The Role of Academia in Policy Making: The Example of FAPRI

By
William H. Meyers
Howard Cowden Professor of Agricultural and Applied Economics
FAPRI at MU

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College of Agriculture, Food and Natural Resources

Food and Agricultural Policy Research Institute
FAPRI

Agenda

- Why is market and policy analysis needed?
- What is FAPRI and the FAPRI analysis process?
- How could it apply to market and policy analysis in Turkey ?

Unknowns and uncertainties

- **High volatility likely to continue**
- **Major uncertainties in the markets**
  - Policy proposals and policy reactions
  - Oil/Energy price
  - Exchange rates
  - World price surges
  - Financial crisis
  - Weather events/climate change

Who needs information/analysis?

- Government and legislative bodies
- agribusiness firms and trade associations
- farmers and farm organizations
- NGOs,
- public,
- other analysts
- other governments (EU, US etc)

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What is FAPRI and the FAPRI analysis process?

Mission

- Provide **objective policy impact analysis** on contemporary issues related to agricultural markets and policies.

Clients

- **US Congress**, US Government, agribusiness firms, farmers, NGOs, public, other modelers and other governments

Funding and Management

FAPRI analytical system

- **Multi-market** (models linked across commodities and countries)
- **Dynamic** (markets adjust over time)
- **Partial equilibrium** (macro-economic conditions treated as given)
- **Non-spatial** (country total exports/imports, not trade flow matrix)
- **Hybrid** (some portions estimated econometrically, some synthetic)
- **Policy-rich** (detailed and explicit)
- **Critical role of analyst's expertise**

FAPRI model structure

- Built to generate the main commodity Supply & Use tables
- Commodity prices
- Input costs and farm net returns
- Government costs
- Consumer expenditures and food CPI
- See examples

U.S. Corn Supply and Utilizatio

September-August year	10/11	11/12	12/13	13/14	14/15
Area				(Million acres)	
Planted area	88.2	91.9	96.4	96.1	93.1
Harvested area	81.4	84.0	87.4	88.1	85.5
				(Bushels per harvested acr	
Yield	152.8	147.2	123.4	163.2	165.7
				(Million bushels)	
Supply	14,182	13,511	11,875	15,056	15,695
Beginning stocks	1,708	1,128	1,021	645	1,510
Production	12,447	12,358	10,779	14,386	14,159
Imports	28	25	75	25	25
Domestic use	11,220	10,940	9,990	11,655	11,965
Feed and residual	4,793	4,550	4,175	4,852	4,855
Fuel alcohol	5,021	5,000	4,466	5,368	5,649
HFCS	521	495	467	490	501
Seed	23	24	24	23	23
Food and other	862	871	858	922	936
Exports	1,835	1,550	1,240	1,890	2,055
Total use	13,055	12,490	11,230	13,546	14,020
Ending stocks	1,128	1,021	645	1,510	1,675
Under loan	48	100	70	85	110
Other stocks	1,080	921	575	1,425	1,564

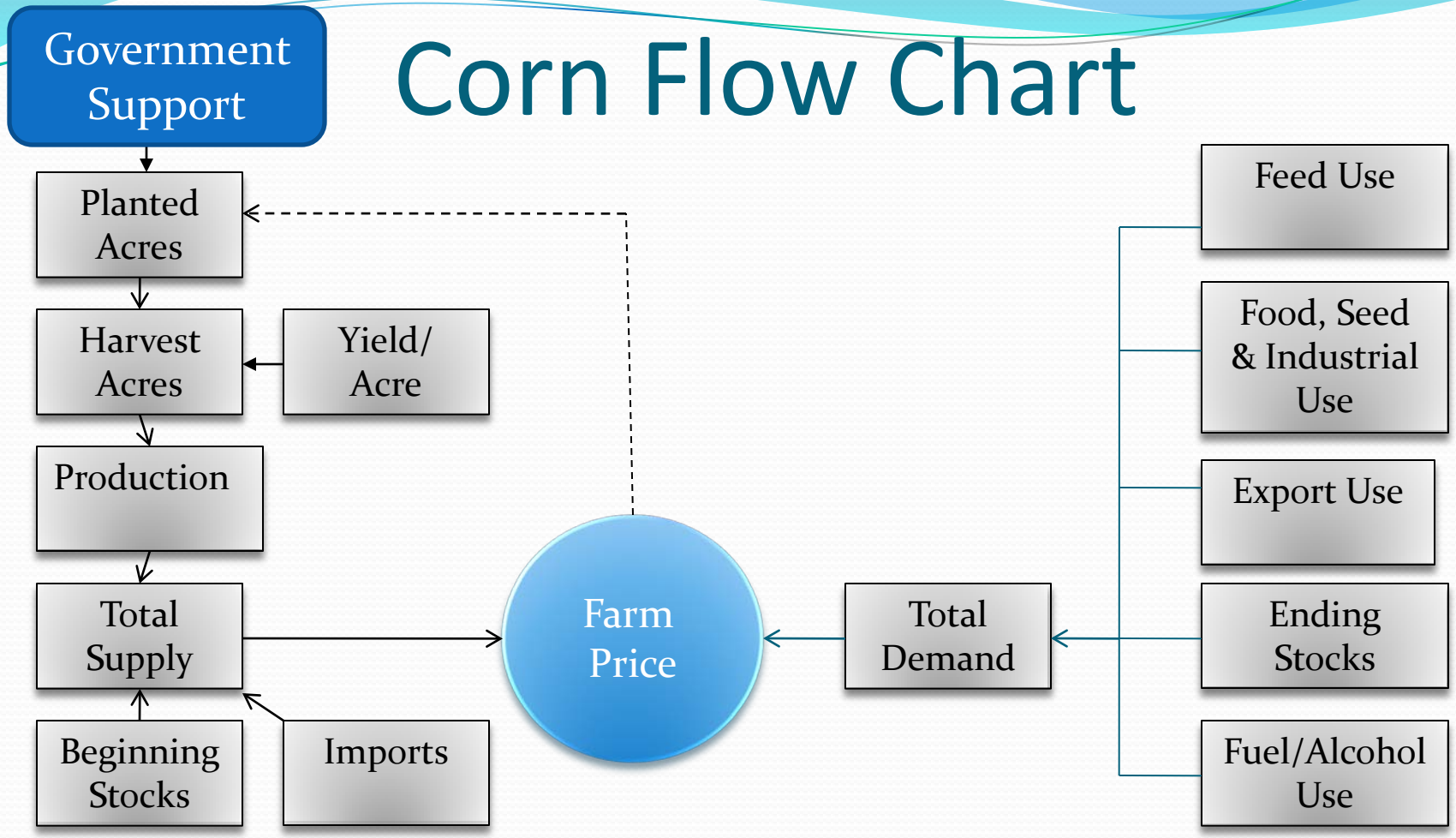
Corn prices, policies and returns

Prices, program provisions				(Dollars per bushel)	
Farm price	5.18	6.25	8.10	5.20	4.86
Loan rate	1.95	1.95	1.95	1.95	1.95
Target price	2.63	2.63	2.63	2.63	2.63
Direct payment rate	0.28	0.28	0.28	0.28	0.28
Market returns				(Dollars)	
Gross market revenue/a.	791.63	919.73	999.95	849.63	805.82
Variable expenses/a.	280.05	322.06	344.57	355.16	368.52
Market net return/a.	511.58	597.67	655.38	494.47	437.30

U.S. Consumer Food Price Inflation

Calendar year	2010	2011	2012	2013	2014	2015
			(Change from the previous year)			
FOOD	0.8%	3.7%	3.3%	4.2%	1.5%	1.3%
Food at home	0.3%	4.8%	3.6%	4.4%	1.0%	1.1%
Cereal and bakery	-0.8%	3.9%	4.2%	3.8%	-1.3%	1.3%
Meat	1.9%	7.4%	5.1%	5.0%	2.0%	0.7%
Dairy	1.1%	6.8%	3.1%	4.0%	1.9%	1.7%
Fruits and vegetables	0.2%	4.1%	1.1%	5.1%	0.6%	2.2%
Other food at home	-0.1%	3.3%	3.6%	3.7%	1.8%	0.4%
Food away from home	1.3%	2.3%	3.0%	3.9%	2.0%	1.4%

Corn Flow Chart



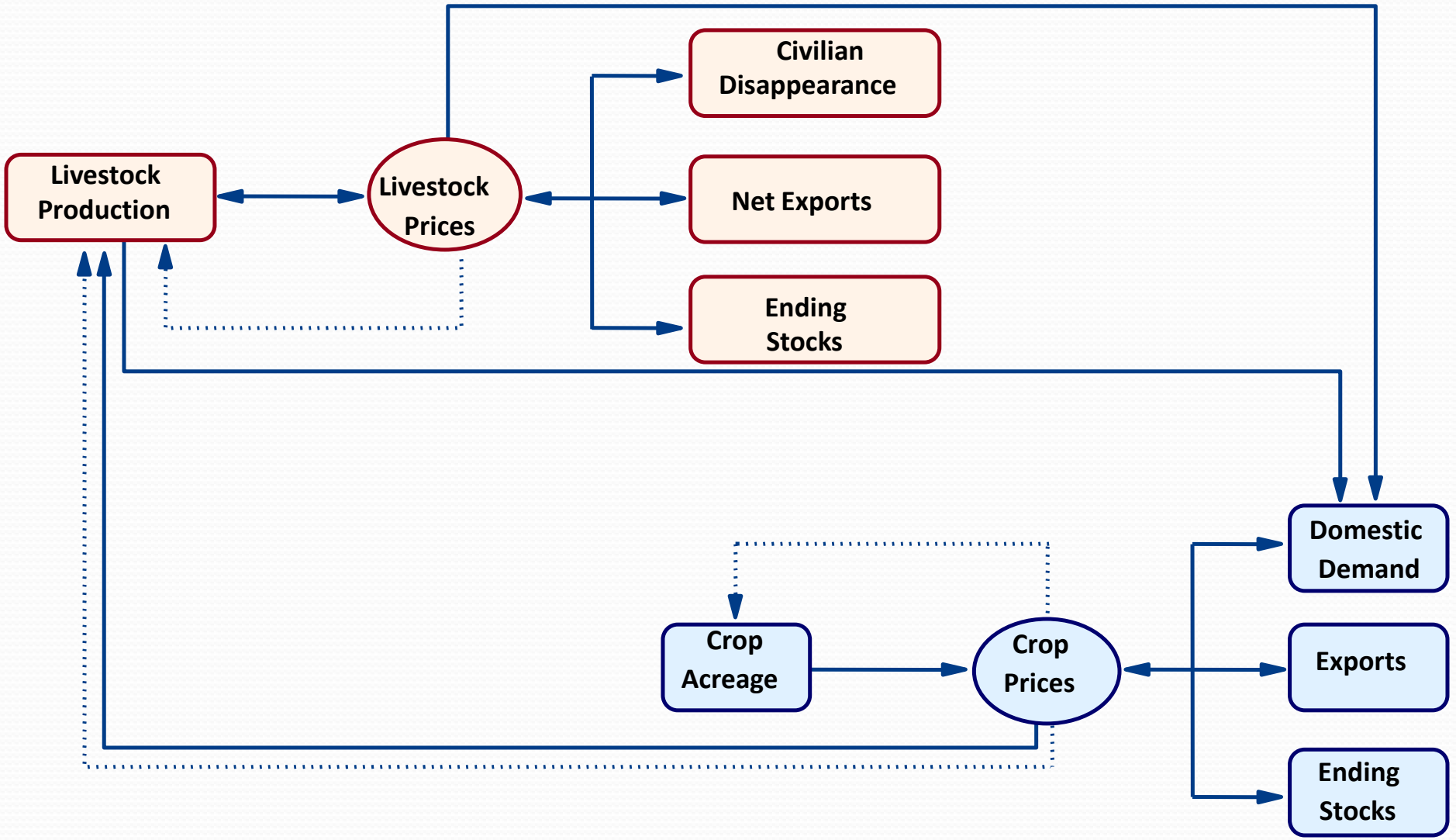
Supply=Demand

Production + Beginning Stock + Imports =

Feed + Food, Seed, Industrial + Exports + Ending Stocks + Fuel/Alcohol

Model Structure

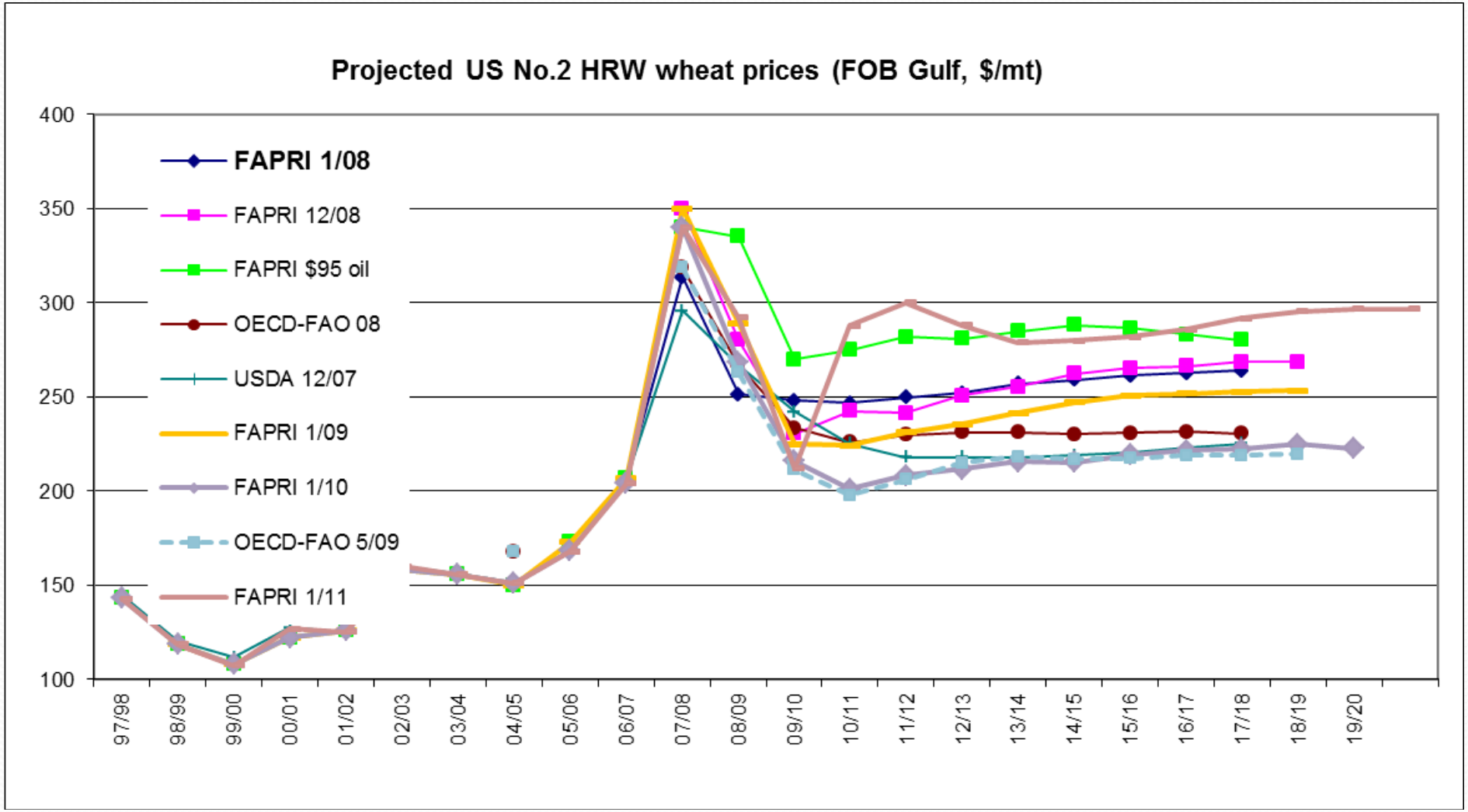
Interaction Between the Livestock and Crop Models



What is a baseline and how is it used?

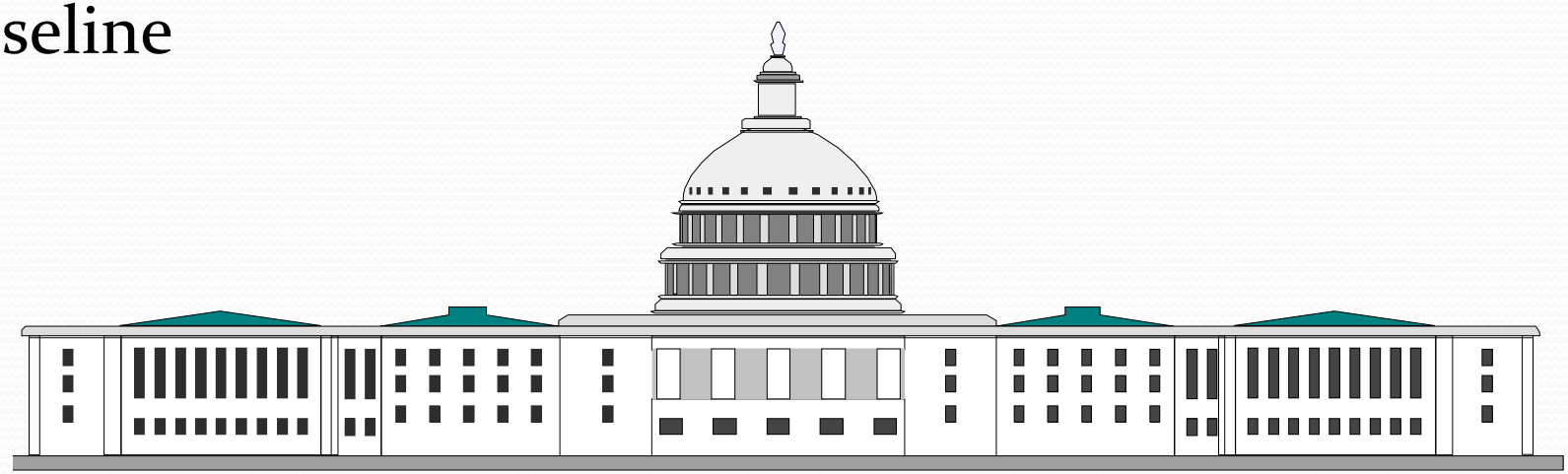
- It is not a forecast
- It is a projection based on a set of reasonable assumptions about
  - Macroeconomic outlook
  - Technology outlook
  - Policy outlook

From different times and sources



Macro outlook and Policy in the Baseline

- GDP growth, exchange rates, inflation, etc come from latest **IHS Global Insight** forecasts
- Baseline assumes **current policies** remain in place
- Changes that may come as result of WTO agreement or new legislation in any country is a **scenario of change** from this baseline

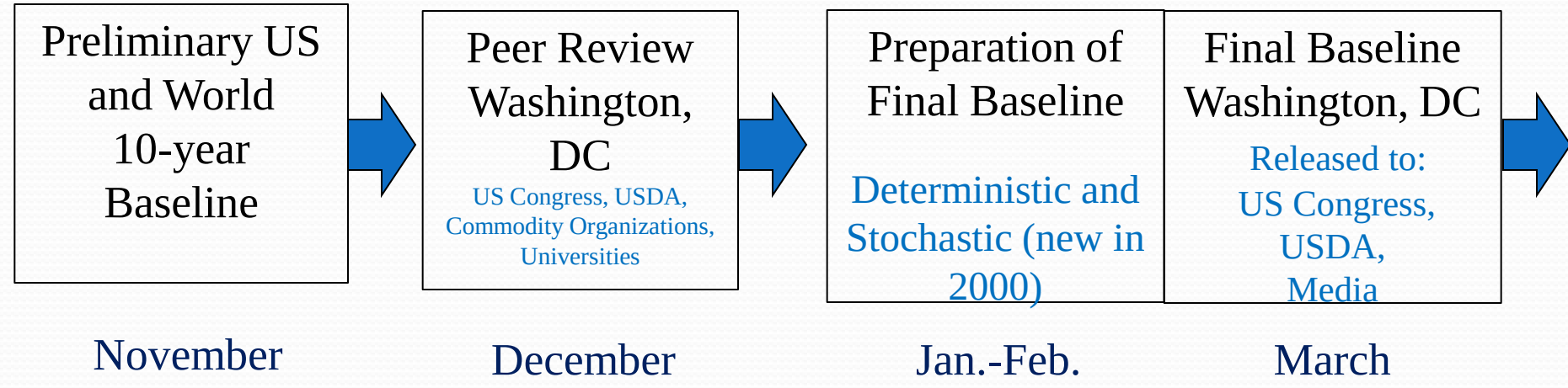


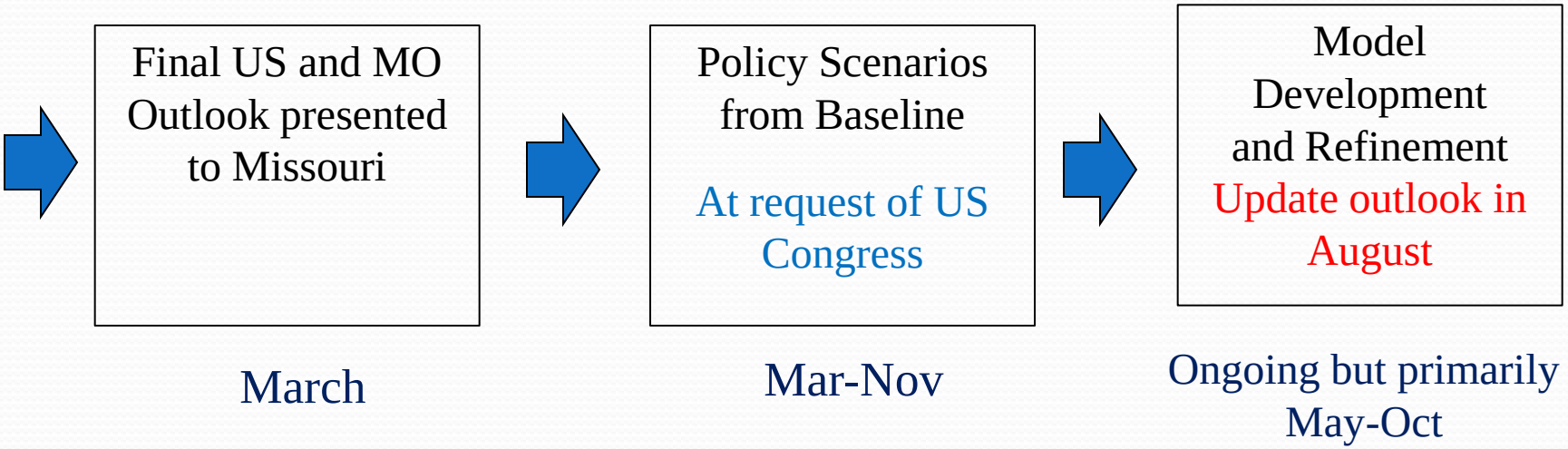
Technology and weather in the Baseline

- Baseline assumes **average rates** of technological change.
- Means that crop yields increase based on historical trends **and prices**.
- **Normal weather** is assumed BUT historical yield variations are used for stochastic analysis

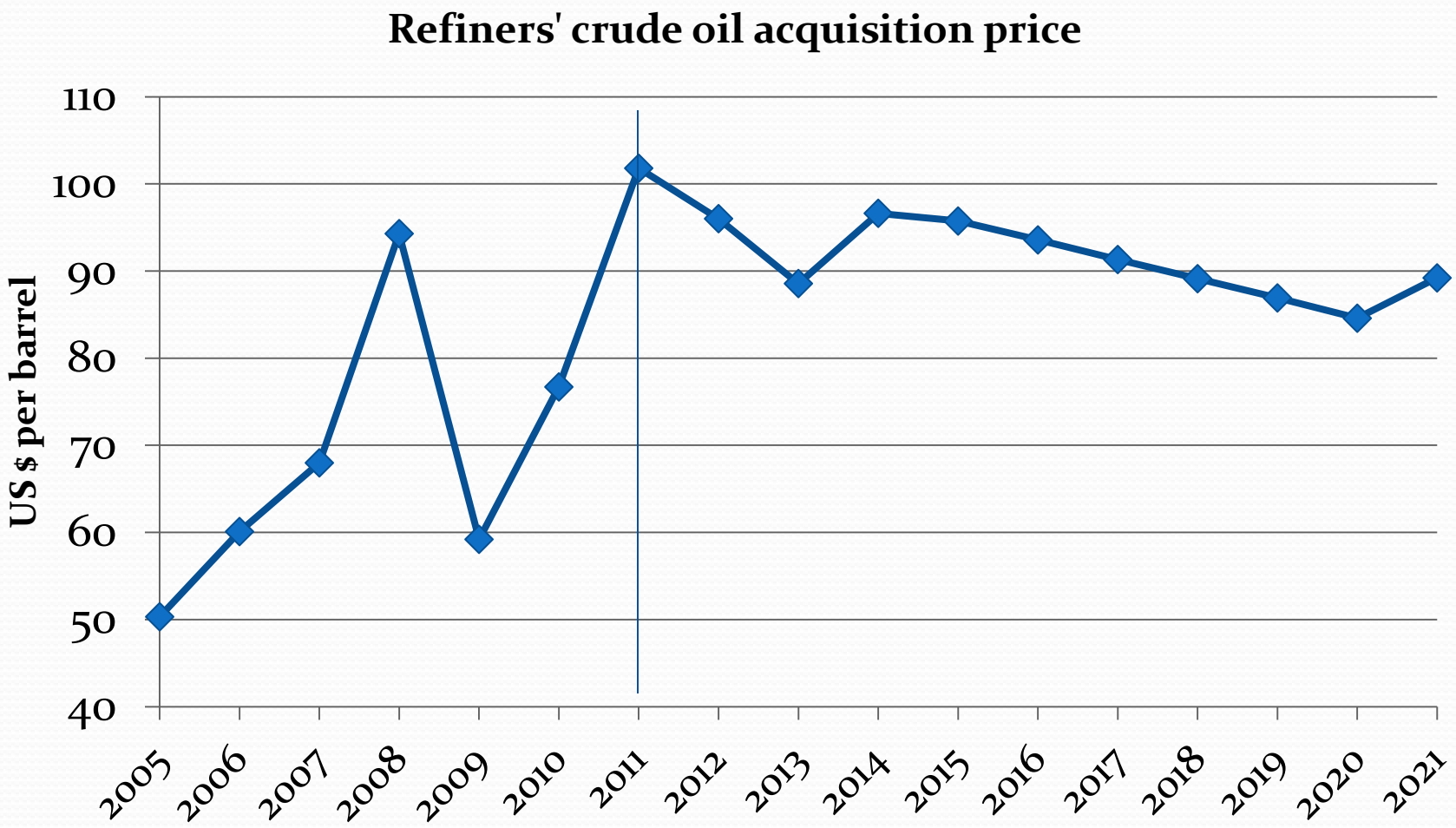
FAPRI-MU Baseline Process

This basic design has been in place for 28 years

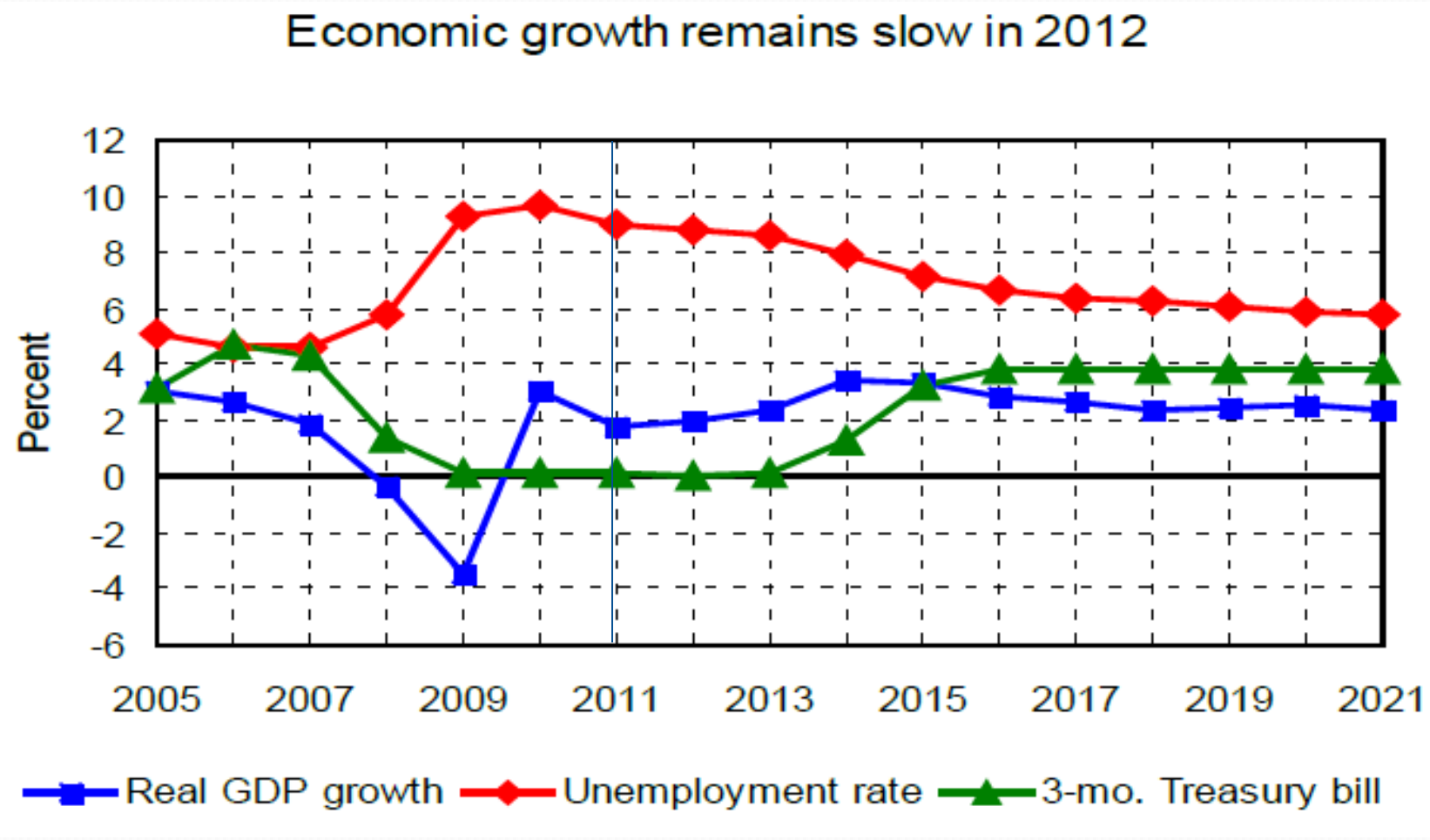




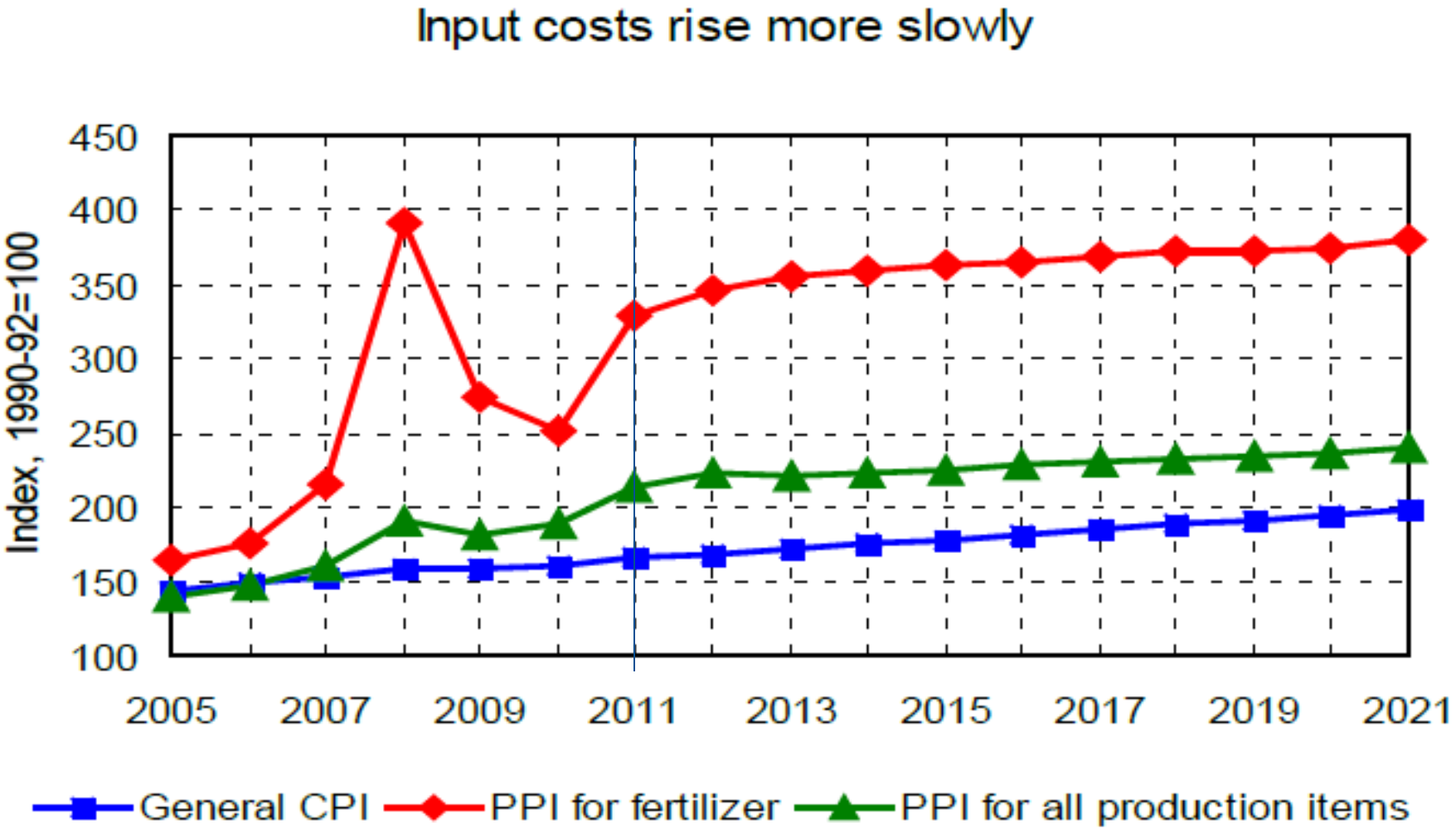
Oil price assumption



US Macroeconomic assumptions



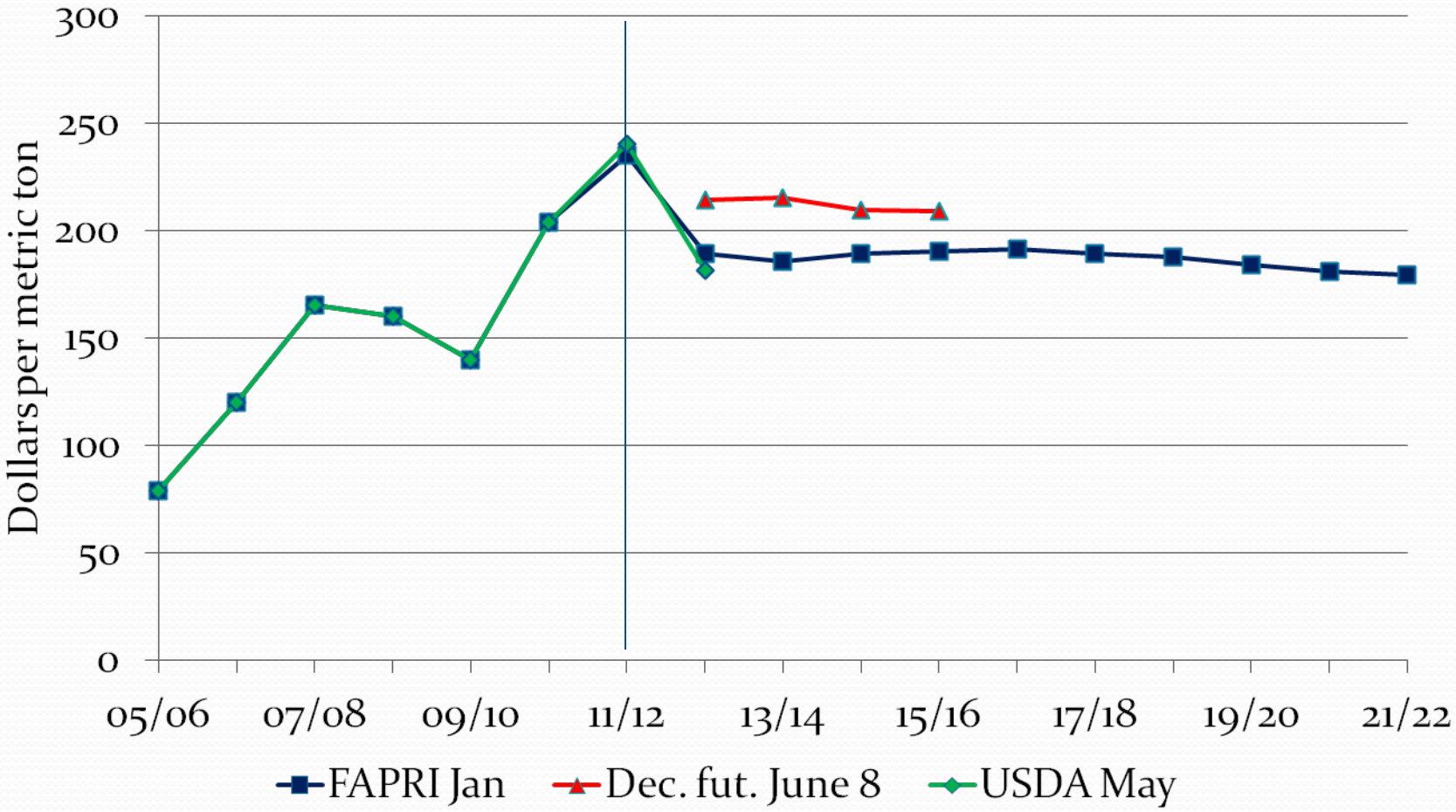
US input cost assumptions



What happened this year?

- US drought greatly changed market outlook
- FAPRI updated the baseline in August
- Briefly review that change
- A taste of August 2012 outlook

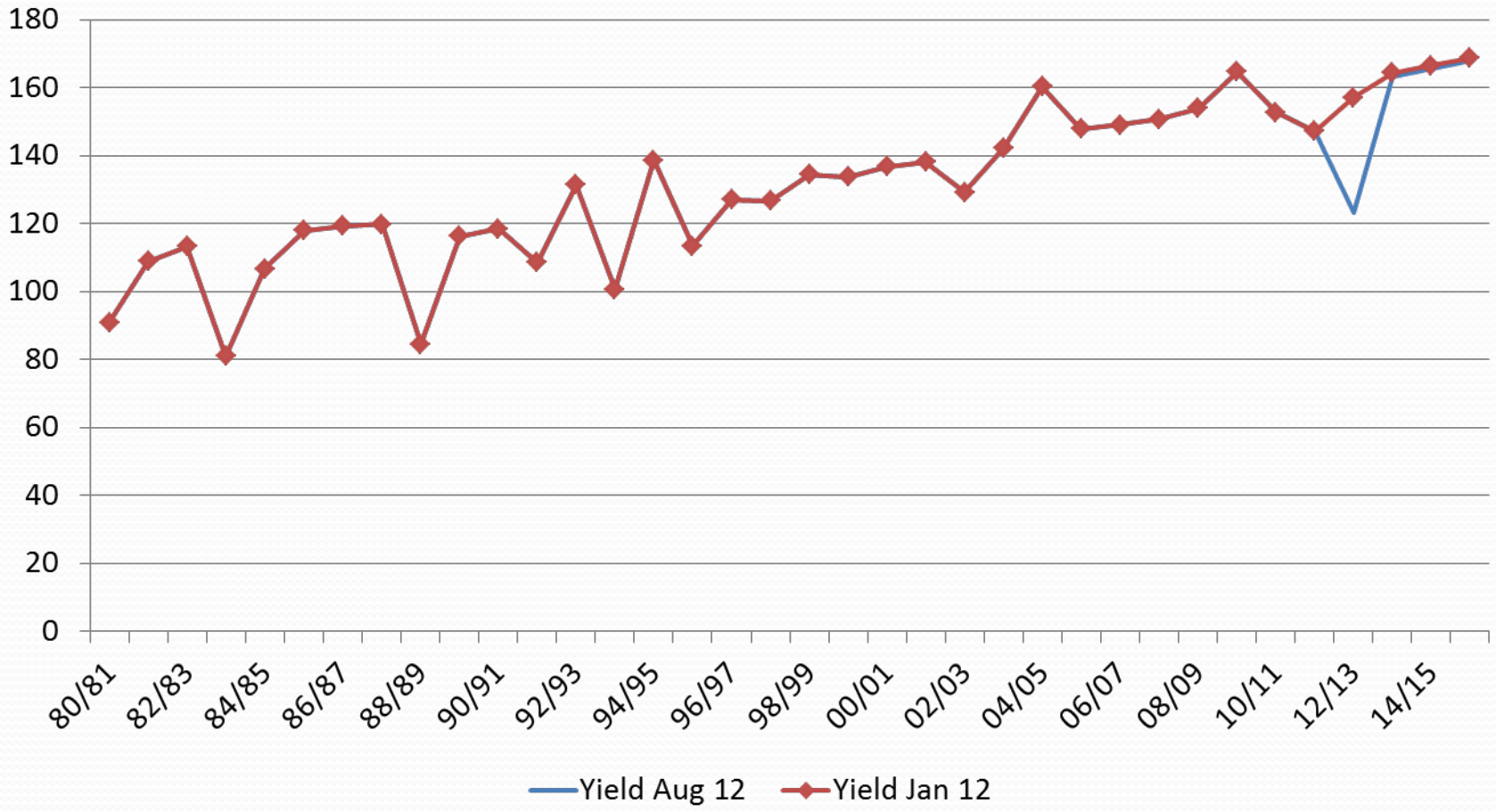
U.S. maize farm price projections, Jan 2012



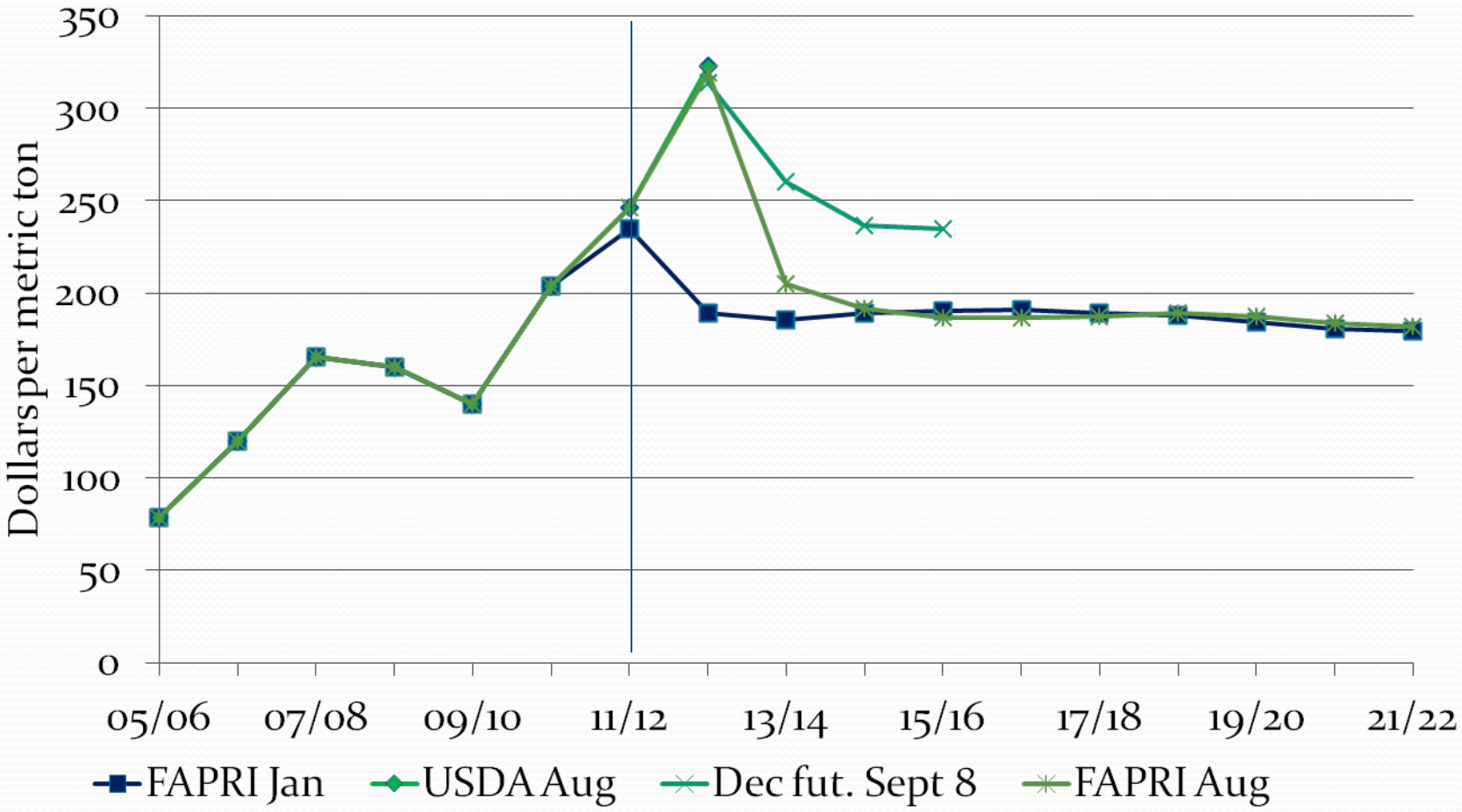
Sources: FAPRI-MU baseline, Jan. 2012; USDA, May 2012; CME Dec. contracts, June 8, 2012

Drop in US corn yield, bu/ac

--three in a row!

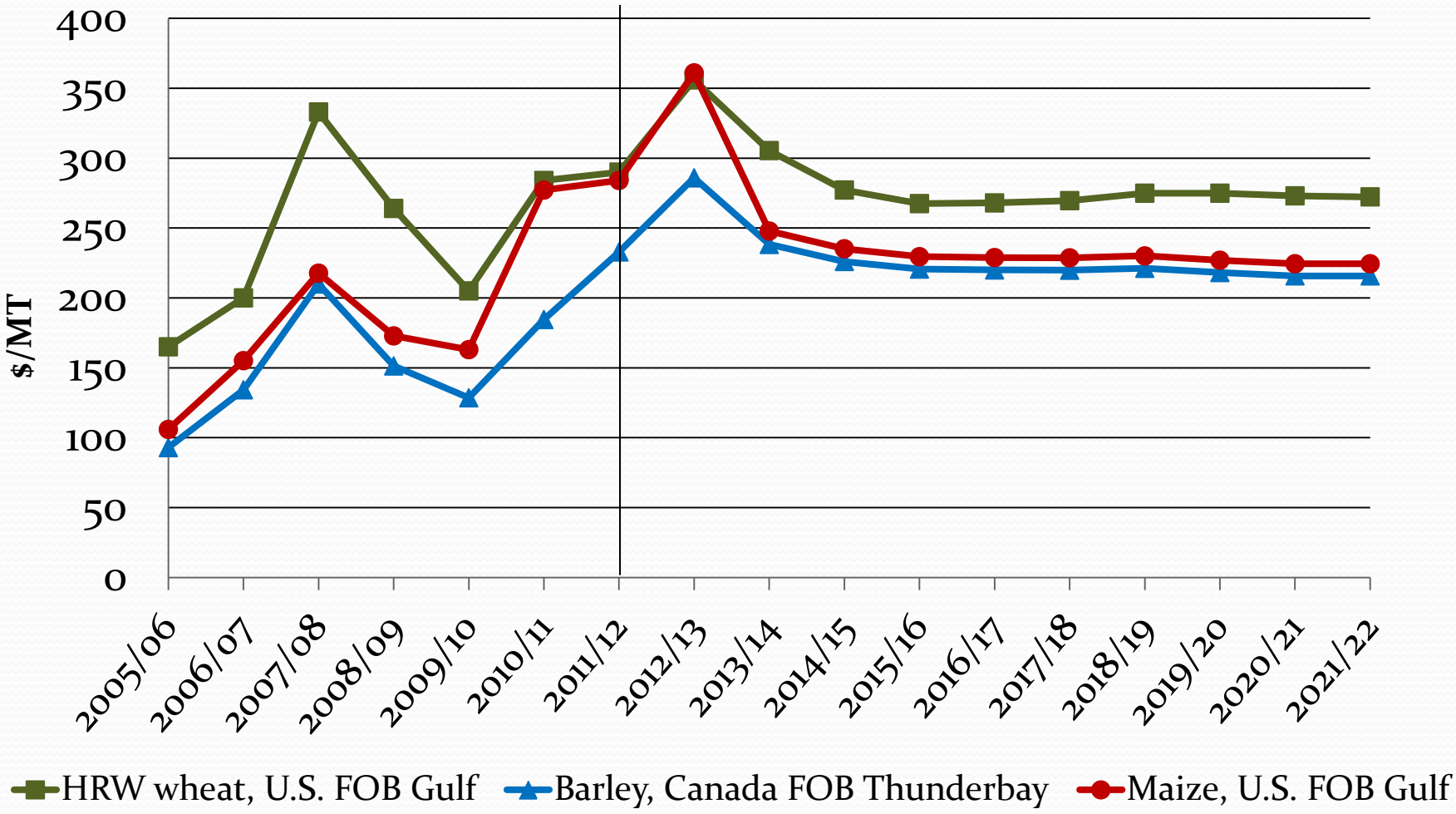


U.S. maize farm price projections, August 2012

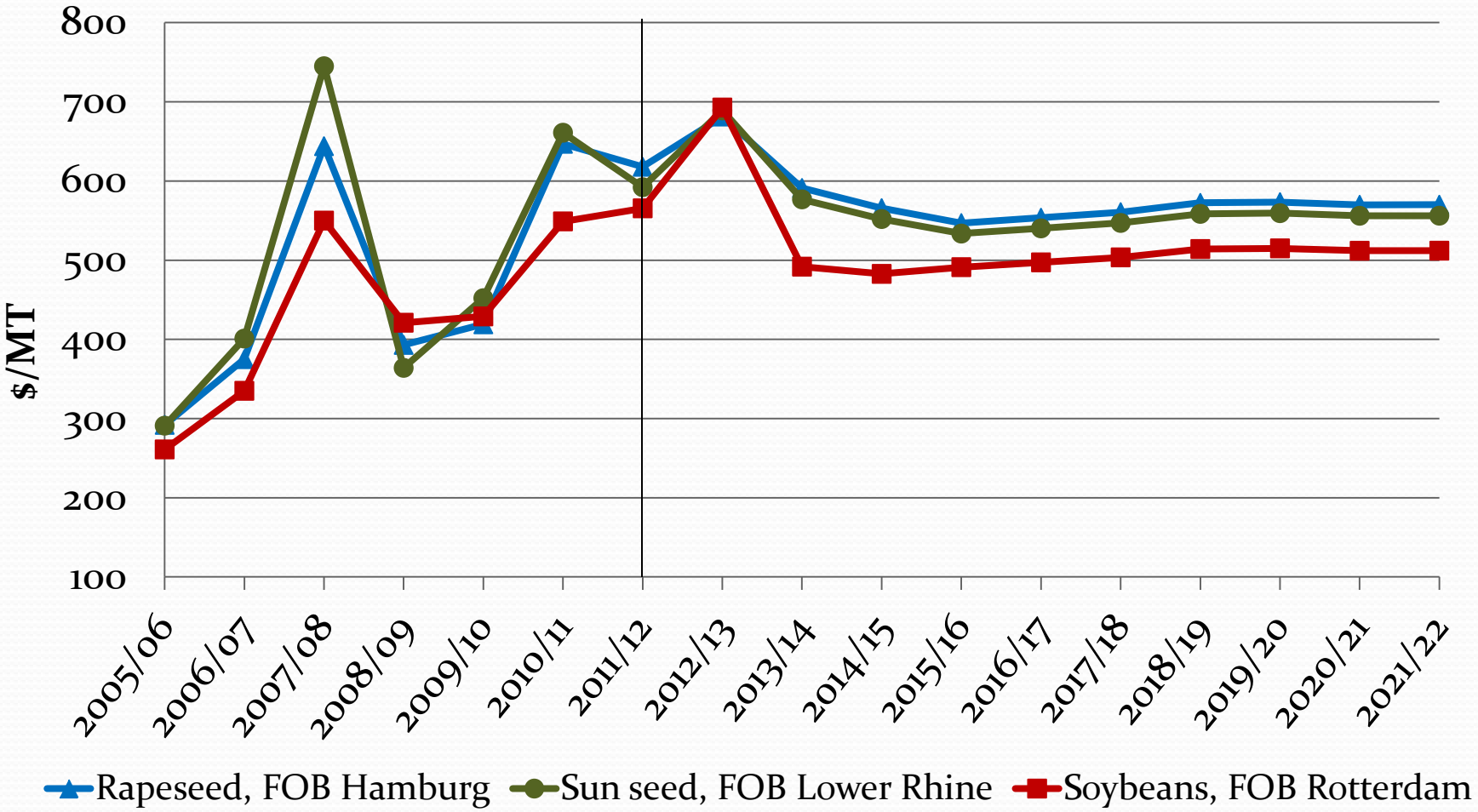


Sources: FAPRI-MU baseline, Jan. and Aug 2012; USDA, Aug 2012; CME Dec. contracts, Sept 7 2012

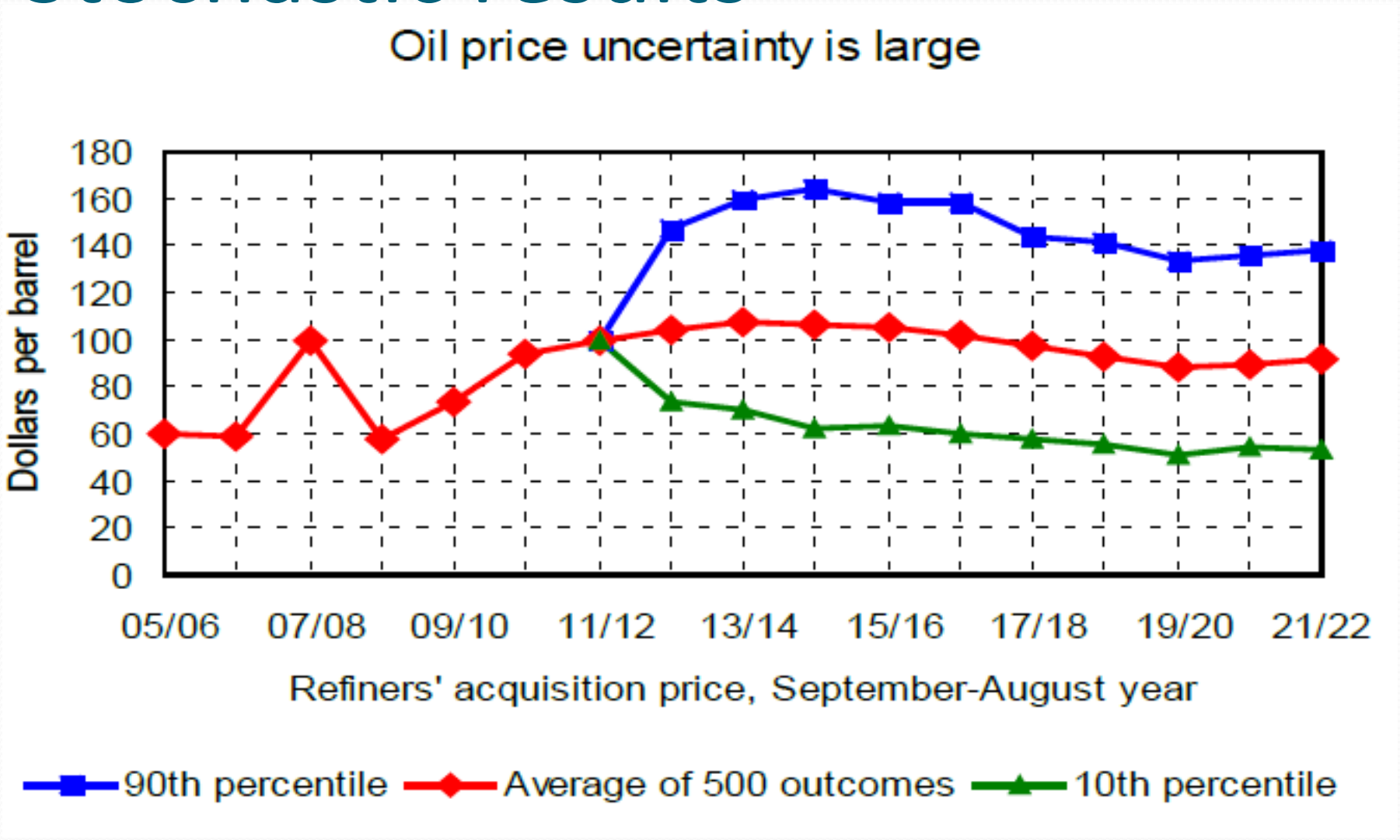
World Grain Prices, Aug update



World Oilseed Prices, Aug update

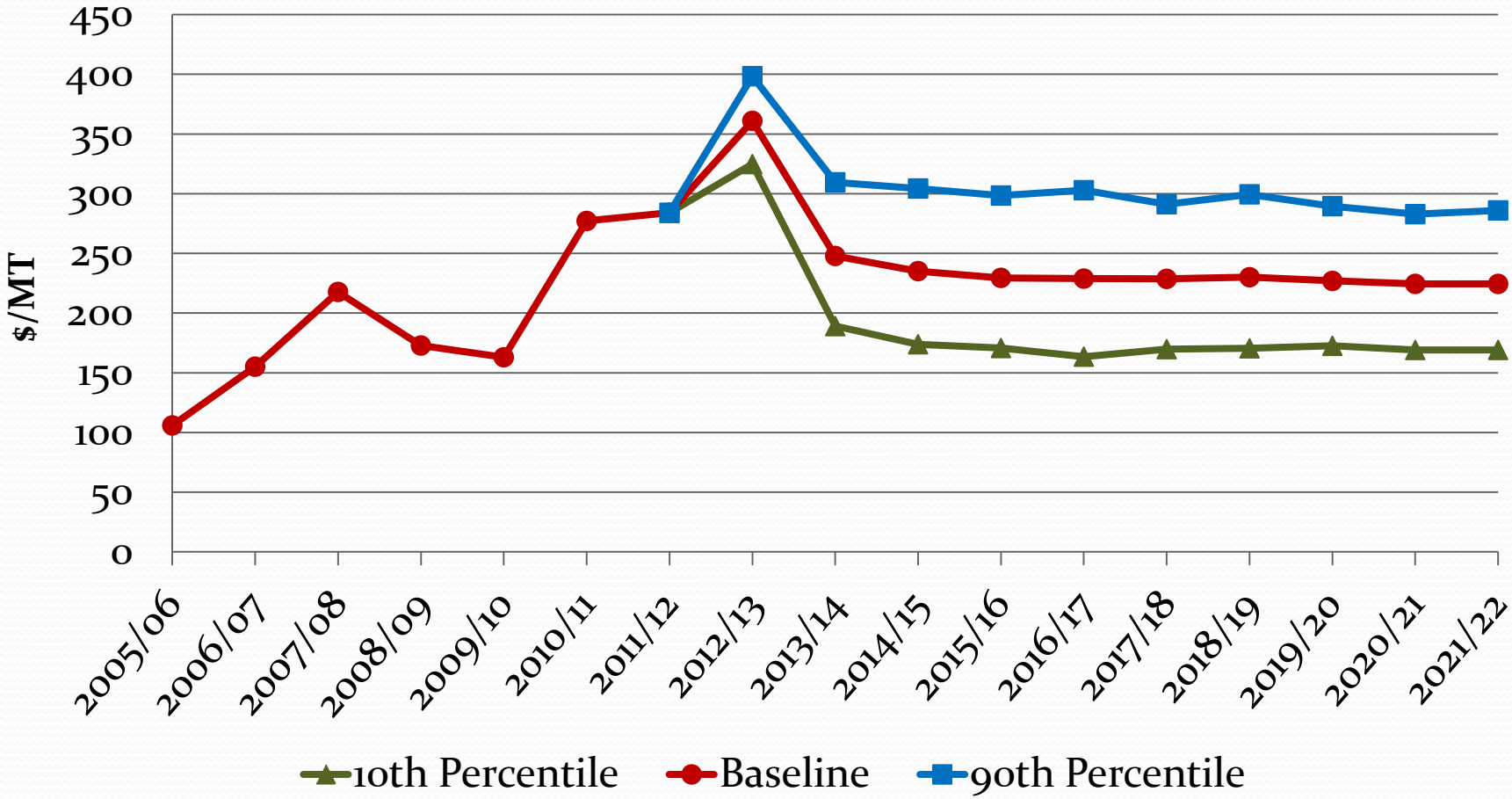


Stochastic results



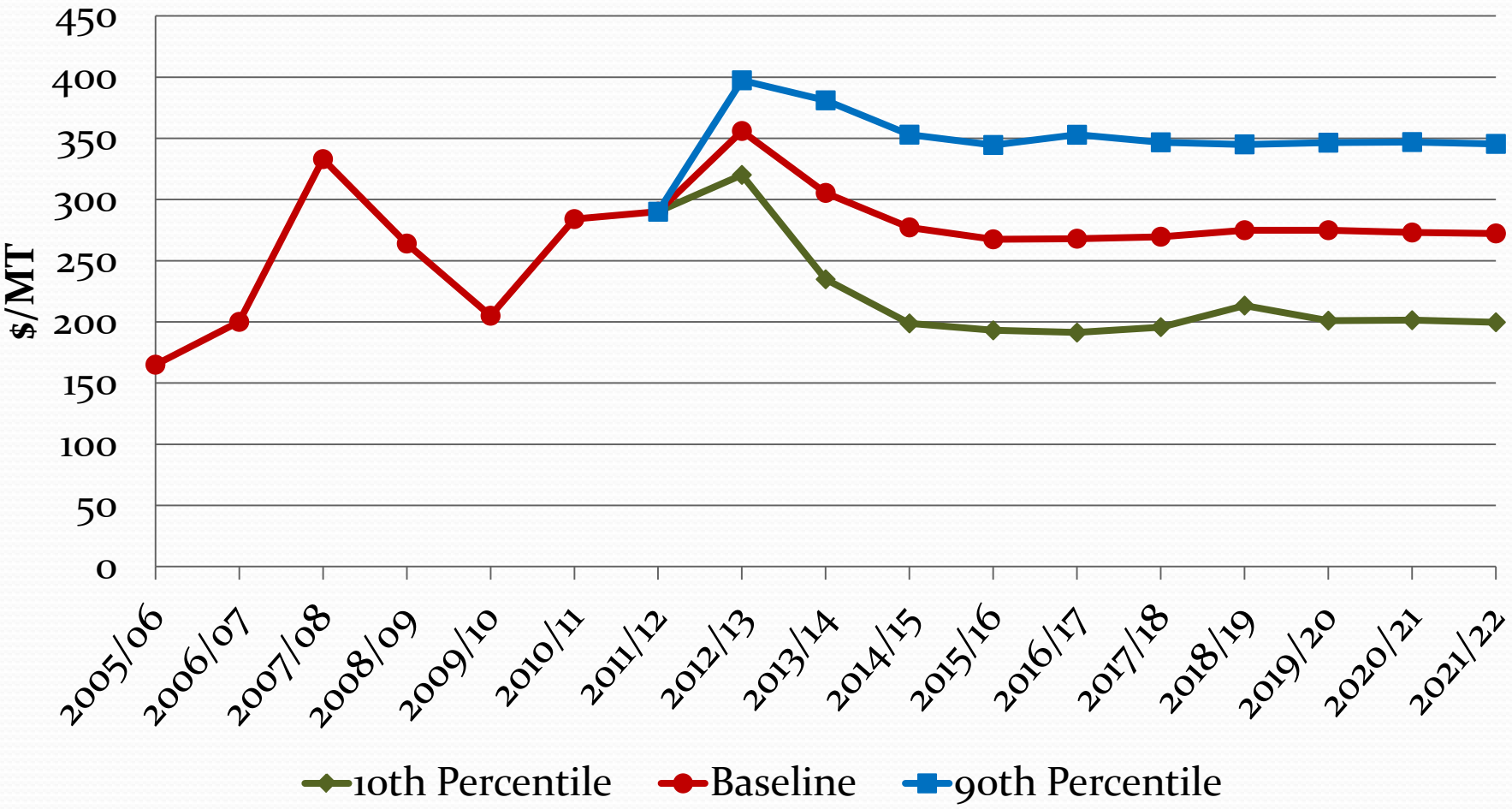
Page 64 of US Baseline 2012 Briefing Book

Maize price volatility to continue



Source: FAPRI-MU August 2012 stochastic baseline, US FOB GULF PRICE

Wheat Price Uncertainty



Source: FAPRI-MU August 2012 stochastic baseline, HRW WHEAT US FOB GULF

How does FAPRI utilize the baseline models for policy analysis?

- FAPRI's models fine-tuned and expanded for over 28 years
- After the Baseline, conduct **policy scenarios**
- FAPRI **never advocates** for or against a policy
  - We provide the possible outcomes for a given set of assumptions – What If?
  - Policy makers are the "deciders"

How to put numbers on impacts

- Suppose an import tariff is used?
- How does it impact other crops?
- Impact livestock?
- Impact farmers, consumers, government cost, trade volume and value, farm income?

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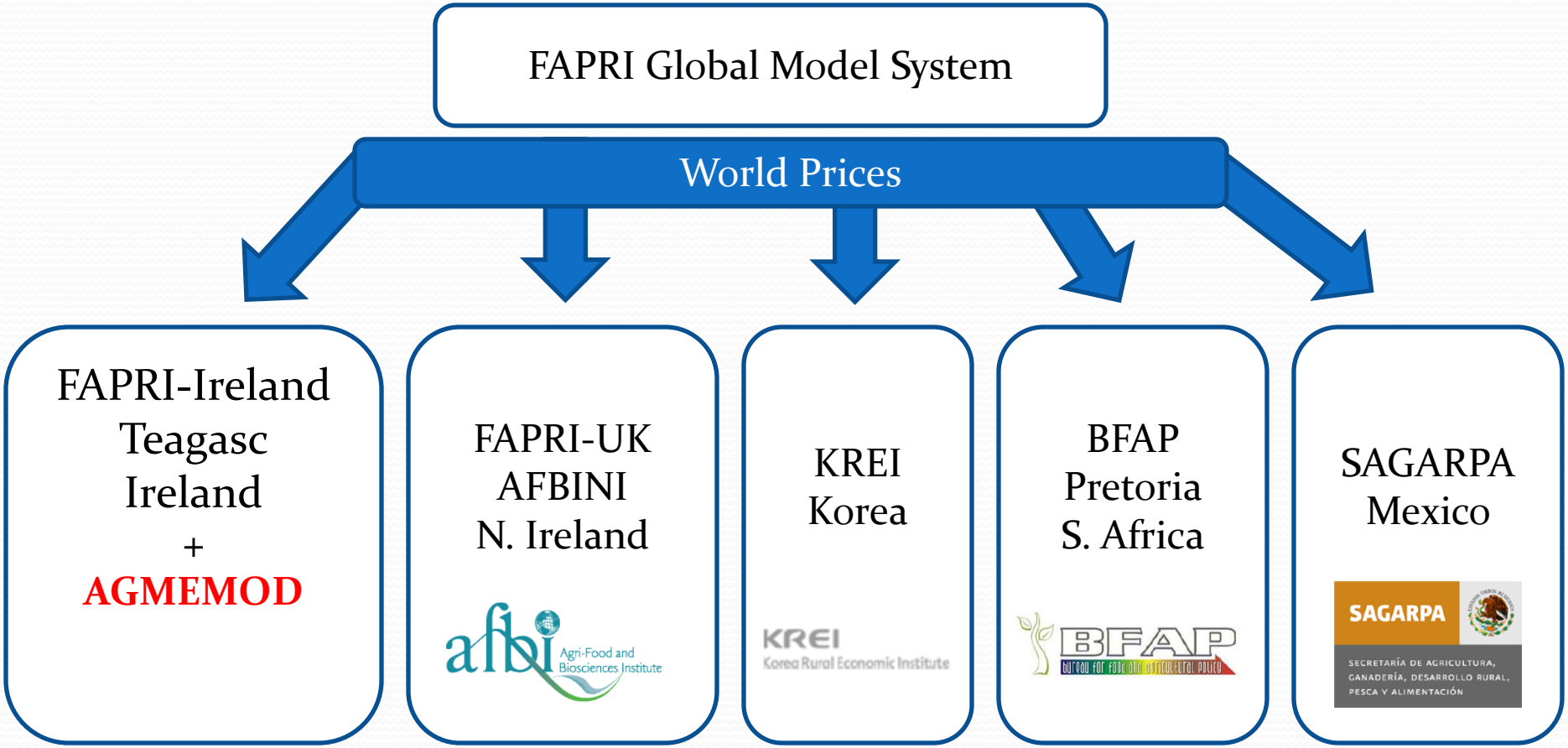
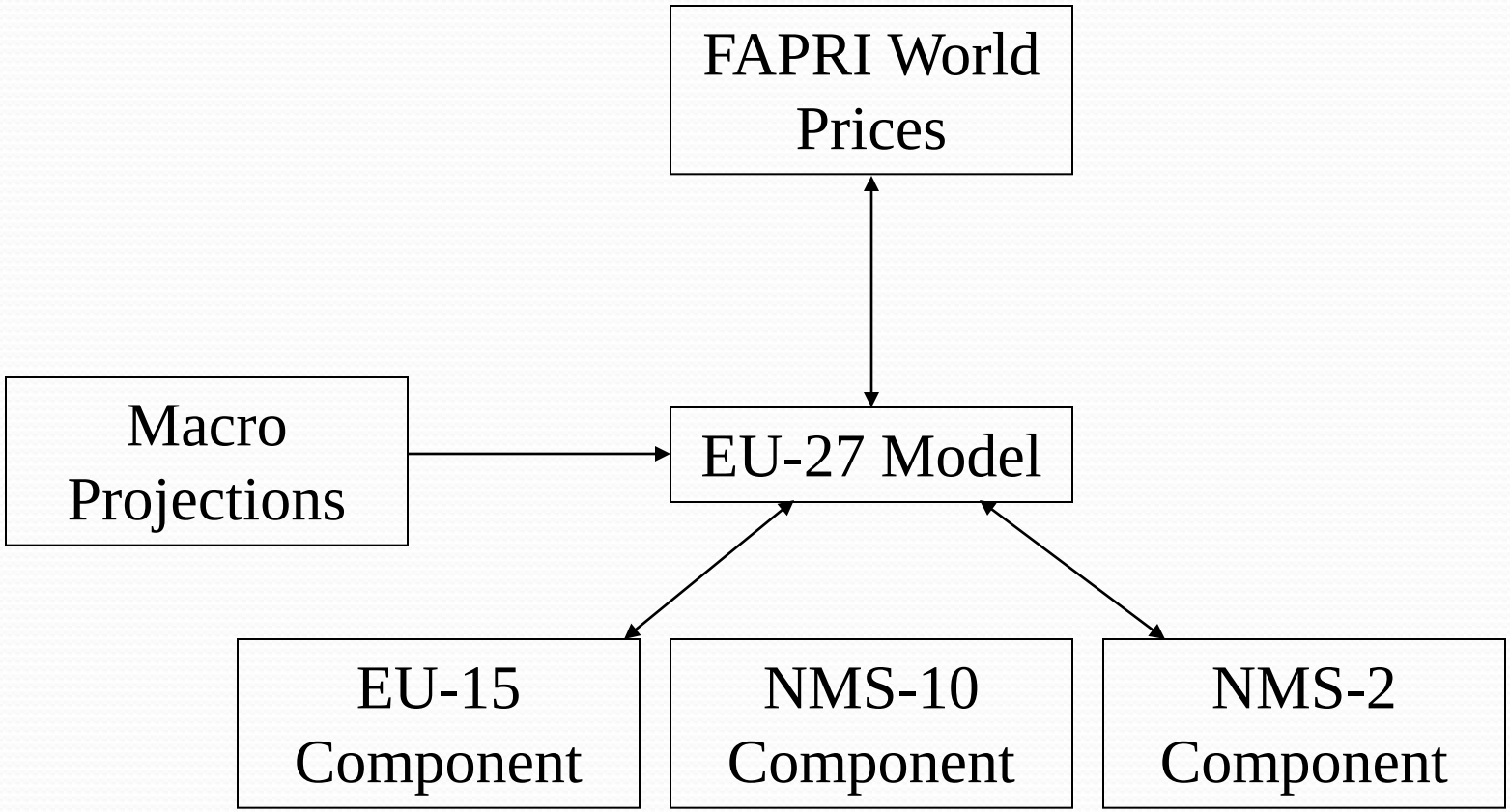
Examples of International Collaboration



Building a Turkey country model

- Use the EU GOLD model framework
- Start with the most important commodities
- Link Turkey prices to FAPRI European and world market prices
- Start simple and expand size and scope
- Continue to enhance and refine

Structure of EU GOLD models



Expertise Needed

- Strong economics training
- Strong market knowledge -- agricultural markets, policies and industries
- Strong working knowledge of Excel, SAS
- Very careful with data to ensure data validity and model stability
- A few bright, well trained, hard working analysts!

Thank you!

Contact information:

email: meyersw@missouri.edu

web: www.fapri.missouri.edu