

# The impact of biofuels on the world fertilizer market

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IFA Crossroads Asia Pacific, December 2007

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## Presentation overview

- Definitions and scope
- Factors which translate biofuel market developments into fertilizer demand
- Recent global biofuel developments and forecast
- The impact on fertilizer demand

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## Definitions and scope

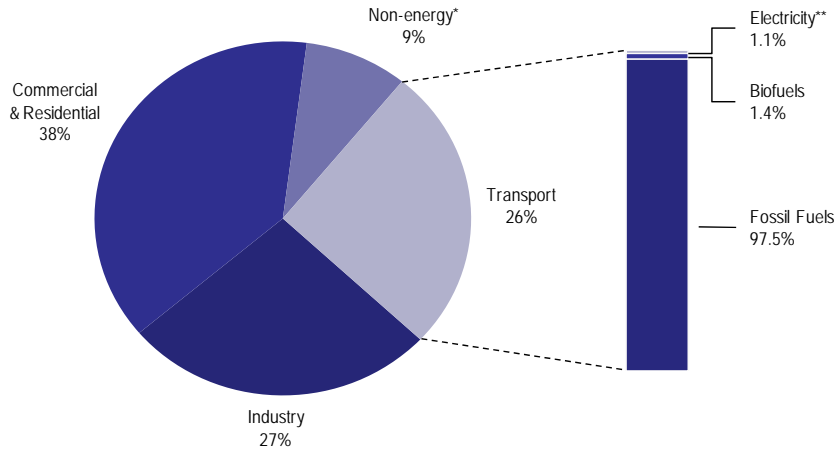
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## Some definitions

- Biofuel – renewable crops used for transportation
- Technology
  - 1G – Bioethanol (sugar and starch-based) and Biodiesel (vegetable oils)
  - 2G (cellulosic, etc) - 5-10 years away

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## Transport fuel share of global energy consumption, total = 7.8 billion toe

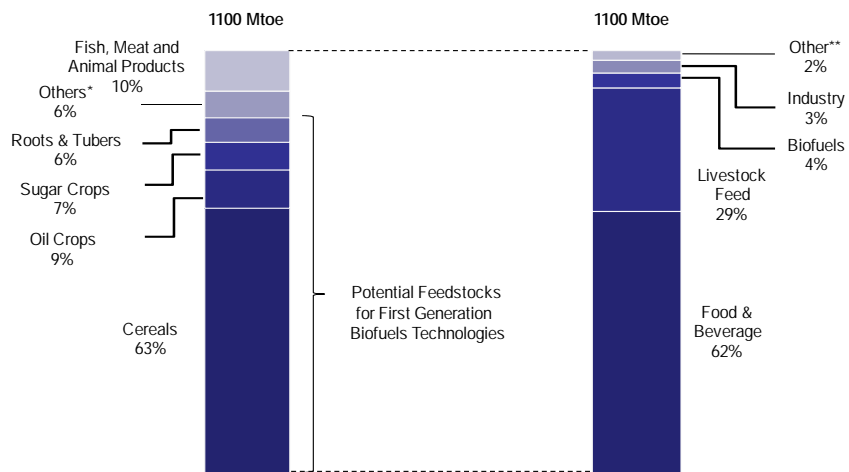


\*Non-energy uses primarily include fossil fuels used for petrochemicals

\*\* Here electricity includes only non-fossil fuel sources such as hydro, nuclear energy, solar or geothermal

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## Global farming industry energy production breakdown for 2006



\* Pulses, vegetables, fruit, nuts etc.

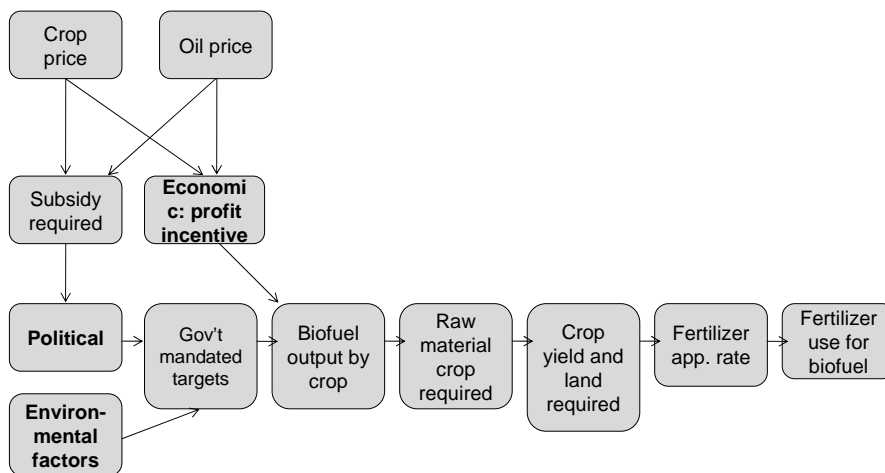
\*\* Seed production, processing losses, transportation losses, etc.

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## Factors which translate biofuel in to fertilizer demand

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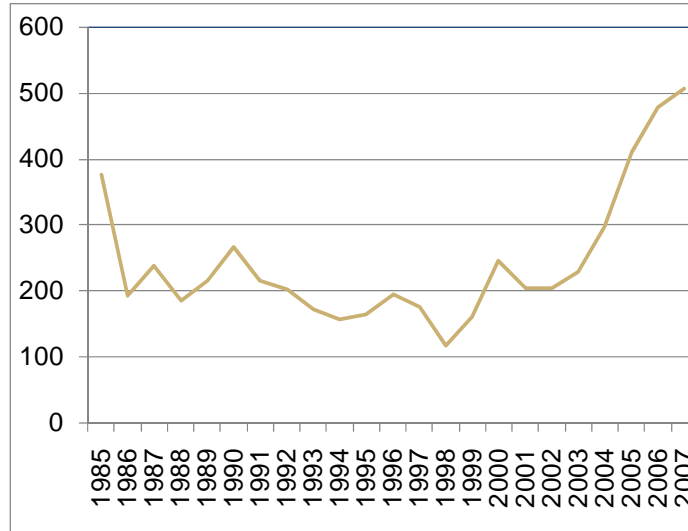
### What factors translate biofuel market developments into fertilizer demand?



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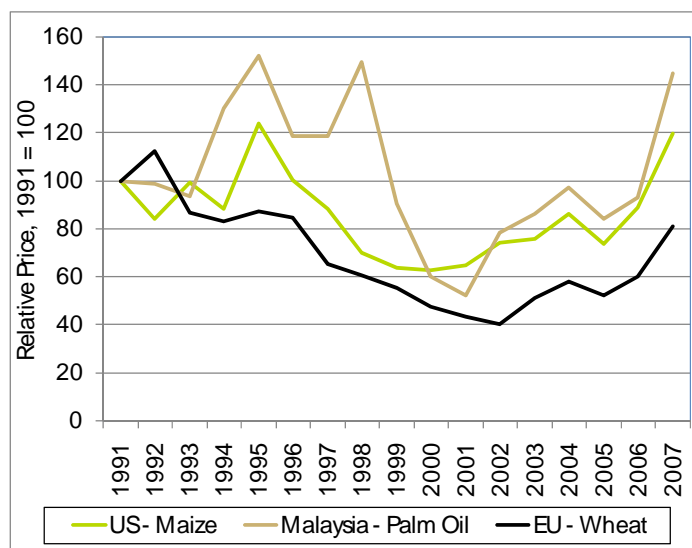
## Economic drivers – rising oil prices

Brent crude oil, US\$/TOE, \$ of the day



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## Relatively stable crop prices, until 2006

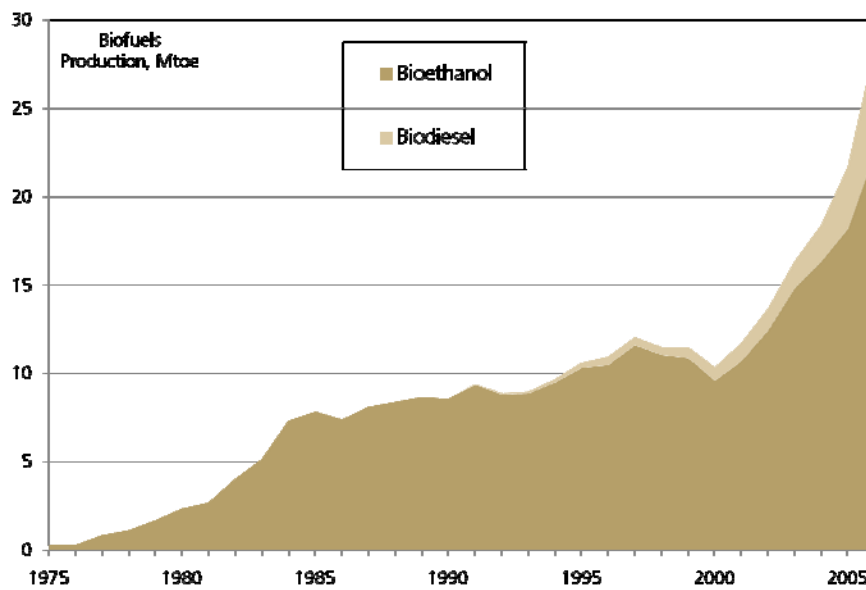


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## Recent global biofuel developments and forecast

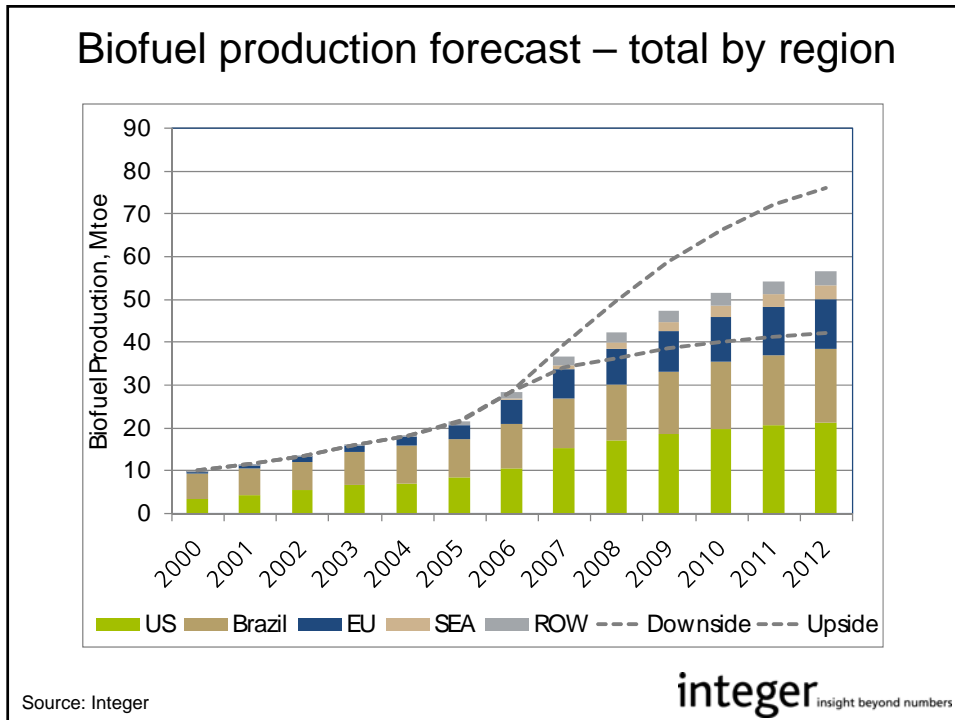
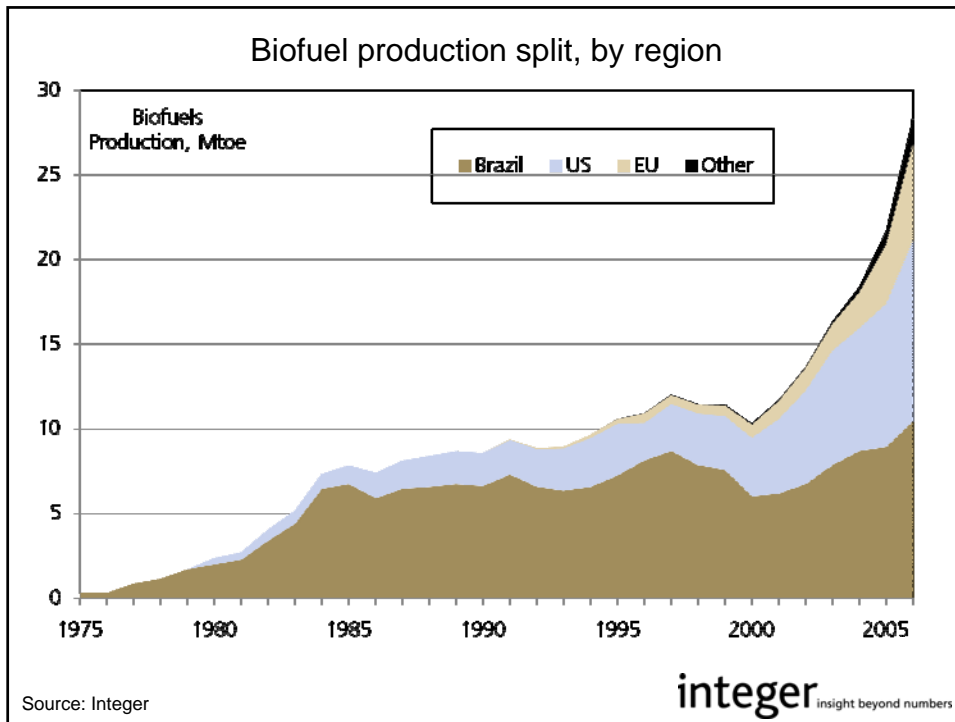
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### Biofuel production split – bioethanol & biodiesel



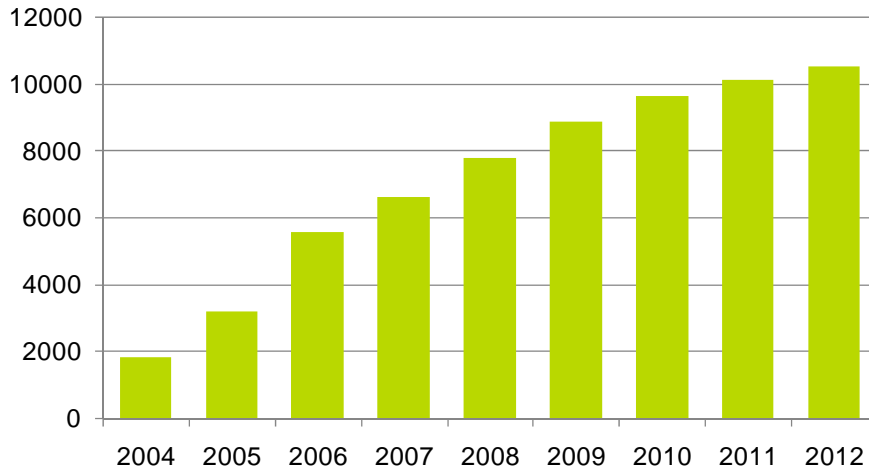
Source: Integer

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## EU – targets elusive, but still major impact on land use

Biofuel planted area (thousand hectares)

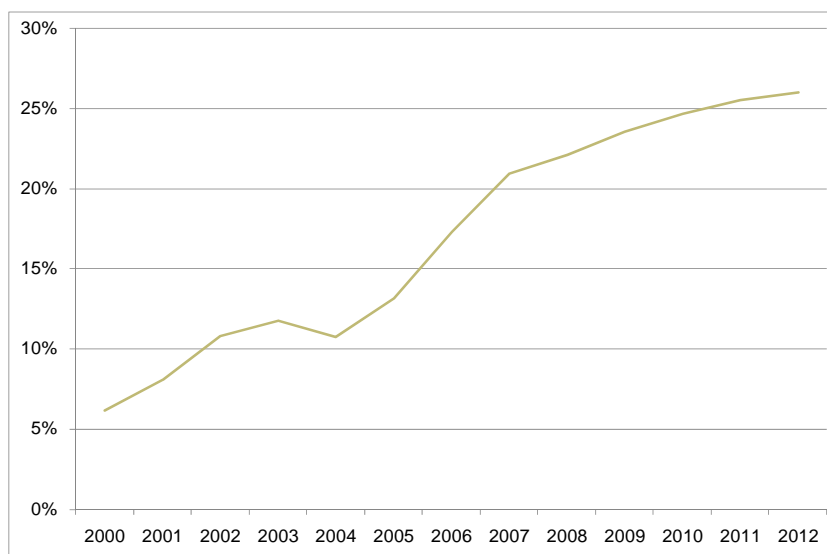


Source: Eurostat, Integer forecast

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## USA – biofuel demand taking over corn

Corn use for ethanol as % of total corn production

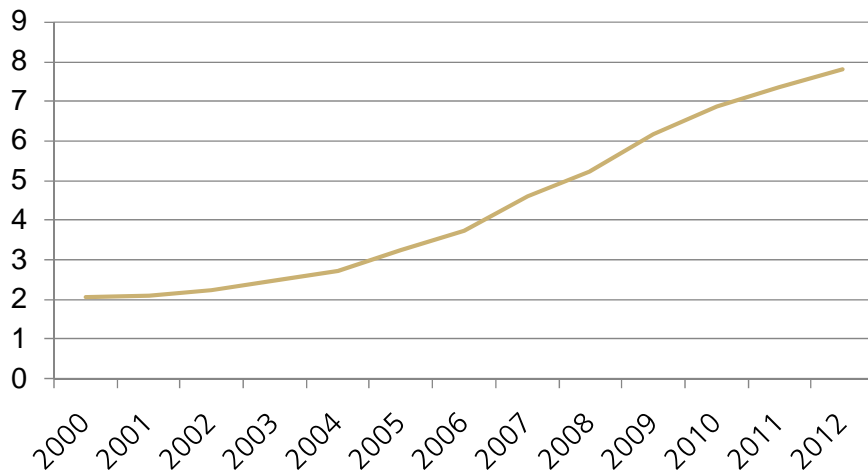


Source: USDA, Integer forecast

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## Brazilian biofuel area continuing to expand – strong fundamentals, mature market

Planted area (million hectares)



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## Rest of the World

- Indonesia and Malaysia – oil palm growth and strong potential
  - But doubts over exports, recent economics unfavourable, no subsidies
- Rest of the world
  - Developing - lower on political agenda than food security
  - Developed- many schemes and targets, but compared to 'big 3', biofuels potential is much smaller

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## Impact on fertilizers

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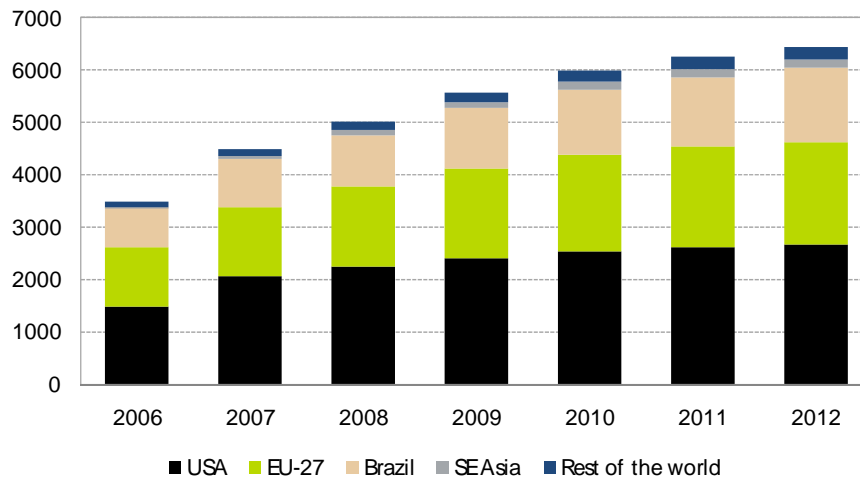
### Measuring the biofuels effect on fertilizers

- Factors to consider:
  - Impact overall: change in world fertilizer consumption as a result of crop production related to biofuel
  - Change in fertilizer consumption at country/region level in biofuel producing/consuming countries
  - Changes in other countries/regions affected indirectly – increased fertilizer use as a result of shifting crop patterns, supply gaps, higher crop prices

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## Base case: N, P and K fertilizer consumption on crops used to produce biofuels

(thousand tonnes nutrient)



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## What is happening at a country/region level

- Growth in nitrogen in **US** for corn, at the expense of soybeans (low N)
- In the **EU**:
  - Switch to rapeseed in Europe, biggest increase in nitrogen
  - Expansion of area – reduction of set aside
- Growth in sugar cane in **Brazil**, some expansion of soybeans for diesel, more so to compensate for lower US production

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## Knock-on effect on other countries/regions

- EU/US area is constrained such that productivity increases are insufficient to supply new biofuels market demand
- Impact of biofuels on crop markets:
  - Lower US corn availability for export
  - Lower US soyabeans availability
  - Lower EU cereals crop availability
- Reflected in higher cereal/oilseed prices
- Positive impact on countries with potential for intensification (dormant crop yields, immature fertilizer use)
- And potential for land expansion – Brazil!

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## Summary and conclusions

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- The relationship between land and energy is now strongly established
  - Technological lock in, sunk investments, political commitments
  - Winners – land owners, farmers, input suppliers
  - Losers – crop consumers, tax payers?
- Biofuels and renewable energy are high on the political agenda, even though 1G economics are questionable

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## Summary and conclusions

- Biofuels will continue to exert significant positive influence on the fertilizer industry:
  - Across all nutrients,
  - In biofuel producing/consuming countries
  - In countries with intensification/expansion potential for filling crop supply gaps
- But, key point to watch
  - Longer term growth rate subject to swings in energy and crop prices

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Thank you!

Any questions, please contact

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