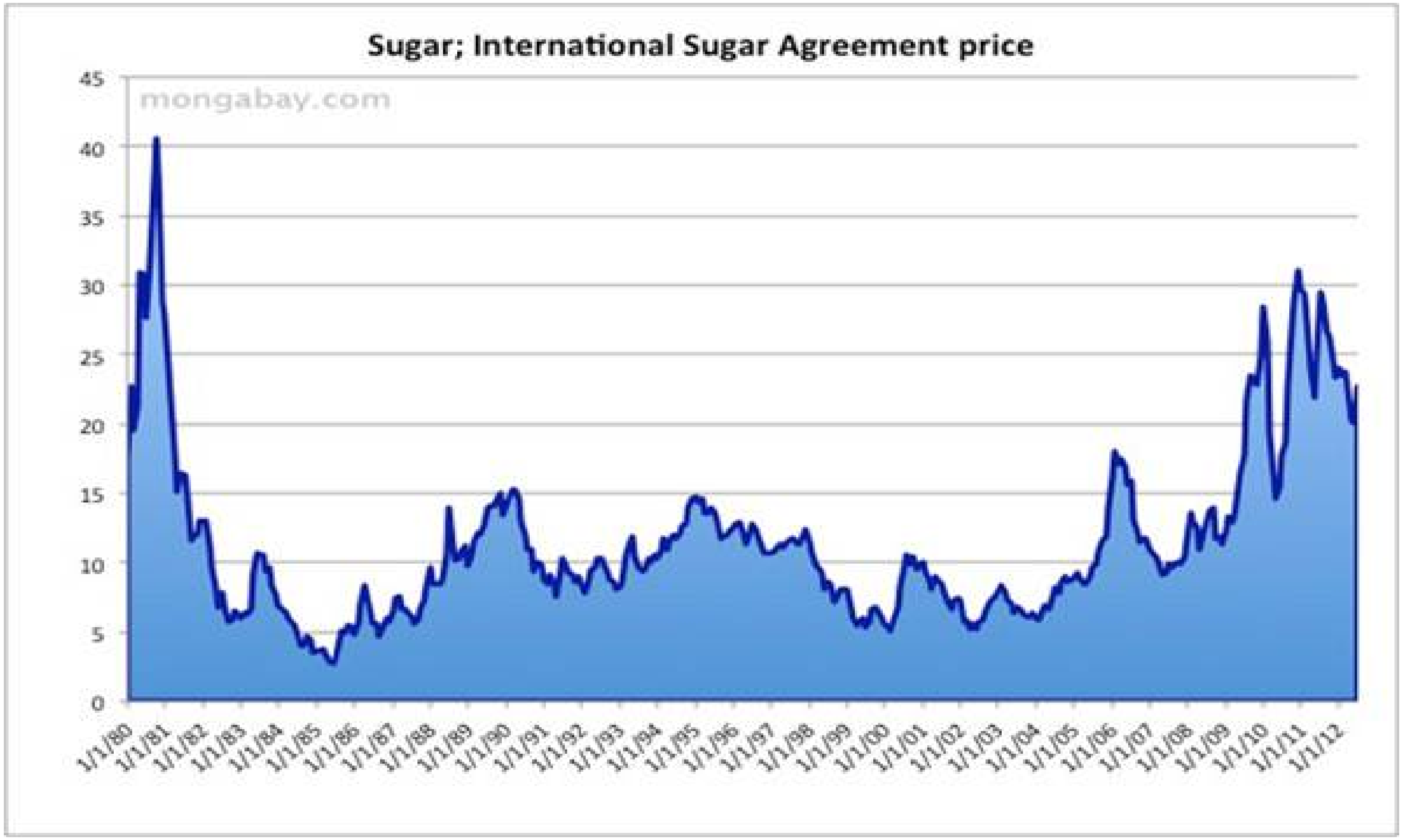
What/Who causes innovation?

- Employees/Colleagues
- Customers
- Management
- Government
- Cost of Goods
- Competition
- Technology

Case Studies



1981 Nearby Sugar Futures



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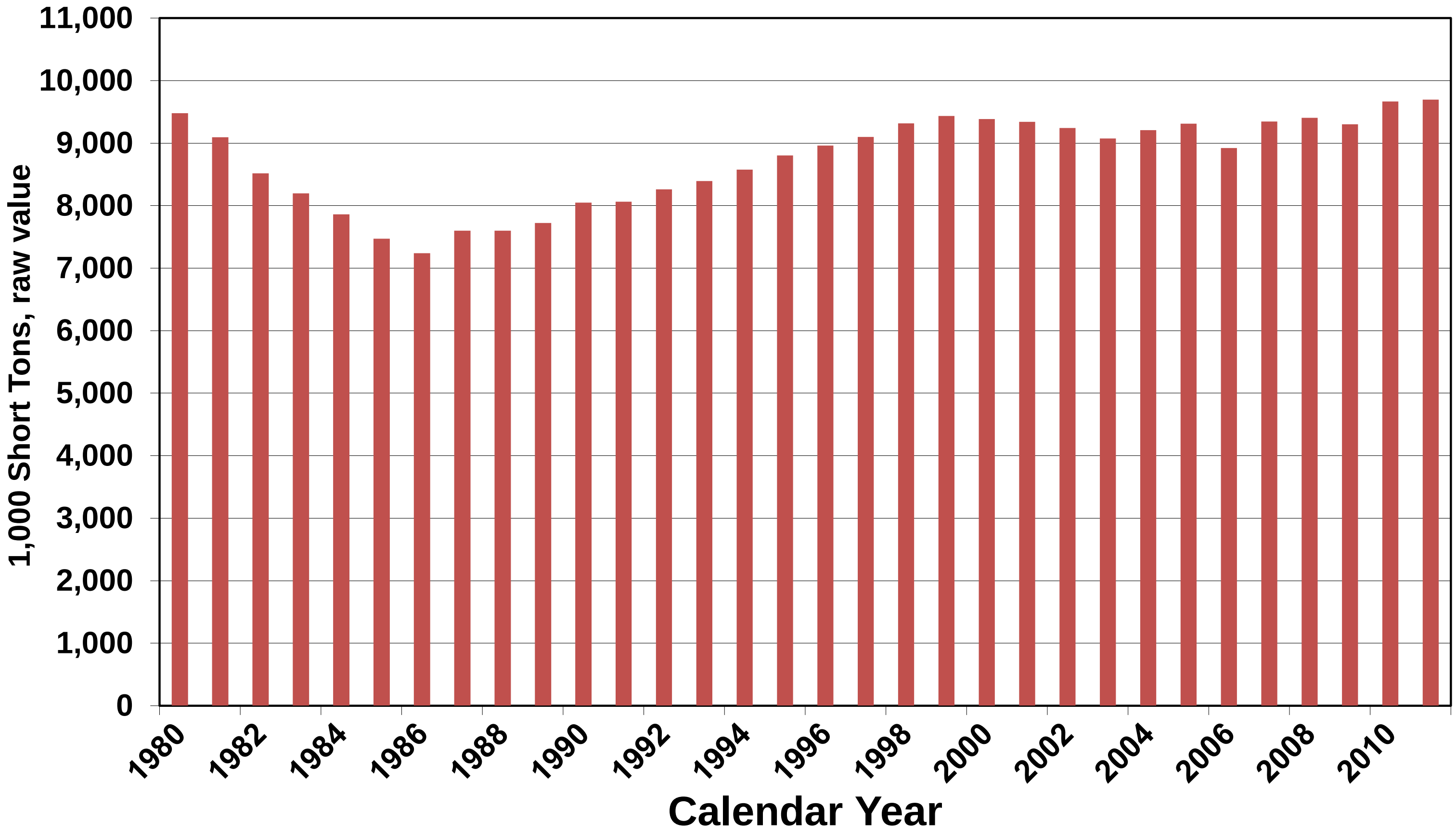
Sugar and HFCS

- In 1974 & 1980 sugar prices spiked
- 1981 New Farm Bill & new Sugar Title
- At same time, HFCS industry developing
- 1985 Coca-Cola Classic was introduced with 100% HFCS.

- ***Innovation***
  - Mass production of alternative sweetener

U.S. Annual Sugar Deliveries for Human Consumption



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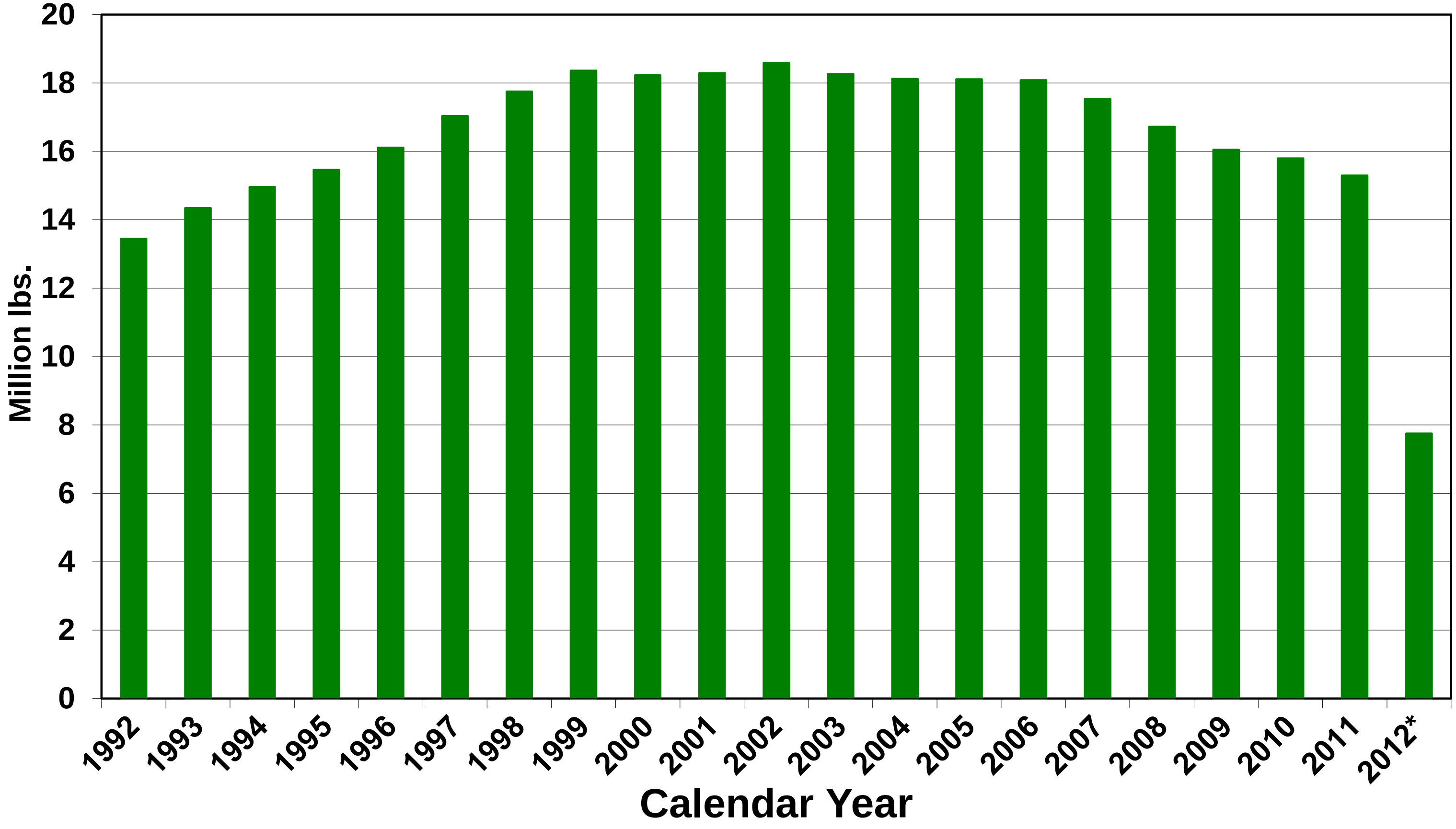
U.S. Annual HFCS Deliveries



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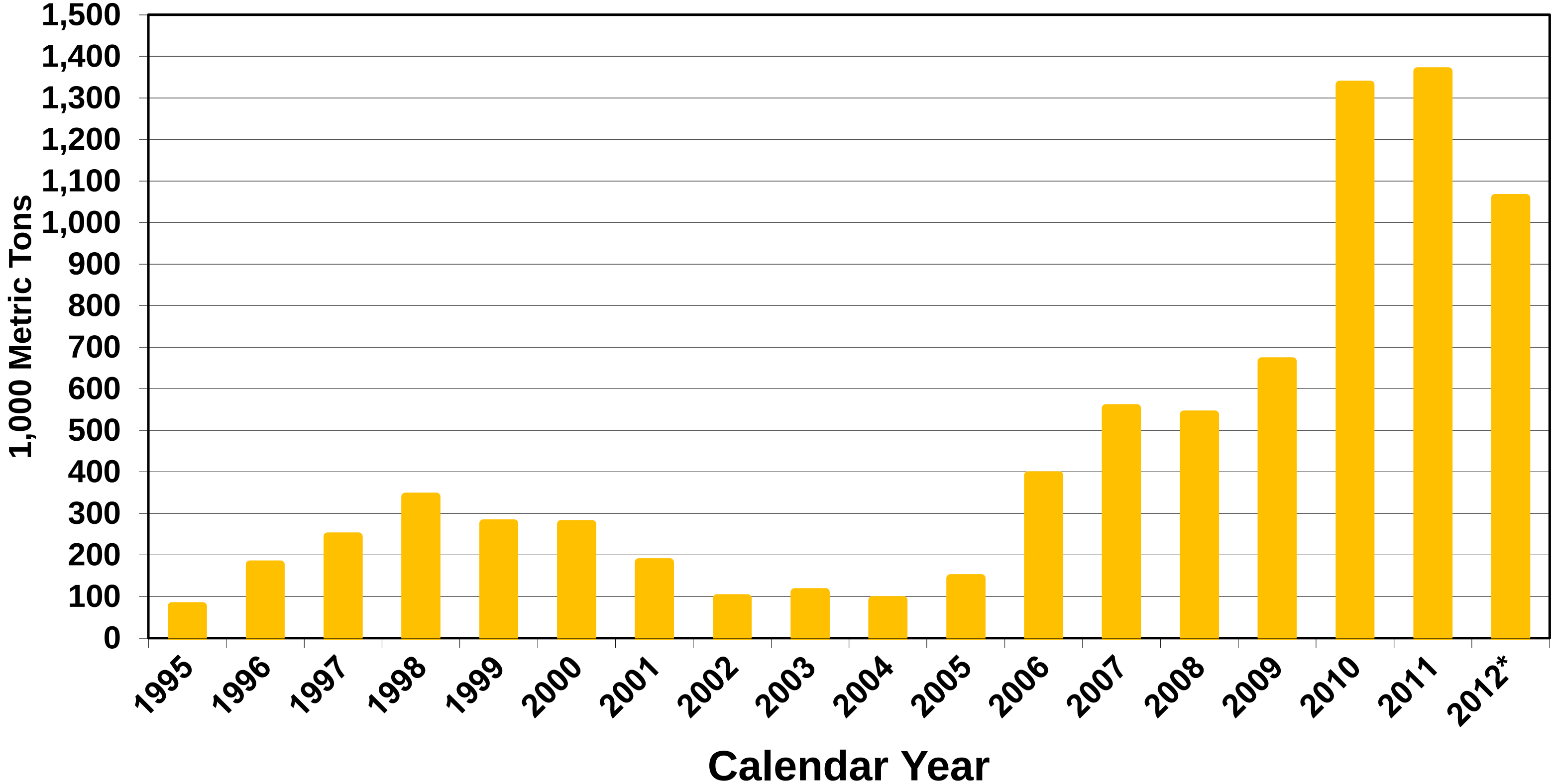
U.S. Annual Exports of HFCS (dry basis)



Source: U.S. Census Bureau, HTS Export Data

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Weekly Cocoa Futures

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Cocoa Powder & Corn Starch

- 2011 cocoa bean price spiked
  - Ivory Coast
    - Political Unrest
    - Underinvestment
  - Increasing chocolate demand from Asia
- Global price increases
- Chocolate milk powder prices were pressured upwards.
- ***Innovation***
  - Qualities of cocoa
  - Pure Food Product (PFP) Corn Starch

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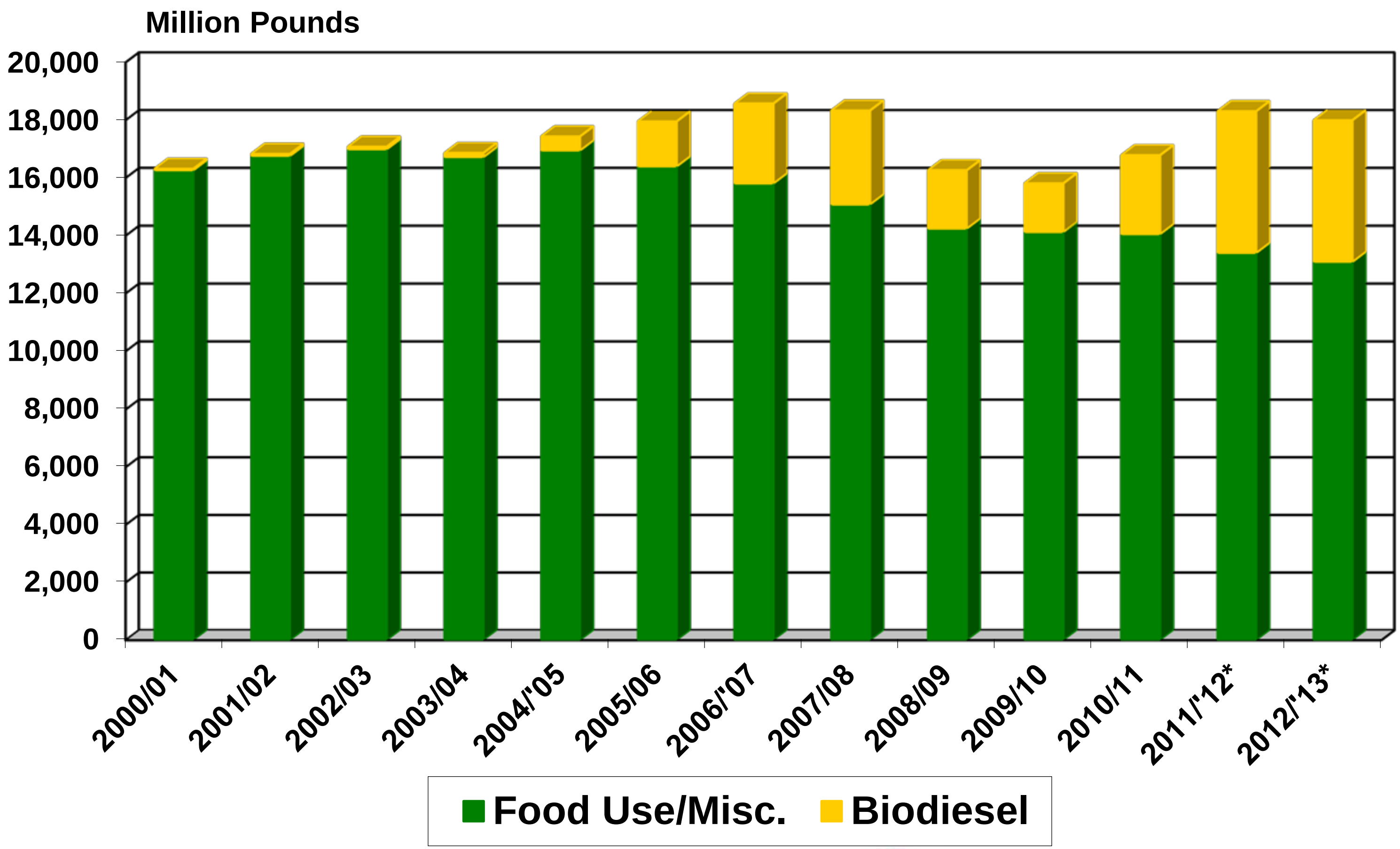
Trans Fat Labeling Requirements

- January 2006
  - Mandatory TF labeling
  - Industry had 2½ to adapt.
- Issues to overcome
  - Replace hydro soyoil
  - Maintain good taste
  - Palm Oil
  - Cost of goods
  - Education
- ***Innovation***
  - Palm oil
  - Blends
  - New soybean oil varieties
  - Interesterified

U.S. Soybean Oil Domestic Disappearance



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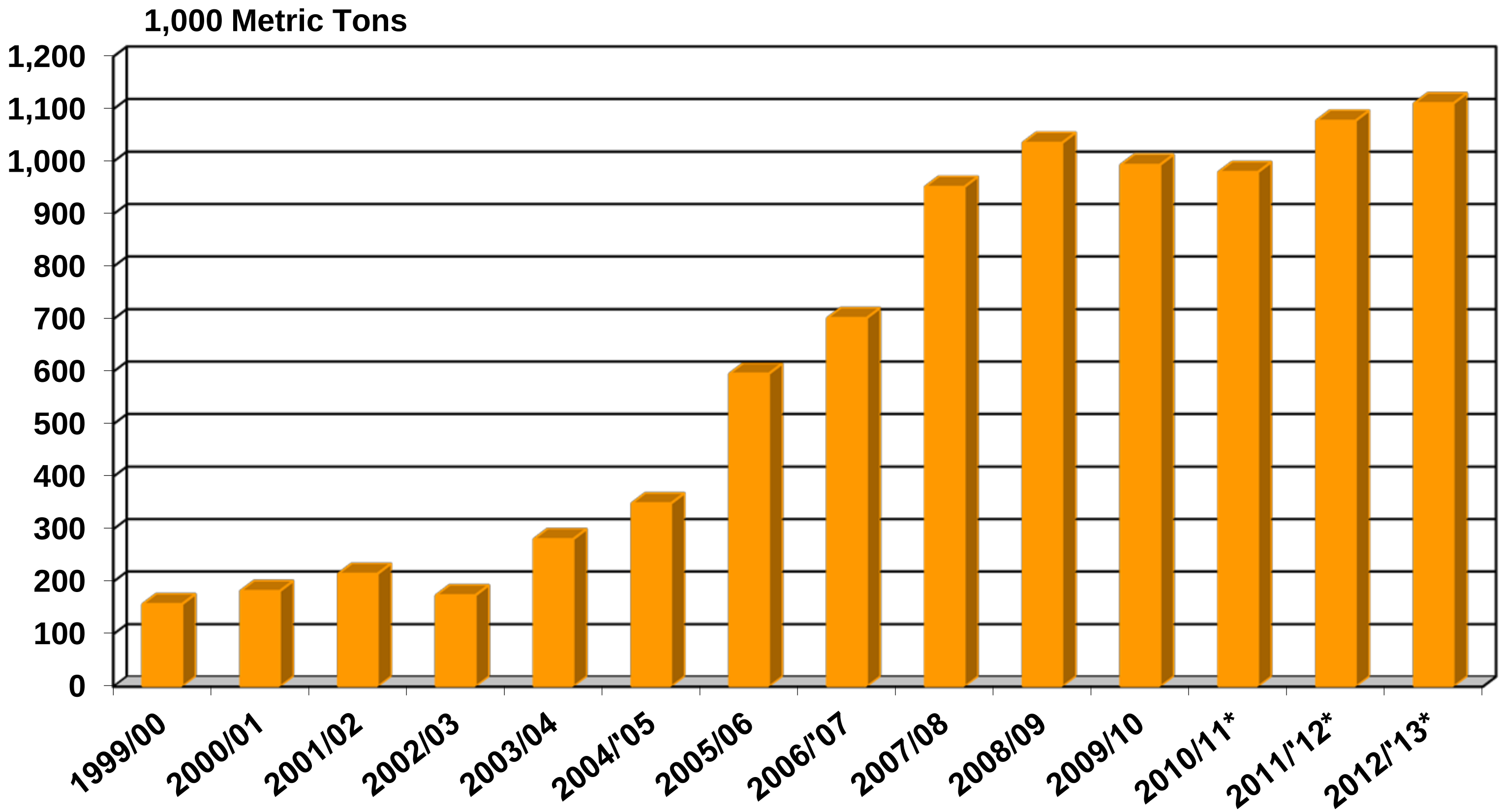
U.S. Palm Oil Imports



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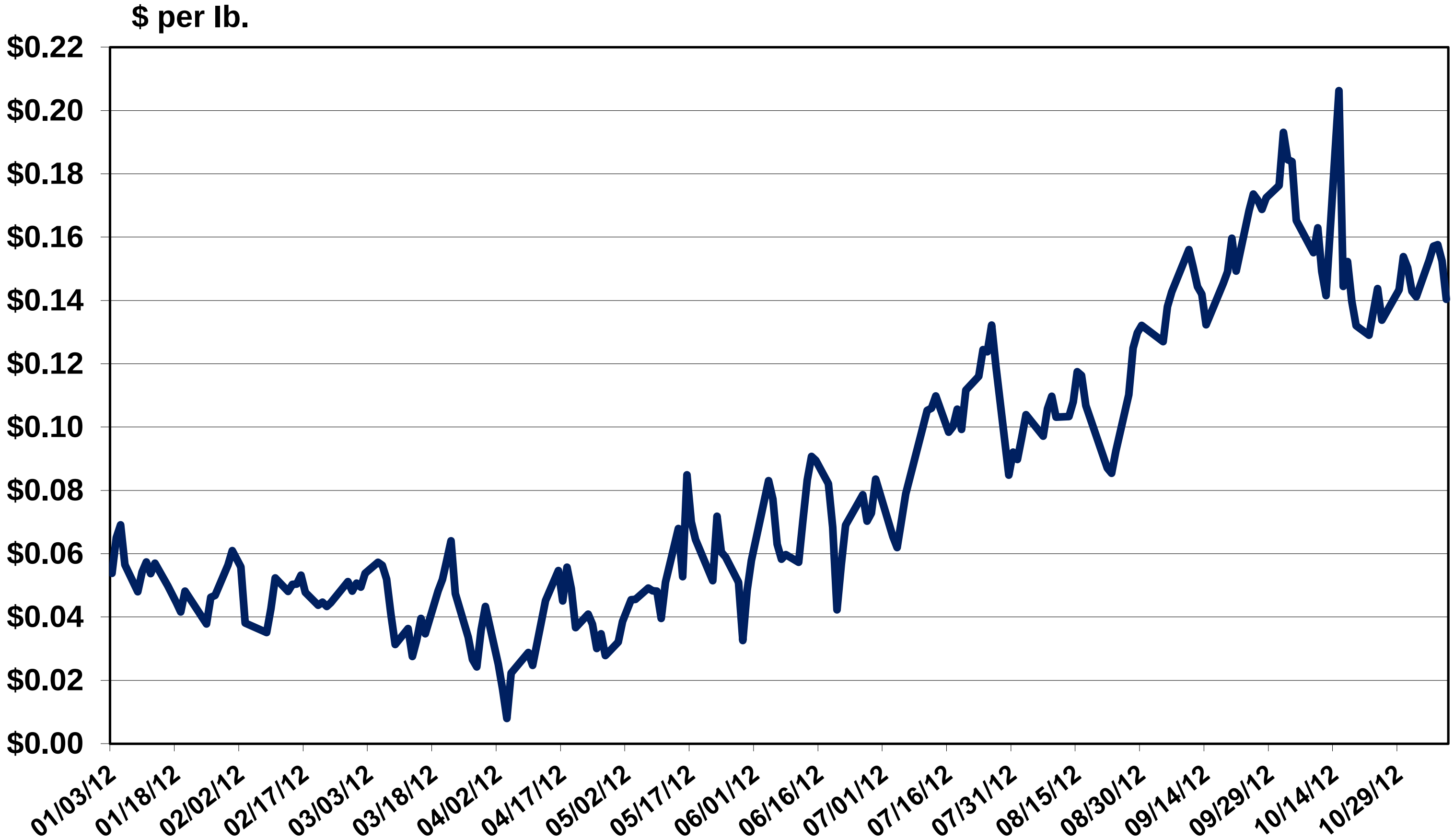
Soybean Premium to Palm Oil



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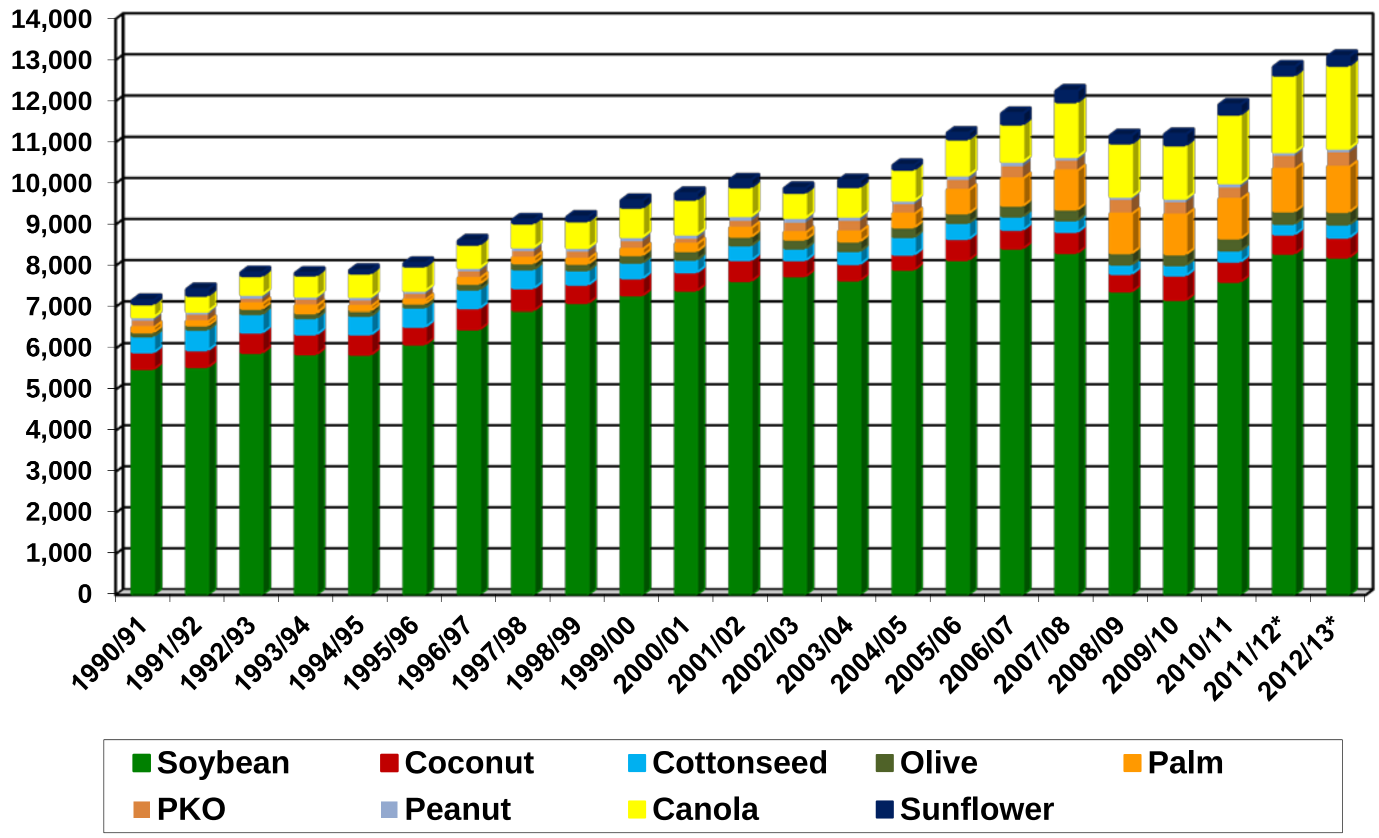
U.S. Edible Vegetable Oil Domestic Use



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Other Innovations

- Safer Foods
- Minor/Heirloom Grains
- Gluten Free
- Low-linolenic soybeans
- Functional starches
- Nutritional functional foods
- High intensity sweeteners

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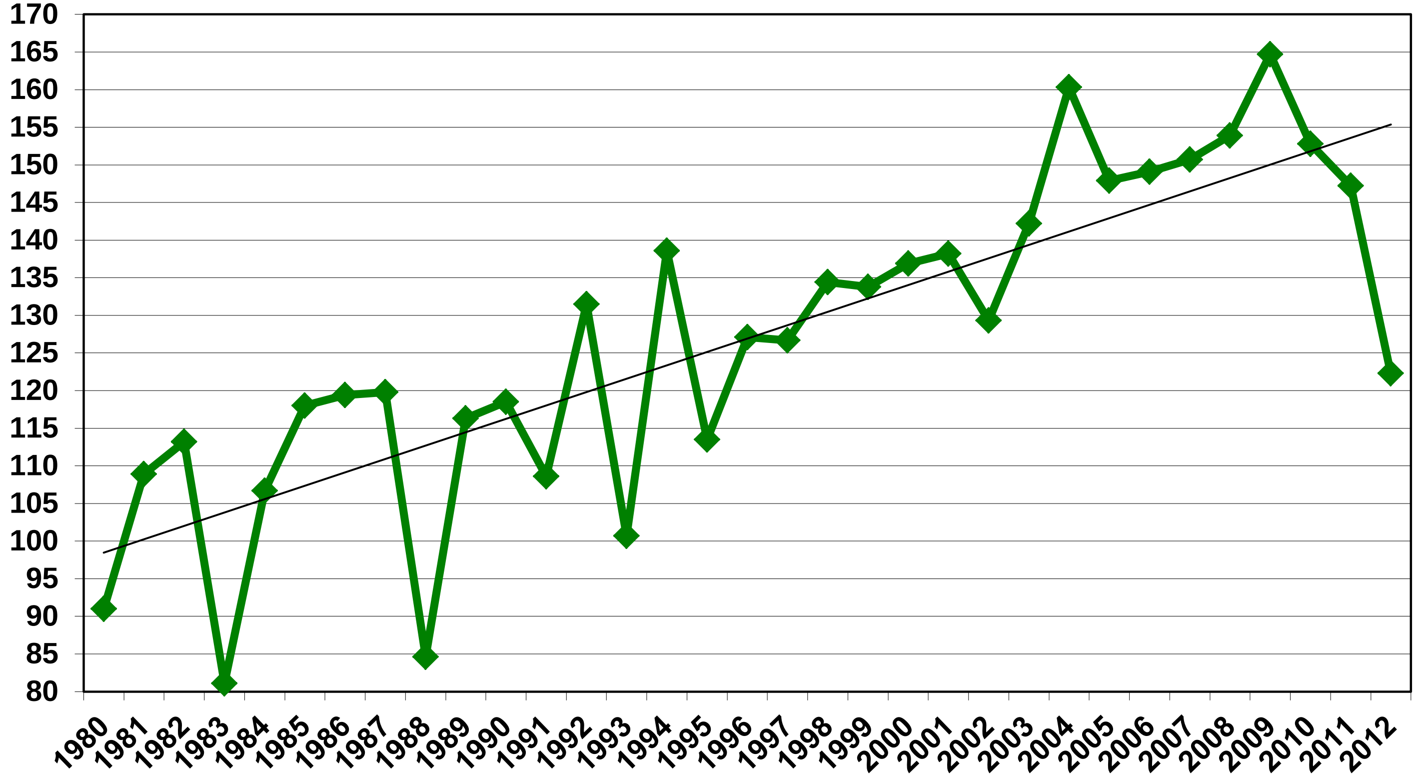
Commodity Market Highlights to Watch

- 2012 drought was the worse since 1930's Dust Bowl years
- Stocks of the corn and soybeans remain extremely tight
- Market already factoring South American soybean crop
- Macro economics
  - EU, Chinese & U.S. economies

U.S. Corn Balance Sheet

Million bushels *Projections	2006/07	2007/08	2008/09	2009/10*	2010/11	2011/12*	2012/13*
Planted Acres (mln)	78.3	93.5	86.0	86.4	88.2	91.9	96.9
Harvested Acres (mln	70.6	85.5	78.6	79.5	81.4	84.0	87.7
Yield (bu./acre)	149.1	150.7	153.9	164.7	152.8	147.2	122.3
Supply							
Beginning Stocks (9/1)	1,967	1,304	1,624	1,673	1,708	1,128	988
Production	10,531	13,038	12,092	13,092	12,447	12,358	10,725
Total Supply	**12,510**	**14,362**	**13,729**	**14,774**	**14,182**	**13,515**	**11,814**
Disappearance							
Feed	5,540	5,858	5,182	5,125	4,793	4,547	4,150
Food, Seed & Industrial	3,517	4,420	5,033	5,961	6,428	6,437	5,867
Ethanol of Fuel	*2,119*	*3,049*	*3,709*	*4,591*	*5,021*	*5,011*	*4,500*
Exports	2,125	2,437	1,849	1,980	1,834	1,543	1,150
Total Disappearance	**11,207**	**12,737**	**12,056**	**13,066**	**13,055**	**12,527**	**11,167**
Ending Stocks	**1,304**	**1,624**	**1,673**	**1,708**	**1,128**	**988**	**647**
Stocks-to-Use Ratio (%)	**11.6%**	**12.8%**	**13.8%**	**13.1%**	**8.6%**	**7.9%**	**5.8%**
Average Farm Price ($/bu.)	**$3.04**	**$4.20**	**$4.06**	**$3.55**	**$5.18**	**$6.22**	**$7.60**

U.S. Corn Yield



Lowest yields since 1995?

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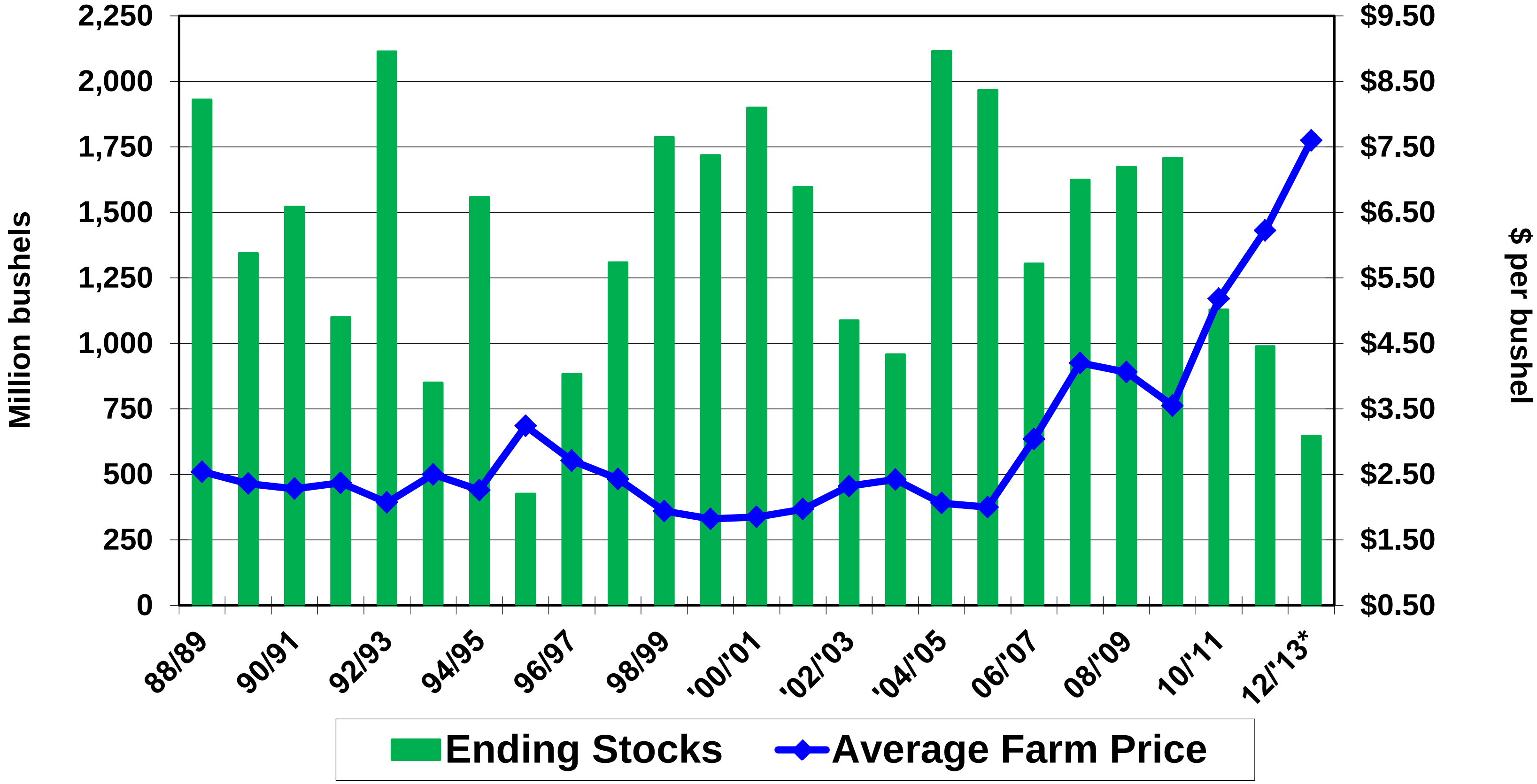
U.S. Corn Ending Stocks vs. Average Farm Price



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Weekly Corn Futures

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U.S. Soybean Balance Sheet

Million bushels	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12*	2012/13*
Planted Acres (mln)	75.5	64.7	75.7	77.5	77.4	75.0	77.2
Harvested Acres (mln	74.6	64.2	74.7	76.4	76.6	73.6	75.7
Yield (bu./acre)	42.9	41.7	39.7	44.0	43.5	41.9	39.3
Supply							
Beginning Stocks (9/1)	449	574	205	138	151	215	169
Production	3,197	2,677	2,967	3,359	3,329	3,094	2,971
Imports	9	10	13	15	14	16	20
Total Supply	**3,655**	**3,261**	**3,185**	**3,512**	**3,495**	**3,325**	**3,160**
Disappearance							
Crush	**1,808**	**1,803**	**1,662**	**1,752**	**1,648**	**1,703**	**1,560**
Exports	**1,116**	**1,159**	**1,279**	**1,499**	**1,501**	**1,362**	**1,345**
Seed, Feed & Residual	**157**	**94**	**106**	**110**	**131**	**91**	**115**
Total Disappearance	**3,081**	**3,056**	**3,047**	**3,361**	**3,280**	**3,155**	**3,021**
Ending Stocks	**574**	**205**	**138**	**151**	**215**	**169**	**140**
Stocks-to-Use Ratio (%)	**18.6%**	**6.7%**	**4.5%**	**4.5%**	**6.6%**	**5.4%**	**4.6%**
Average Farm Price ($/bu.)	**$6.43**	**$10.10**	**$9.97**	**$9.59**	**$11.30**	**$12.50**	**$14.90**

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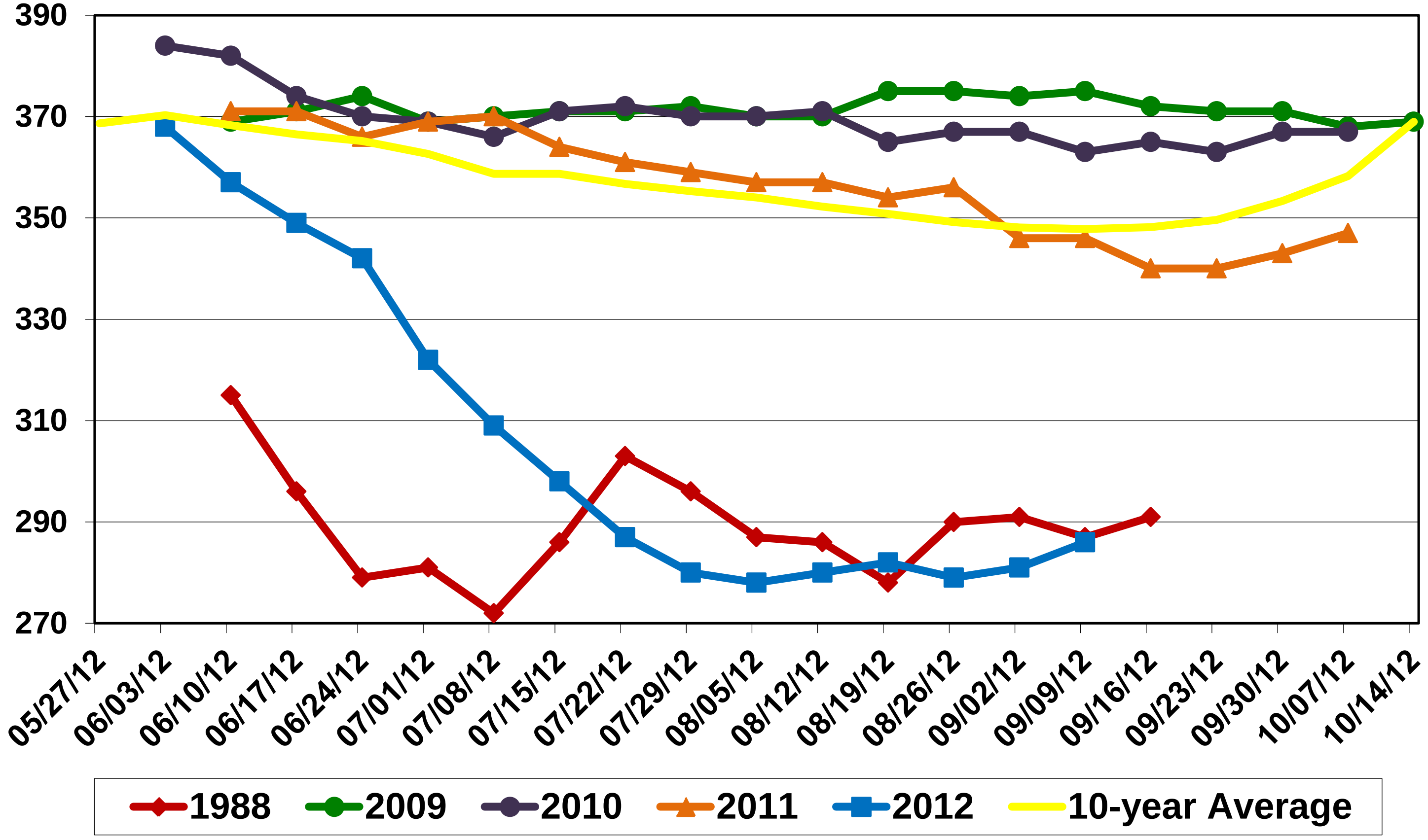
U.S. Soybean Crop Condition Index



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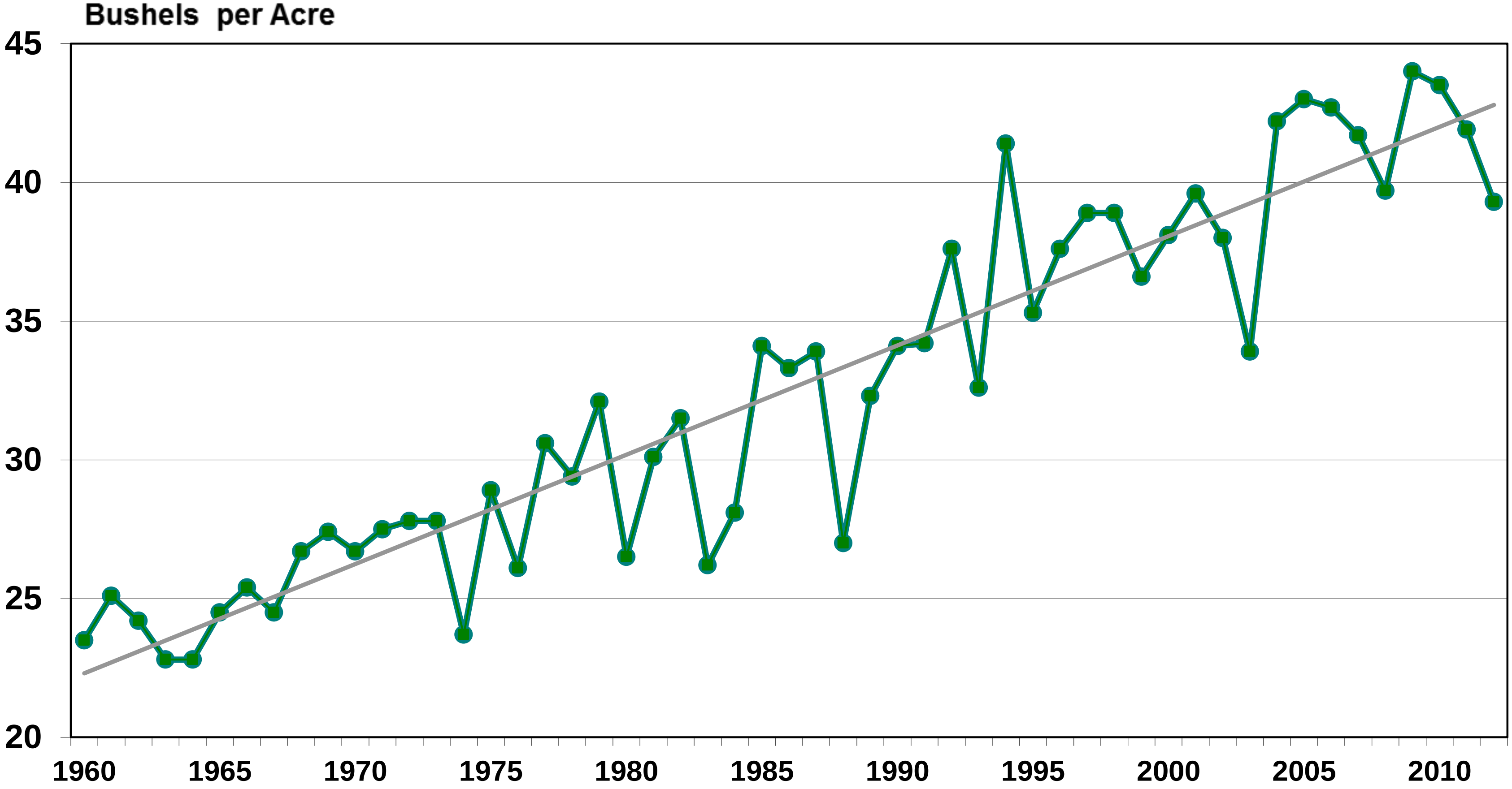
U.S. Soybean Yield



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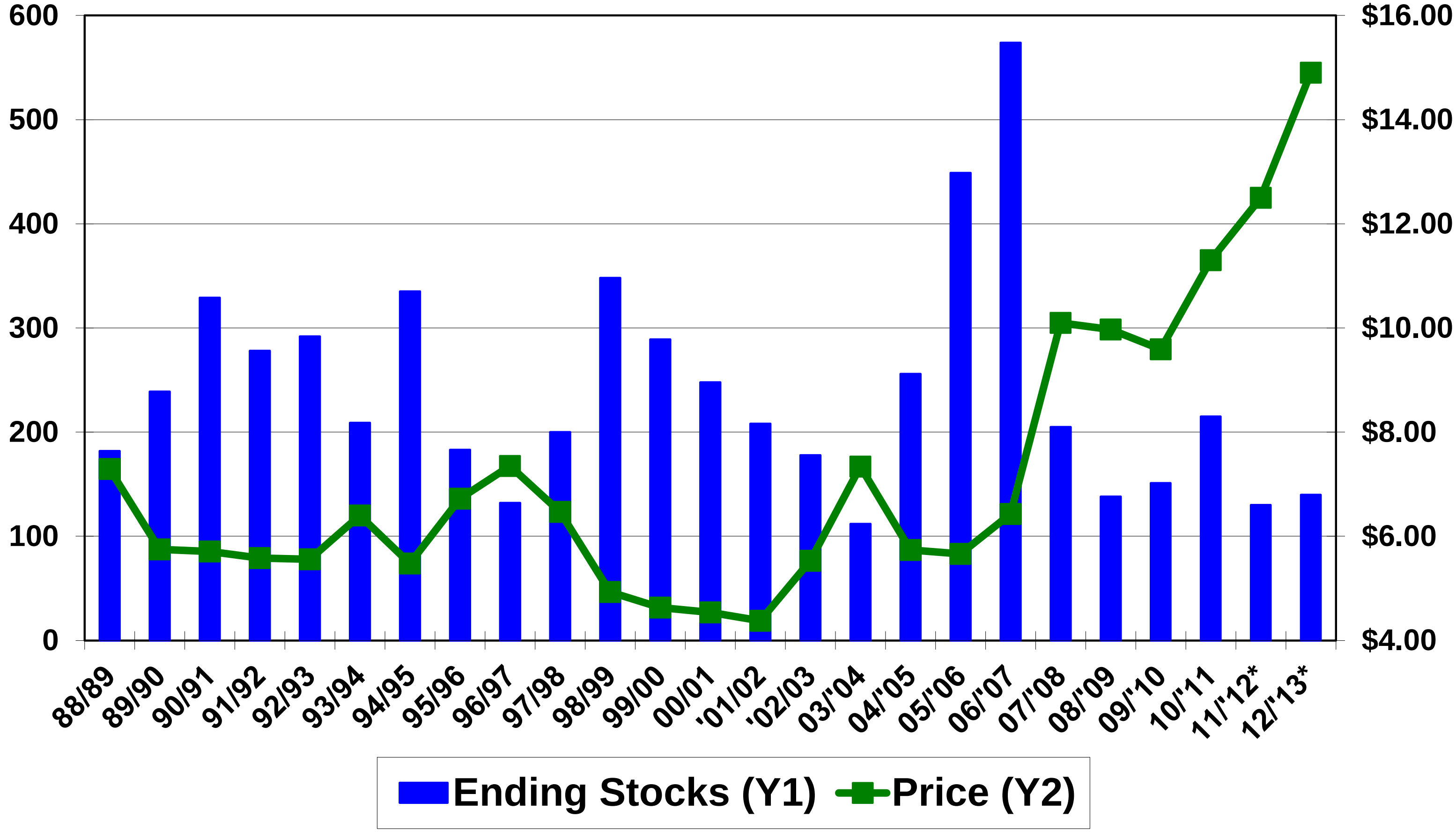
U.S. Soybean Ending Stocks vs. Price



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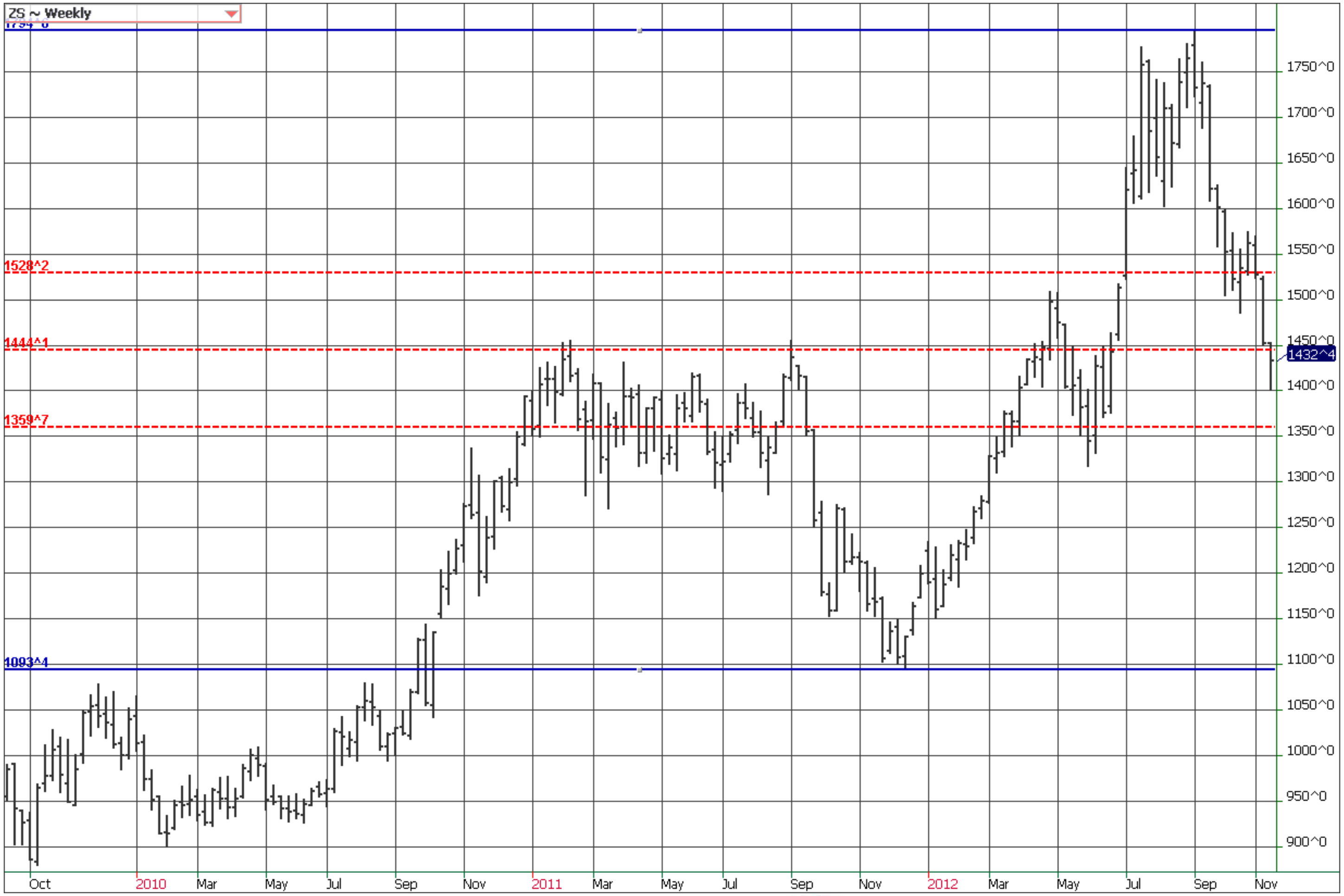
Weekly Soybean Futures



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Wrap-Up

- Supply/Demand Factors
  - Will ingredients you want be available?
- Price has played a key role
  - Ingredient cost & Commodity prices
  - Price sensitivity
  - Formulation of least cost formula
- Intersection of Innovation and Economics

Contact Information

Stephen S. Nicholson

Chief Economist

International Food Products

150 Larkin Williams Ind. Ct.

Fenton, MO 63026

636.717.2100 x1292

snicholson@ifpc.com

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