

## Background

This version is created by Farzad Taheripour and Wallace E. Tyner. This version splits crop sectors into rainfed and irrigated following Taheripour, Hertel, and Liu (2013) and uses a two-nest land cover following Taheripour and Tyner (2013).

### Details of parameters used by ARB for the September 29, 2014 Workshop

## ***Approach A: ETL11 = ETL12***

GTAP Region	ETL11	ETL12	ETL2	GTAP Region	ETL11	ETL12	ETL2
USA	-0.02	-0.02	-0.75	R_SE_Asia	-0.3	-0.3	-0.50
EU27	-0.02	-0.02	-0.75	R_S_Asia	-0.1	-0.1	-0.75
BRAZIL	-0.2	-0.2	-0.75	Russia	-0.02	-0.02	-0.75
CANADA	-0.02	-0.02	-0.25	Oth_CEE_CIS	-0.02	-0.02	-0.75
JAPAN	-0.2	-0.2	-0.50	Oth_Europe	-0.02	-0.02	-0.25
CHIHK	-0.2	-0.2	-0.25	MEAS_NAfr	-0.02	-0.02	-0.25
INDIA	-0.1	-0.1	-0.25	S_S_AFR	-0.3	-0.3	-0.25
C_C_Amer	-0.02	-0.02	-0.25	Oceania	-0.02	-0.02	-0.25
S_o_Amer	-0.1	-0.1	-0.50				
E_Asia	-0.2	-0.2	-0.50				
Mala_Indo	-0.3	-0.3	-0.25				

## ***Approach B: Separate ETL11 and ETL12***

GTAP Region	ETL11	ETL12	ETL2	GTAP Region	ETL11	ETL12	ETL2
USA	-0.0182	-0.0218	-0.75	R_SE_Asia	-0.2727	-0.3273	-0.50
EU27	-0.0182	-0.0218	-0.75	R_S_Asia	-0.0909	-0.1091	-0.75
BRAZIL	-0.1905	-0.2095	-0.75	Russia	-0.0182	-0.0218	-0.75
CANADA	-0.0182	-0.0218	-0.25	Oth_CEE_CIS	-0.0182	-0.0218	-0.75
JAPAN	-0.1818	-0.2182	-0.50	Oth_Europe	-0.0182	-0.0218	-0.25
CHIHK	-0.1818	-0.2182	-0.25	MEAS_NAfr	-0.0182	-0.0218	-0.25
INDIA	-0.0909	-0.1091	-0.25	S_S_AFR	-0.2727	-0.3273	-0.25
C_C_Amer	-0.0182	-0.0218	-0.25	Oceania	-0.0182	-0.0218	-0.25
S_o_Amer	-0.0909	-0.1091	-0.50				
E_Asia	-0.1818	-0.2182	-0.50				
Mala_Indo	-0.2727	-0.3273	-0.25				

## Ranges for other parameters

Parameter/ Scenario	Description	Values
YPE	Yield Price elasticity	0.05, 0.125, 0.175, 0.25 and 0.35 <b>(5)</b>
PAEL	Cropland pasture elasticity	0.2 U. S. and 0.1 Brazil 0.4 U. S. and 0.2 Brazil <b>(2)</b>
ETA	Elasticity of crop yields with respect to area expansion	Baseline, 80%, and 120% of baseline <b>(3)</b>

## References:

**Taheripour F.**, Hertel T., and Liu J. (2013) "Role of Irrigation in Determining the Global Land Use Impacts of Biofuels," *Energy, Sustainability and Society*, 3 (4): 1-18.

**Taheripour F.** and Tyner W. (2013) "Biofuels and Land Use Change: Applying Recent Evidence to Model Estimates," *Applied Sciences*, 3: 14-38. doi:10.3390/app3010014.