



THE OHIO STATE UNIVERSITY

“Where are we on economic and policy issues relating to GMOs?”

Ian Sheldon

Andersons Professor of International Trade



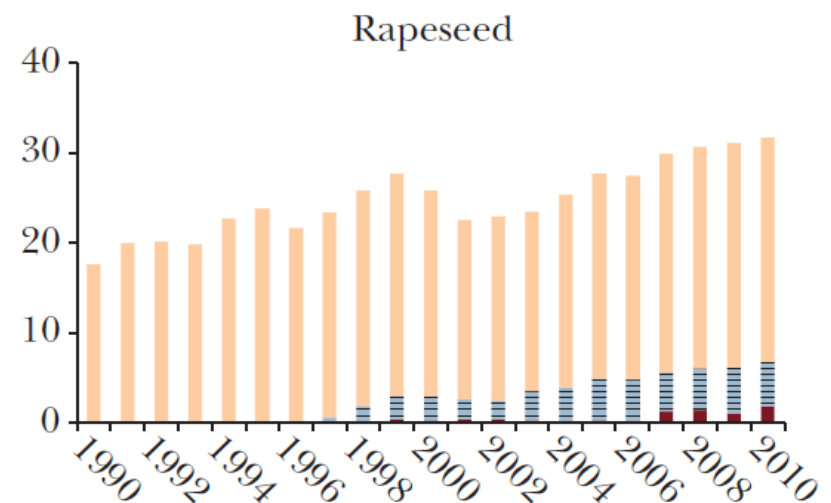
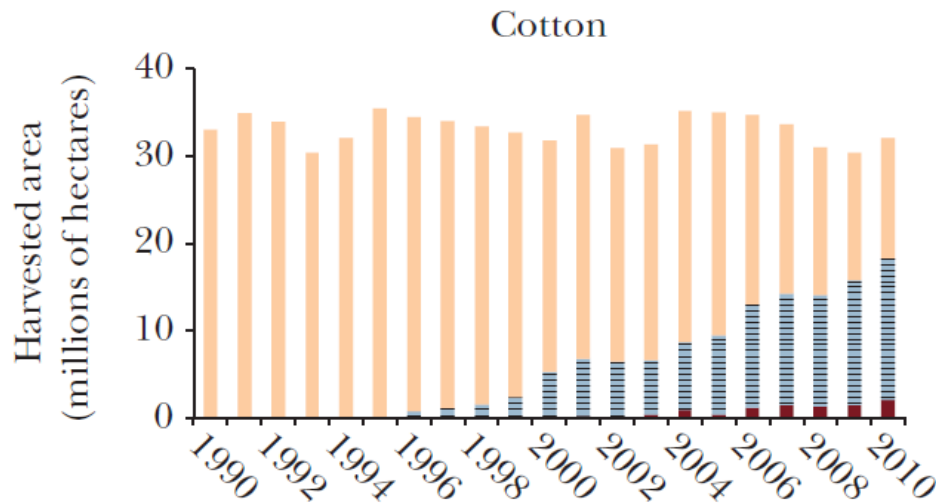
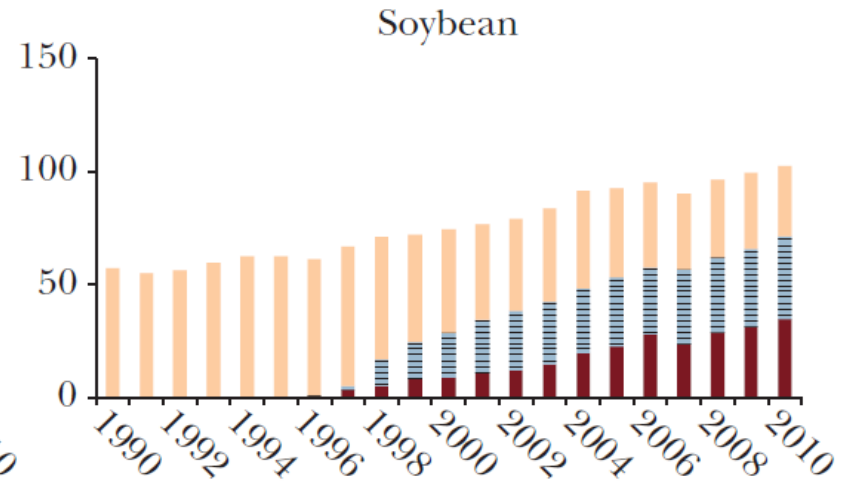
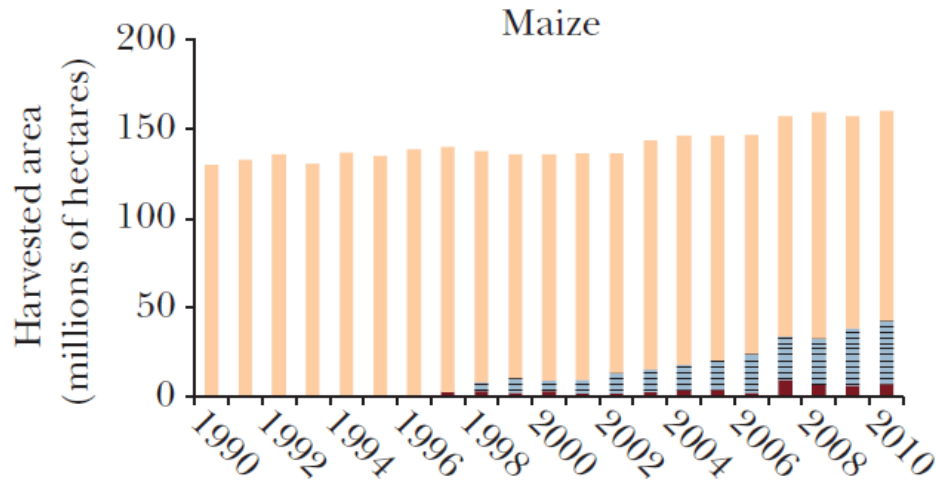
KEY QUESTIONS

- **Where are we on global diffusion of GMOs?**
- **What do we know about economic impacts?**
- **What is happening with GMO approval?**
- **Is GM labeling coming to the US?**



World Area of Four Crops with Genetically Engineered Varieties

(1 hectare = 2.47 acres)



Source: Barrows et al. (2013)



Genetically Engineered Area Harvested in 2010

(*millions of hectares*) (1 hectare = 2.47 acres)

<i>Cotton</i>		<i>Soybean</i>	
India	9.4	United States	29.4
United States	4.1	Brazil	18.4
China	3.5	Argentina	18.0
Argentina	0.6	Paraguay	2.7
Rest of world	1.3	Rest of world	3.1
<i>Corn</i>		<i>Rapeseed</i>	
United States	28.2	Canada	6.1
Brazil	7.5	United States	0.5
Argentina	2.8	Australia	0.1
South Africa	1.9	Rest of world	0.0
Rest of world	1.9		

Source: Barrows et al. (2014)



ECONOMIC IMPACTS

- **Yield effects at *intensive* and *extensive* margins:**
 - **2-14% to 9-19% increase in corn yields**
 - **0-25% to 5-29% increase in cotton yields**
 - **2-39% increase in soybean yields**
- **Adoption of GM corn, cotton and soybeans has lowered prices by 13%, 18% and 2-65% respectively (Barrows et al., 2013)**
- **Global net benefit to producers estimated at \$65 billion over period 1996-2009, \$30 billion accruing to US producers (Brookes and Barfoot, 2012)**



GMO APPROVAL

- **Asynchronous approval of GM crops has potential to promote or disrupt trade:**
 - **June 2013, China approved Monsanto's Intacta soybeans launched in Brazil**
 - **December 2013, China refused shipments of US corn on grounds it contains unapproved trait developed by Syngenta**
- **EU has authorized 48 crops for import, but only 2 crops approved for cultivation**
- **2014 deal in EU has option for individual EU countries to ban cultivation**



GM LABELING

- **Currently 61 countries require labeling of GM foods, including the EU and China**
- **2006 WTO ruling on EU regulation of GM crops did not rule on its labeling policy for GMOs**
- **Important to note: there is already extensive *negative* labeling of food products in US, e.g., breakfast cereals certified as “non-GMO verified”**
- **Pressure from lobby groups in US to introduce *positive* GM labeling at federal-level, and already implemented at state-level in Vermont**