

Bioenergy implications: Trying to keep up

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Modeling to Support Policy Analysis”
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Here's the situation

- Like Bruce McCarl, I only saw two of the presentations in advance
- So I'll make a few points about the presentations and a few of my own

Khanna: Implications of biofuel production

- Many nice features in model, including
 - Terms of trade effects
 - Endogenous levels of fuel consumption
- One conclusion: RFS increases total fuel consumption due to lower fuel prices
 - More biofuel production reduces (producer) prices for gasoline—OK
 - But what about mandate compliance costs? If RINs have value, are they reflected in consumer fuel prices?
 - Net effect on consumer prices appears ambiguous

Smith: CRAM in bioenergy analysis

- Nice discussion of impacts of oil prices and carbon taxes
- In carbon tax scenario, interesting to see impacts on hay, livestock
 - Reminder that accounting GHG emissions important not just in model, but in “real world” implementation
 - At least in U.S., easy to imagine regulations that give farmers credit for changes in crop mix, but NOT charge producers for livestock emissions

Hellwinckel: Cellulosic feedstock data effects

- New data suggests
 - Lot more crop residues and standing trees
 - Lot less use of grasses
 - Net effect: far less sequestration, net carbon flux from agriculture increases over time
- Reminder that new data can change stories
- Aside: future of BCAP uncertain—may not continue

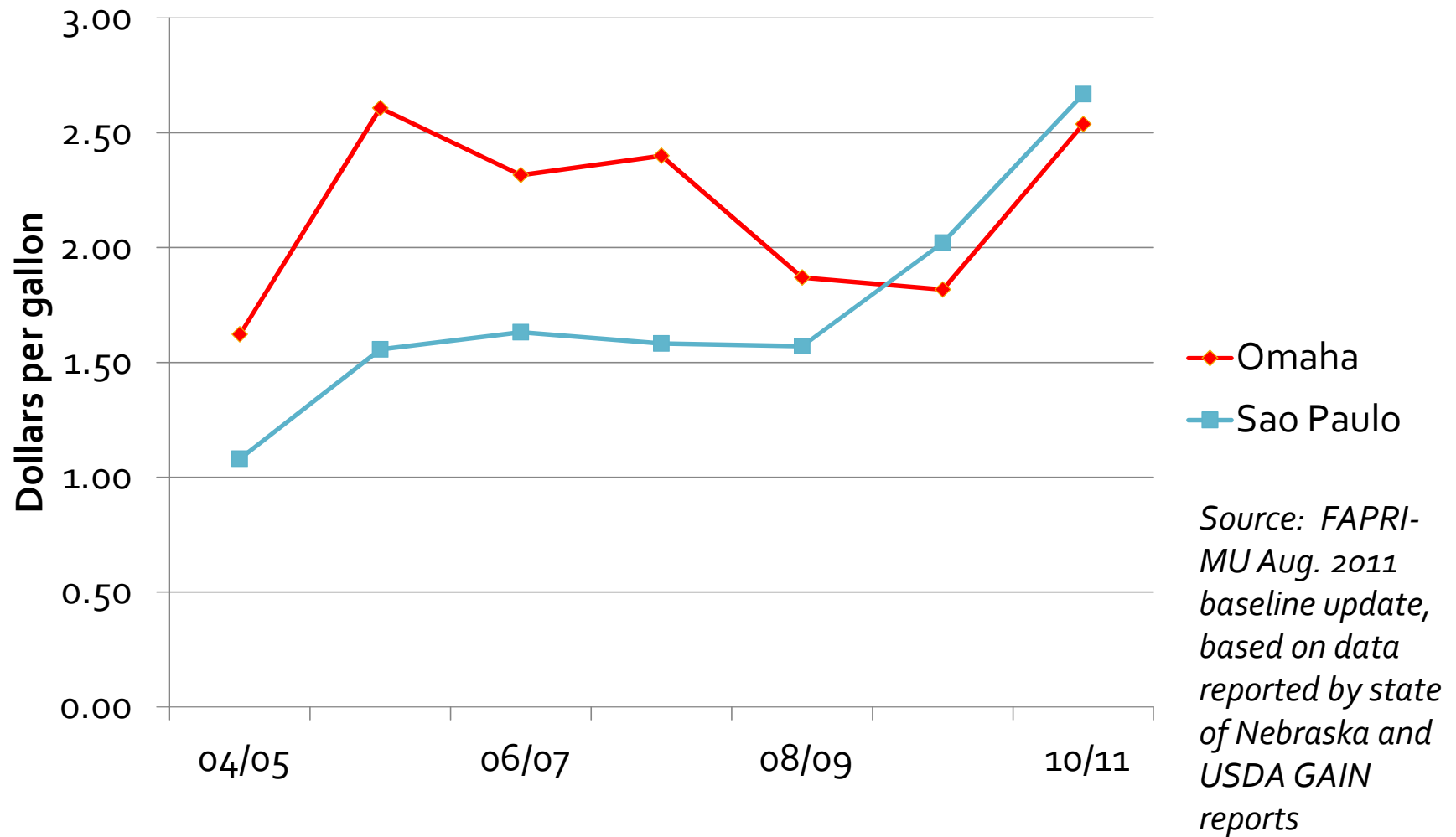
Galik & Abt: woody biomass

- Impacts appear very region- and assumption-specific
 - Price changes differ across regions
 - Assumptions about residue utilization matter a lot
- How much can we aggregate and stylize without missing what's important?

Birur: Policy impacts in a general equilibrium framework

- General equilibrium approach allows an internally consistent, global picture
- Lots of good and useful analysis
- One important question: has world changed in unexpected and important ways since 2004?

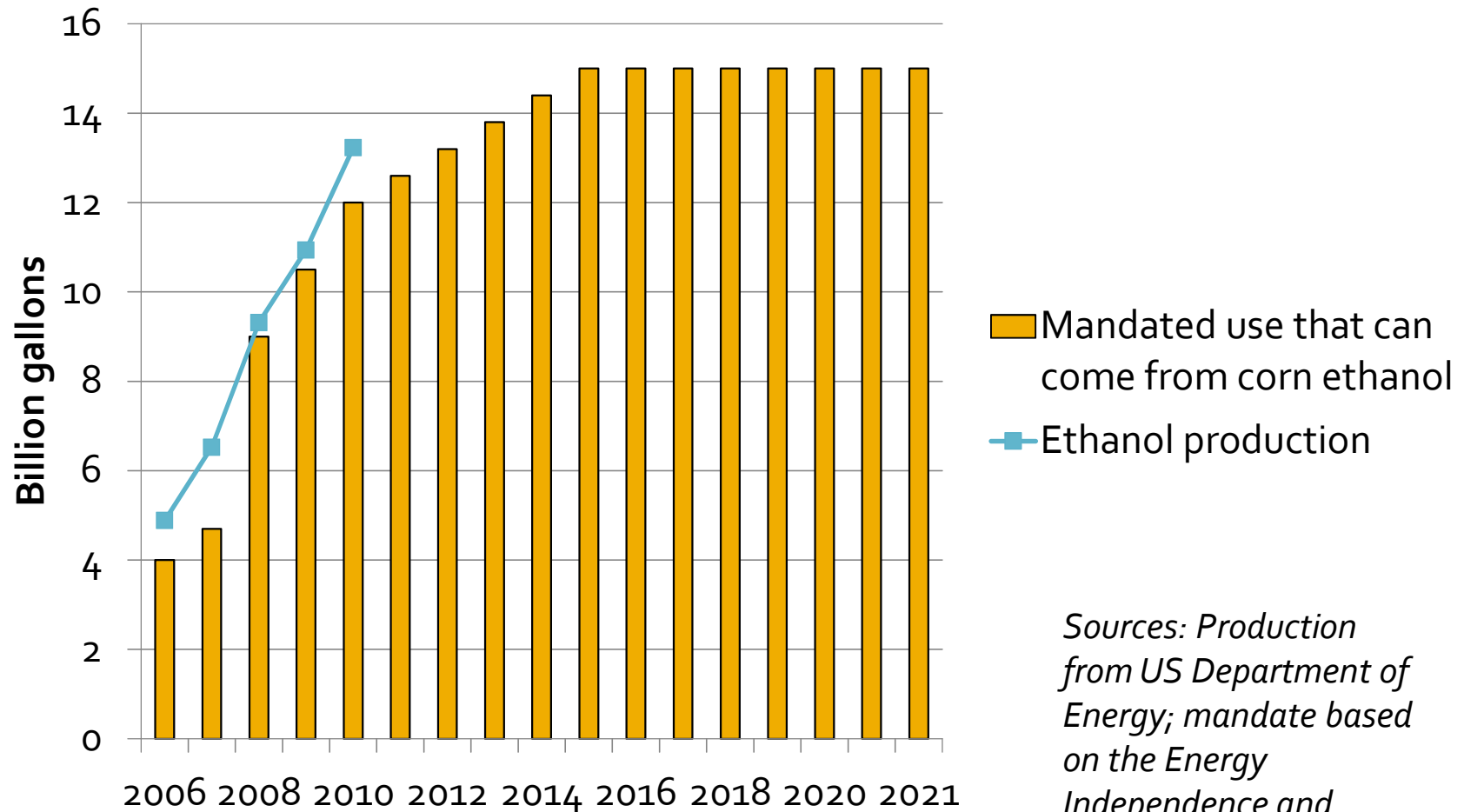
U.S. and Brazilian ethanol prices



Implications

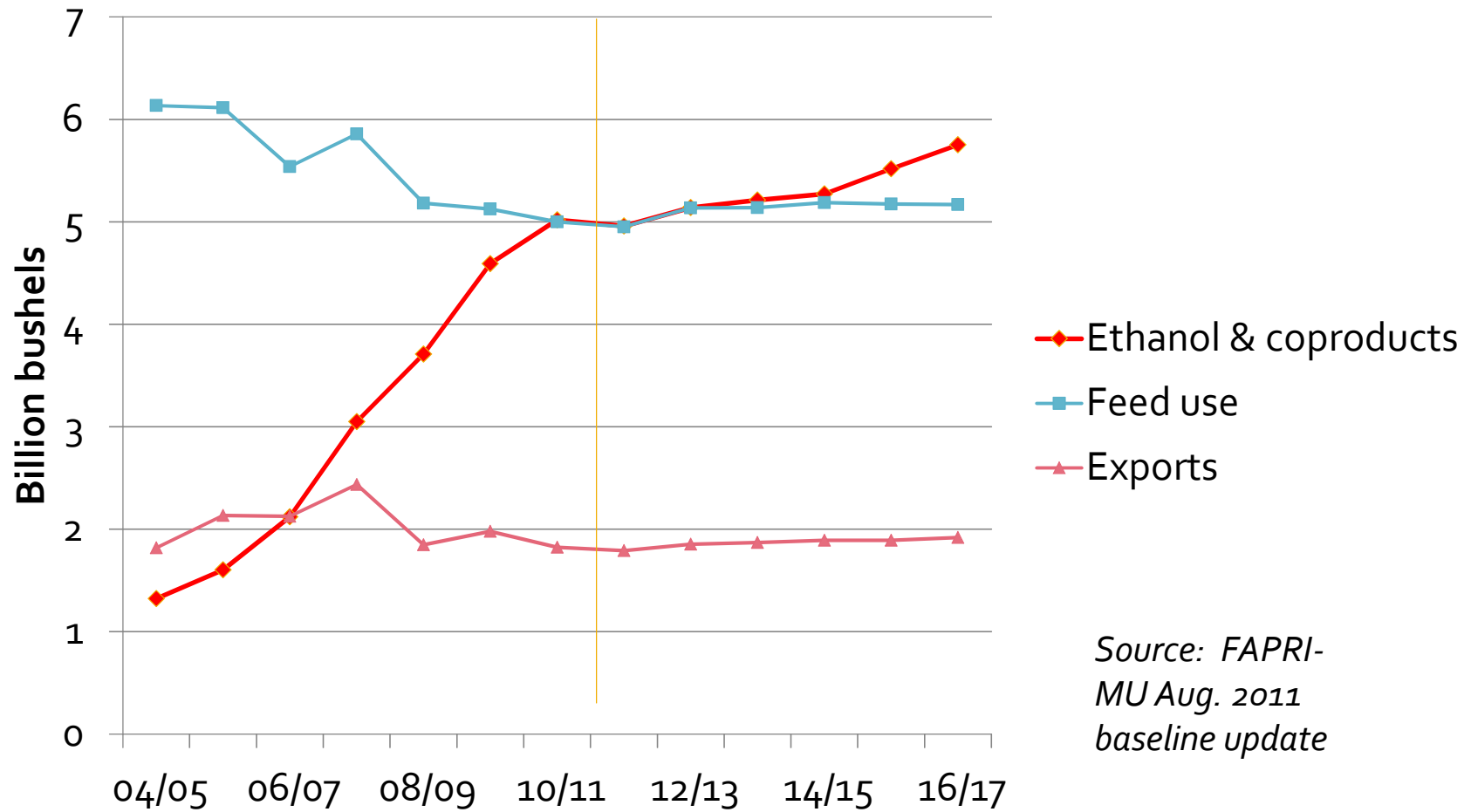
- U.S. has been become a net exporter of ethanol, and has exported ethanol to Brazil
- Given current market situation
 - Allowing tariff to expire on Dec. 31 won't cause imports
 - Allowing tax credit to expire on Dec. 31 may increase U.S. exports (if U.S. prices dip in response)
- Current policies and markets imply
 - U.S. will export ethanol to Brazil because it's profitable
 - U.S. will import ethanol from Brazil to satisfy advanced biofuel mandate
 - Ships passing in the night...

U.S. ethanol production and use mandates

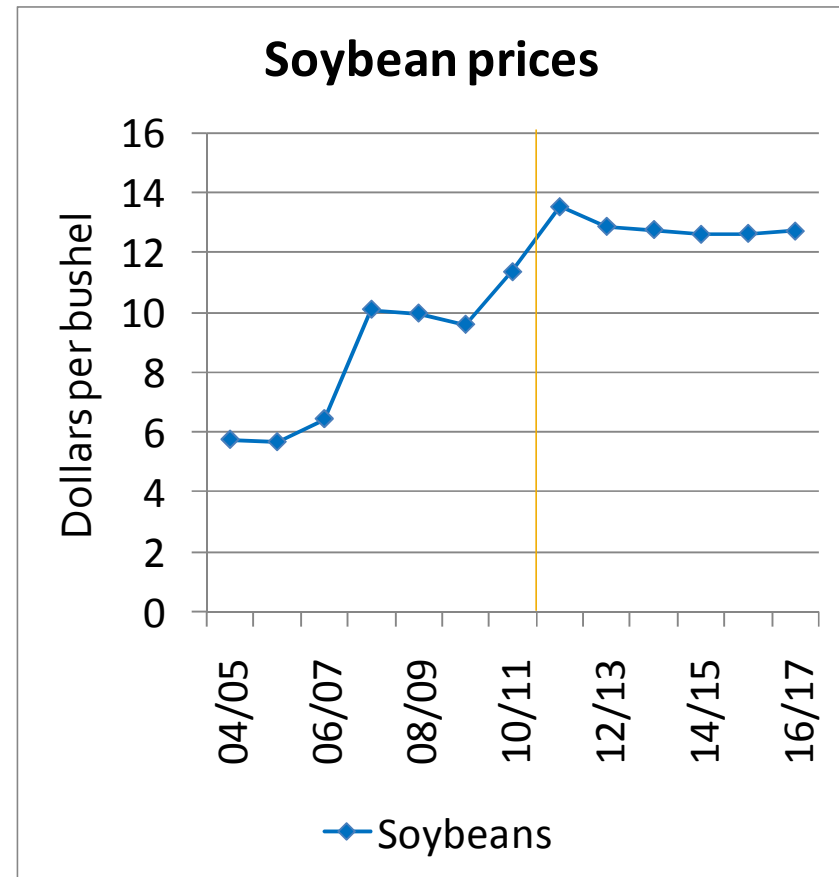
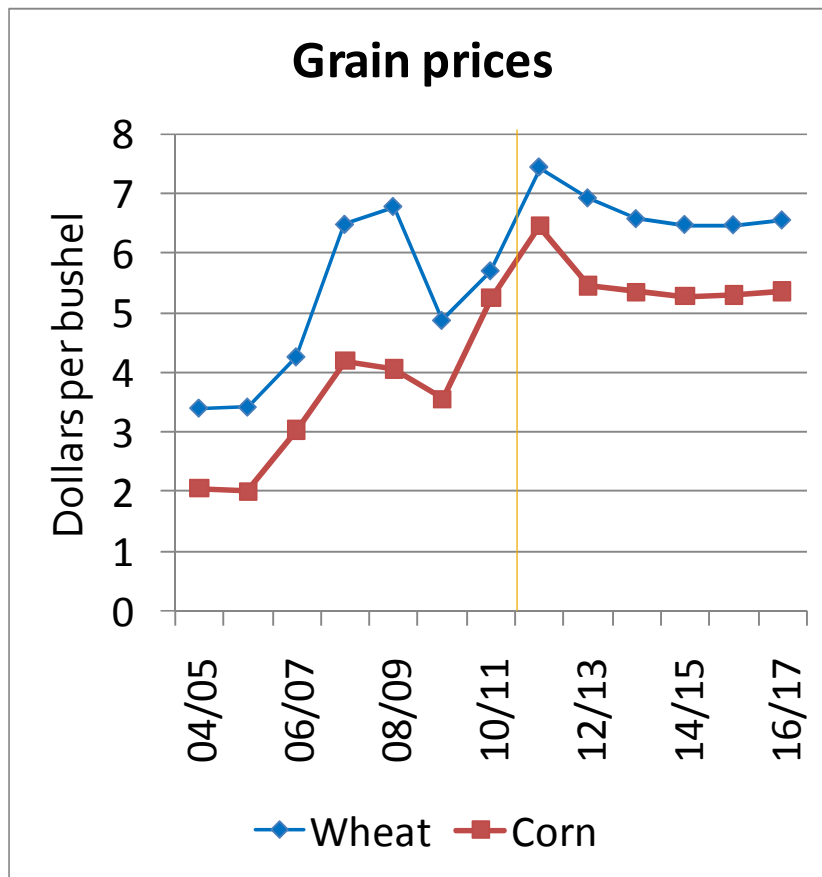


Sources: Production from US Department of Energy; mandate based on the Energy Independence and Security Act of 2007

U.S. corn use

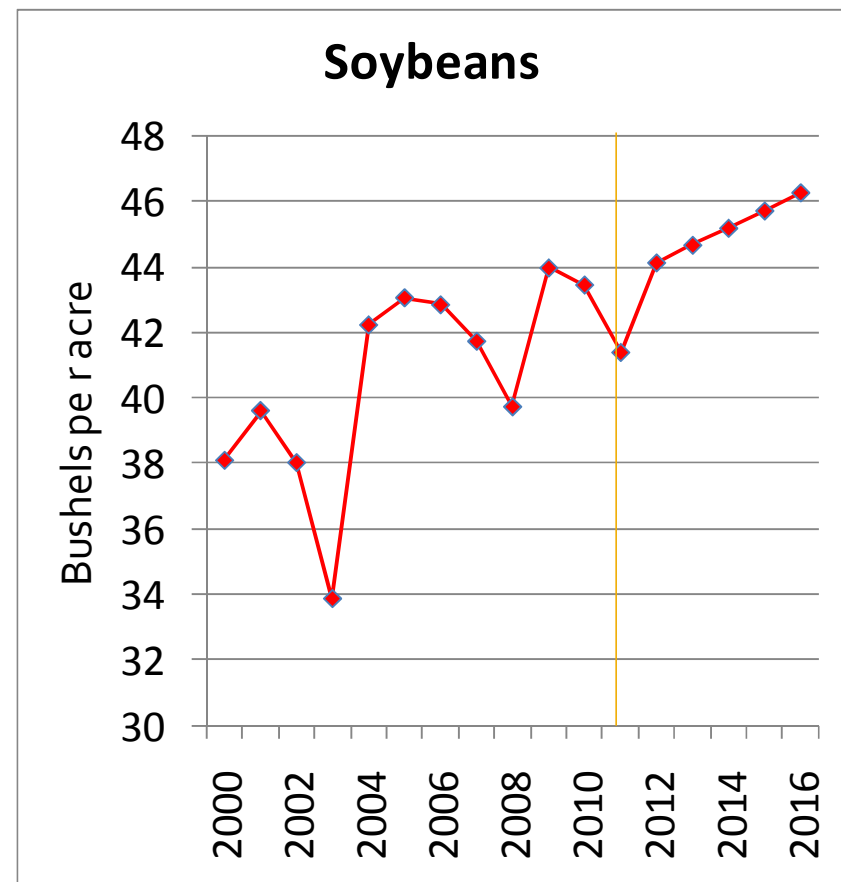
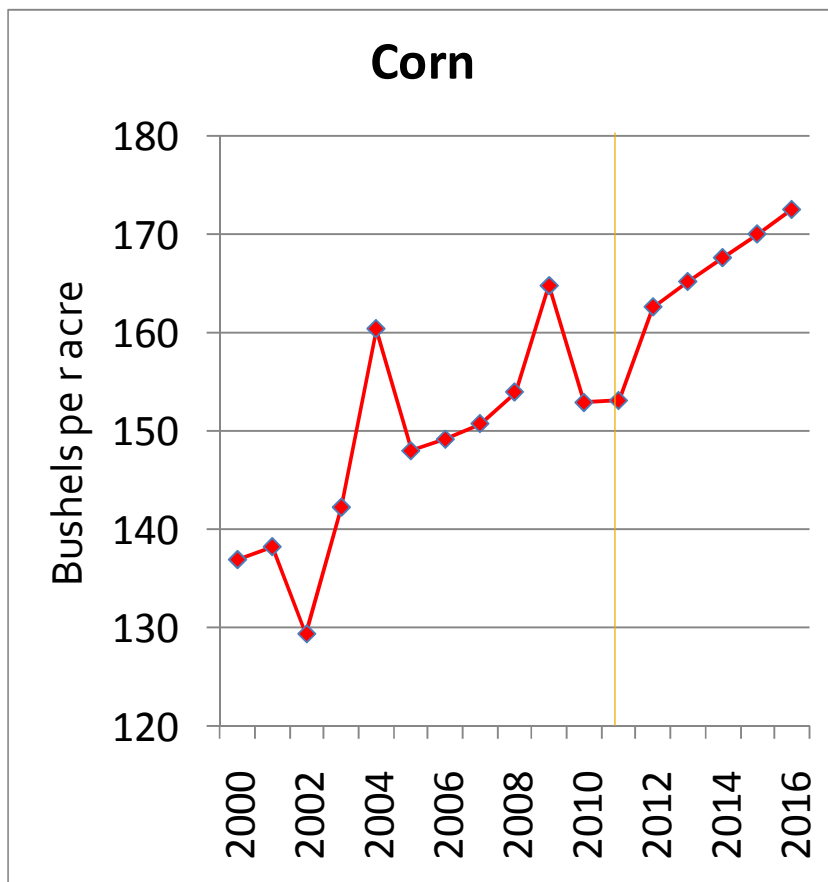


U.S. grain and soybean prices



Source: FAPRI-MU baseline update, August 2011. September USDA projections for 2011/12: \$6.50-\$7.50/bu. for corn, \$7.35-\$8.35/bu. for wheat and \$12.65-\$14.65/bu. for soybeans.

U.S. corn and soybean yields



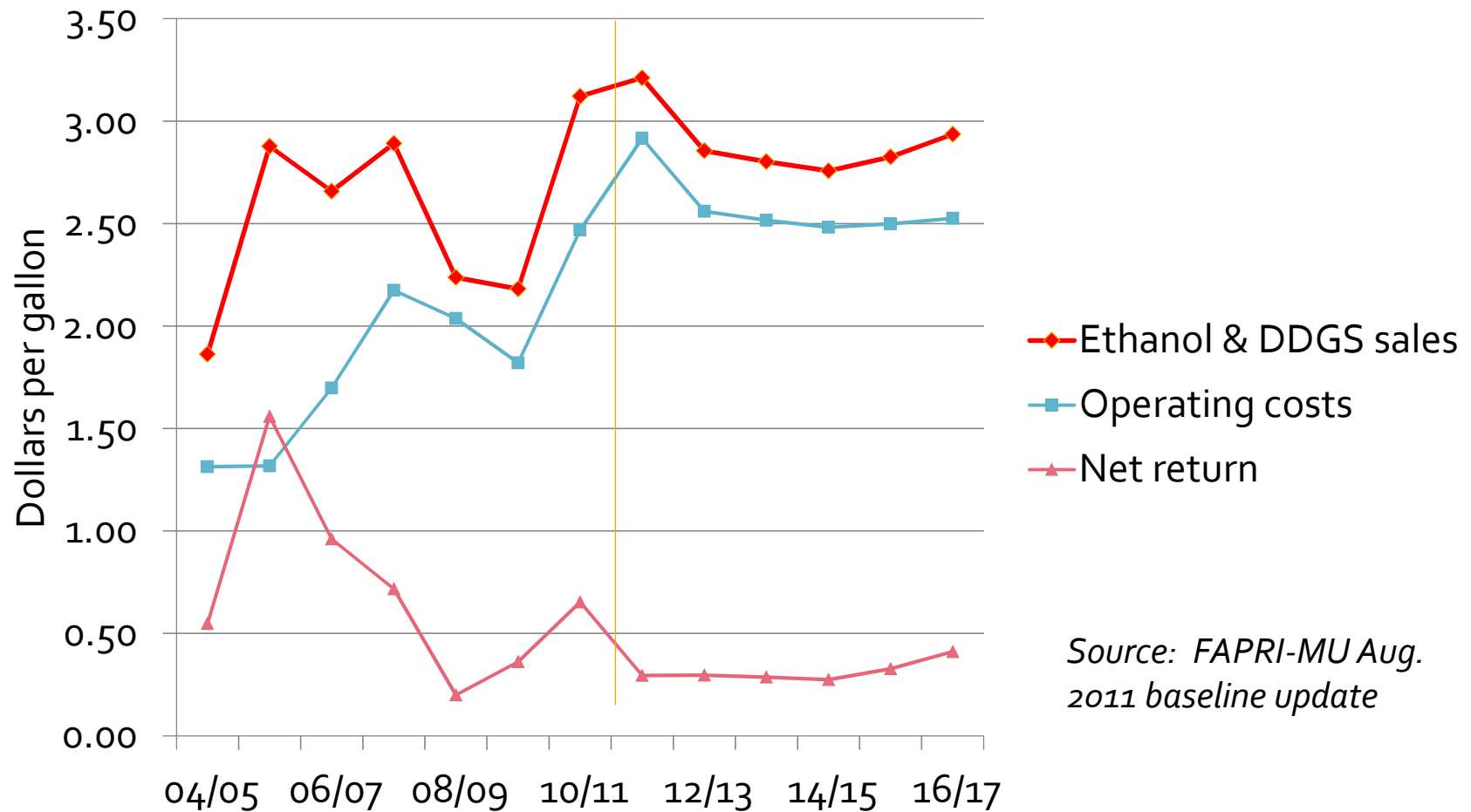
Source: FAPRI-MU baseline update, August 2011. September USDA estimates: 148.1 for corn, 41.8 for soybeans.

Change in Crop Area:

* Birur **USDA Aug. estimates of actual area harvested ***USDA Aug. estimates of area planted (million acres)

	USA* 2004-15	EU27* 2004-15		USA** 2004-11	EU27** 2004-11		USA*** 2004-11
PaddyRice	-1.80	-0.42		-0.7	0.1		-0.7
Wheat	-7.80	-9.42		-4.0	-0.7		-4.5
Corn	6.16	-1.30		10.8	-2.3		11.4
rCrGrains	0.68	-1.39		-4.6	-4.4		-5.4
Soybean	8.34	1.41		-0.1	0.1		-0.3
RapeMustd	0.30	21.22		0.2	5.5		0.2
Palm	0.00	0.00		0.0			0.0
rOilseeds	0.70	5.66		-0.3	1.0		-0.4
Sugarcane	-0.08	0.00		0.0			0.0
Sugarbeet	-0.11	3.50		-0.1			-0.1
OthAgri	-2.68	-3.01	Cotton	-3.4			0.0
	3.71	16.24	Sum	-2.2	-0.7		0.2

U.S. dry mill ethanol costs and returns

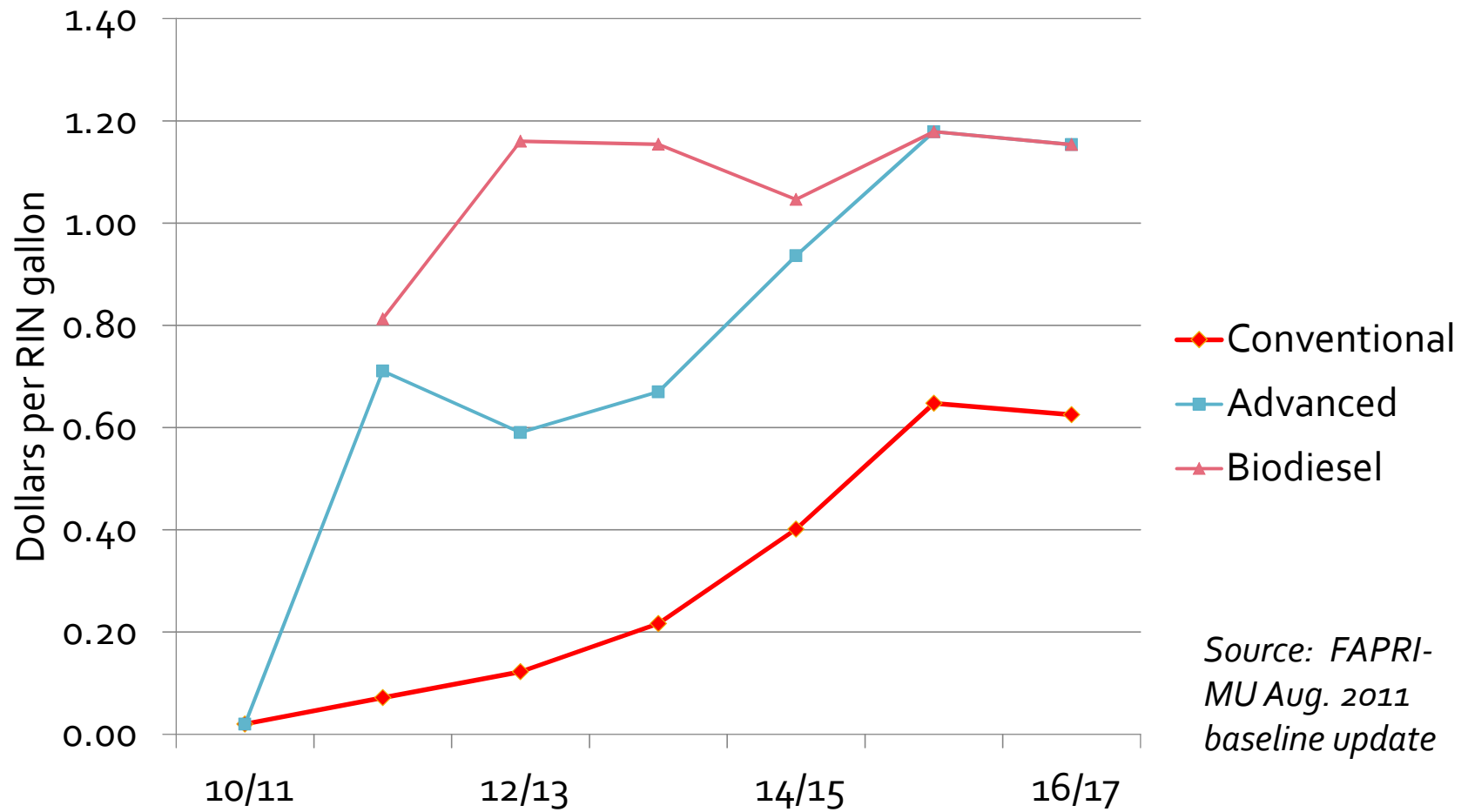


Source: FAPRI-MU Aug. 2011 baseline update

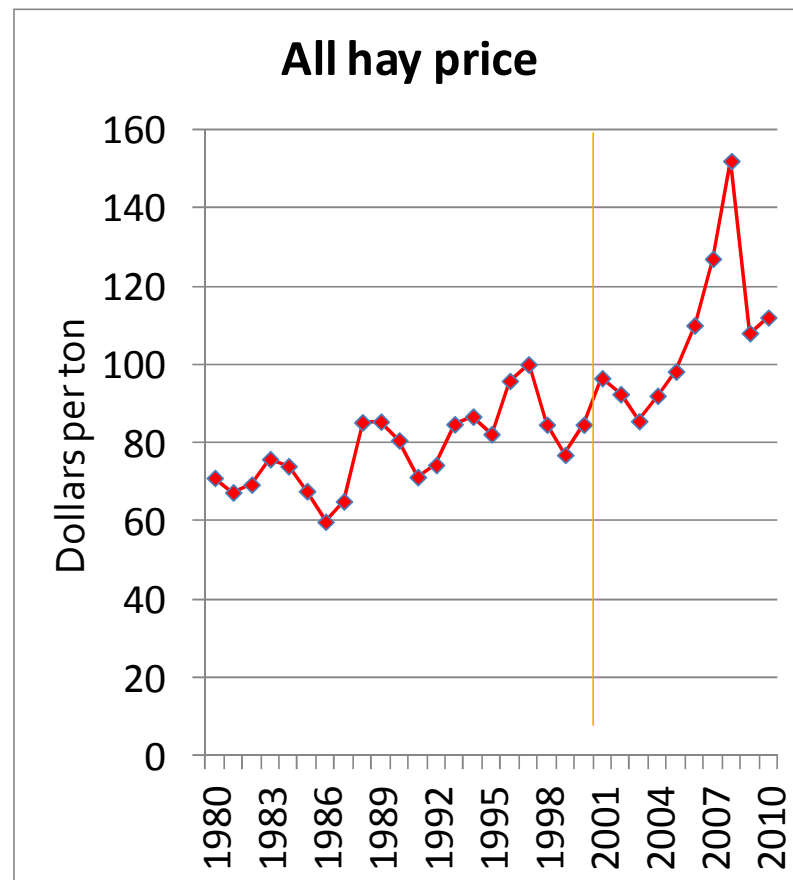
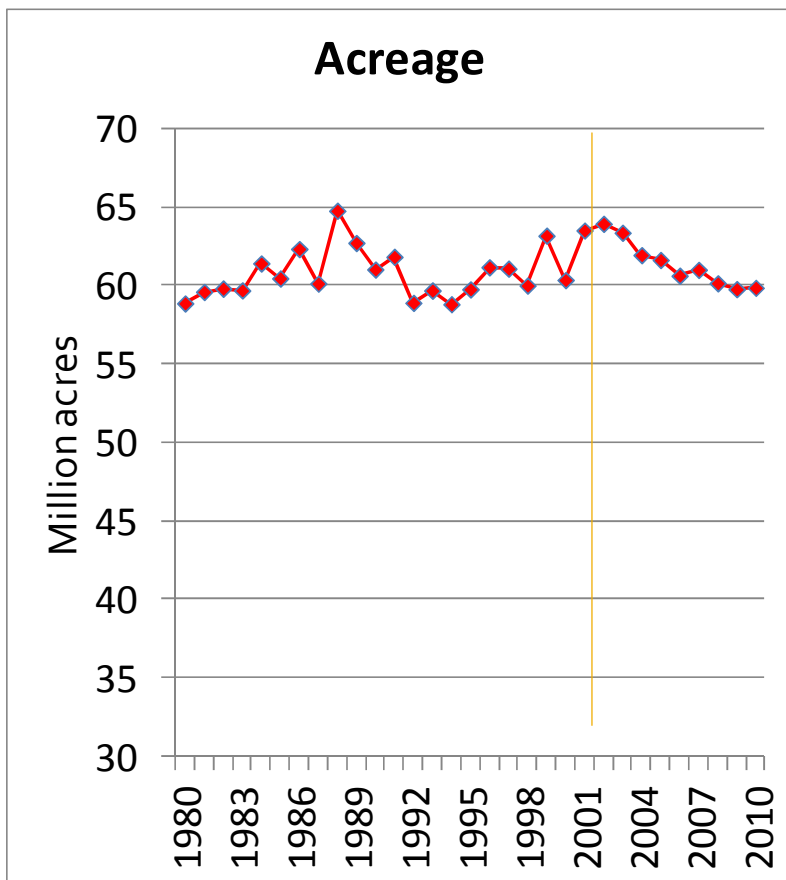
How are ethanol prices determined?

- If mandates aren't binding
 - In long run, gasoline prices and ethanol prices "should" be closely related
 - In short run, lots of complications
 - "Blend wall" means demand in conventional vehicles may be very inelastic over a range of prices
 - Use in higher blends will take time (vehicles, pumps, etc.) and will only happen if ethanol prices are expected to be low enough long enough
- If mandates are binding
 - Supply price must be high enough to generate sufficient supplies
 - Demand price must be low enough to encourage use
 - RINs make up the difference

RIN values

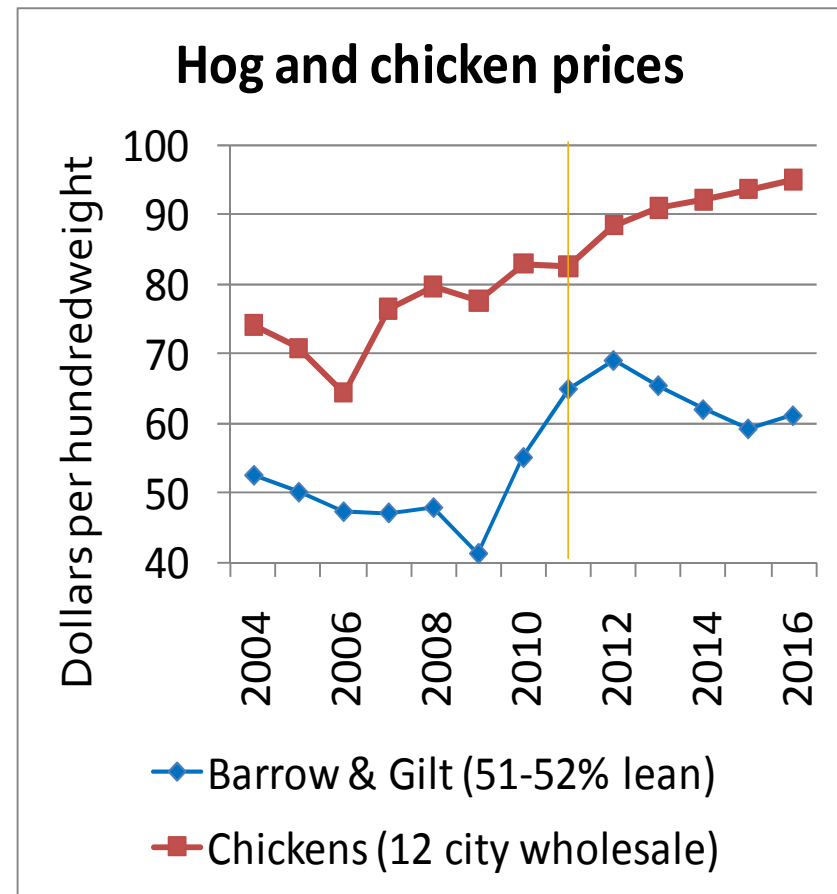
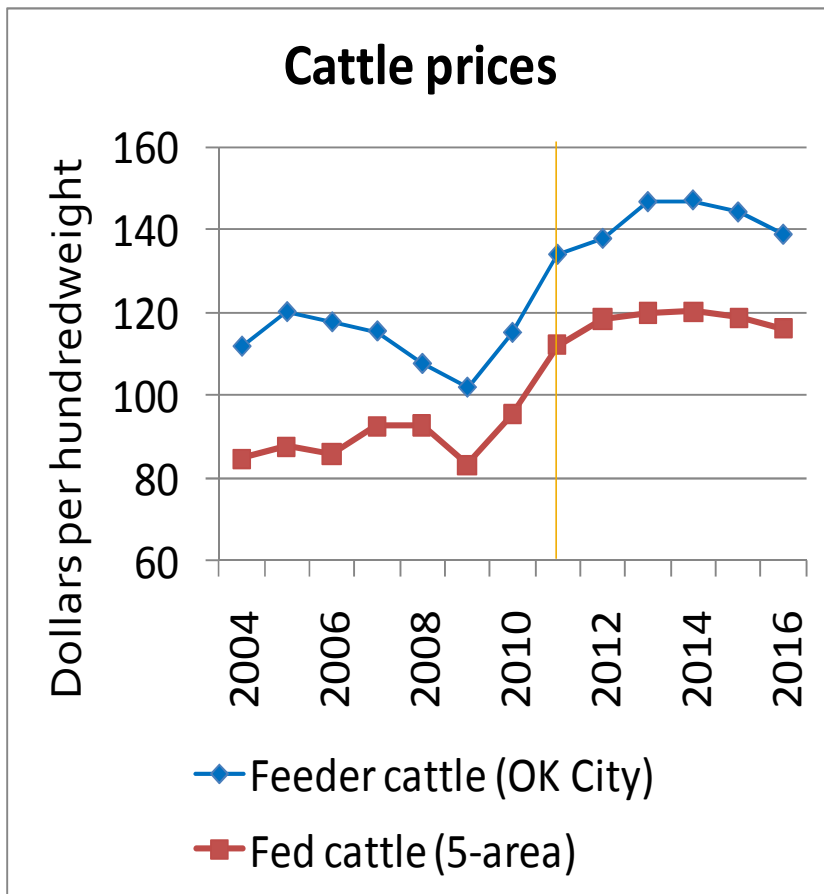


U.S. hay acreage and prices



Source: USDA NASS.

U.S. livestock and poultry prices



Source: FAPRI-MU baseline update, August 2011

Thanks!

- FAPRI-MU website: www.fapri-mu.org
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