

# IMPACT OF BIOFUEL PRODUCTION ON WORLD NITROGEN FERTILIZER DEMAND: CURRENT SITUATION AND OUTLOOK

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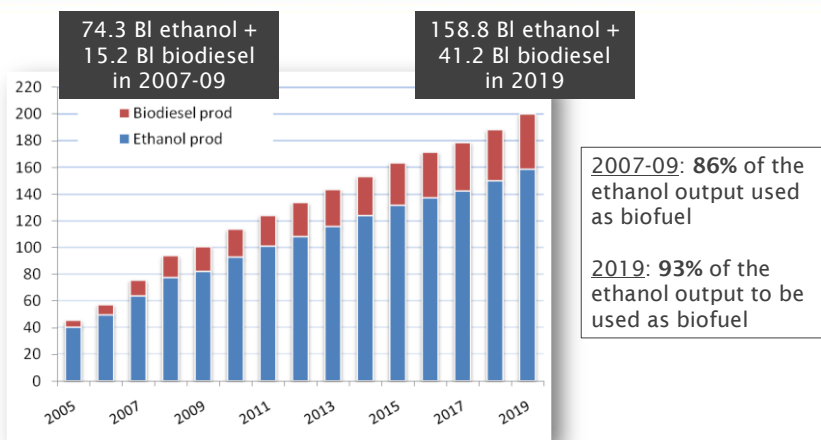
- ✓ Biofuel production: current situation and outlook
- ✓ Main feedstocks used for biofuel production
- ✓ Nitrogen fertilizer use by crop
- ✓ Nitrogen use efficiency: current trend and outlook
- ✓ Anticipated evolution of fertilizer use by crop
- ✓ Nitrogen fertilizer application to biofuel feedstocks
  - Current situation
  - Outlook to 2019



## Biofuel Production: Current Situation and Outlook



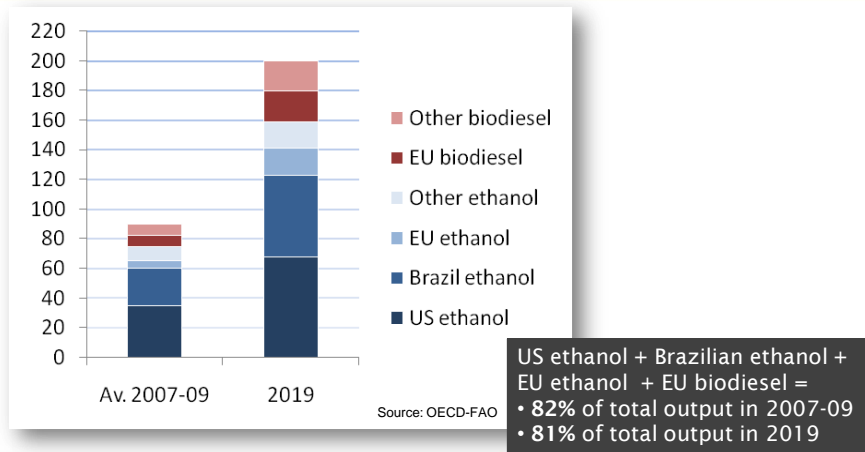
## Outlook for World Ethanol and Biodiesel Production (billion liters)



Source: OECD-FAO



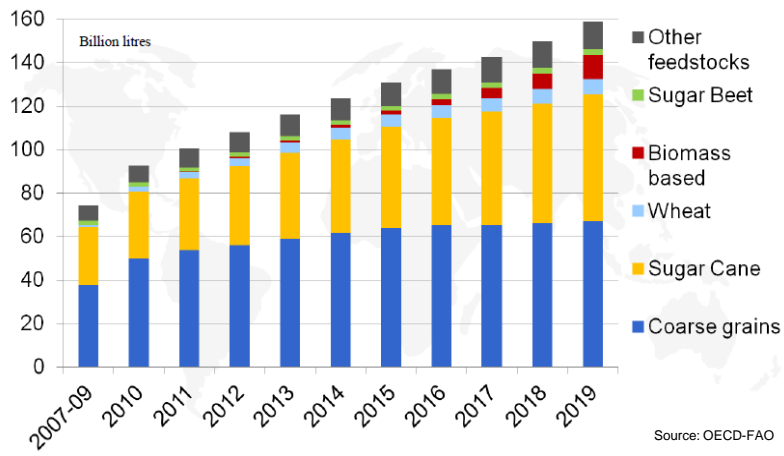
## Outlook for World Ethanol and Biodiesel Production (billion liters)



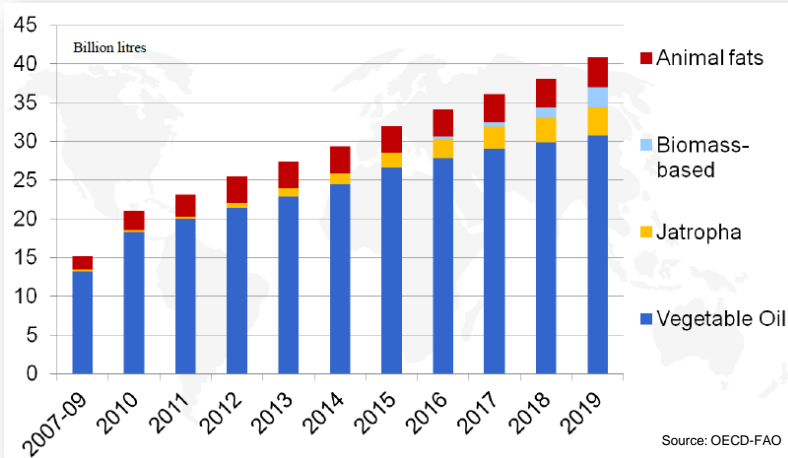
## Main Feedstocks Used for Biofuel Production



## World Ethanol Production by Feedstock

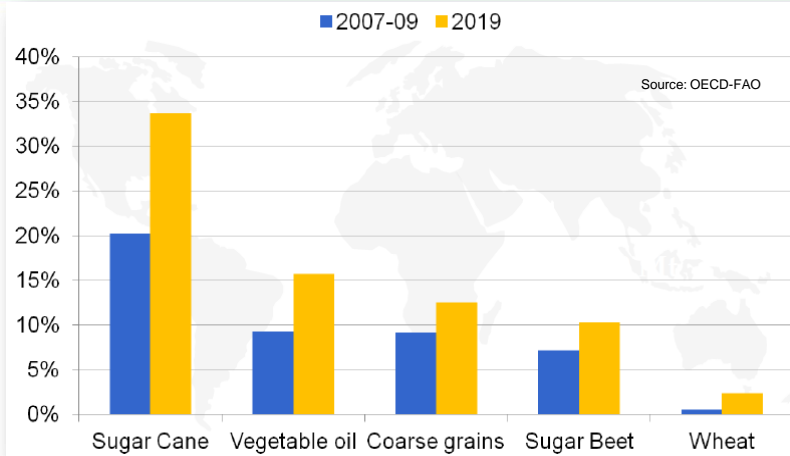


## World Biodiesel Production by Feedstock



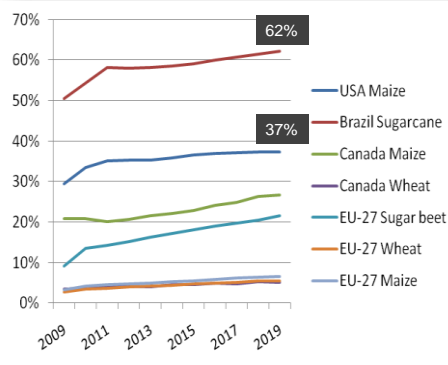


## Share of Feedstocks Used for Biofuel Production from Global Production

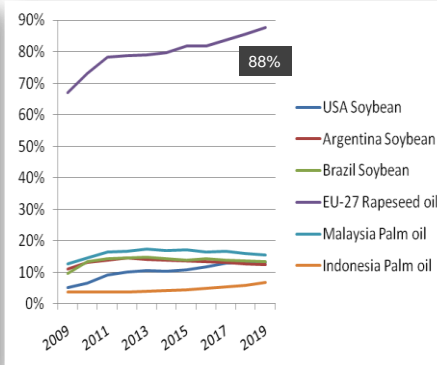


## Share of Feedstocks Used for Biofuel Production from Total Production

### Ethanol Feedstocks



### Biodiesel Feedstocks



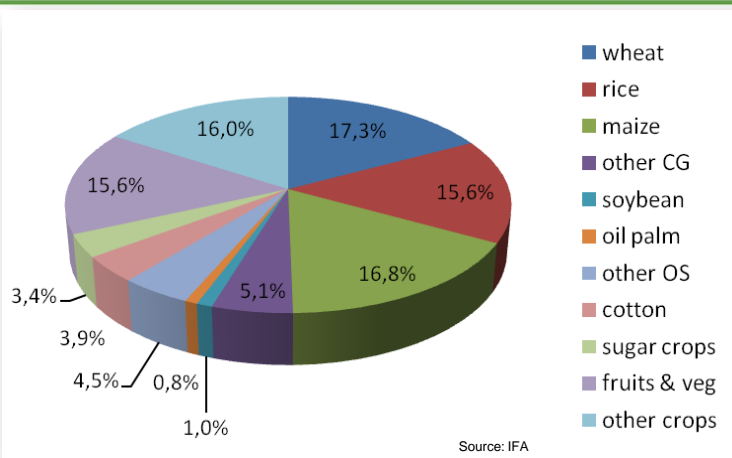
Source: FAPRI



## Nitrogen Fertilizer Use by Crop

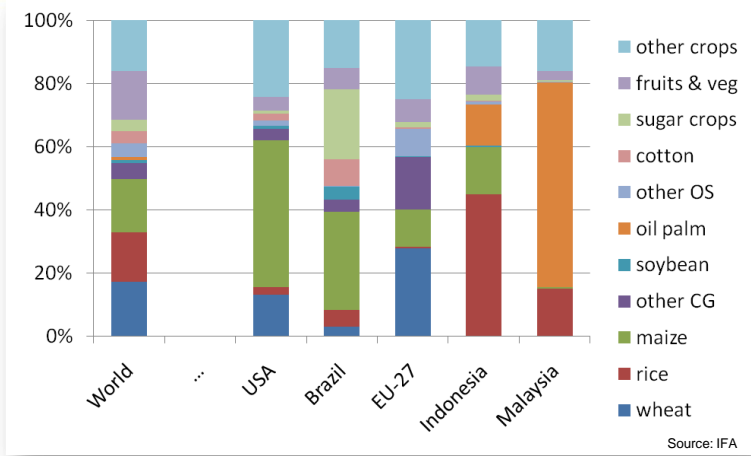


### N Fertilizer Use by Crop at the Global Level in 2007/08





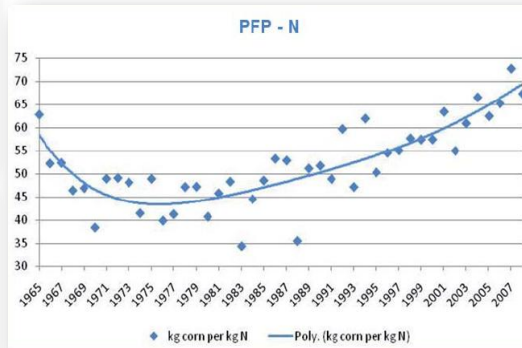
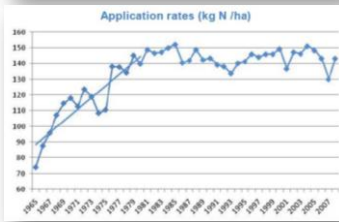
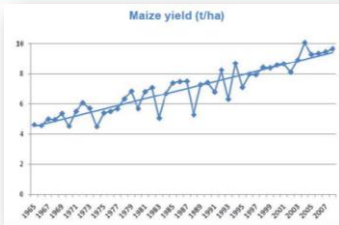
## N Fertilizer Use by Crop in Biofuel Producing Countries in 2007/08



## Nitrogen Use Efficiency: Current Trend and Outlook



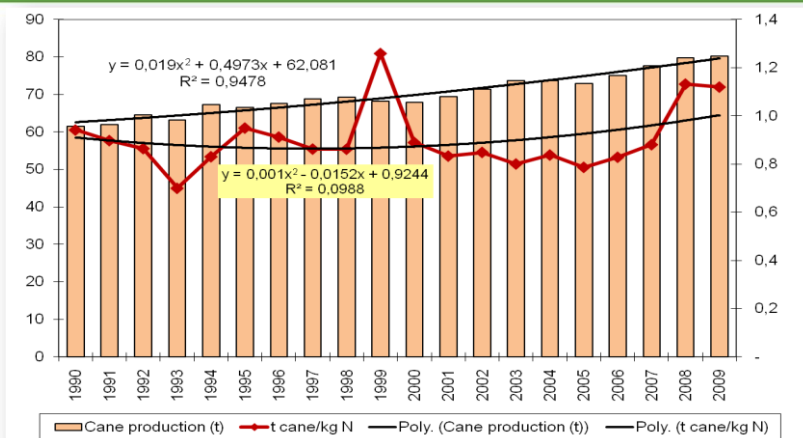
## N Fertilizer Use Efficiency (PFP<sub>N</sub>) in Maize Production in the USA



Source: Snyder (2009)



## N Fertilizer Use Efficiency (PFP<sub>N</sub>) in Sugar Cane Production in Brazil

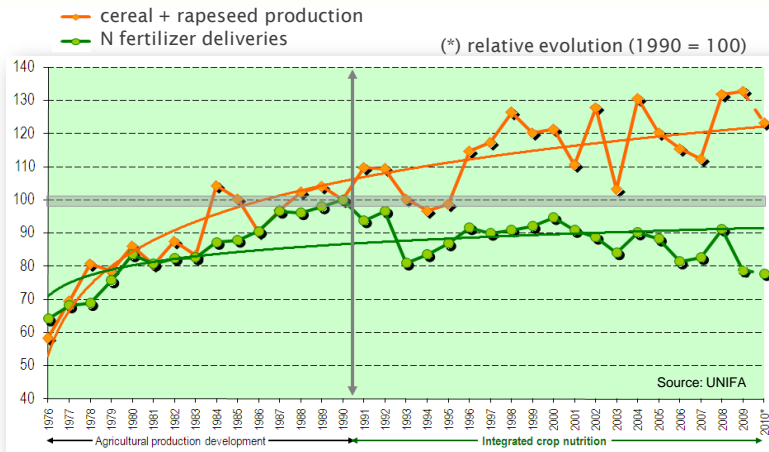


Source: Cunha and Prochnow (unpublished data)





## Evolution\* of N Fertilizer Deliveries vs. Grain Production in France

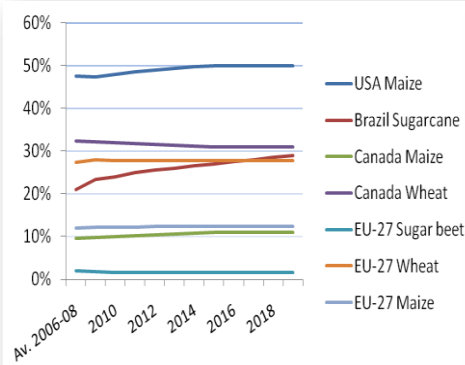


## Anticipated Evolution of Nitrogen Fertilizer Use by Crop

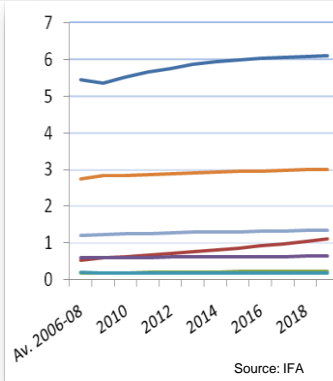


## Anticipated Evolution of N Fertilizer Use by Crop (for ethanol feedstocks)

Share of Total Domestic N Fertilizer Consumption (%)

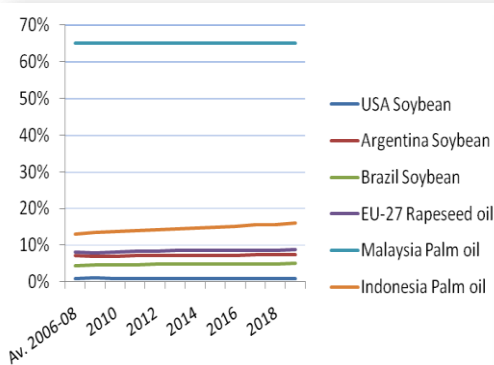


Volume (Mt N)

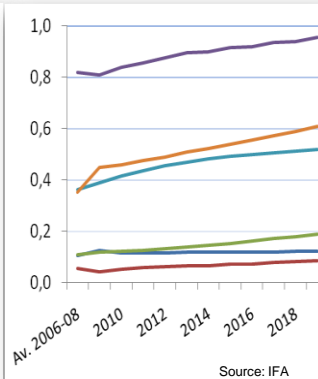


## Anticipated Evolution of N Fertilizer Use by Crop (for biodiesel feedstocks)

Share of Total Domestic N Fertilizer Consumption (%)



Volume (Mt N)

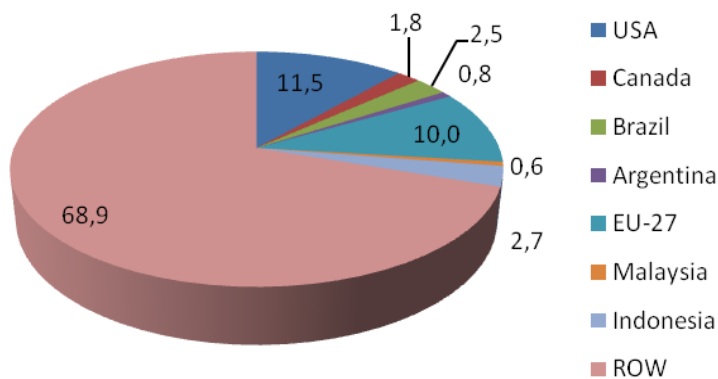




## Nitrogen Fertilizer Applications to Biofuel Feedstocks: Current Situation



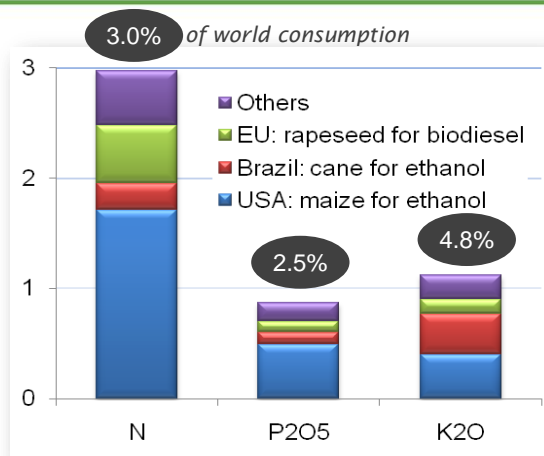
### Total N Fertilizer Use in the Main Biofuel-Producing Countries (Mt N)



Source: IFA



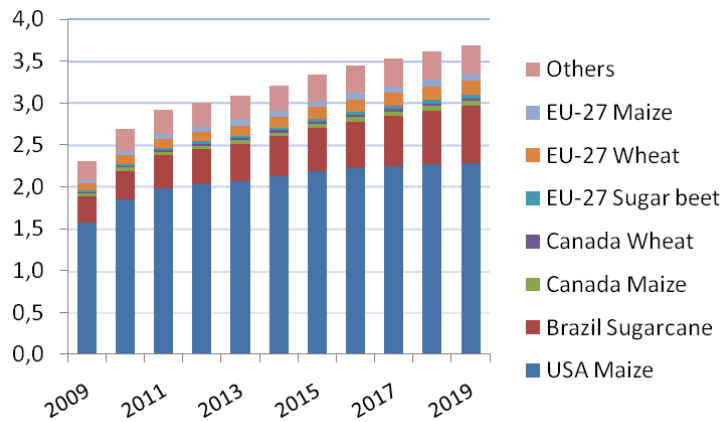
## Fertilizer Applications to Biofuel Feedstocks in 2008/09 (Mt nutrients)



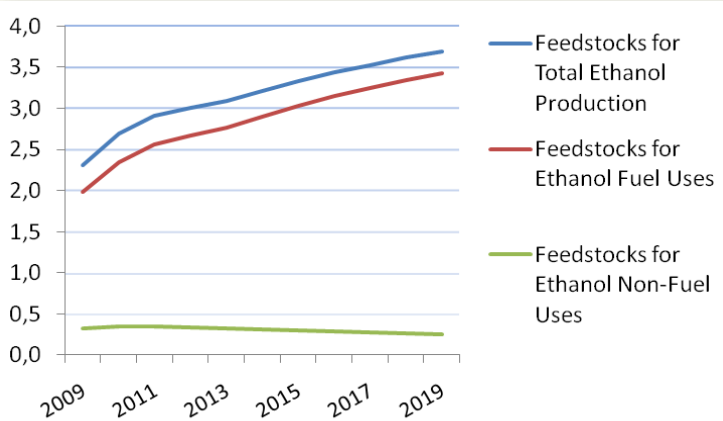
## Nitrogen Fertilizer Applications to Biofuel Feedstocks: Outlook to 2019



## N Fertilizer Applications to Ethanol Feedstocks (Mt N)

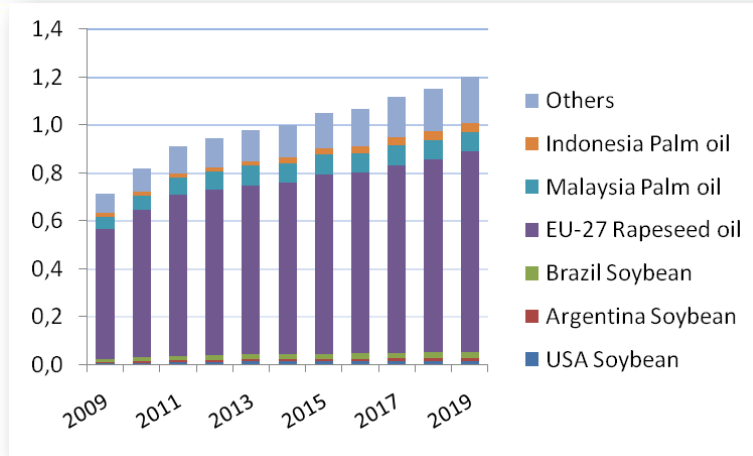


## N Fertilizer Applications to Ethanol Feedstocks (Mt N)

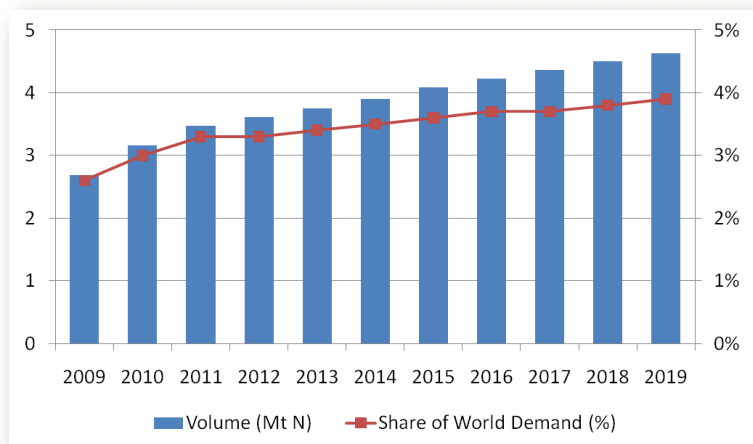




## N Fertilizer Applications to Biodiesel Feedstocks (Mt N)



## World N Fertilizer Applications to Total Biofuel Feedstocks (Mt N)





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