

# The State of the Analysis UIC Land Use Research Efforts

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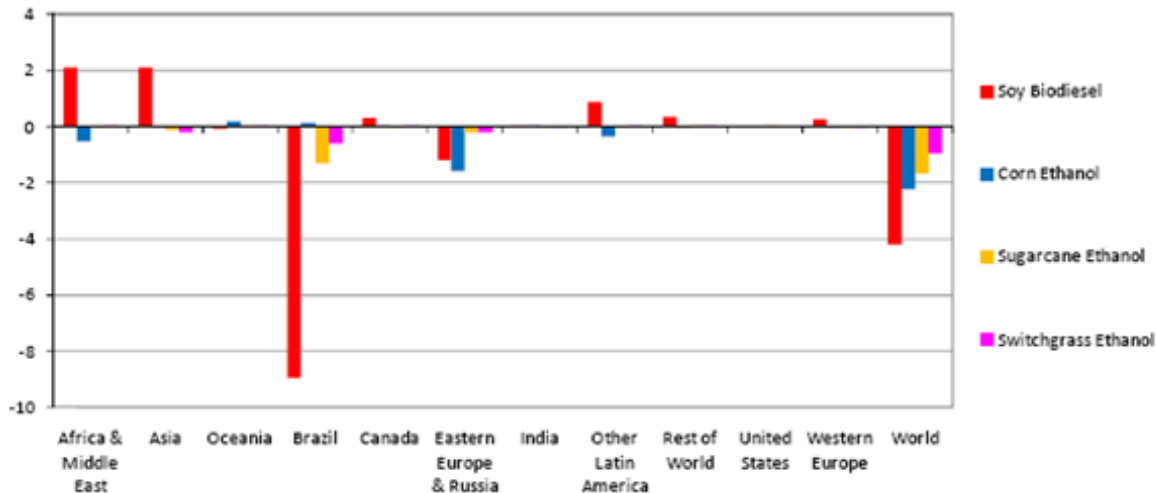
# US Land Use Study

## LUC Different Models – Different Results

GTAP, Tyner, 2011

GTAP Code	USA
Description	United States (ha)
Forests	-331,465
Grasslands	-639,484
Crops	970,916

Figure 2.4-25. Normalized Pasture Area Changes by Renewable Fuel, 2022 (ha / billion BTU)

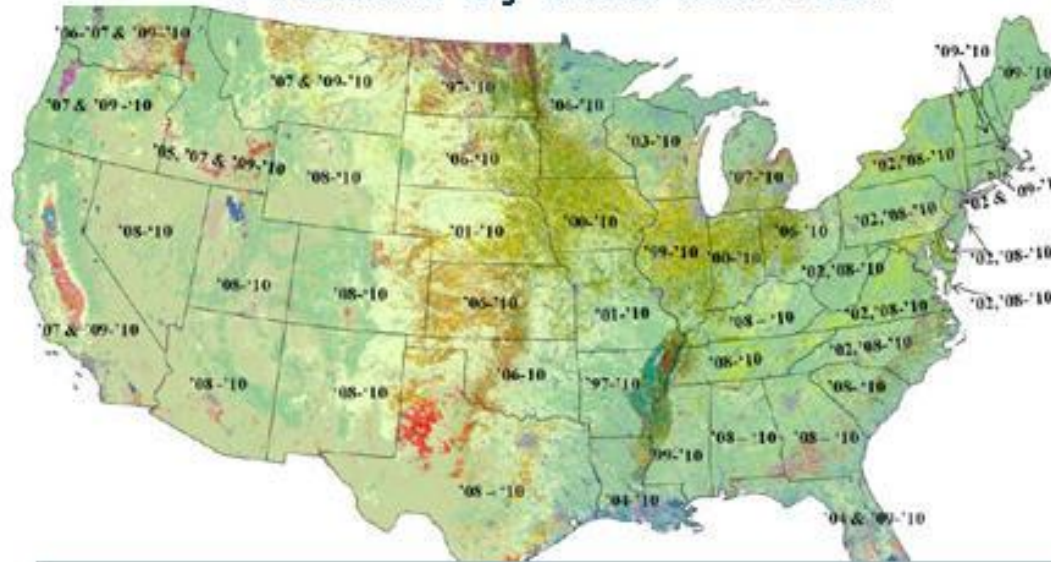


EPA RFS2 Regulatory Impact Analysis, February 2010

# US Land Use Study

- ▶ EPA predicts much smaller land use changes for the US than GTAP
- ▶ Need to understand why
- ▶ Study in progress will determine the total acres of a) non-agricultural land use changes to agricultural production and b) available lands currently in pasture, forest and hay in the continental United States.
- ▶ The analysis will be performed using the USDA NASS Cropland Data Layers (for crop types) which includes the national land cover dataset (for non-cropland conversions). The software used for this analysis will be Erdas Imagine developed by Leica Geosystems.

## Cropland Data Layers Available By State and Year



Percentage of U.S. Planted Acres Covered by USDA Cropland Data Layers for Each Analysis

Commodity:	2006 and 2007-2010 (15 states)	2008-2010 (43 States)	2009-2010 (Contiguous U.S.)
Corn	85%	99%	100%
Soybean	86%	100%	100%

### ▶ High accuracy

- The present study will analyze the data layers by applying an algorithm that a) subtracts the unlikely rotation scenario of land in agriculture converting to non-agricultural land and then back to agricultural land and b) subtracts field fringes and roadway buffers

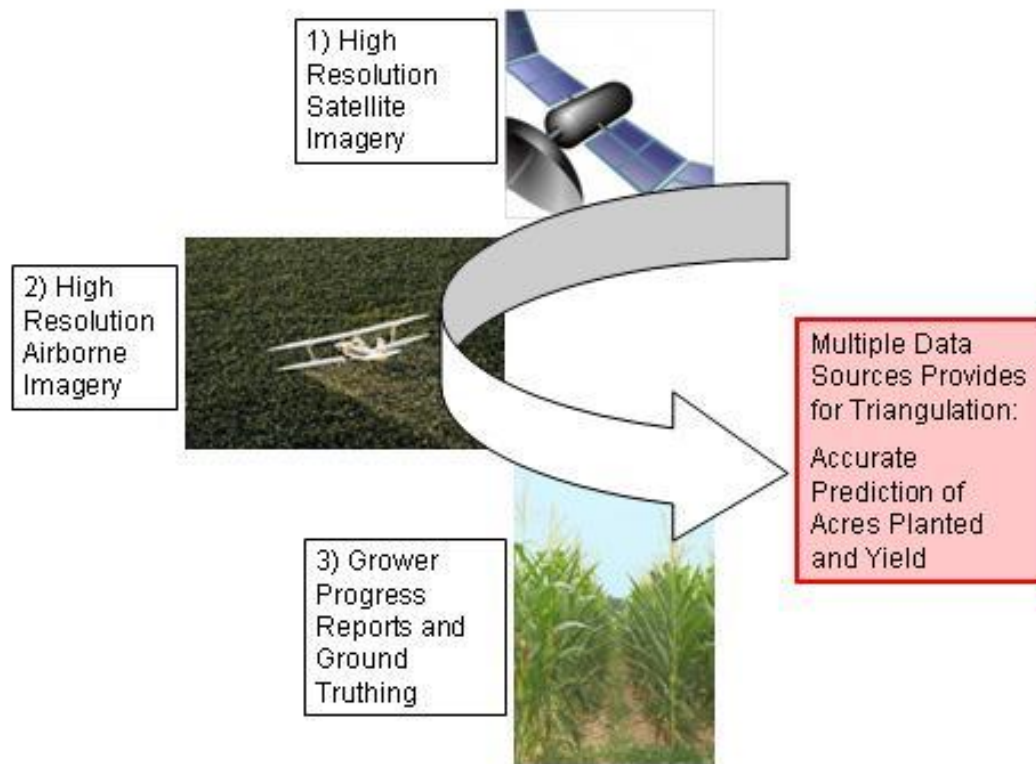
# Corn Draw Area Study

- ▶ Look at a corn draw / corn shed area and perform detailed Soil Carbon Modeling
- ▶ Looking at current literature on cellulosic ethanol such as miscanthus
  - One such publication did show trading corn acres for miscanthus acres and the associated GWI impact
  - We are modeling concurrent production of corn and cellulosic ethanol recognizing that RFS requires both corn and cellulosic ethanol
  - Also need to be mindful that if we push corn ethanol to marginal, lower yielding lands and take higher yielding lands to produce cellulosic biofuels we are increasing the volatility of feed and food supplies.



# In-Season Land Use and Yield Prediction

- ▶ First Year of Research
- ▶ Several Ethanol Plants Participated
  - Look at surrounding counties of corn ethanol plants
  - Prepare repeatedly vegetation vigor maps, weather maps, corn yield prediction maps
  - Share data with plants in advance to USDA Report Releases (June and August Reports)



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