

Biofuels: Considering Indirect Land Use Change

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Logic for Considering Indirect Land Use Change

- Since 1975, the U.S. has exported 14-45% of corn and 29-47% of soybeans
- The EISA RFS2 mandate requires volumes of biofuel that will divert 33% of corn production and 20% of soybean oil in 2022
- How will our previous customers obtain these commodities in the future?



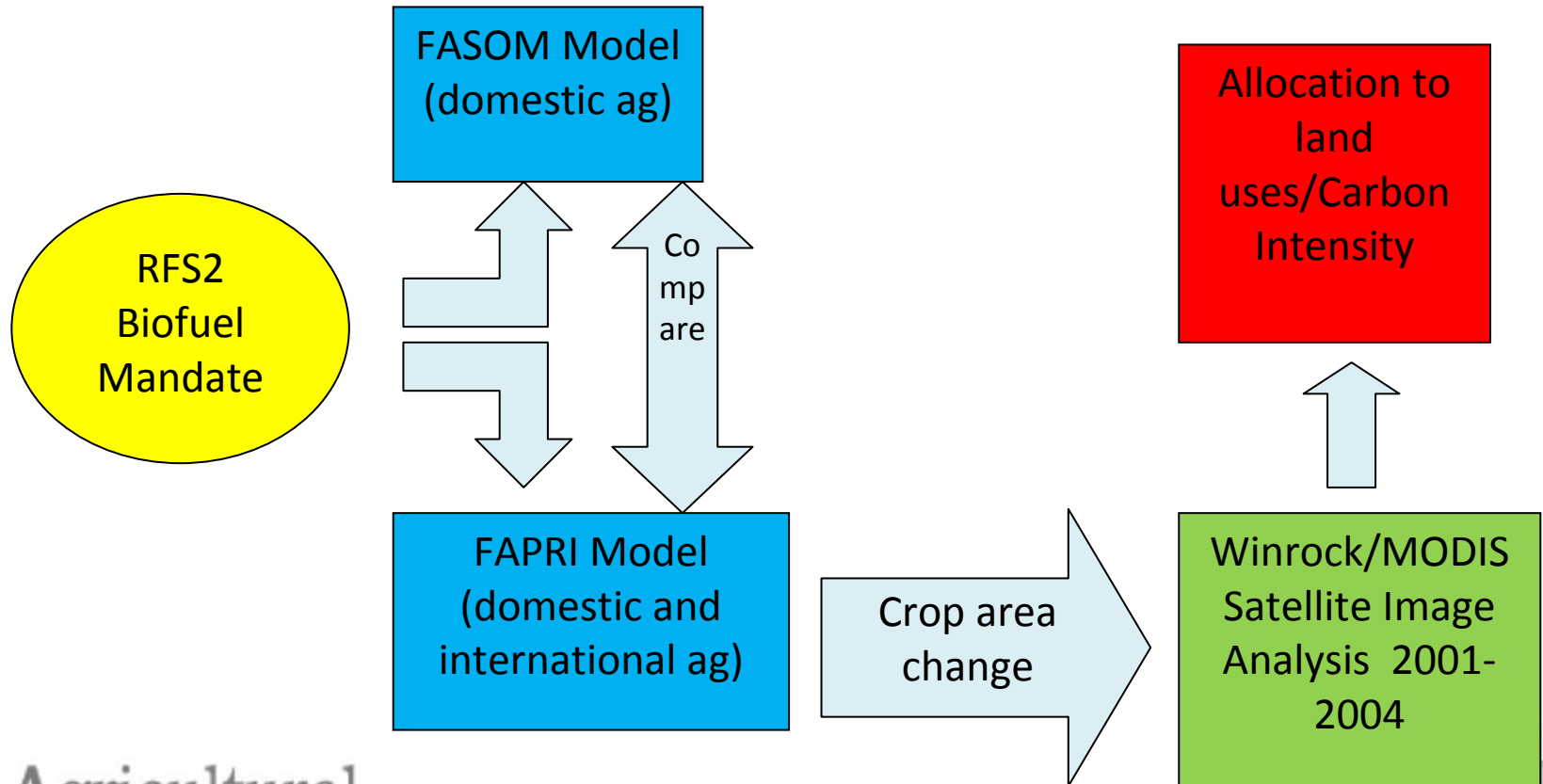
Consequential Life Cycle Analysis

- Seeks to understand the environmental consequences of choosing between alternatives (e.g., biofuels or fossil fuels)
- Must consider all phases of the production and consumption processes (materials, transportation, production, consumption, disposal)
- Must consider market intermediated changes if markets are significantly affected.

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EPA Land Use Change Modeling



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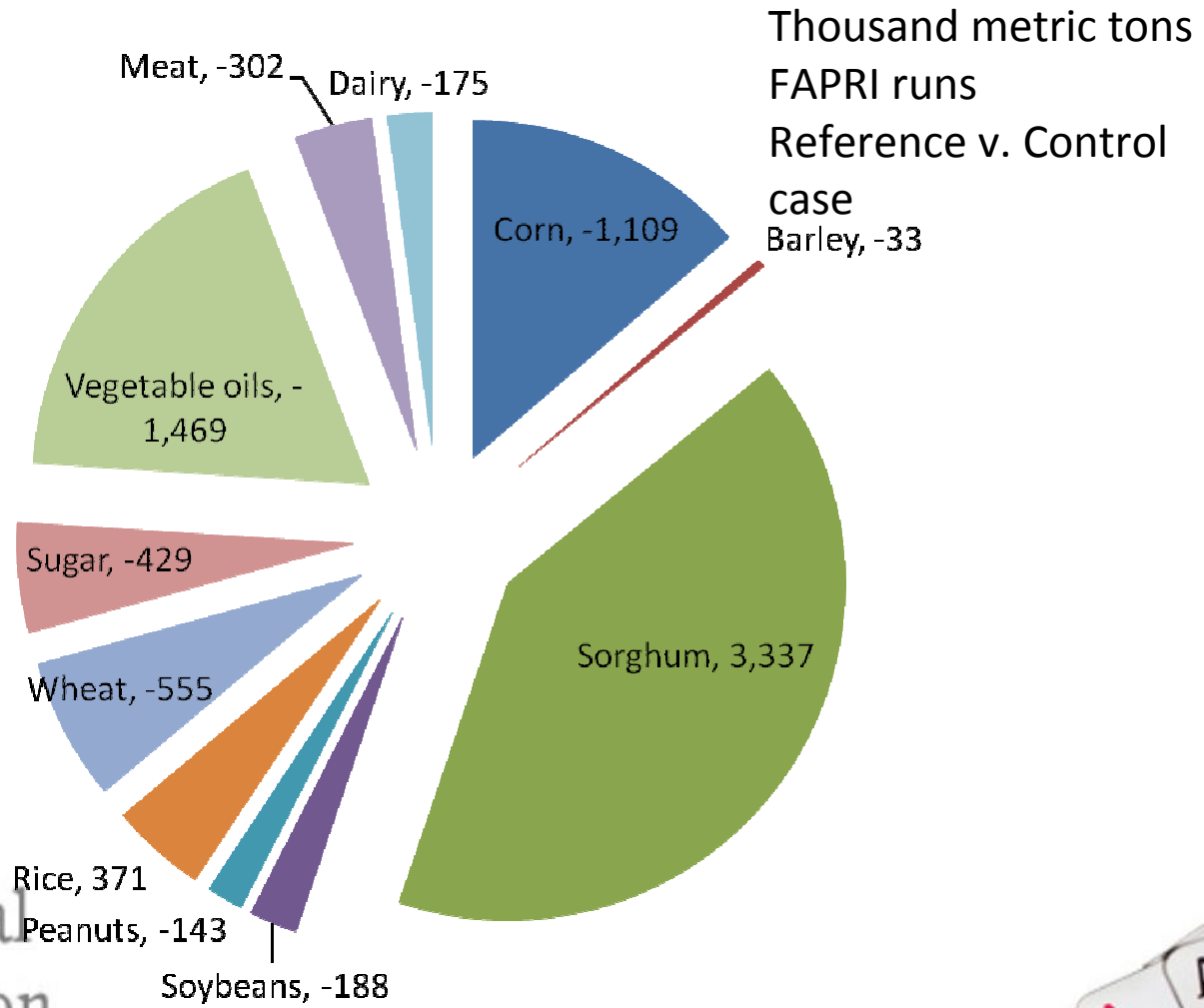
EPA FASOM-FAPRI Analysis

- U.S. reduces corn exports 8-10%, soybean exports 5-9%, and soybean oil exports 27-52%
- U.S. adds 2.3 million acres of cropland on net
- World corn, soybean and soybean oil prices rise 5.6 to 12.1%
- International cropland increases 12.2 million acres
- World food consumption decreases 0.9 million metric tons

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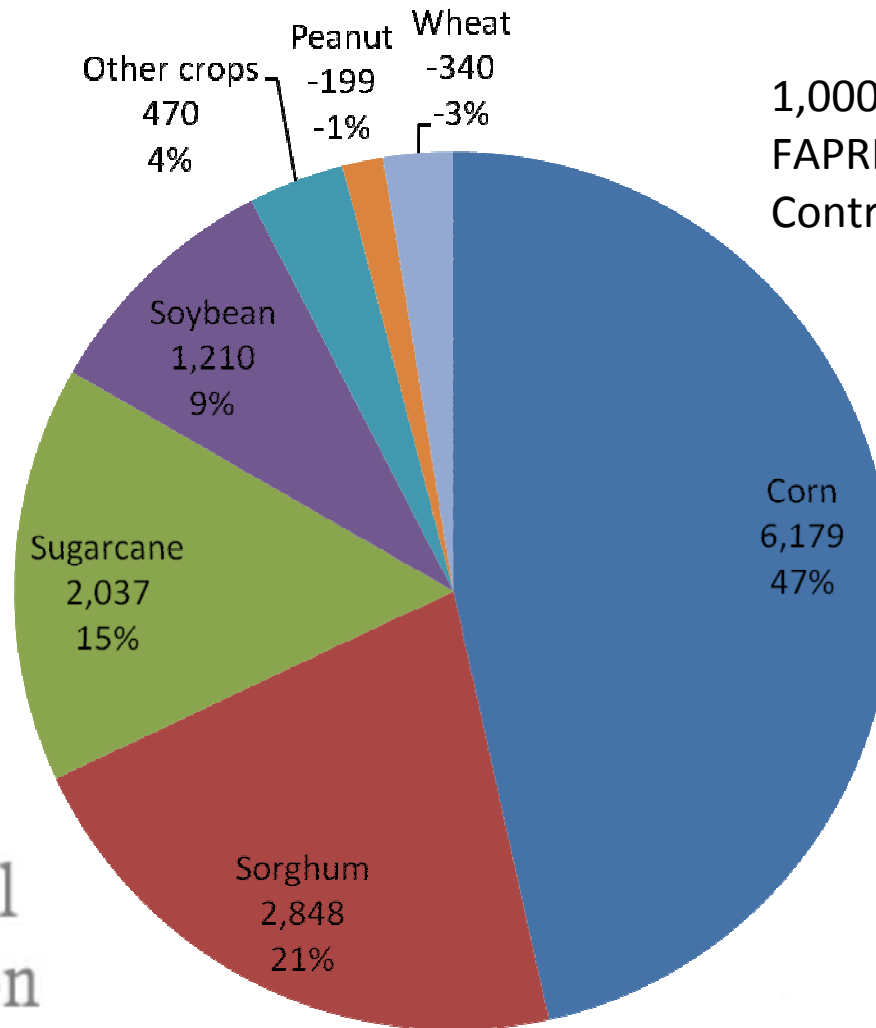


Changes in Food Consumption, 2022



Changes in Crop Area

Total: 12.2 million
acres
0.54% increase



1,000 acres
FAPRI runs
Control v. Reference case

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Role of Agriculture

“The expansion of cropped land and pasture is, by far, the leading proximate cause of tropical deforestation. It was found to lead to deforestation in 146 out of 152 cases (96%). In next to all cases, agricultural expansion does not operate alone, but in combination with other proximate causes. Permanent cropping, pasture creation for cattle ranching, shifting cultivation and colonization (transmigration, resettlement) hold similarly high shares (40 to 48%).”

Geist, Helmut and Eric Lambin. 2001. What drives tropical deforestation? A meta-analysis of proximate and underlying causes of deforestation based on subnational case study evidence. LUCR Report Series-4

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