

WEEK 10 CASE STUDY II:

GMOS

WHAT ARE GM FOODS?

Genetically modified (GM) food derives from microorganisms, plants, or animals manipulated at the molecular level to have traits that farmers or consumers desire. These foods often have been produced using techniques in which “foreign” genes are inserted into the microorganisms, plants, or animals. Foreign genes are genes taken from sources other than the organism’s natural parents. In other words, genetically modified plants contain genes they would not have contained if researchers had only used traditional plant-breeding methods. (Comstock, 122)

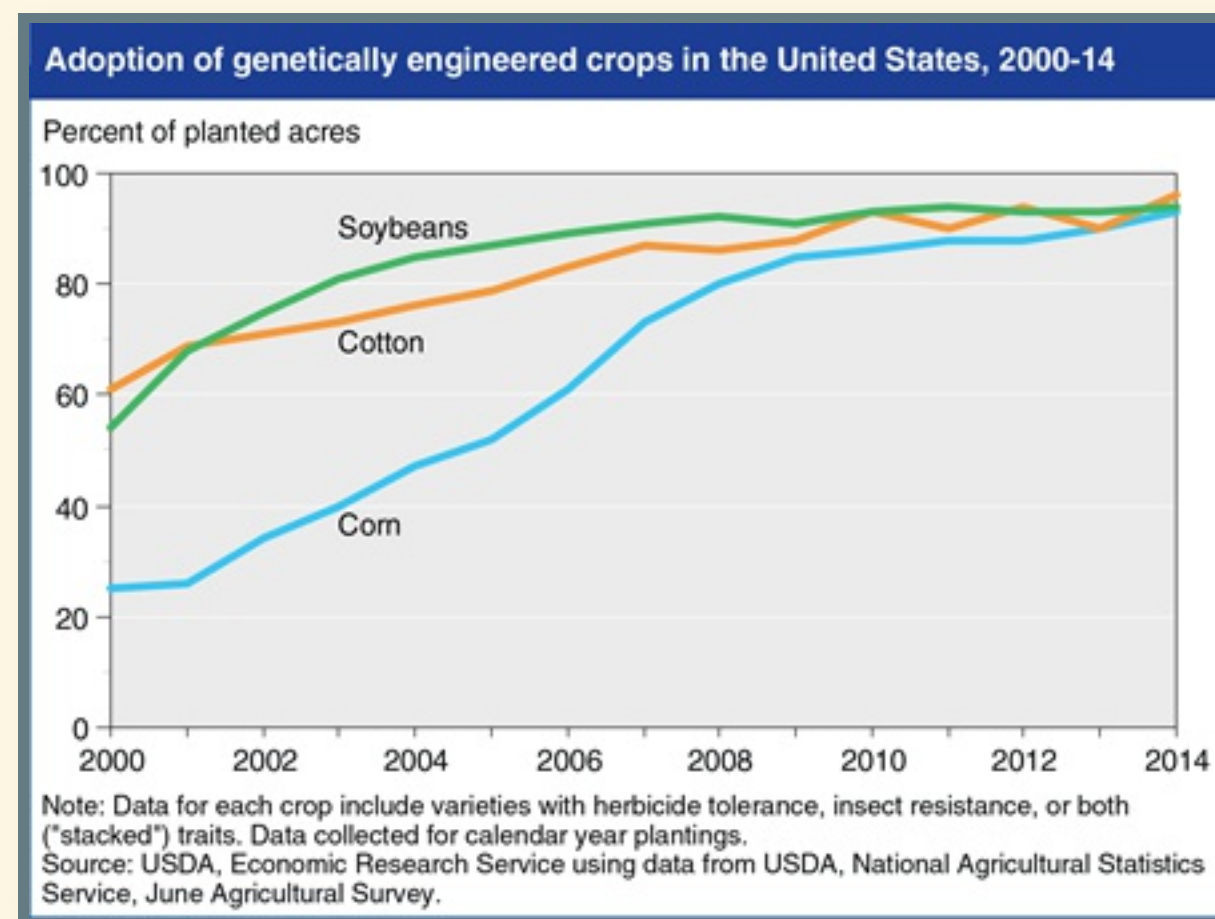
- Examples: “Flavr Savr” tomatoes, Bt (*Bacillus thuringiensis*) corn, Monsanto’s “Roundup Ready” soybeans, Golden rice

WHEN GIVEN THE CHOICE, WOULD YOU PREFER NON-GM FOOD OVER GM FOOD?

1. Yes
2. No

WIDESPREAD USE OF GM FOOD

- 99% of the total GM crops planted since 1997 are “commodity crops”: e.g., corn, soya, wheat, rice, potatoes, & cotton
- In 2014, GM crops made up 94 percent of US soybean acreage, 93 percent of all corn planted, and 96 percent of all cotton



OBJECTIONS TO GMOS

HEALTH & ENVIRONMENTAL RISKS OF GMOS

- GM Foods are “generally regarded as safe” (GRAS) but we lack **long-term** data that supporting this
 - For GRAS foods, the burden is on the *consumer* to show that the food/product is unsafe
 - There is no definitive data showing that GMO Foods are either (i) dangerous; (ii) less nutritious; (iii) less flavorful
- Danger of “genetic pollution”
 - cross-pollination with other species
 - “super-pests” and “super-weeds”
 - undermining bio-diversity

NATURE AS INTELLECTUAL PROPERTY

- Diamond v. Chakrabarty, 447 U.S. 303 (1980): A live, human-made micro-organism is patentable subject matter
- 97% of all agricultural patents are owned by five bio-tech corporations: Monsanto, AstraZeneca, Novartis, DuPont/Pioneer, and Avantis

GM food production, distribution, and consumption, driven by market imperatives, backed by institutional power, violates our human rights. Specifically, the trade policies enforced by the WTO that require nations to purchase GM food, privatize public farms, and transform agricultural production from subsistence to export violates the internationally recognized right to food security. (Kaplan, 72)

- Should GMO foods be treated as intellectual property?

THE PRECAUTIONARY PRINCIPLE

if an action or policy has a suspected risk of causing severe harm to the public domain (affecting general health or the environment globally), the action should not be taken in the absence of scientific near-certainty about its safety. Under these conditions, the burden of proof about absence of harm falls on those proposing an action, not those opposing it. (Taleb, et al, 1)

- Should we use the Precautionary Principle when considering whether to produce/consume GM Foods?

REFERENCES

- Comstock, Gary. "Ethics and Genetically Modified Foods," In *Food Ethics*, edited by Franz-Theo Gottwald, Hans Werner Ingensiep and Marc Meinhardt, 49–66. Dordrecht: Springer, 2010.
- [International Treaty on Plant Genetic Resources for Food and Agriculture](#)
- N. N. Taleb, R. Read, R. Douady, J. Norman, and Y. Bar-Yam, "The Precautionary Principle (with application to the genetic modification of organisms)," *arXiv preprint arXiv:1410.5787*, 2014.
- [Legal Restrictions on Genetically Modified Organisms: United States](#)
- Brad Plumer (ed.), [Genetically modified food, explained](#), Vox Card Stack

