

Agriculture as a Source of Fuel Prospects and Impacts, 2007 to 2017

John (Jake) Ferris
Professor Emeritus

Satish V. Joshi
Associate Professor

Department of Agricultural Economics
Michigan State University

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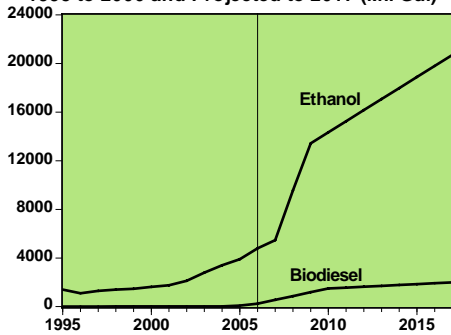
A Major Structural Change for Agriculture

Assumptions:

- Crude oil prices will hold near to \$60 per barrel
- Blenders' tax credits will be extended
- Essence of 2002 Farm Bill will continue
- Demand for feedstock will be driven by existing and planned ethanol and biodiesel plants
- Supply of feedstock will be from domestic sources
- Analytical Tool: AGMOD, econometric model of U.S. agriculture

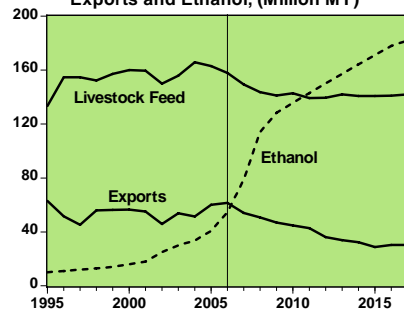
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U.S. Ethanol and Biodiesel Production
1995 to 2006 and Projected to 2017 (Mil Gal)



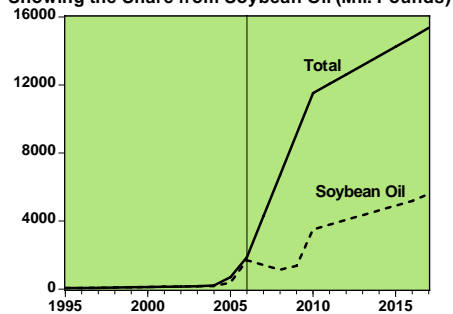
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Utilization of Coarse Grain for Livestock Feed,
Exports and Ethanol, (Million MT)



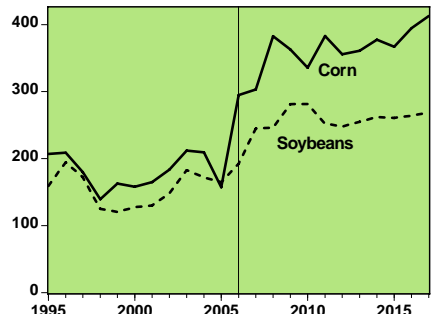
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Total Feedstock for Biodiesel Production
Showing the Share from Soybean Oil (Mil. Pounds)

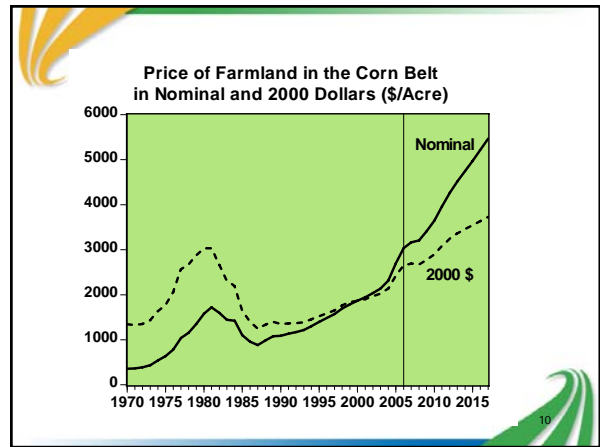
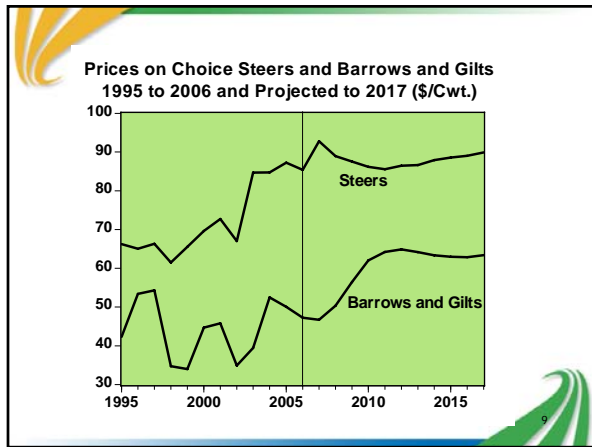
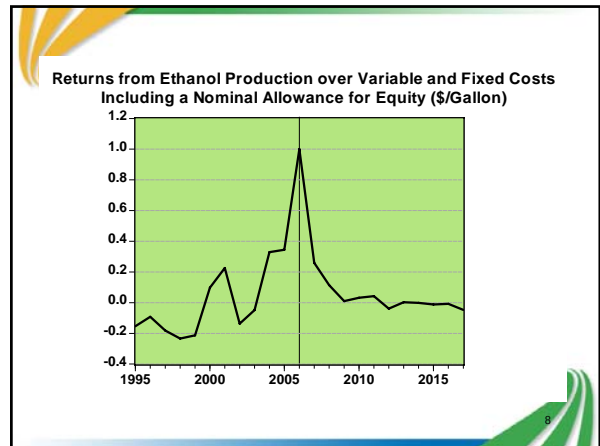
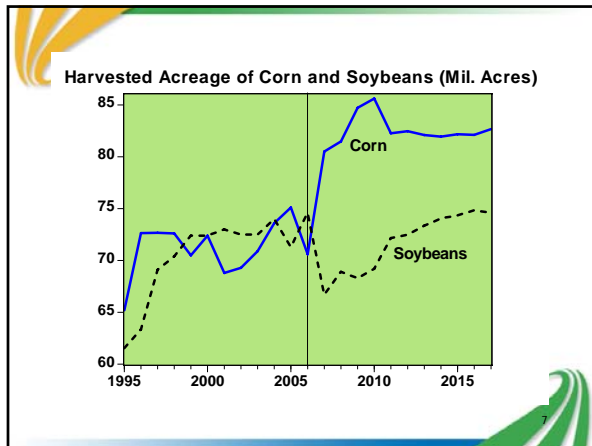


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Gross Margins over Variable Costs
on Corn and Soybeans, Crop Years (\$/Acre)



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Plant	Location	Feedstocks	Plant	Location	Feedstocks
1 [^]	Southern California - BlueFire Ethanol - 19 million gallons per year (gpy)	700 tons per day of sorted green waste and wood waste from landfills	6	Hanover, NY - Mascoma	
2 [^]	Shelby, Idaho - Iogen	700 tons per day of agricultural residues including wheat straw, barley straw, corn stover, switchgrass, and rice straw as feedstocks	7	Augusta, GA - Xethanol	Wood chips and yard waste, to corn stover and municipal solid waste
3 [^]	Kansas - Abengoa Biomergy Biomass - 11.4 million gpy	700 tons per day of corn stover, wheat straw, milo stubble, switchgrass, and other feedstocks	8 [^]	Soperton, GA - Range Fuels - 40 million gpy ethanol, 9 million gpy methanol	1,200 tons per day of wood residues and wood based energy crops
4 [^]	Emmettsburg, IA - Bion - 25 million gpy	842 tons per day of corn fiber, cobs, and stalks	9	Jennings, LA - Celinod - 1.4 million gpy	Wood and local biomass
5	Rochester, NY - Mascoma - 9.5 million gpy	Agricultural and/or forest products as biomass, including paper sludge, wood chips, switch grass and corn stover	10	Barrow, FL - Xethanol	Citrus peels
		[^] Plants that won DOE Grant for ligno-cellulosic ethanol production	11 [^]	La Belle, FL - Allico - 13.9 million gpy	770 tons per day of yard, wood, and vegetative wastes and eventually manure

Conclusions

- Significant increase in income and equity for cash crop producers
- Reduced production and higher prices on livestock, particularly hogs and poultry
- Returns to ethanol and biodiesel producers will rapidly converge to breakeven levels
- Biodiesel industry will need corn oil from DDGS
- Acreage will be needed from the CRP
- Ethanol from cellulosic feedstock will be small