

SOYBEANS IN THE LAND OF THE GAUCHOS : MIRACLE CROP OR SCOURGE?



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ABOUT THE PROJECT

- Research conducted in Argentina: February-July 2011
- Fulbright Distinguished Teacher Award
- Create lessons for AP Human Geography





FACE TO FACE:

With a Soybean Plant

SOYBEANS

- Legume that originated in East Asia
- FAO: classifies soybeans as an oilseed (*Glycine Max*)
- Versatile, nutritious and used in a variety of products
- Some soybean -based products are hidden in other foods





The versatile
and
nutritious
soybean!

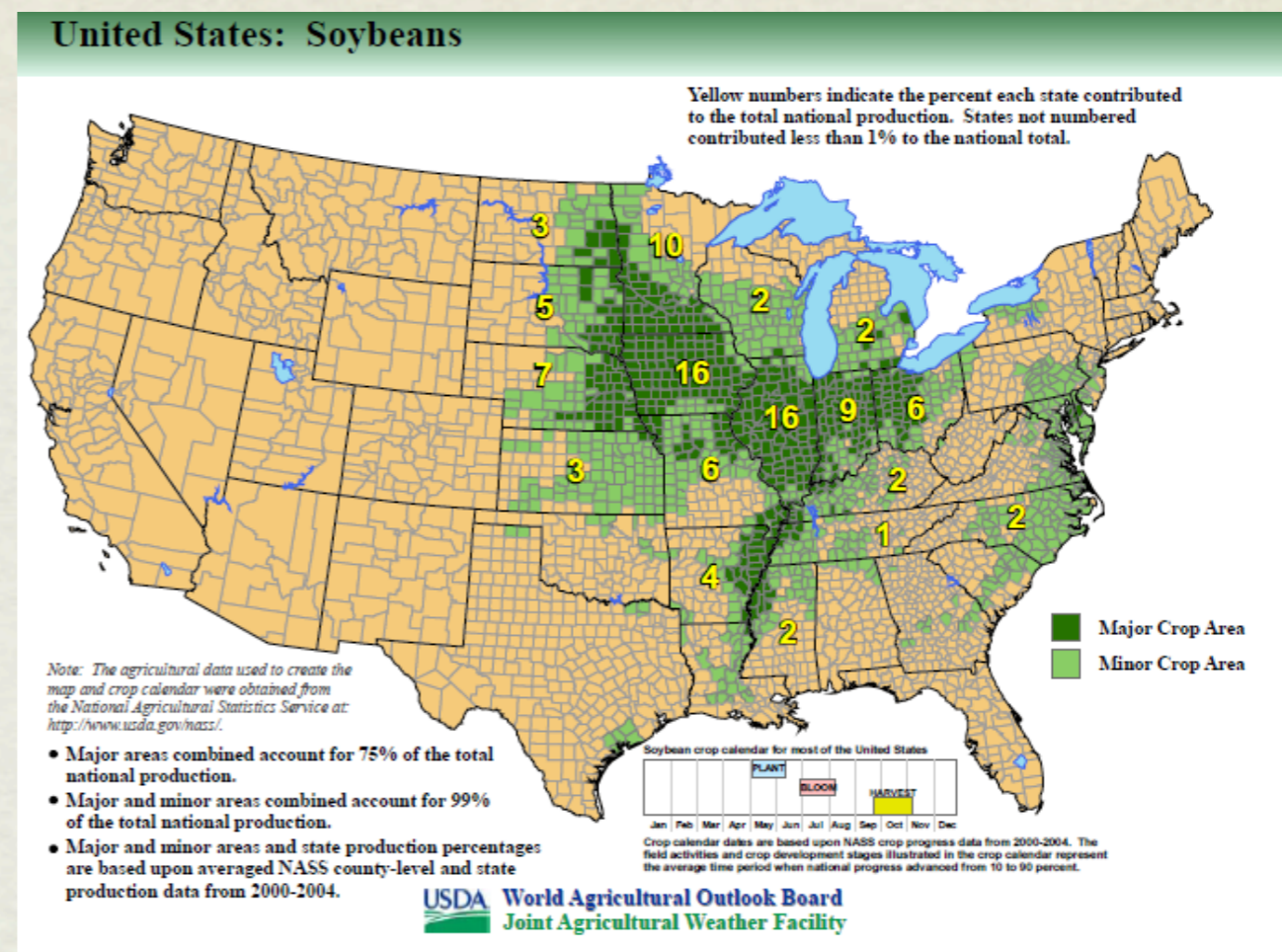


IMPORTANT FACTS: *SOYBEANS IN THE UNITED STATES*

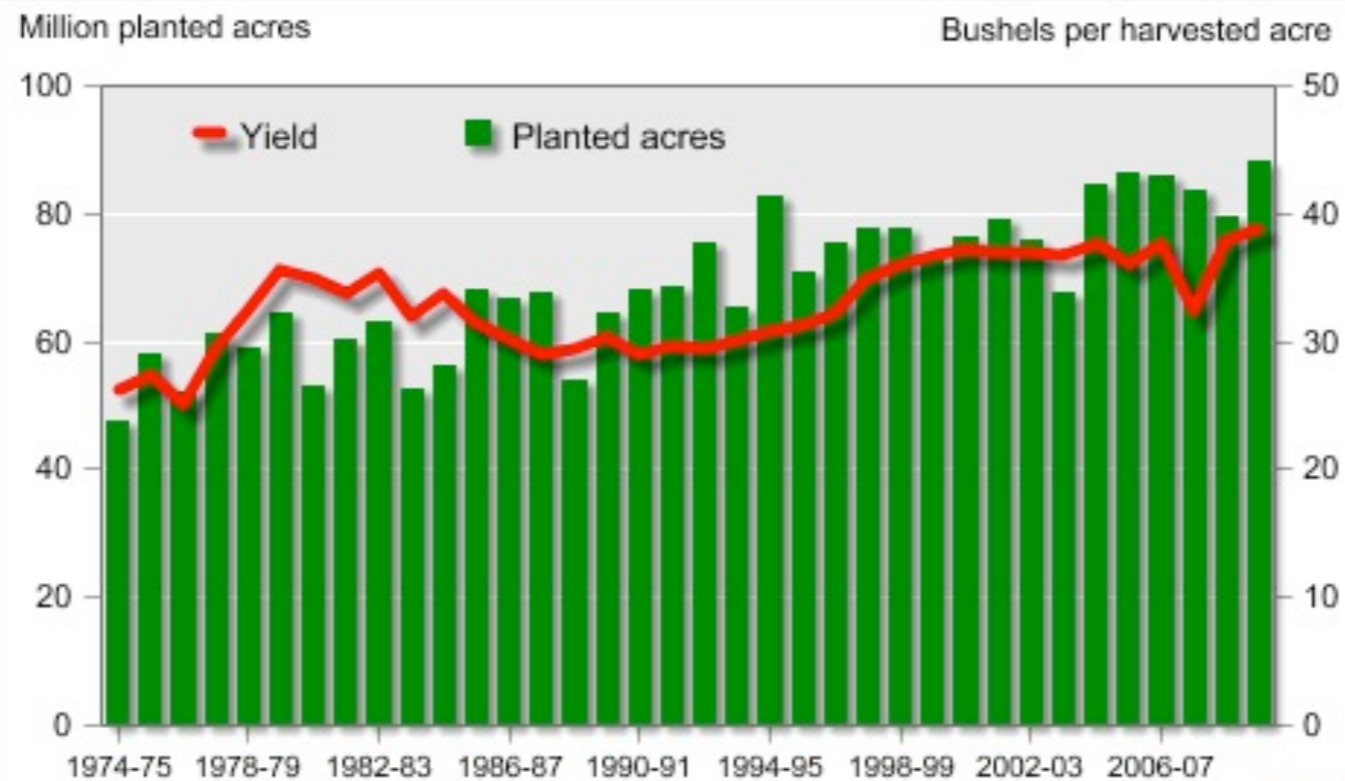
- Soybeans are the dominant oilseed in the U.S., accounting for about 90% of U.S. oilseed production.
- Most U.S. soybeans are planted in May /early June and harvested in late September/ October.
- Soybeans are the second most planted field crop in the United States after corn, with 77.5 million acres planted in 2009.

SOYBEANS IN THE UNITED STATES

- More than 80% of U.S. soybean acreage is concentrated in the upper Midwest, although significant amounts are still planted in the historically important areas of the Delta and Southeast.



U.S. soybean acreage and yield



Source: USDA, World Agricultural Outlook Board, World Agricultural Supply and Demand Estimates.
Updated: March 2010.



U.S. SOYBEAN ACREAGE

Major Producers 2011/12	
	MMT
United States	83
Brazil	66
Argentina	42
China	14
India	11
World	236
U.S. Percent	35%
Million Metric Tons/MMT	

Major Exporters 2011/12	
	MMT
United States	36
Brazil	37
Argentina	8
Paraguay	3
Canada	3
World	90
U.S. Percent	40%

Top 5 Producing States- 2011/12		
	MMT	\$Billion
Iowa	12.7	\$5.5
Illinois	11.3	\$5.0
Minnesota	7.4	\$3.1
Nebraska	7.0	\$3.0
Indiana	6.5	\$2.8

Top 5 U.S. Markets- 2011		
	MMT	\$Billion
China	23.5	\$11.5
Mexico	3.3	\$1.7
Indonesia	1.7	\$0.9
Japan	1.5	\$0.8
Taiwan	1.3	\$0.7
All Markets	36.3	\$18.2

SOYBEANS:

Cultivation and International Trade

SOYBEANS COME TO ARGENTINA

- First arrived in 1880s
- Planting first occurs in Pampas region of country in the 1970s
- By 1990s- soybean cultivation expands to the north/northeast regions of country, thus displacing traditional agricultural products: cotton, sugar cane, rice, and cattle ranching.



Argentine Agriculture: grains, cotton, sugar and, of course, cattle!



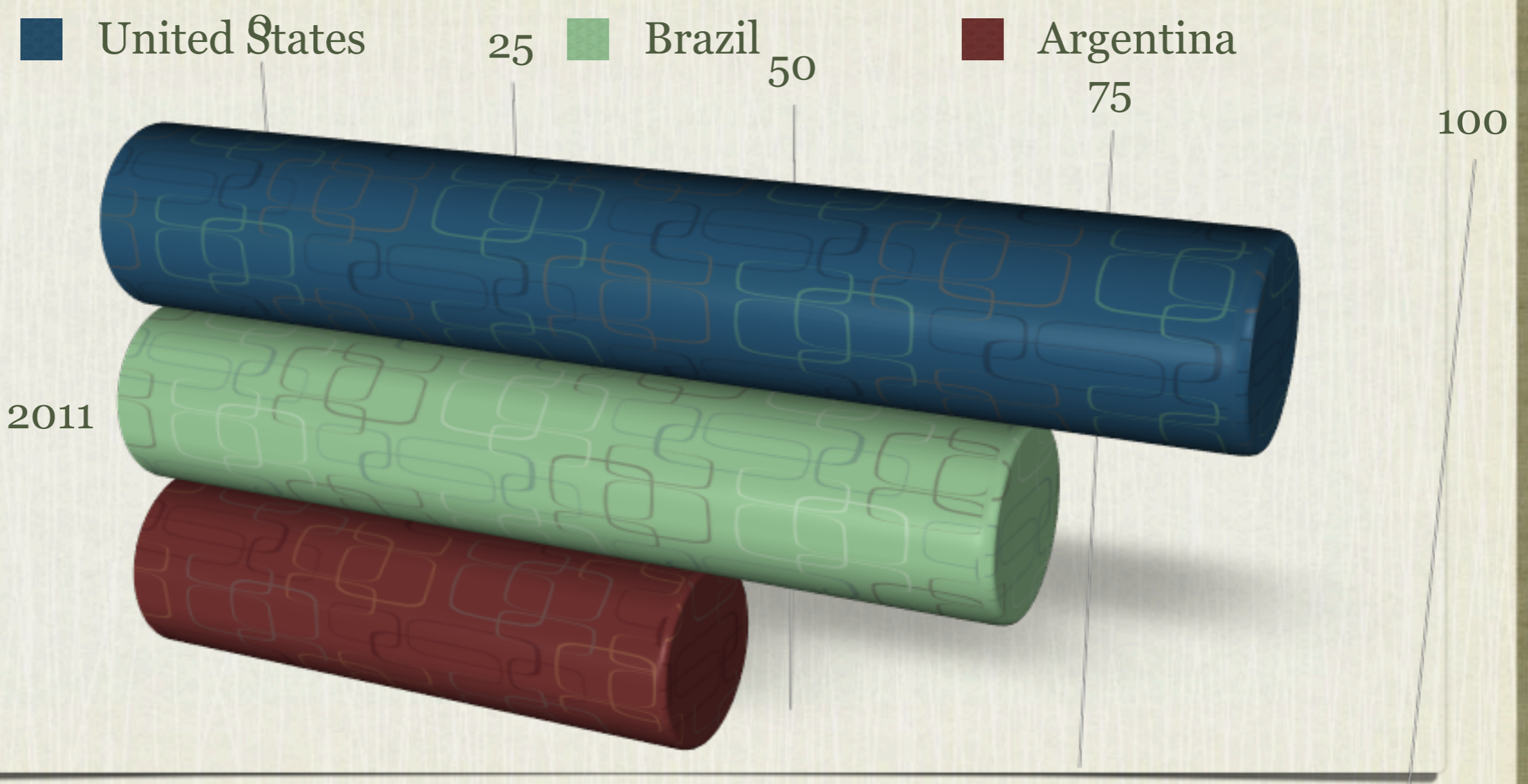
INTRODUCTION OF NEW TECHNOLOGIES

- Genetically modified soybean seeds
- “*Siembra directa*”- planting on soil that has not been previously tilled
- Increased use of pesticides, herbicides, and machinery
- Consolidation of land - from few independent farmers to large agro-industrial companies
- Environmental degradation

SIEMBRA DIRECTA

- Advantages: No need to clear land
- Easy for soybean planting
- Disadvantages: must use GMO modified seeds; heavy use of fertilizers and herbicides





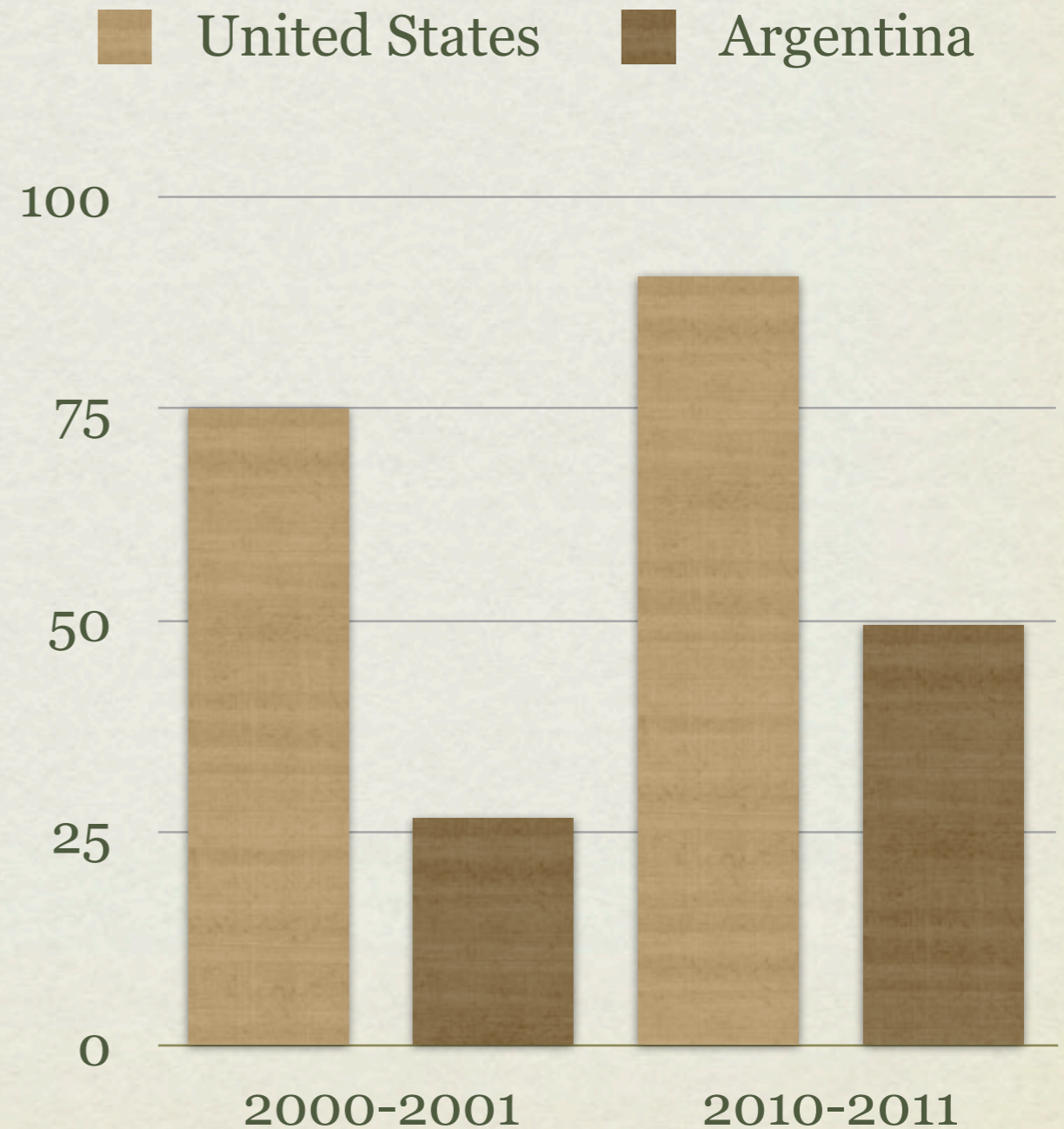
PRIMARY EXPORTERS OF SOYBEANS IN METRIC TONS

INTERNATIONAL DEMAND

China: Top buyer of Argentine soybeans

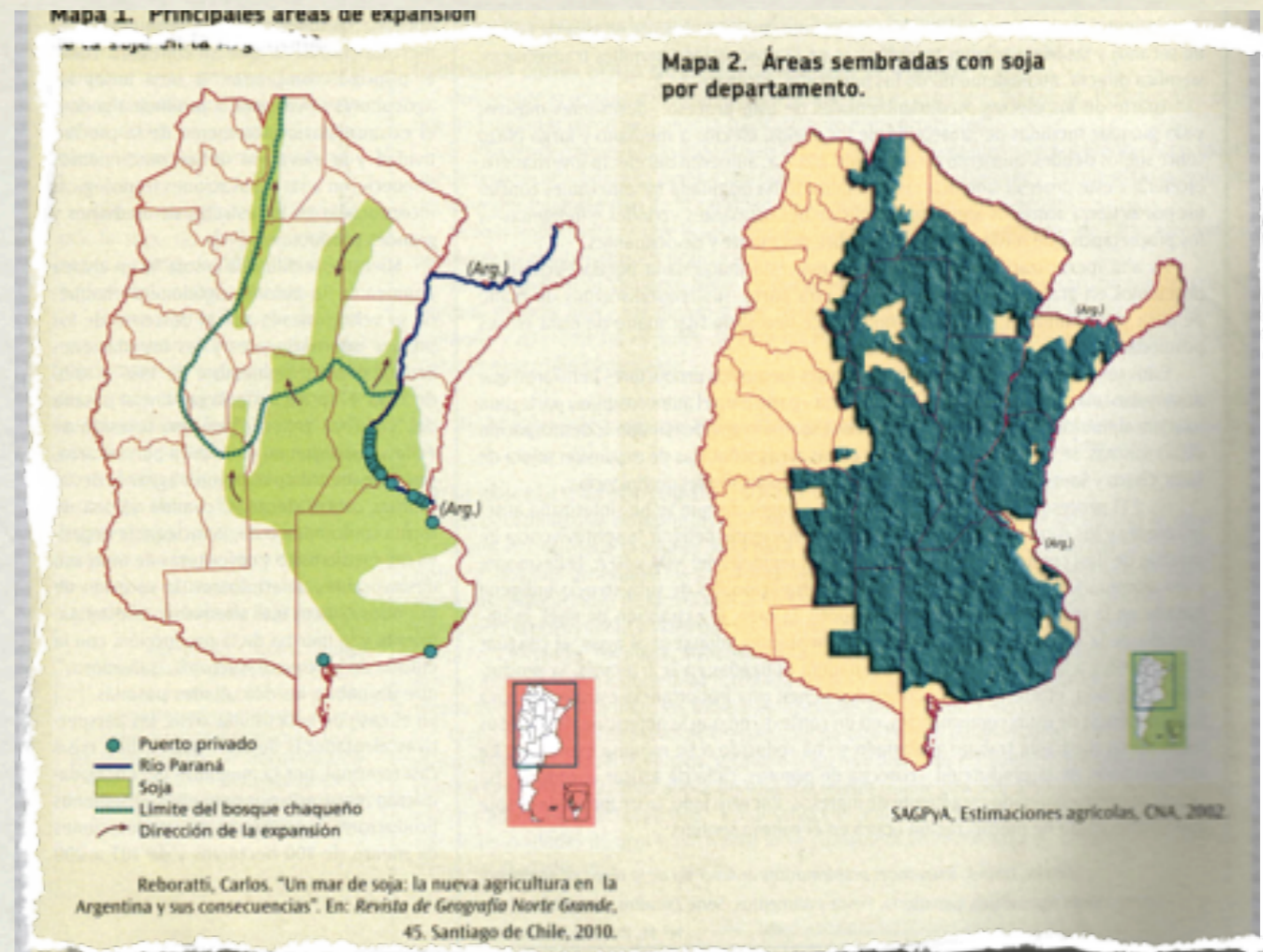
*Biofuels

*Animal Feed



TWO MAPS AND THEIR STORY

- 1970: Pampas region
- 1990: Northern expansion
- Displacement of traditional crops: rice, cotton, sugar, and cattle
- **GMO package:** large machinery, herbicides, fertilizers, and consolidation of farms in large agroindustrial mega-producers displacing the small farmers.



Carlos Reboratti, "Un mar de soja: la nueva agricultura en la Argentina y sus consecuencias" *Revista de Geografía Norte Grande*, 45. Santiago de Chile, 2010. SAGPyA, Estimaciones agrícolas, CNA, 2002

WHO OWNS THE LAND? AND OTHER PROBLEMS



- Pampeanización
- Proceso de Sojización
- Small producers
- Indigenous populations
 - Red Puna: Movimiento Nacional Campesino Indígena

"El pueblo que se dedica a una sola producción, se suicida."

José Martí

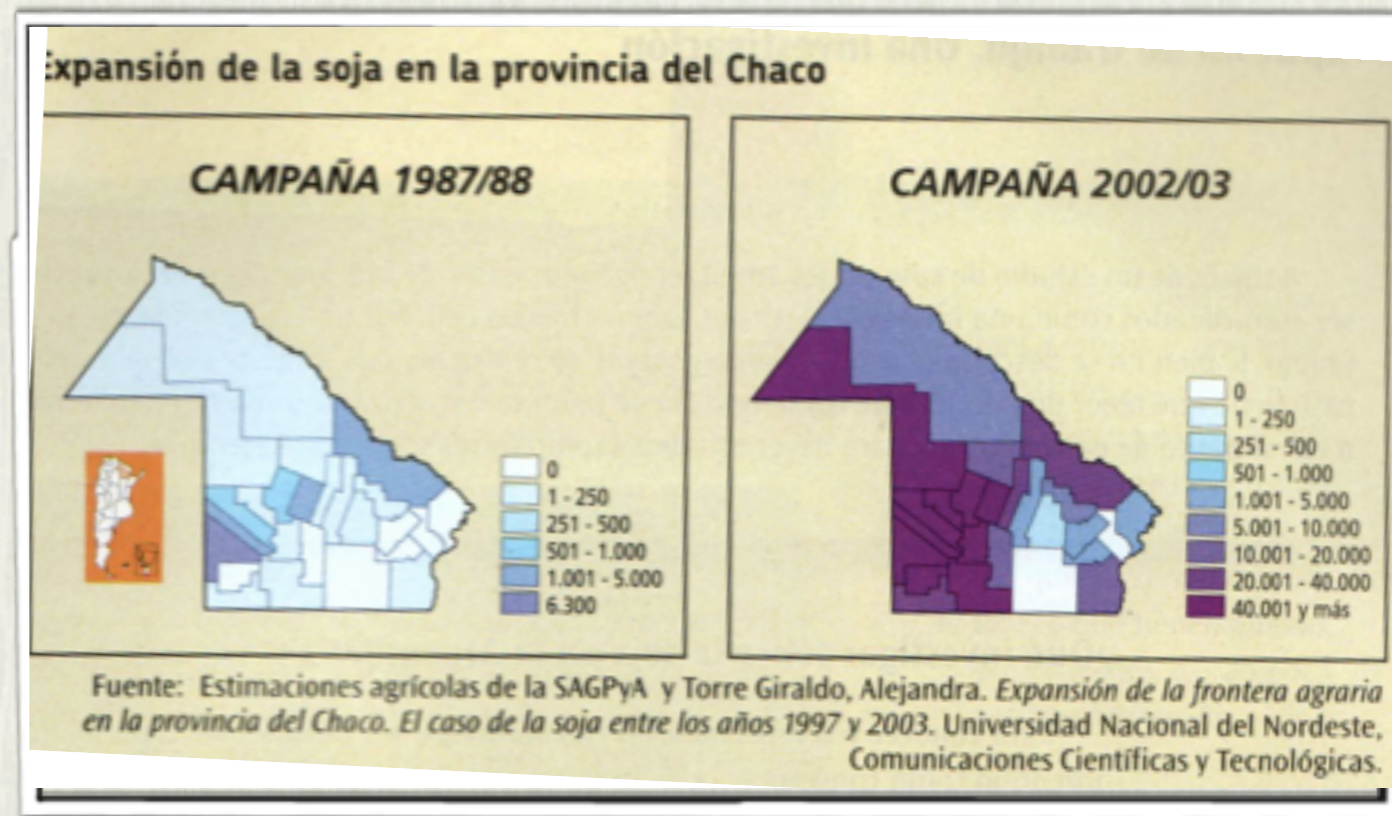
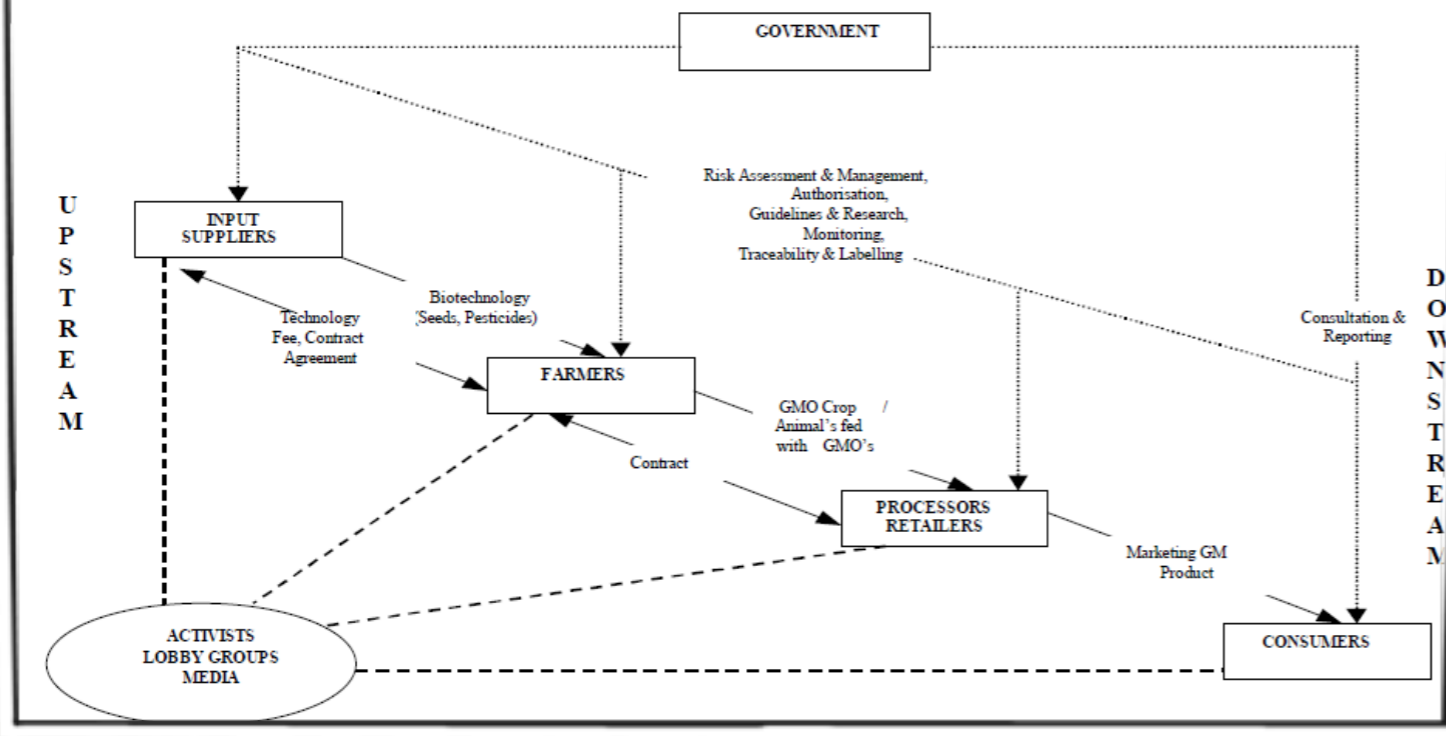


Image reprinted from Geografía: Argentina en la Globalización by Arzeno, Mariana et. al. Buenos Aires: Editorial Santillana, 2010.

THE PROVINCE OF CHACO

Figure GMOs in the food chain, stakeholders and issues



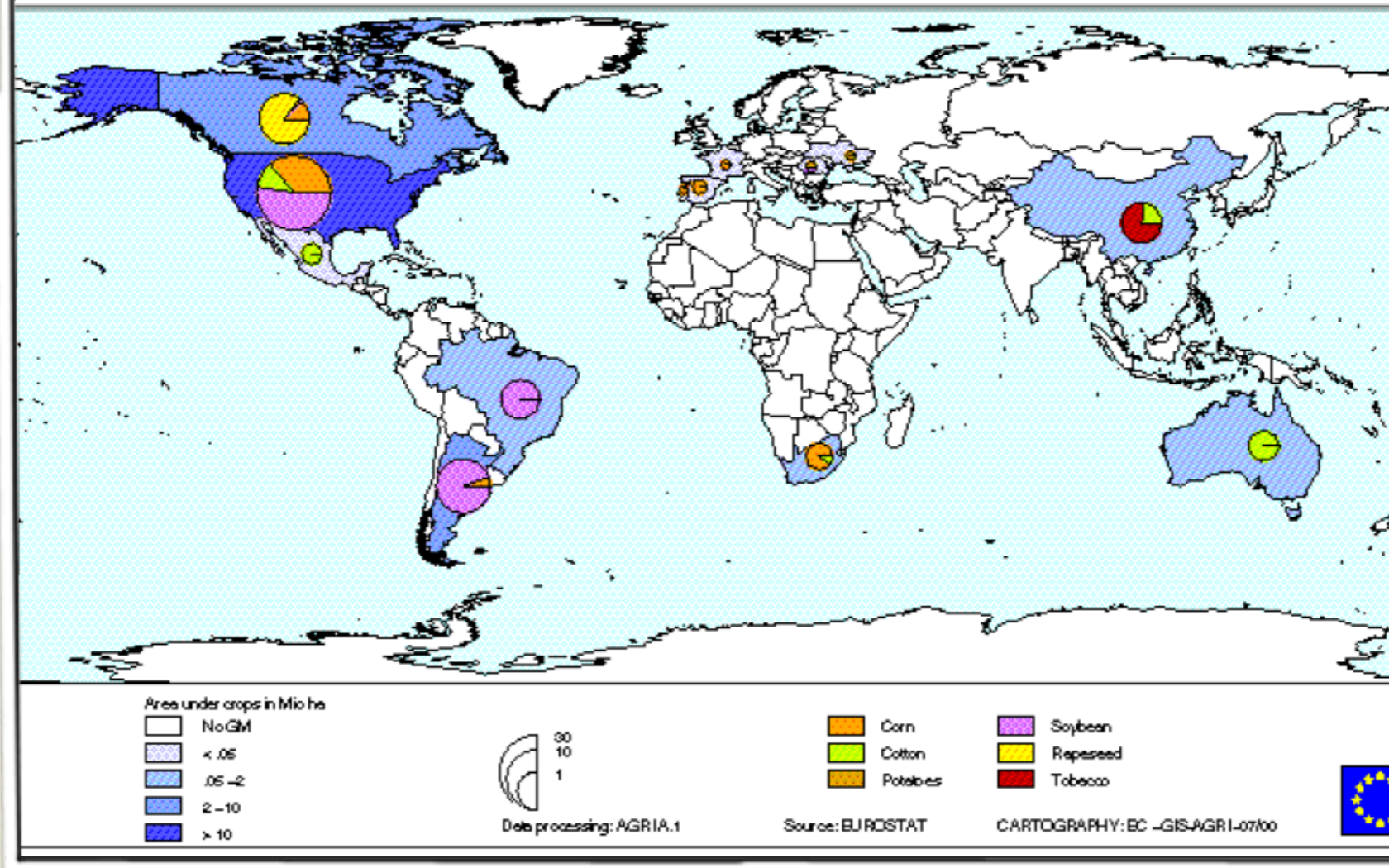
<iframe width="960" height="720" src="http://www.youtube.com/embed/9EOEMdtb1jo" frameborder="0" allowfullscreen></iframe>

GMO CROPS IN THE FOOD CHAIN

AREA OF CULTIVATION IN HECTARES (1969-2008)

Period	Soybeans	Wheat
1969-70	30,470	6,238,700
1974-75	369,500	5,183,000
1979-80	2,100,000	5,000,000
1984-5	3,300,000	6,000,000
1989-90	5,100,000	5,500,000
1994-5	6,011,240	5,308,000
1999-2000	8,790,500	6,300,000
2004-5	14,394,949	6,260,365
2008-2009	18,032,805	4,732,205

World GM Areas 1999-2000



WORLD GMO TRADE

PUTTING SOYBEANS ON TRIAL!

- Soybeans have exponentially increased in production and consumption and have made an impact on our cultural landscape.
- Your mission -- should you decide to accept it -- is to get together with your colleagues and identify the top three arguments that the major stakeholders in the soybean trade have for its expansion or regulation.

THE STAKEHOLDERS

- Argentine government
- Monsanto (producer of Ready Roundup GMO seeds)
- Environmentalists
- Chinese government (major importer)
- Small Argentine farmer
- Large Argentine producers

- Three lessons on Argentine agriculture:
 - DBQs tracing growth of agricultural sector
 - From “Pasture to Plate, Argentine Style”
 - Putting soybeans on trial



Contact me!

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