



Session 4

Land Use Change and GHG Emissions

Session Objectives

- What are the premises that underpin different approaches for assessing the impact of land-use change? Can the premises be tested with data now or in future? What premises are un-testable?
- What are the other major differences among studies and sources of uncertainty in land-use impact estimates, and how can differences be resolved and uncertainties narrowed?
- How does rate of growth in biofuels relative to ag. productivity growth impact land-use change estimates?
- What are most important data or analysis tools for improving land-use impact estimates, and what are the future research needs?

Chairpersons:

John DeCicco (University of Michigan)

Jim Duffield (USDA)

Charlie Schleyer (ExxonMobil)



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Highlights and Learnings

- Indirect land use change is observable but very difficult to measure
- Deforestation is being caused by many factors, including growth in biofuels, increasing world food demand, and many other social, and institutional factors
- Conventional LCA is being integrated with economic models, because profit has a major effect on land use change
- Different types of economic model provide different results, e.g., GTAP and FAPRI use different assumptions for yield and price relationships, and the two models have different time parameters



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Gaps Identified

- Current models are unable to separate out the different factors causing deforestation
- Estimates of GHG emissions are extremely dependent on time, however, there is no consistent treatment of time across models
- We need more coordination and integration of different models to capture all the factors related to land use change.
- We may need to develop new models specifically designed to measure the relationships between economics, land use change, and GHG emissions overtime
- Getting more data from Brazil and other countries where LUC will occur is critical