

Green Revolution

consequences and impacts

How did agriculture change with industrialization? (you should know....)

- Second Agricultural Revolution
- Von Thunen
- Third Agricultural Revolution (Green Revolution) and the three phases
- IR8
- IR36
- GMOs
- Commercial agriculture

How did agriculture change with industrialization?

The “other” two revolutions

notes: <https://docs.google.com/a/cps.edu/presentation/d/1WIn4kGMksQResP1qwXvW9c0rN4GYCHM1WxYf9v2ZmM0/edit#slide=id.p14>

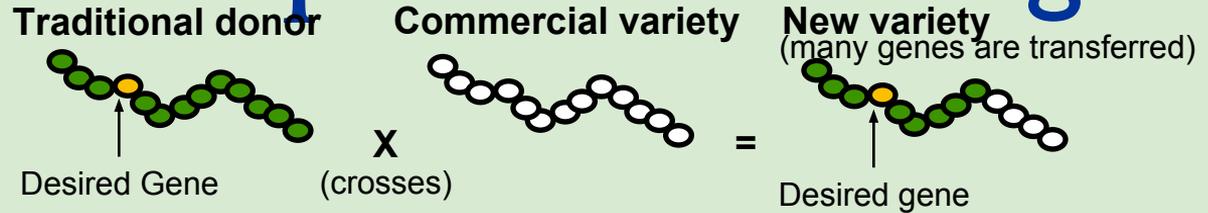
the Green Revolution involved **traditional plant breeding** – the exchange of genetic material between related plants to achieve some measure of product improvement

Biotechnology or genetic engineering, by contrast, involves the movement of one or more specific genes – sometimes across species – to achieve some desired product improvement

It is the latter – genetic engineering that has become the focus of much discussion, fierce controversy, and sometimes even violent protest (**GMOs!**)

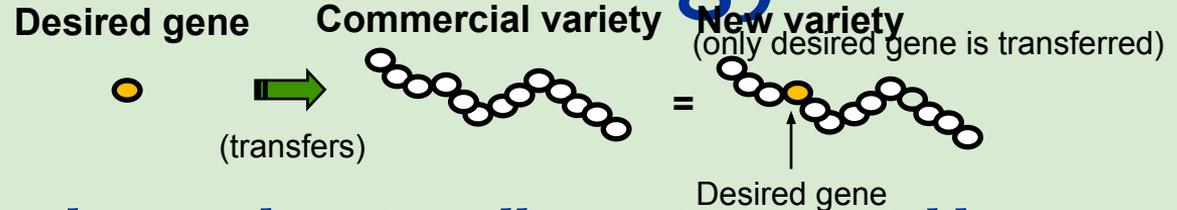
Traditional plant breeding

DNA is a strand of genes, much like a strand of pearls. Traditional plant breeding combines many genes at once.



Plant biotechnology

Using plant biotechnology, a single gene may be added to the strand.



- Traditional breeding involves exchanging all genetic material between two related plants.
- Genetic engineering usually only involves moving one or two genes and can cross the species barrier.



Protests at WTO Meetings

Extra
Credit:
research!
find
three
articles
from
reputable
sources
that
express
and
explain
the
backlash
against
GMOs.



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Q. How can this be related to development and World Systems Theory?

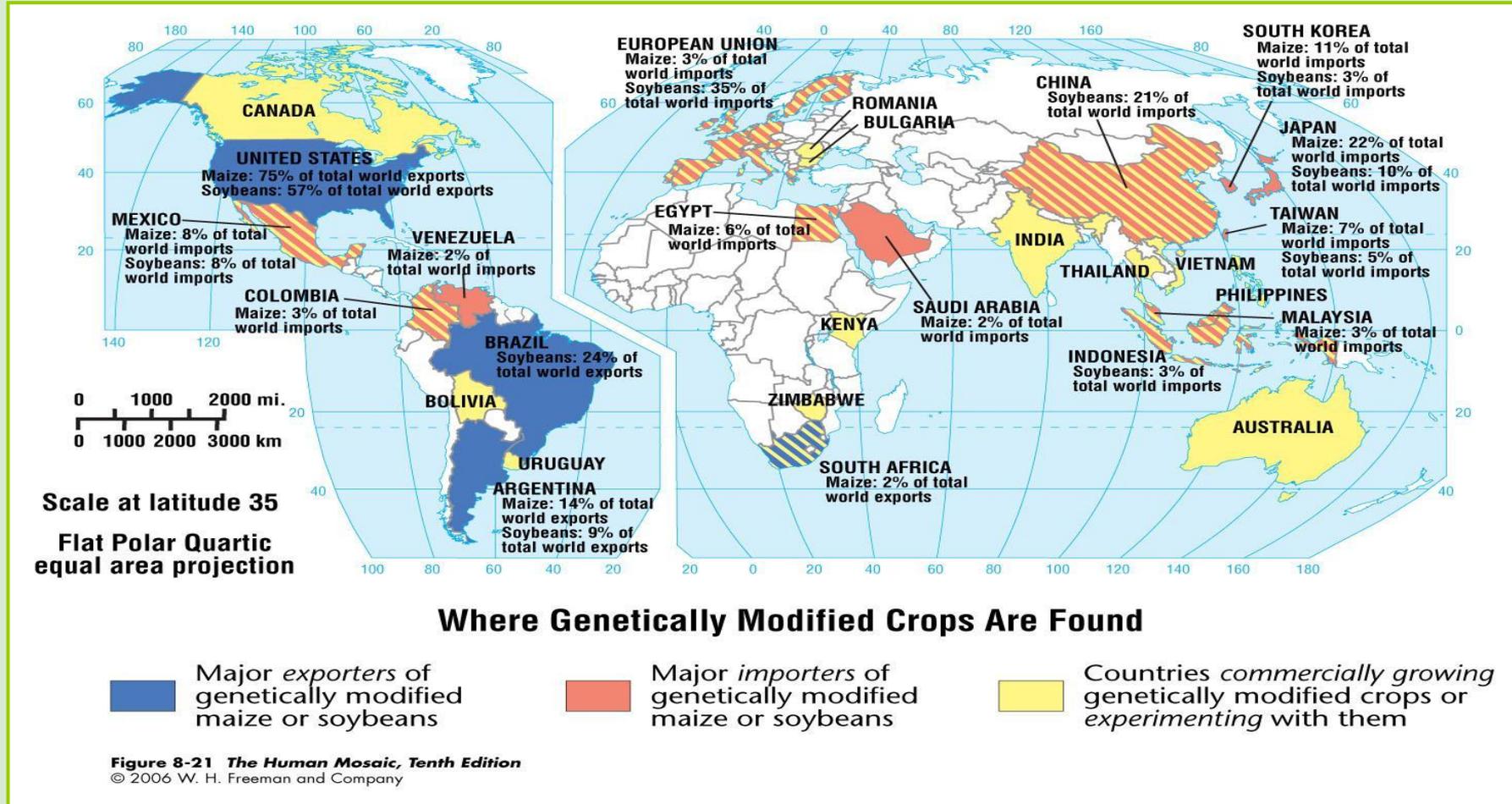
Biotechnology



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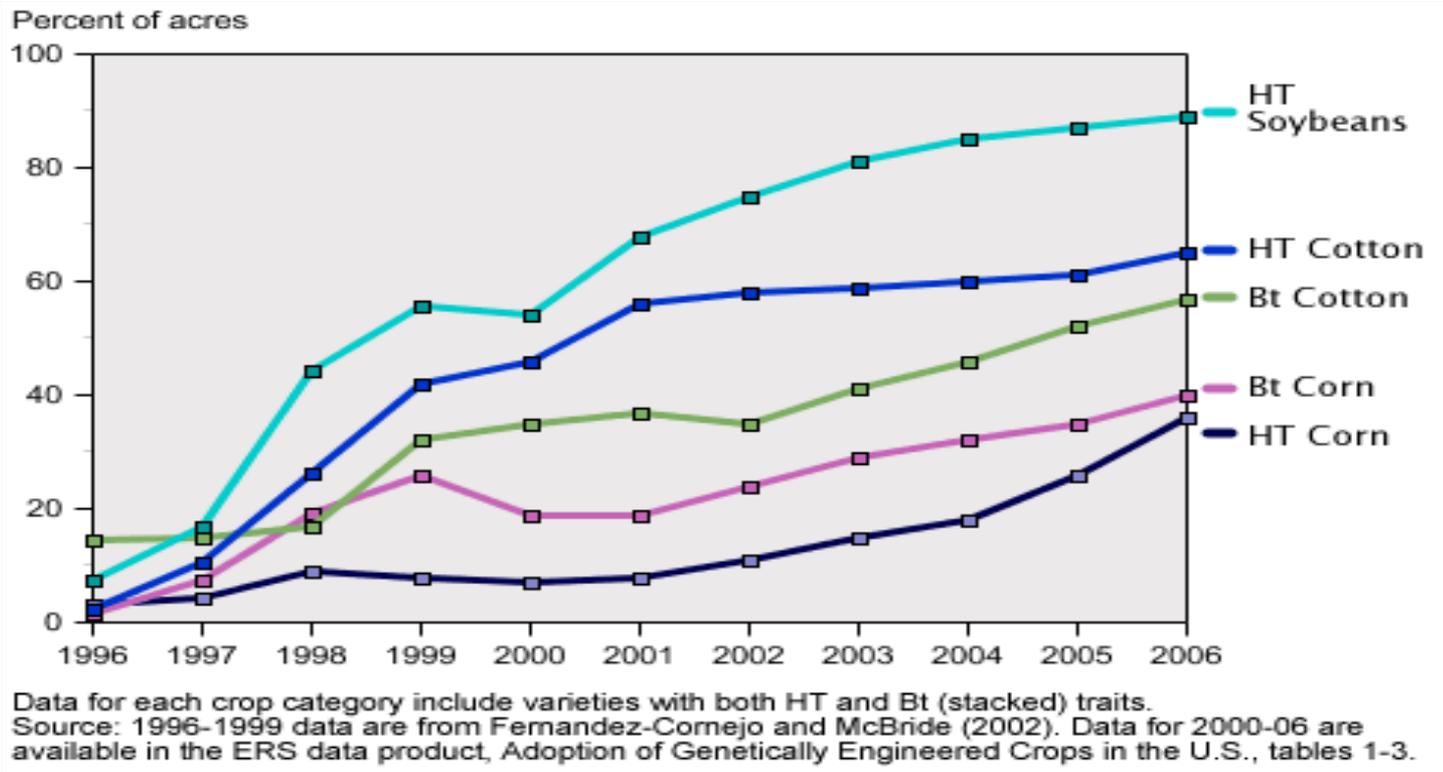
- Manipulation and management of biological organisms
 - Recombinant DNA techniques
 - Tissue culture (cloning)
 - Cell fusion
 - Embryo transfer
- Positive: high yielding, disease resistant “super” plants
- Negative: periphery excluded by distance and cost + concerns about safety

Q. How can this be related to development and World Systems Theory?



Increase in Genetically Engineered Crops in the U.S.

The US is a leader in innovation and application of biotechnology in agriculture ...what effects does this have?

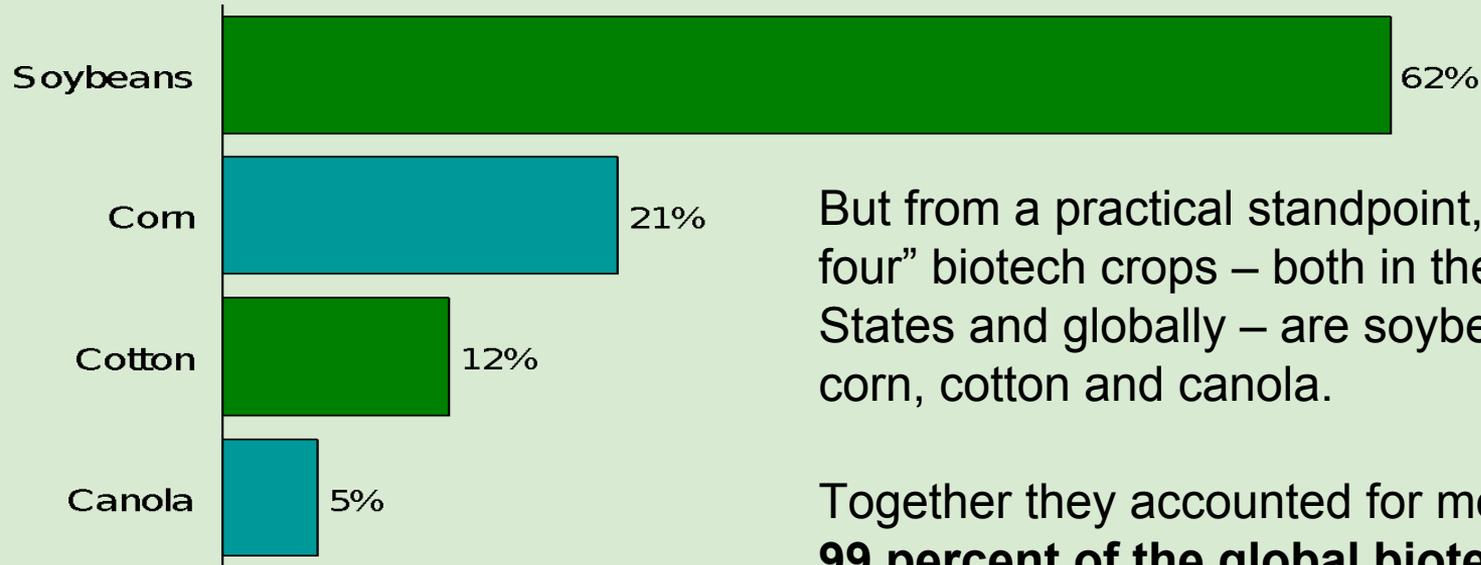


More than 50 biotech food products have been approved for commercial use in the United States

- Canola
- Corn
- Cotton
- Papaya
- Potato
- Soybeans
- Squash
- Sugarbeets
- Sweet corn
- Tomato



Four crops accounted for nearly all of the global biotech crop area in 2002



But from a practical standpoint, the “big four” biotech crops – both in the United States and globally – are soybeans, corn, cotton and canola.

Together they accounted for more than **99 percent of the global biotech planted area in 2001**, according to the International Service for the Acquisition of Agri-biotech Applications.