

# **Ted Talk, Food Safety, & Biofuels**

World Food Week 13

# Fertility Decline

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			% Female Contraception Use (15-49 yrs)	% Population Urbanized	GNI per Capita (\$)	% Female Illiteracy	Infant Mortality per 1,000
Country	1980 TFR	2001 TFR					
Tanzania	6.7	5.2	25	33	520	32	104
Laos	6.7	4.9	25	20	1,540	46	87
Bangladesh	6.1	3	54	26	1,600	69	51
Bolivia	5.5	3.8	49	63	2,240	20	60
Ecuador	5	2.9	66	63	2,960	10	24
Algeria	6.7	2.9	51	58	5,190	42	39
Thailand	3.5	1.8	72	20	6,230	6	24
Chile	2.8	2.1	Unavailable	86	8,840	4	10
Poland	2.3	1.3	Unavailable	63	9,370	0	8
Sweden	1.7	1.6	Unavailable	83	23,800	Unavailable	3



# How Do Governments Get Involved?

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## P Government intervention

- ▶ Regulation
  - Standards
  - Risk reduction
- ▶ Educational Programs

# Why Do Governments Get Involved?

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## P Liability (Civil Law)

- ▶ Works best when one injurer and one injured party
- ▶ Food safety damages usually small
- ▶ Class action suites

## P Regulatory action

- ▶ Better suited to large numbers on either or both sides
- ▶ Need to track down source

# Why Do Governments Get Involved? (Continued)

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- P Protect animals & the environment
- P Regulations help consumers determine safety of food
- P Protect consumers from fraud
- P Helps create barriers to trade

# A Look at the Canada & the USA

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P Both countries involved in

- ▶ Grading
- ▶ Inspection
- ▶ Licensing
- ▶ Labeling
- ▶ Setting of standards

P Regulation complex

- ▶ Federal
- ▶ Provincial (state)
- ▶ Local

# Jurisdiction in Canada

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## P Federal

- ▶ Canadian Food Inspection Agency
  - Portions of Agriculture and Agri-Food Canada
  - Health Canada
  - Industry Canada
  - Department of Fisheries & Oceans

## P Provincial

## P Municipal

# Jurisdiction in the USA

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## P Federal Government

- ▶ Food & Drug Administration
  - Part of the Dept. Of Health
- ▶ Health & Human Services in the Federal Security Admin.
- ▶ EPA (Pesticides)

P States meet Federal minimum standards

P Both countries relying more on private firms

# Meat Grading & Inspection

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P Historically done visually

- ▶ Problems with chemical contamination
- ▶ Bacterial contamination

P Movement toward hazard analysis critical control point schemes (HACCP)

# HACCP

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- P Conduct a hazard analysis
- P Identify critical control points
- P Establish critical limits and preventive measures
- P Determine and preform corrective actions
- P Record keeping
- P Verification

# Why Ethanol & Biodeisel?

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## P Renewable resource

- ▶ Replace fossil fuels
- ▶ Forever bountiful

## P Environmentally friendly

- ▶ Replaces the additive that replaced lead
- ▶ Greenhouse gas emissions

## P Helps the farm economy

- ▶ Local ownership of Ethanol plants
- ▶ Increases local crop use
- ▶ Increase feed stock prices

# What Is Really Going On

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### P Silver bullet phenomena

- ▶ Farmers looking for a solution to low commodity prices
- ▶ Value added
- ▶ If it grows it must be green

### P Environmental impacts

- ▶ Mixed
  - Takes energy to make energy
  - Removing biomass to make Ethanol is not GHG friendly
  - Biodiesel can be cleaner depending on feed stocks
  - Fuel economy lower with increased Ethanol in the mix
  - Ethanol mix burns more efficiently
- ▶ Farm impacts
  - Not everyone happy

# Definitions

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### P Alcohol Fuel

- ▶ Made from a feed stock different than petroleum or natural gas
- ▶ Used alone or in combination with gasoline
- ▶ Can be used by
  - motor vehicles
  - farm implements and machines
  - implements of husbandry
- ▶ Must meet some condition when mixed
  - 8%
  - 15%
  - 85%
- ▶ Source
  - <http://www.sccd.org/policy/WashingtonBiofuelsIncentives.shtml>

# Definitions Continued

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## P Biofuel diesel

- ▶ mono alkyl ester of long chain fatty acids
- ▶ Derived from vegetable oil or animal fats
- ▶ For use in compression ignition engines
- ▶ Meets ASTM D6751

## P Biodiesel feed stock

- ▶ Oil produced from a agricultural crop
- ▶ For sole purpose or ultimately to produce biofuels
  - Source  
<http://www.sccd.org/policy/WashingtonBiofuelsIncentives.shtml>

# Background

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P Based on a 1937 patent for producing fuels from vegetable oil

- Need to separate fatty acids from glycerol

P Germany a major producer and user

P Becoming available in Canada and the U.S.

P Some reluctance by engine manufacturers

- Cold weather starting
- Problems with seals & gaskets

P Currently used as a blend

P More expensive than petroleum based diesel

# Advantages

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P Better lubricity

P Efficiency depends on feed stocks

- ▶ Algae 1800 gpa
- ▶ Palm oil 508 gpa
- ▶ Coconut 230 gpa
- ▶ Rapeseed 103 gpa
- ▶ Soy 59.2-98.6 gpa
- ▶ Peanut 90 gpa
- ▶ Sunflower 82 gpa

P Quality also varies

# Carbon Foot Print & Pollution

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## P Carbon foot print

- ▶ Thought of as less than petroleum based diesel
- ▶ Arguments over what is included in the calculations

## P Pollution

- ▶ Has fewer health effects
- ▶ Reduced particulate
- ▶ Can have cleaner emissions
- ▶ More NO<sub>x</sub>

# Food for Fuel & Trade

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P Where do the acres come from

- ▶ Poorer land into production
- ▶ Is this a security issue

P Cheaper oil production in less developed countries

- ▶ Implications for trade & trade talks

# Materials for Final Exam

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## P Readings

- ▶ *Fast Food Nation*—pages 1-222
- ▶ *Guns, Germs and Steel*—pages 104-175
- ▶ *The World Food Economy*—pages 1-121 and pages 151-220
- ▶ All readings handed out in class

## P Lecture Notes on the Web

P All material presented in class including videos