

Status of iLUC in Biofuel Policy in Europe

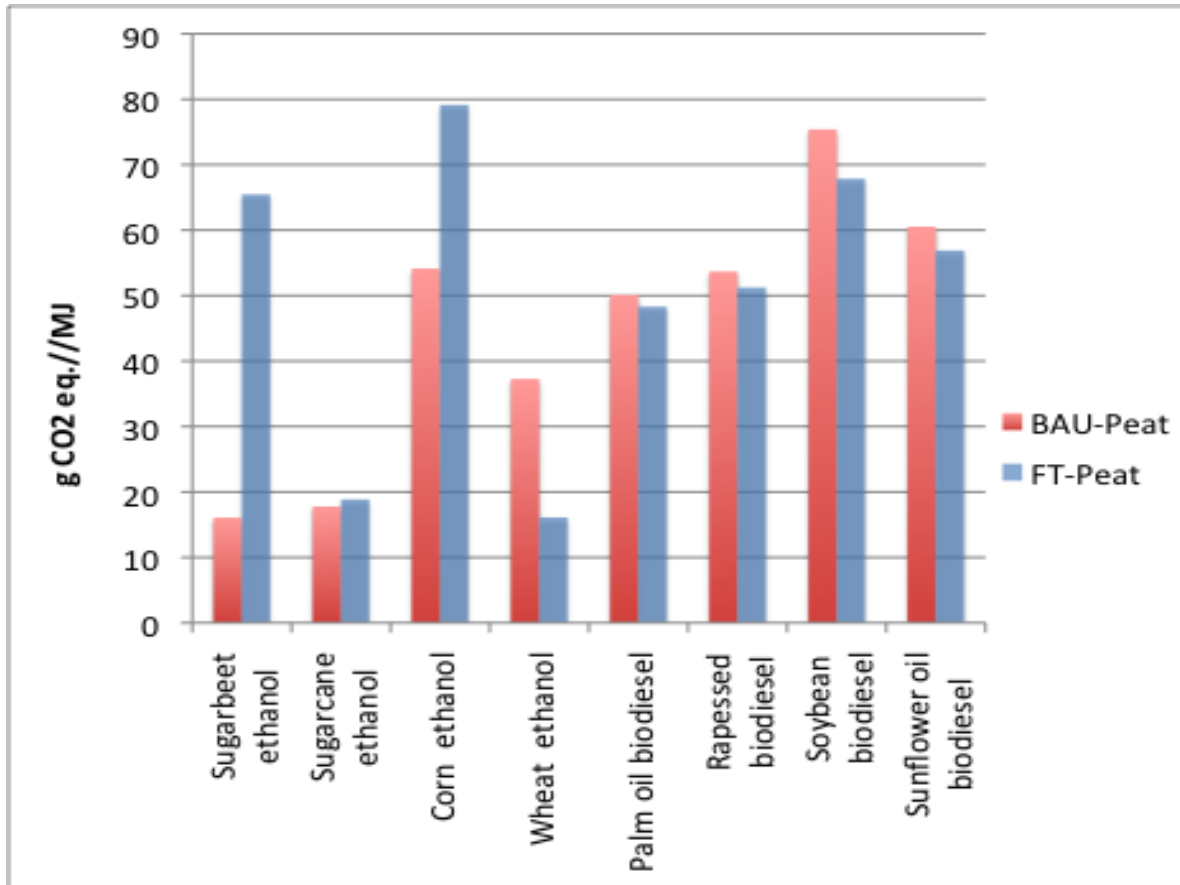
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Background

- Renewable Energy Directive (RED)
 - Requires 10% renewable energy content in transportation
 - 8.8% expected to come from biofuels
 - Regulates biofuels on the basis of carbon intensity and basic environmental sustainability criteria
 - Reporting regime on other sustainability issues
 - Minimum of 35% GHG saving increasing to 50% by 2017
- Fuel Quality Directive (FQD)
 - 6% reduction on GHG emissions
 - Provisions for the minimum GHG reduction threshold and sustainability criteria same as in RED

iLUC in EU

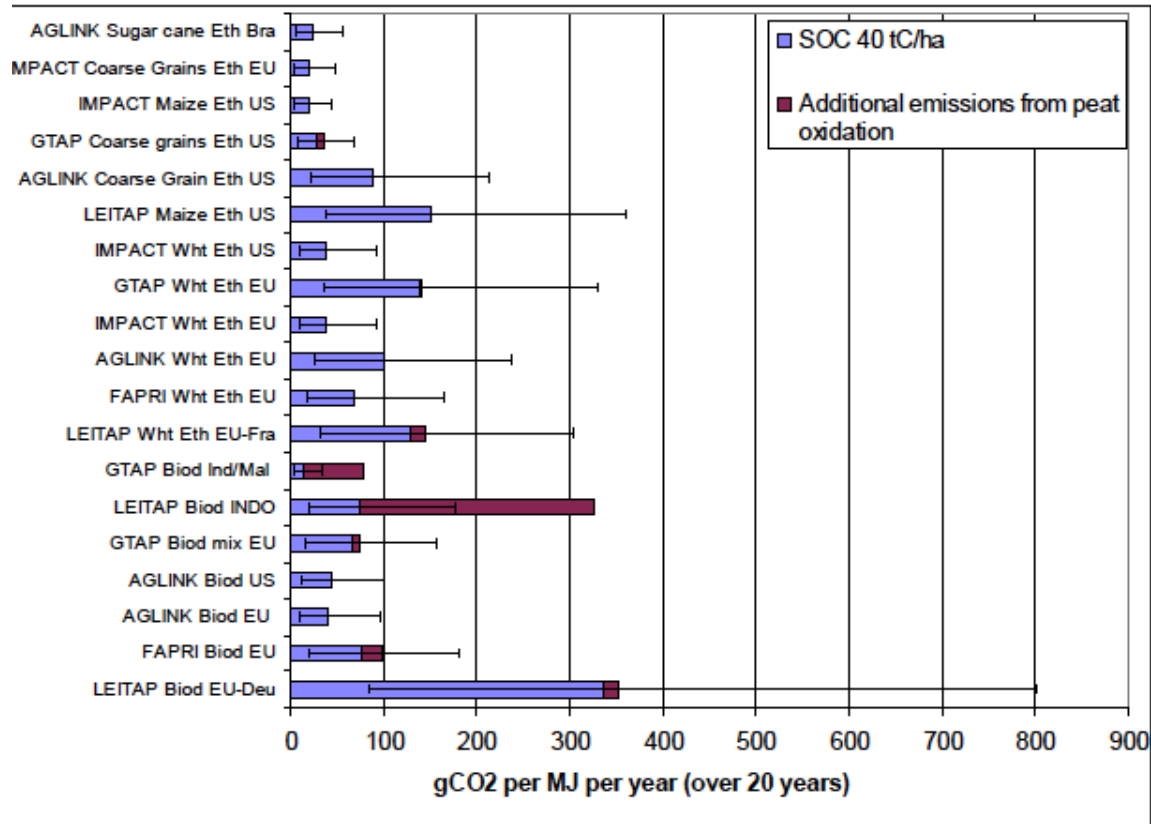
- The current methodology for estimating carbon intensities (CI) of biofuels does not include iLUC GHG emissions
- Both FQD and RED required the EC to review the best available science on iLUC and submit a proposal by 31 December 2010
 - The language in the Directives emphasizes the importance of minimizing iLUC
- EC commissioned several iLUC modeling studies including:
 - IPTS study-AGLINK, ESIM, CAPRI
 - JRC ILUC modeling comparison
 - IFPRI study- MIRAGE
- Stakeholder consultations completed in 2010



BAU—Business as usual , FT- Free Trade

IFPRI-MIRAGE iLUC factors including peatland emissions

Source: Al-Riffai, P., Dimaranan., B and Laborde, D.,2010



Comparative analysis of iLUC emissions from various models

Adapted from Edwards, Mulligan, and Marelli, 2010.

Important issues in ILUC modelling

- Expert consultation held in Ispra, Italy in 2010
- Critical issues in estimating iLUC emissions examined including:
 - Marginal yield and demand induced yield
 - Co-product
 - Reduction in food consumption
 - Land conversion

Yield increase

- Historically crop yields have increased
- Models assume 15% to 80% of the demand is met by yield increases
- Uncertainty
 - Difficult to pinpoint the underlying causes of a yield increase
 - rate of future yield increase
- Run a sensitivity analysis at different rates and establish the worst case possibility

Marginal Yield

- Varies among models
- Ratio of yield on the existing to new land
 - GTAP-0.66
 - IFPRI-MIRAGE-0.55 (Brazil-0.75)
 - FAPRI-statistical analysis-0.95 for corn and 0.82 for soya
 - Abandoned land has 28% lower yield (FAO)

By-product impact

- Offsets iLUC by displacing animal feed ingredients
 - Ethanol 30-35%, EU biodiesel 55-61%
- Displacement ratios vary among studies
 - Results based on simple diet formulations by balancing energy and protein requirements
 - In reality, animal feed rations are complex and formulated using the least cost formulations

Reduction in food consumption

- Models consider reduction in food consumption in response to an increase in price
- Models with lower iLUC for ethanol reports the largest land saving
- For a food neutral scenario, iLUC emissions increase significantly

Land conversion

- Extent of forest and pasture conversion
 - Accuracy of land use classification is critical
 - Use of local land use database preferable
- Understanding of land use change improving
- Extent of expansion on peatland
 - 30%-50% expansion of palm oil on peatland

Current iLUC status

- Decision on iLUC proposal delayed until July 2011 to allow for a full iLUC impact assessment
- Impact assessment underway to determine whether to include ILUC and how?
- IA will be accompanied by enhanced IFPRI-MIRAGE modelling results
- The EC is evaluating four options:
 1. Take no action but continue to monitor iLUC
 2. Additional sustainability criteria for biofuels likely to induce iLUC
 3. Raise the minimum GHG reduction threshold
 4. Assign iLUC emissions to biofuels

Questions?