





Tortilla versus Greenfuel: Trade-offs and Synergies in the Bioeconomy

 **GEOBENE** 

Avoided Deforestation Map
Avoided deforestation (accumulated) between 2000 and 2100. The biomass not deforested if a carbon price of 12\$/tC is paid and that would be deforested if there was no carbon price at all (MtC/Grid). All data based on B2 scenario. Grid cell 0.5 degree resolution.

0 (light green) - 33 (dark green) MtC/ Grid.

 **GEOBENE** 

Deforested Biomass Map
Deforested biomass between 2000 and 2100. The biomass deforested although a carbon price of 12\$/tC is paid (MtC/Grid). All data based on B2 scenario. Grid cell 0.5 degree resolution.

0 (orange) - 37 (red) MtC/ Grid

Michael Obersteiner and Petr Havlik
& ca. 30 direct collaborators

European Parliament,
BXL, 11th Nov. 2009

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...Greenfuels: The **Serving** Butler for **Multiple Masters**

Rural
Development



Climate
Protection

Energy
Security

...Greenfuels: The **Serving** Butler for **Multiple Masters**

Crop Price
Increases

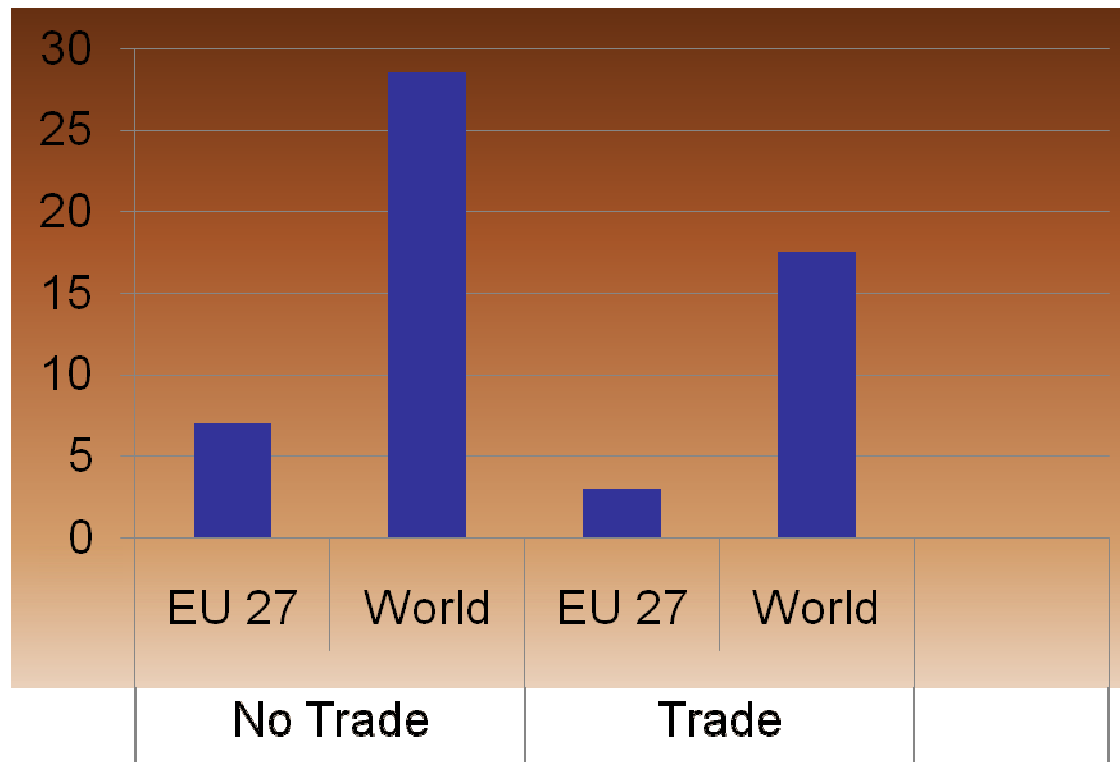


GHG
Balance

Trade

Deforestation: Energy versus Environmental Security

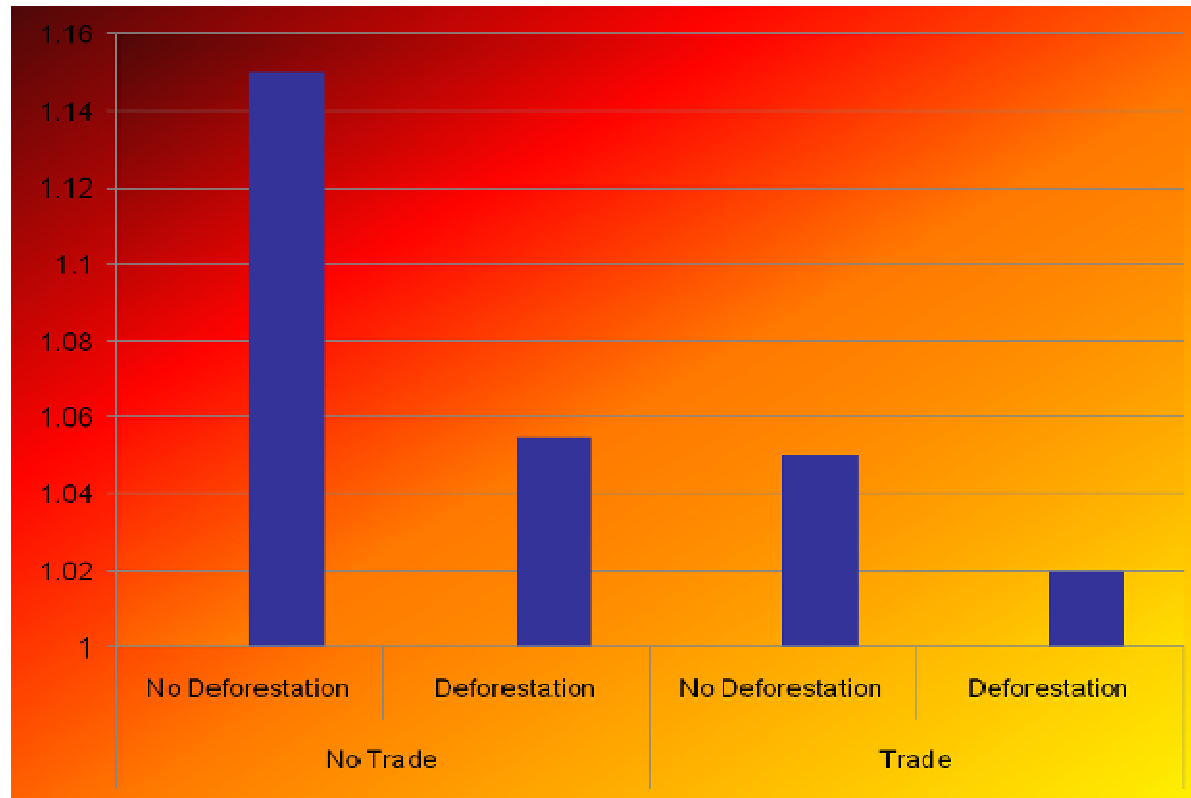
Mha, based on WEO 2020 targets,
If not constrained (e.g. by REDD) important deforestation occurs



Impact on hunger.....

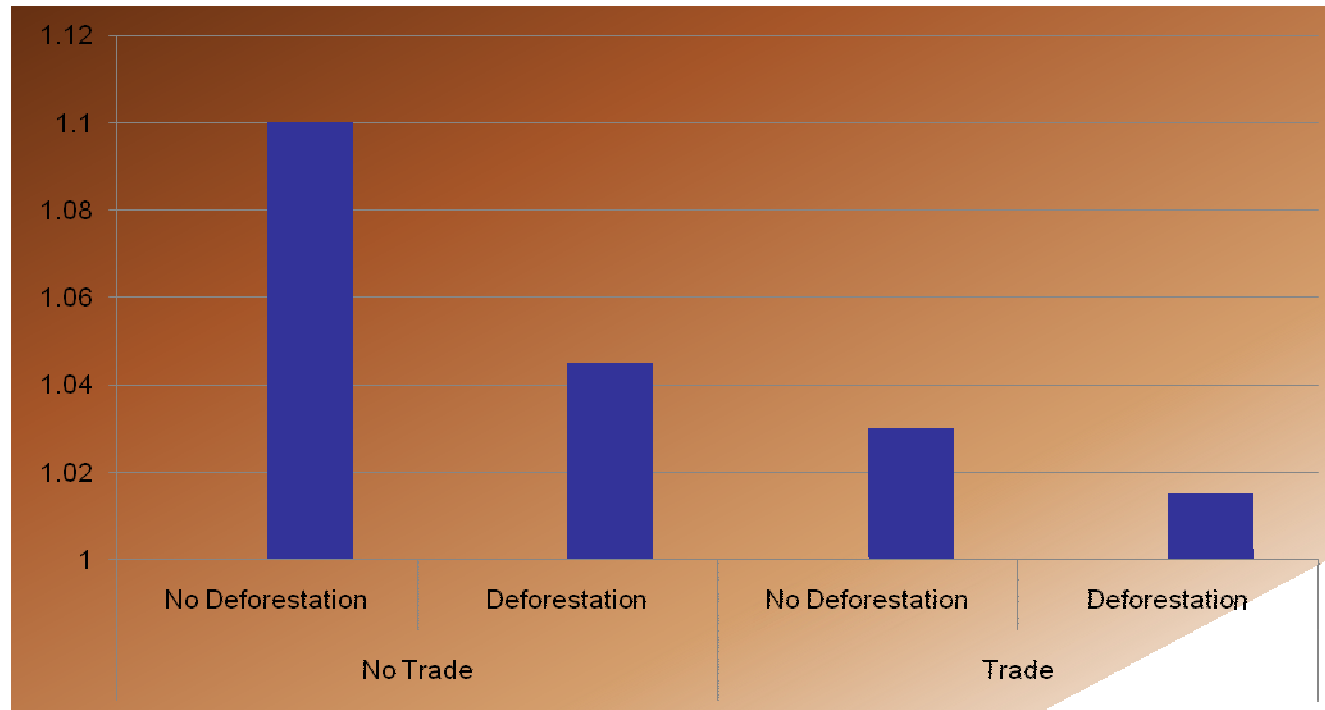


Global Food Security *versus* *Energy & Global Environmental Security*



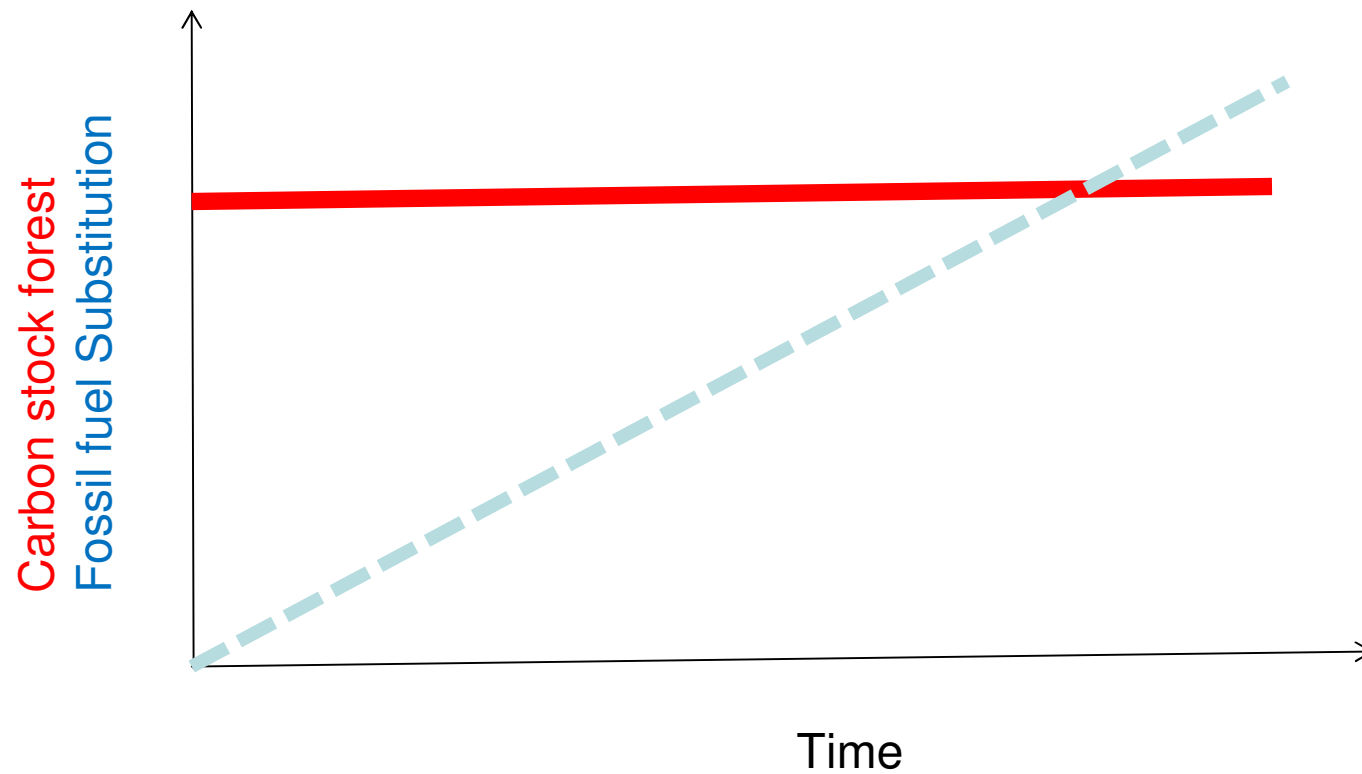
Crop price index, avoiding deforestation further increases the effect of biofuels on crop prices – Trade mitigates the price increase most!

Irrigation Water Use & Deforestation and Security of Supply

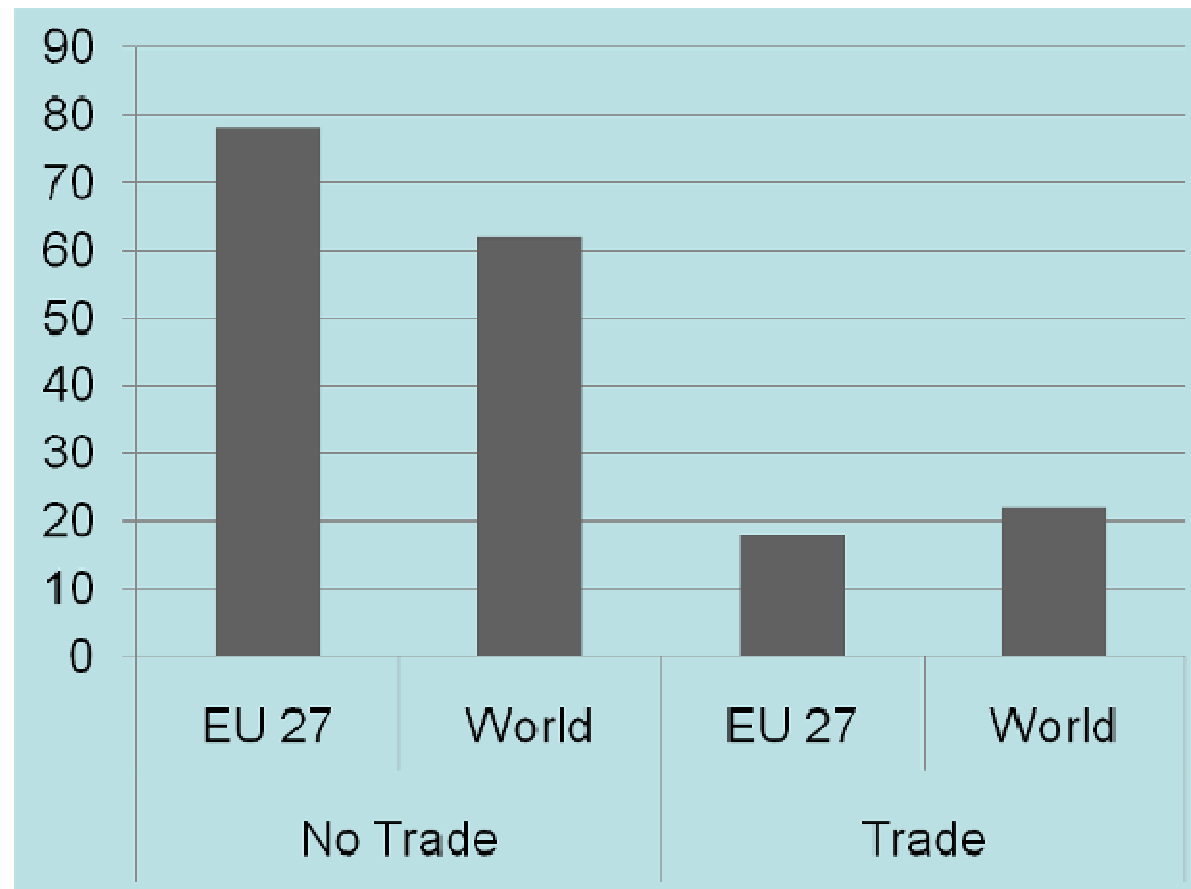


Irrigation water use index, avoiding deforestation further increases the effect of biofuels on crop prices – virtual water is the big issue

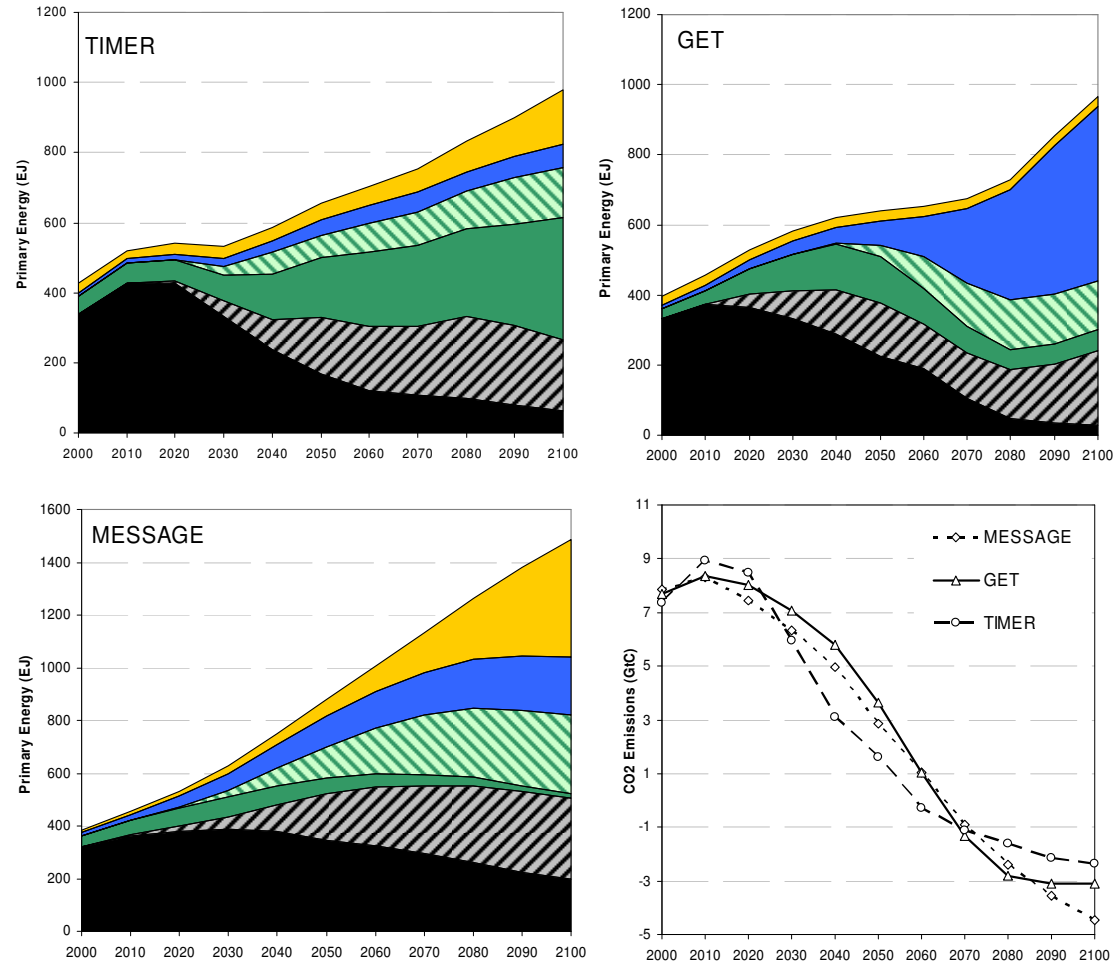
GHG Payback Period



GHG Payback time due to 2020 Biofuels targets



Global Energy Portfolio for 2 degree target



Conclusion

- James can only serve one guest at a time
- Mitigating trade-offs
 - Trade / Comprehensive Certification
 - Bioenergy Technology
 - 2nd Green Revolution
 - REDD
 - International Food Security