Food security in the context of recent crises: food, feed, fuel, financial, economic

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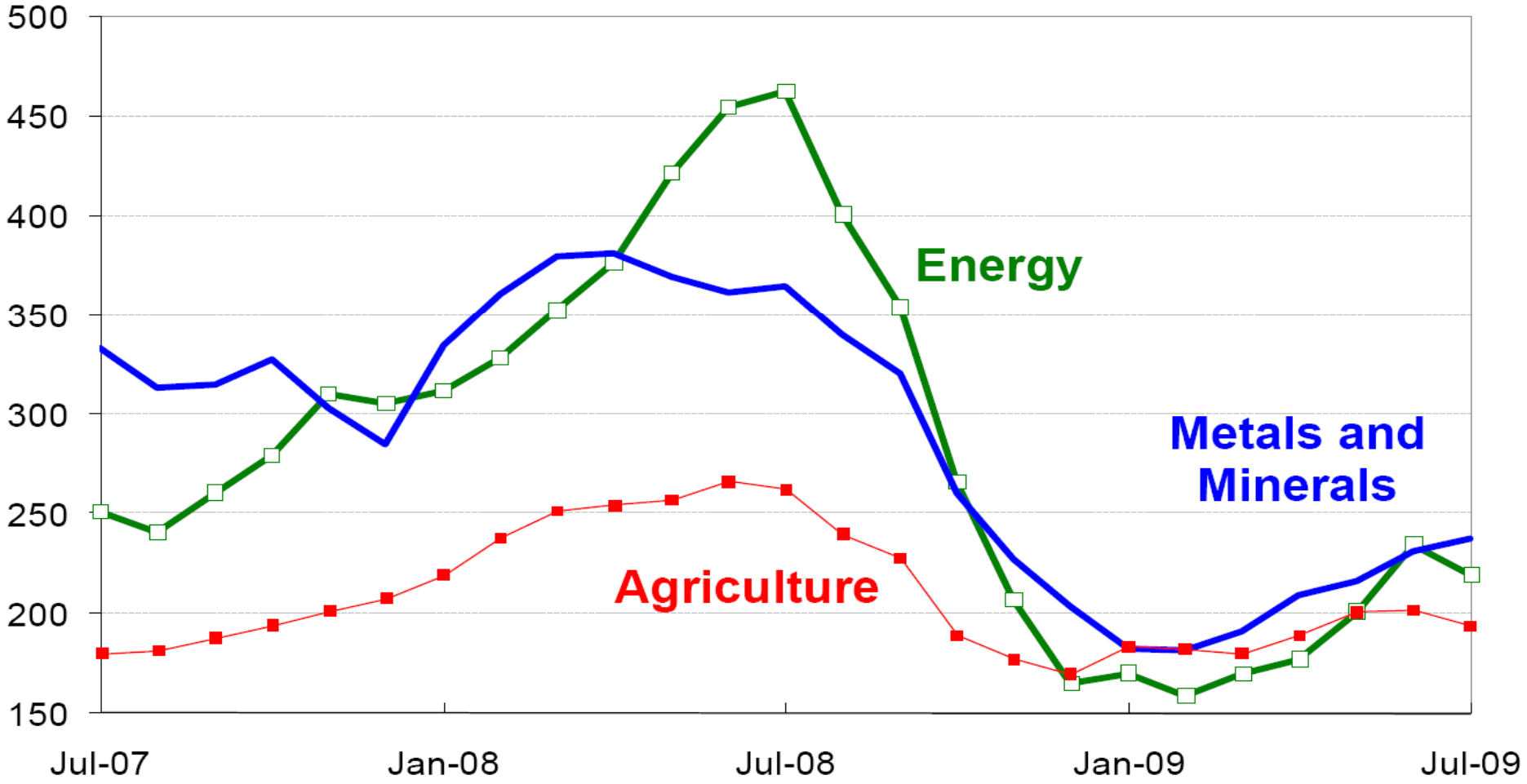
agriculture, nature
and food quality

What to discuss

- Recent price developments on international markets
- Short and long run underlying causes
- Expectations and projections OECD and FAO
- Impact of various demand factors
- How to react on extra demand for “green” raw materials
- Conclusions

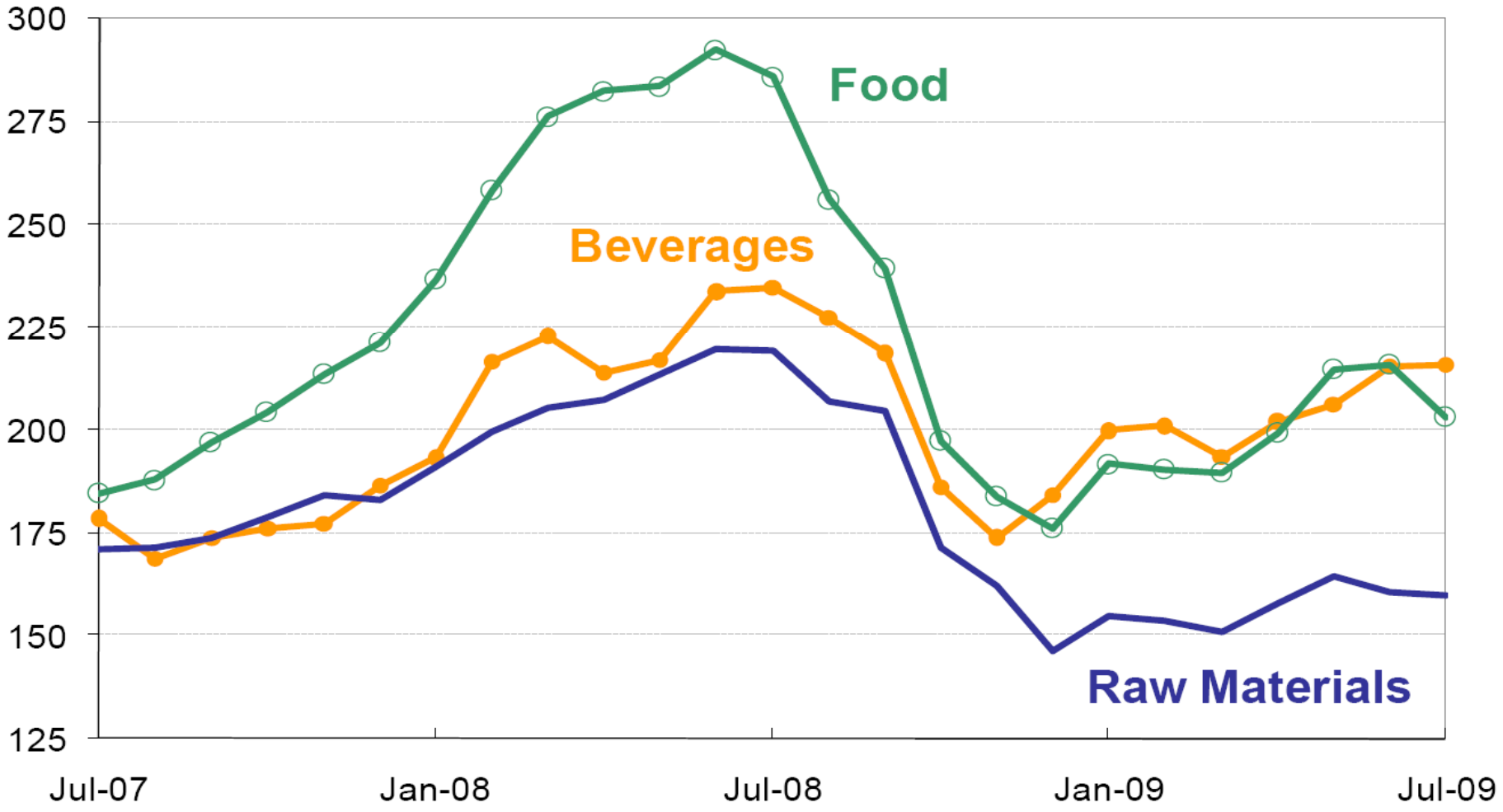
Major Price Indices

Indices of Nominal US$ Prices (2000=100)

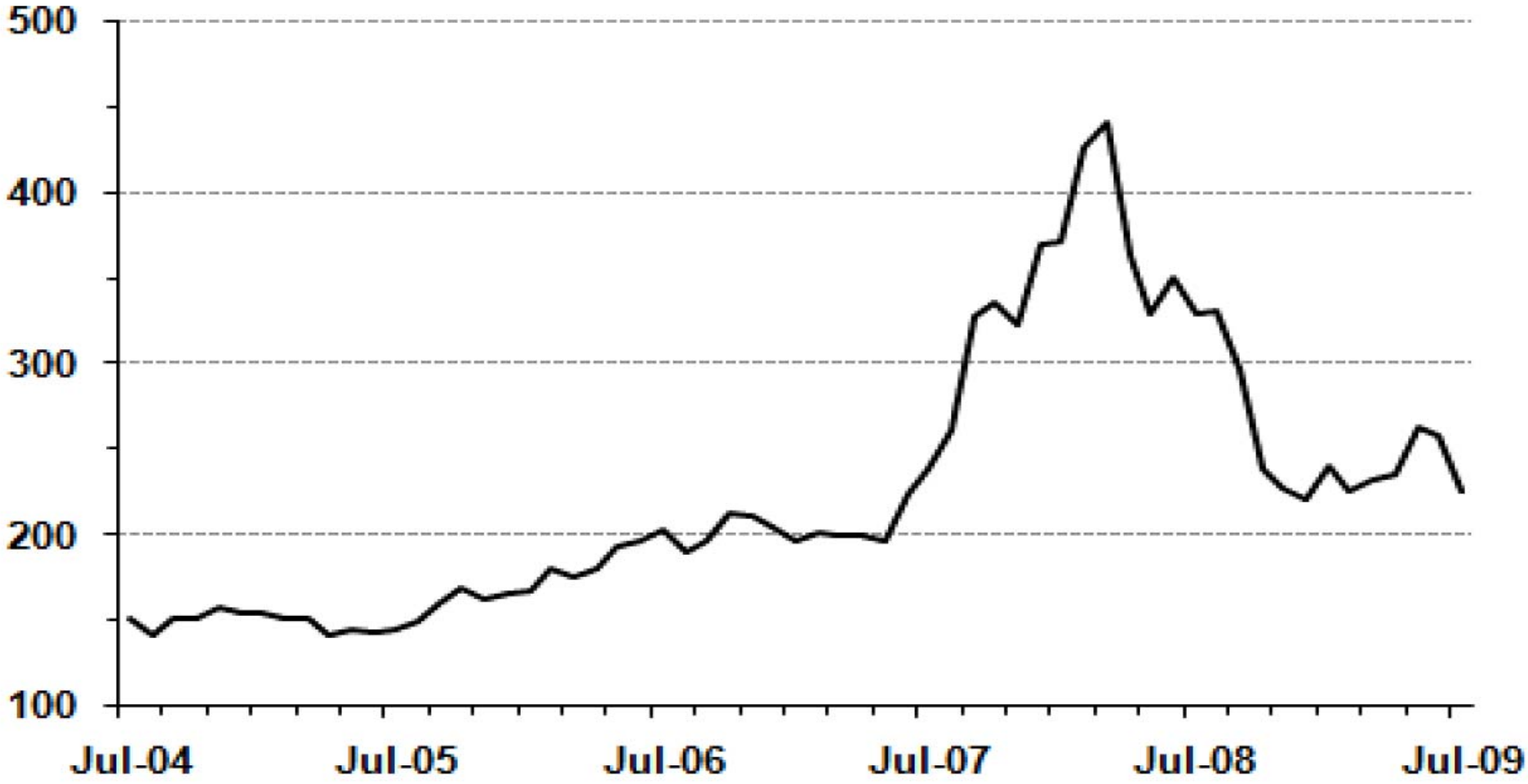


Agriculture Prices - Sub-Indices

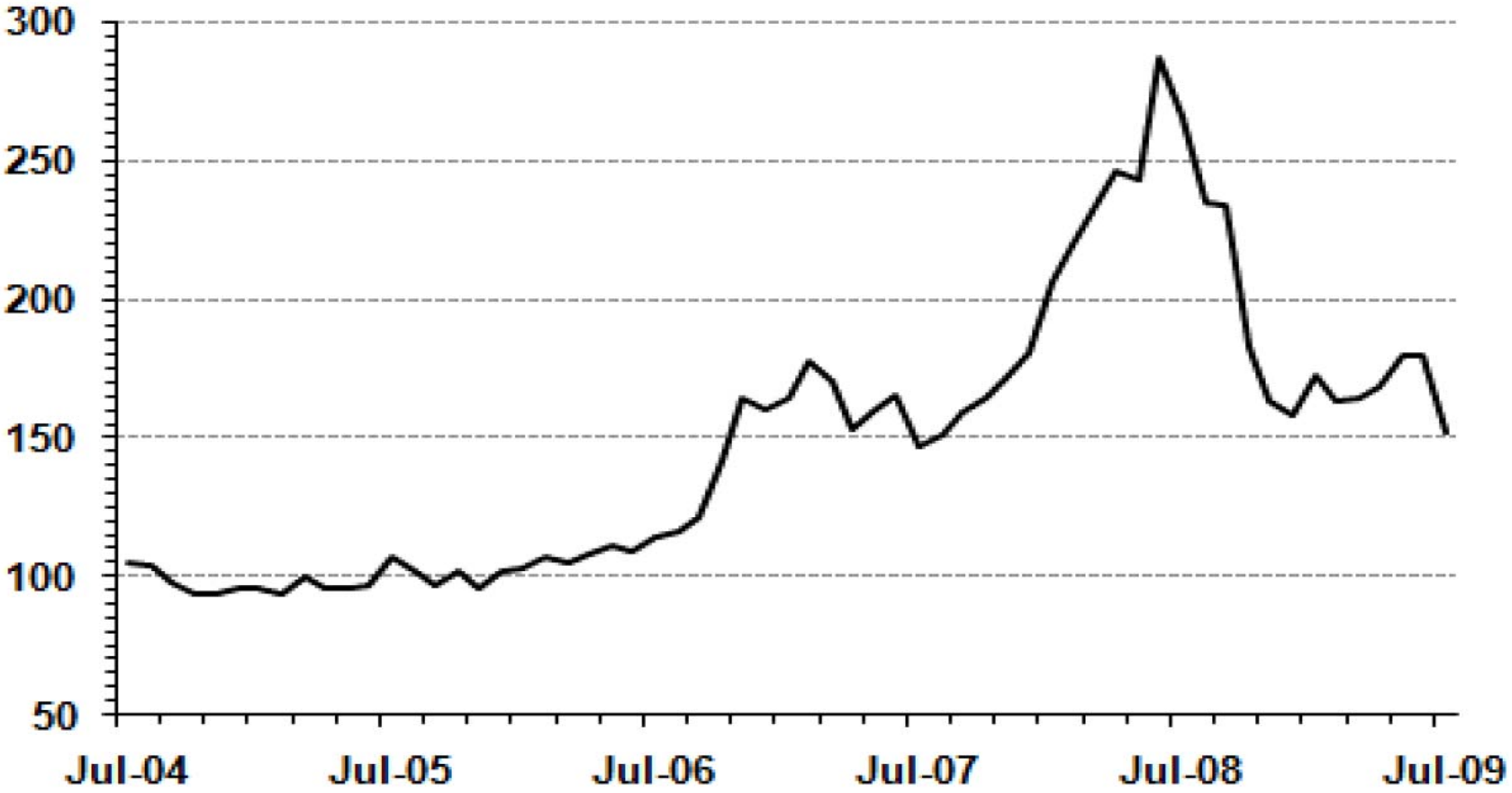
Indices of Nominal US$ Prices (2000=100)



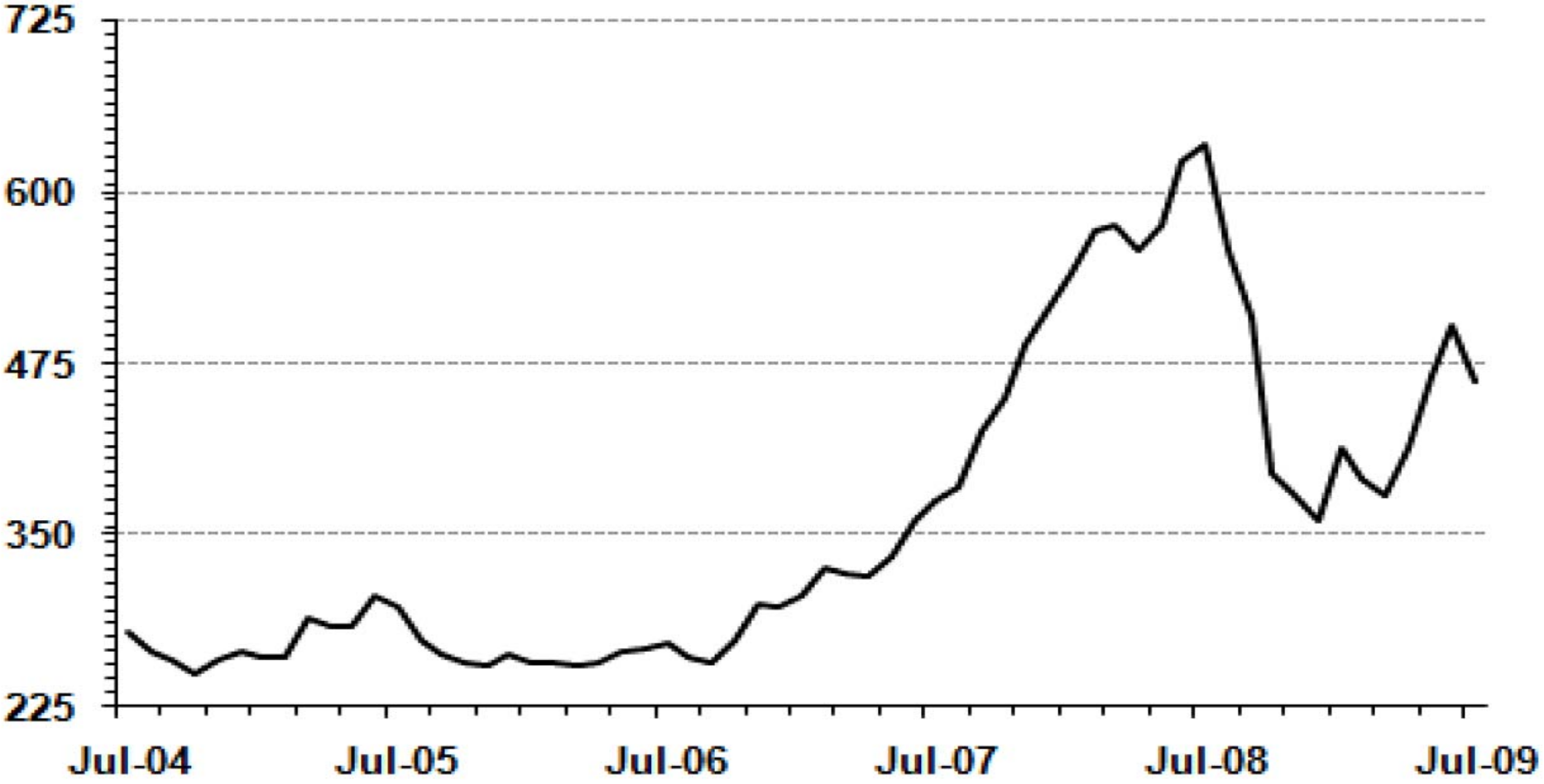
Wheat, US HRW ($/mt)



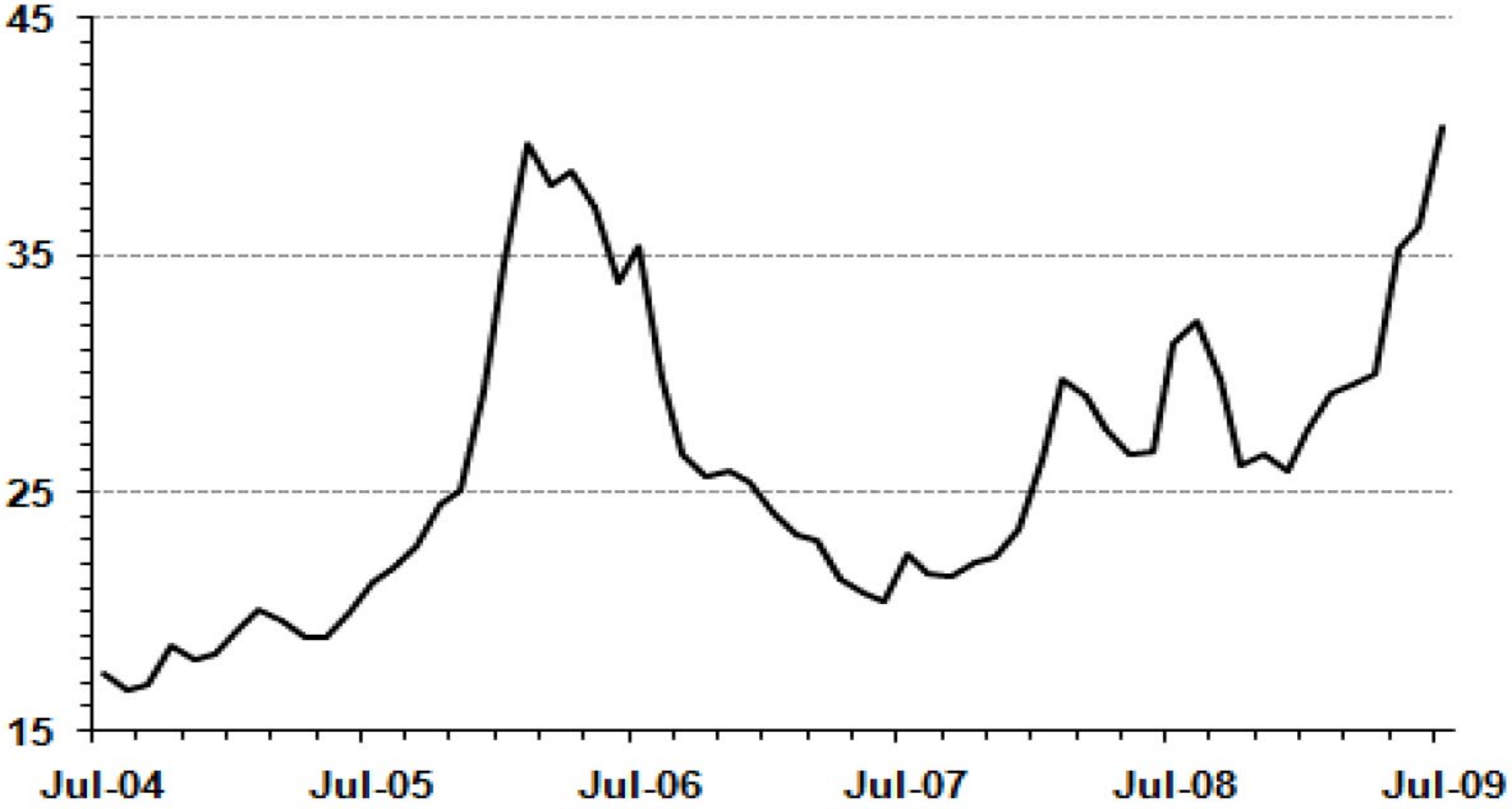
Maize ($/mt)



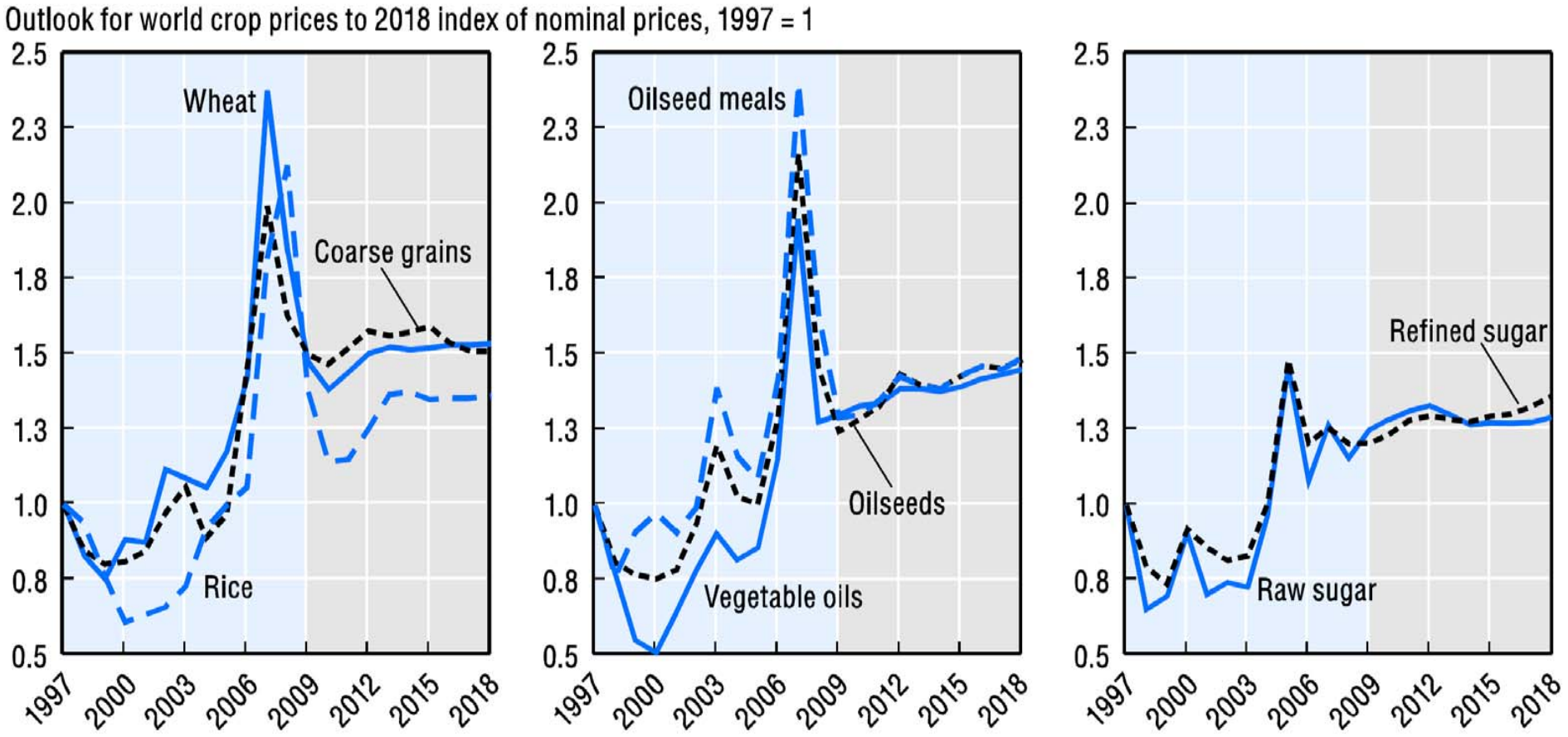
Soybeans ($/mt)



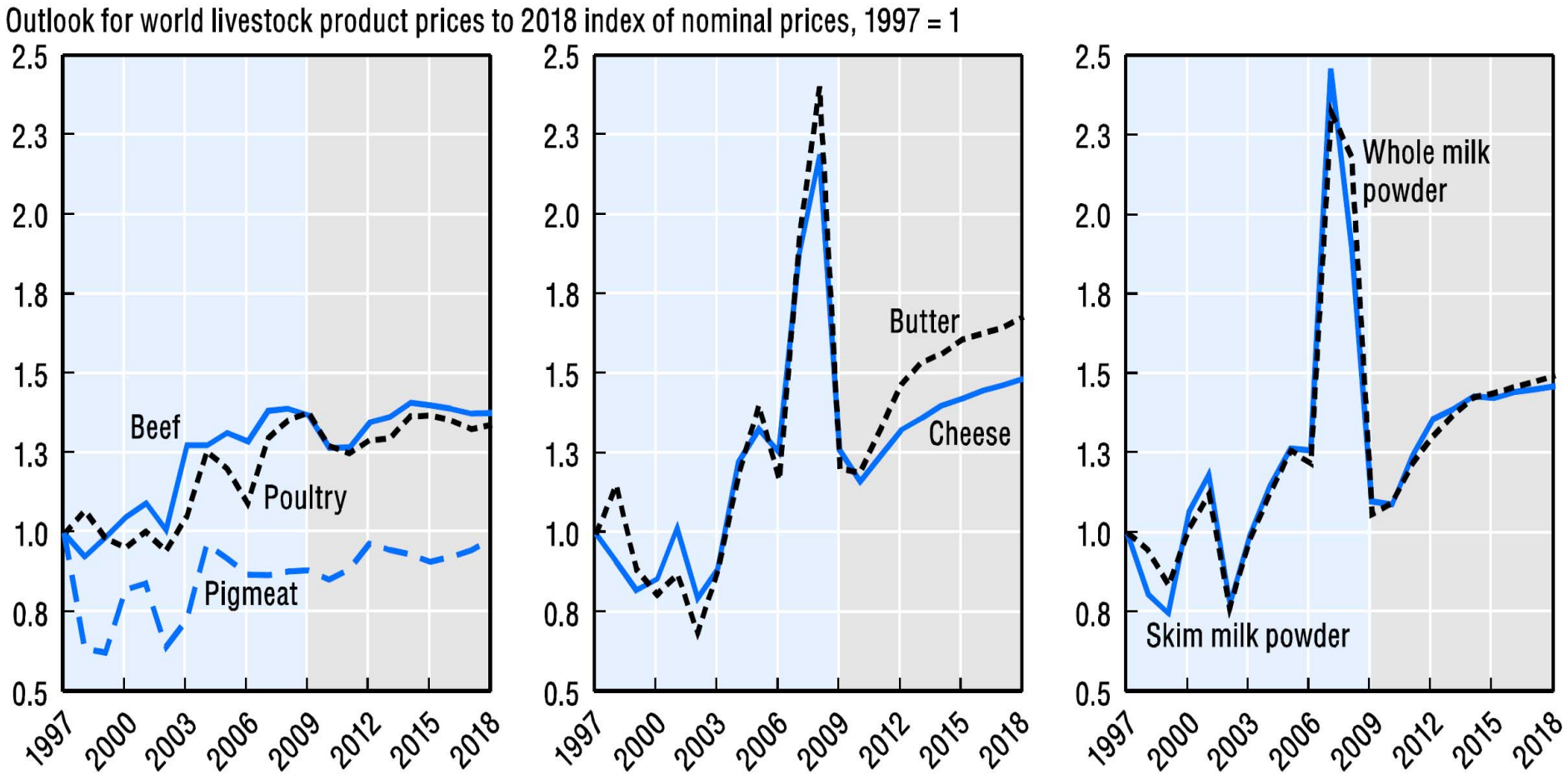
Sugar, World (cents/kg)



OECD-FAO projections
crop prices 2009-2018



OECD-FAO projections
livestock product prices 2009-2018



Short term reasons for the high food prices in 2008

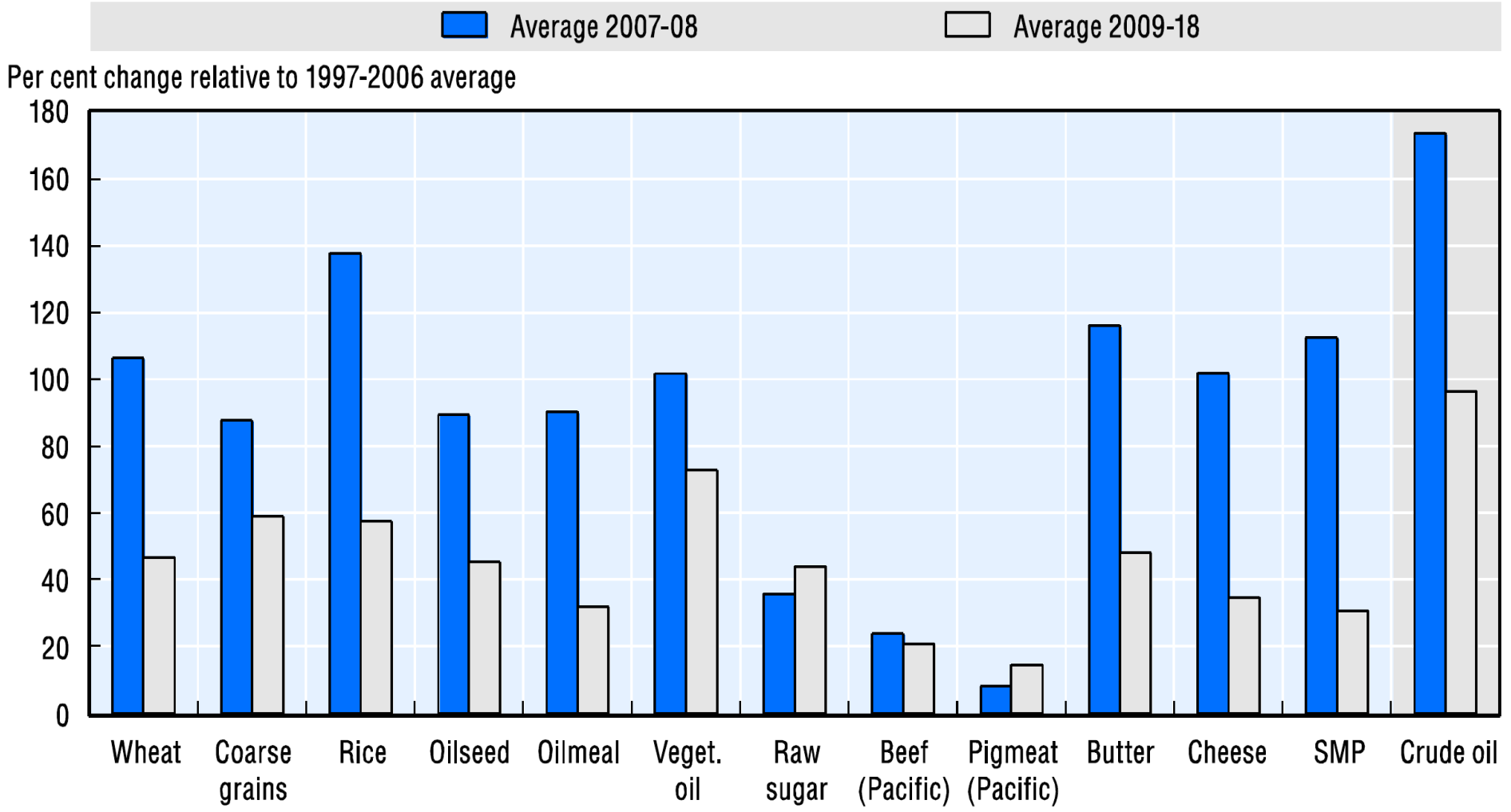
- Drought in various production regions
- Low stock levels:
  - End of season northern hemisphere
- Supply and demand control policies
  - Set aside, supply quota, export constraints
- Feedstock use in biofuels
- Rising crude oil prices
- Devaluation of the dollar
- Speculation?

Long term reasons for higher international food prices

- Demand side
  - Increasing world population
  - Increasing world welfare
  - Changing food habits
  - Feedstock demand for biofuels

- Supply side
  - Under-investments in agriculture
    - especially in developing countries in Africa
  - Competing claims on land and water
  - Higher energy prices
  - Shortages in phosphate
  - Climate change

Price projections nominal prices



Prices in real terms: Is there a trend decline?

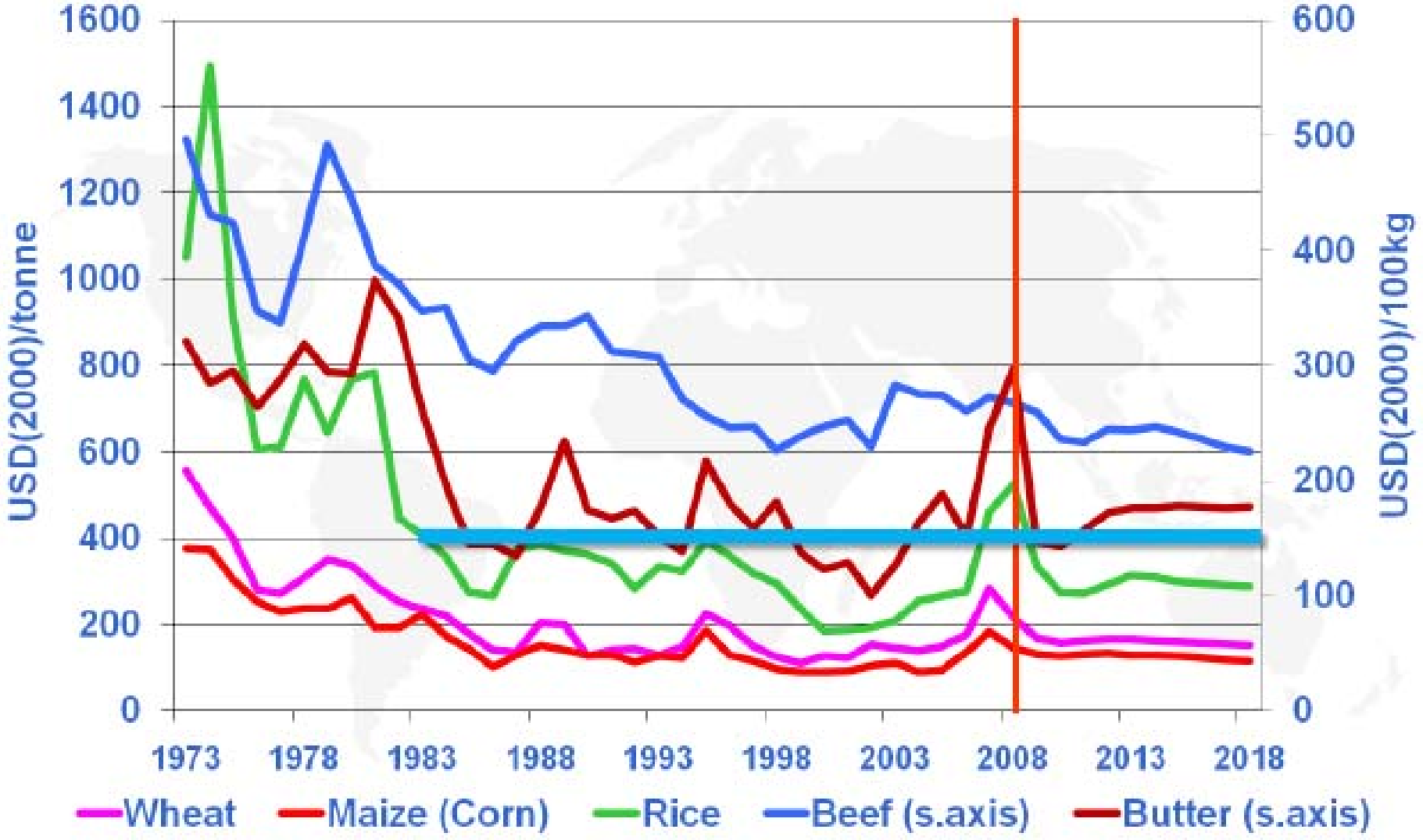
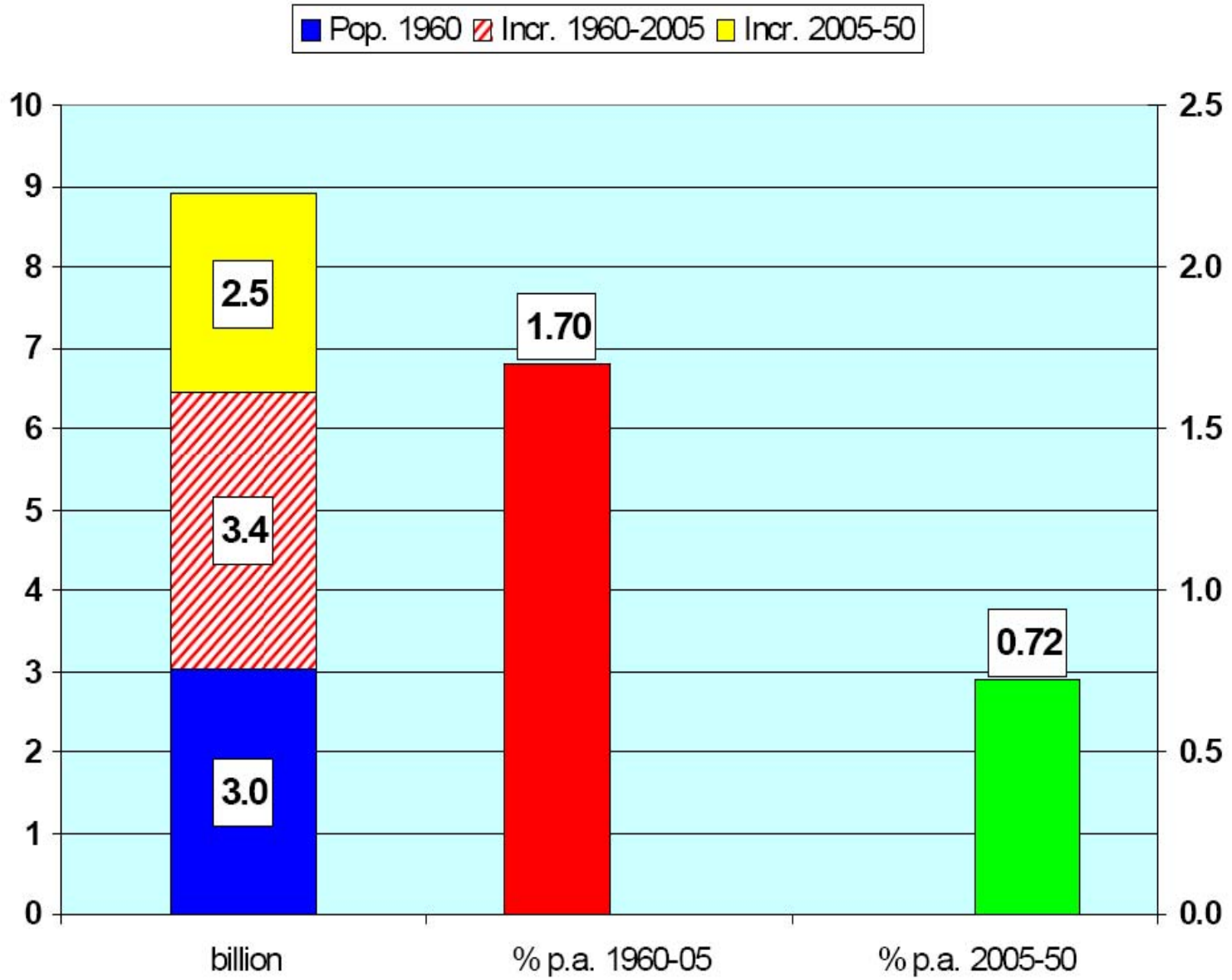
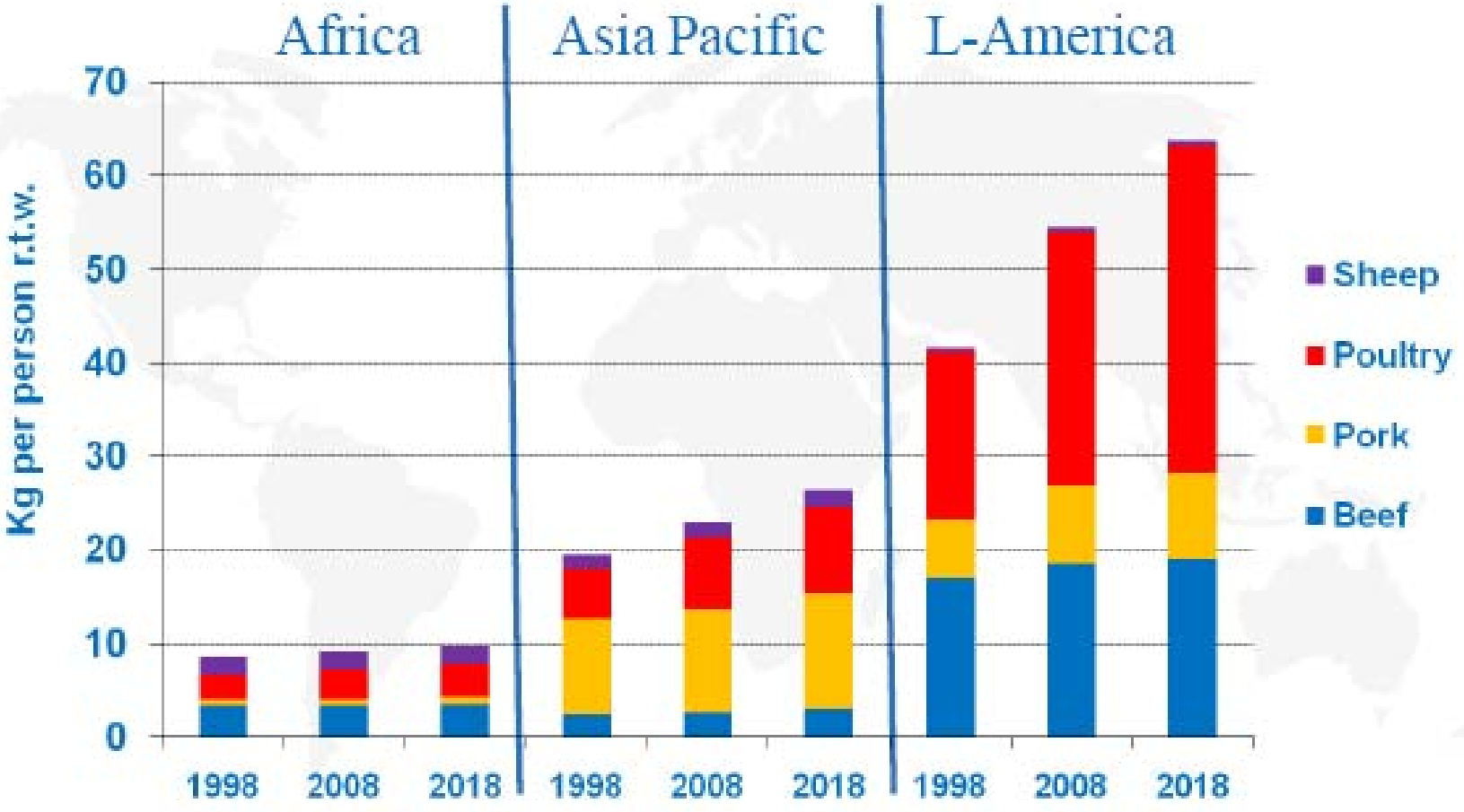


Fig. World Population (UN02) Increments (b.-left axis)
and Growth Rates (% p.a.-right axis) 2005-50 vs. 1960-2005



Driven by economic growth, meat consumption increases but large differences in per capita consumption persists



Targets for Bio-fuels Worldwide

Source LEI based on IEA Task 39 report May 2007, Governments of countries, Frost & Sullivan Consulting

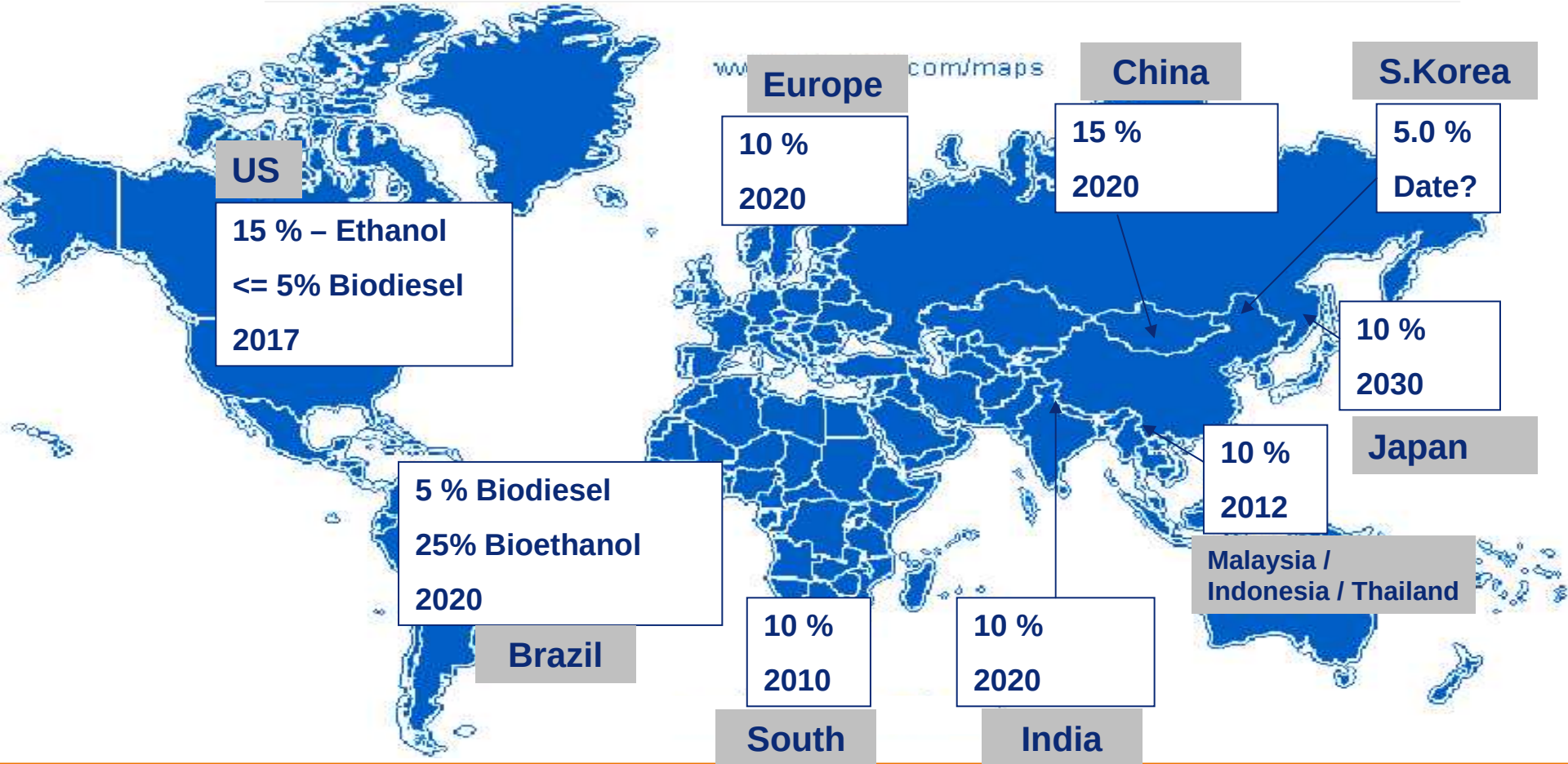
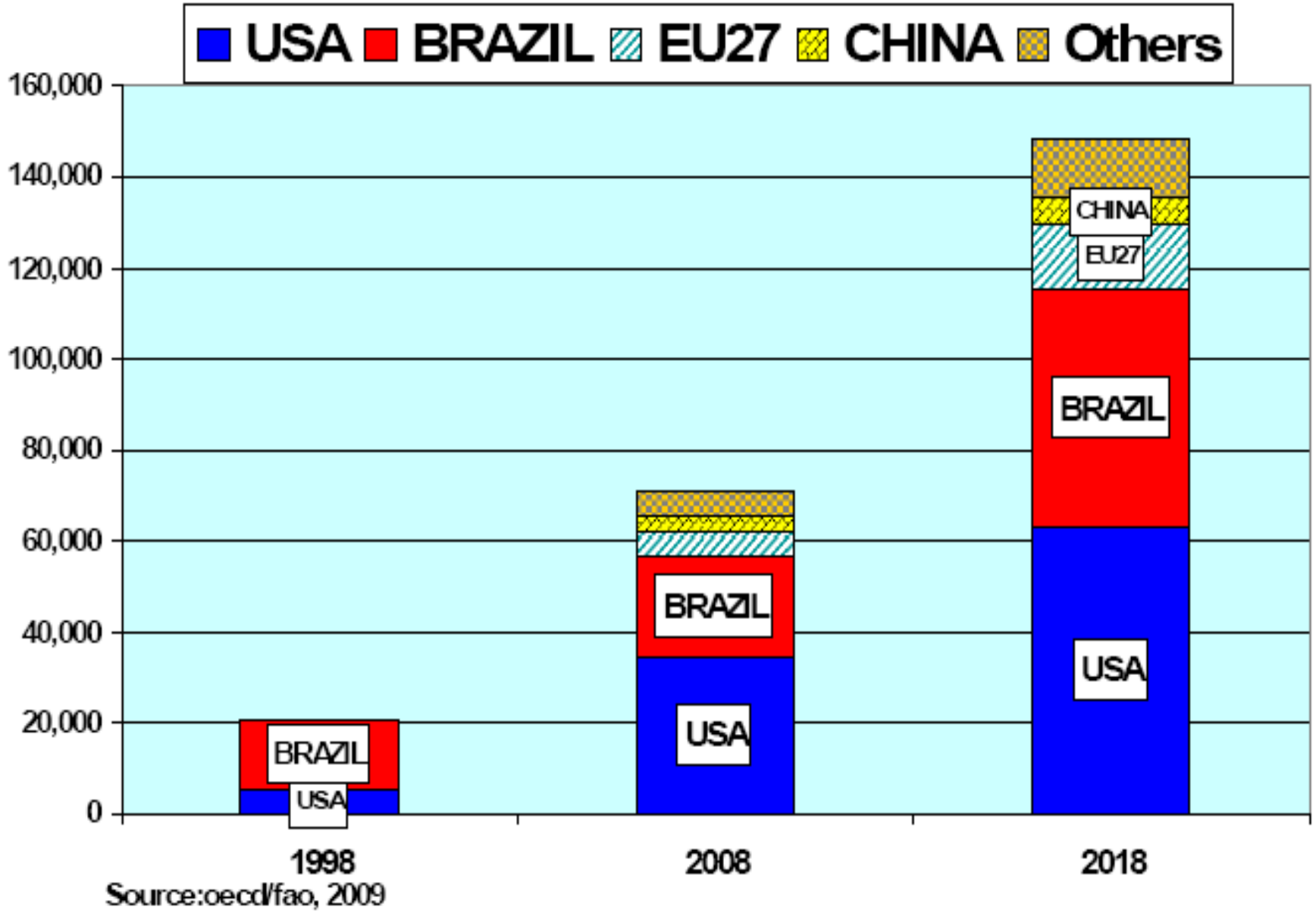
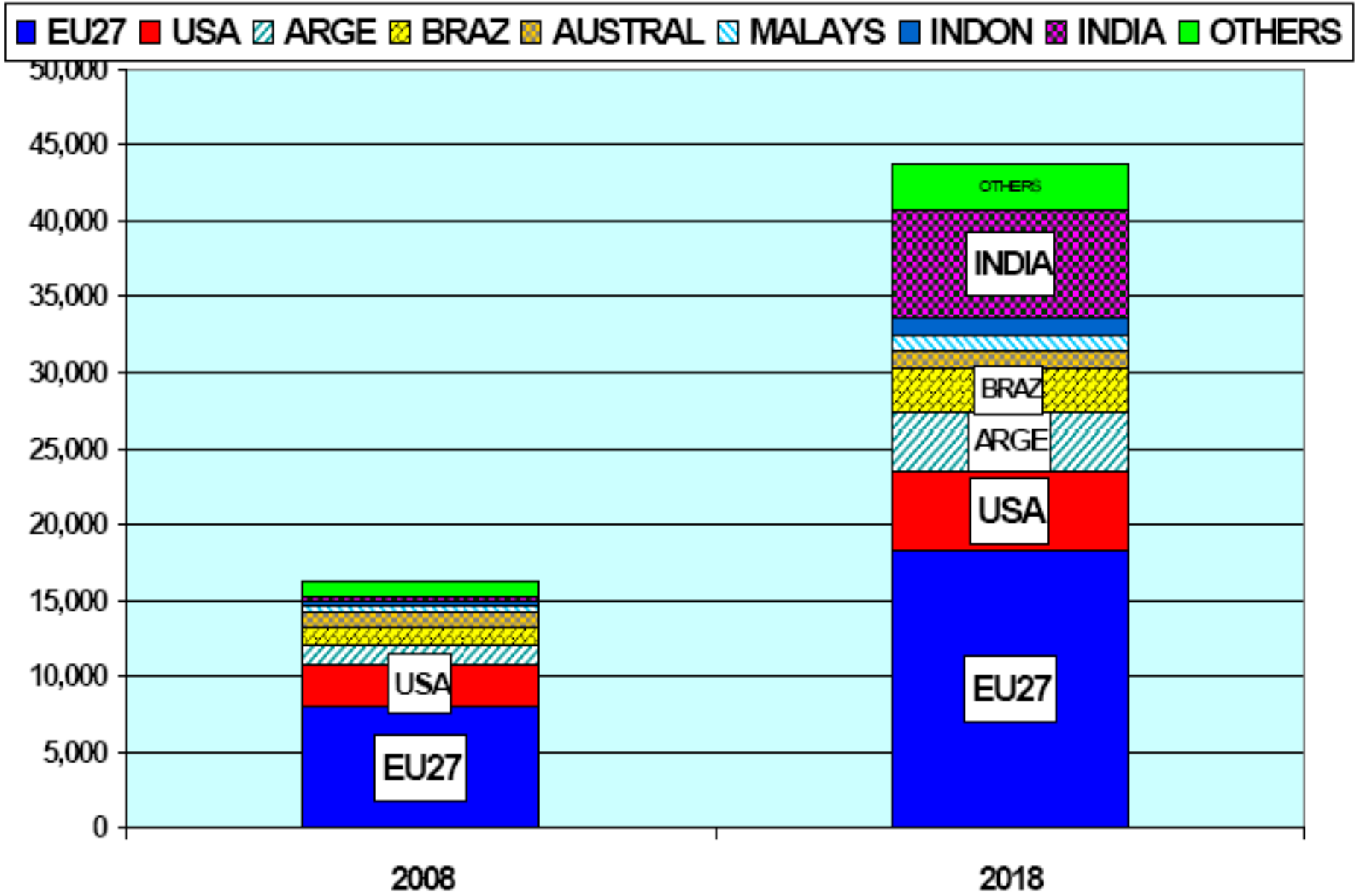


Fig. World Ethanol Production (th. t.)



Source:oecd/fao, 2009

Fig. World Biodiesel Production (th. t.)



Source:oecd/fao, 2009

Fig. Cereals Use for Ethanol

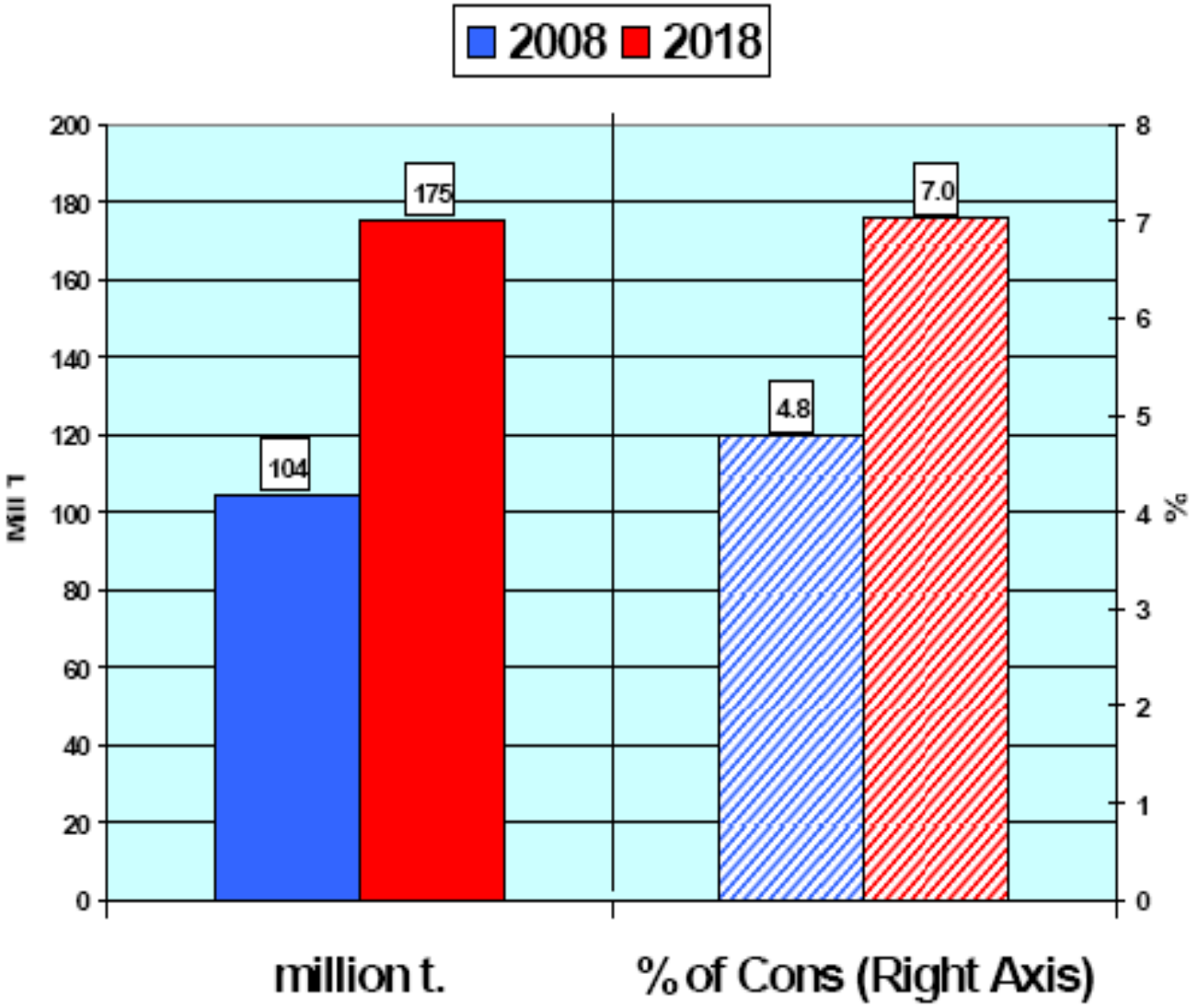
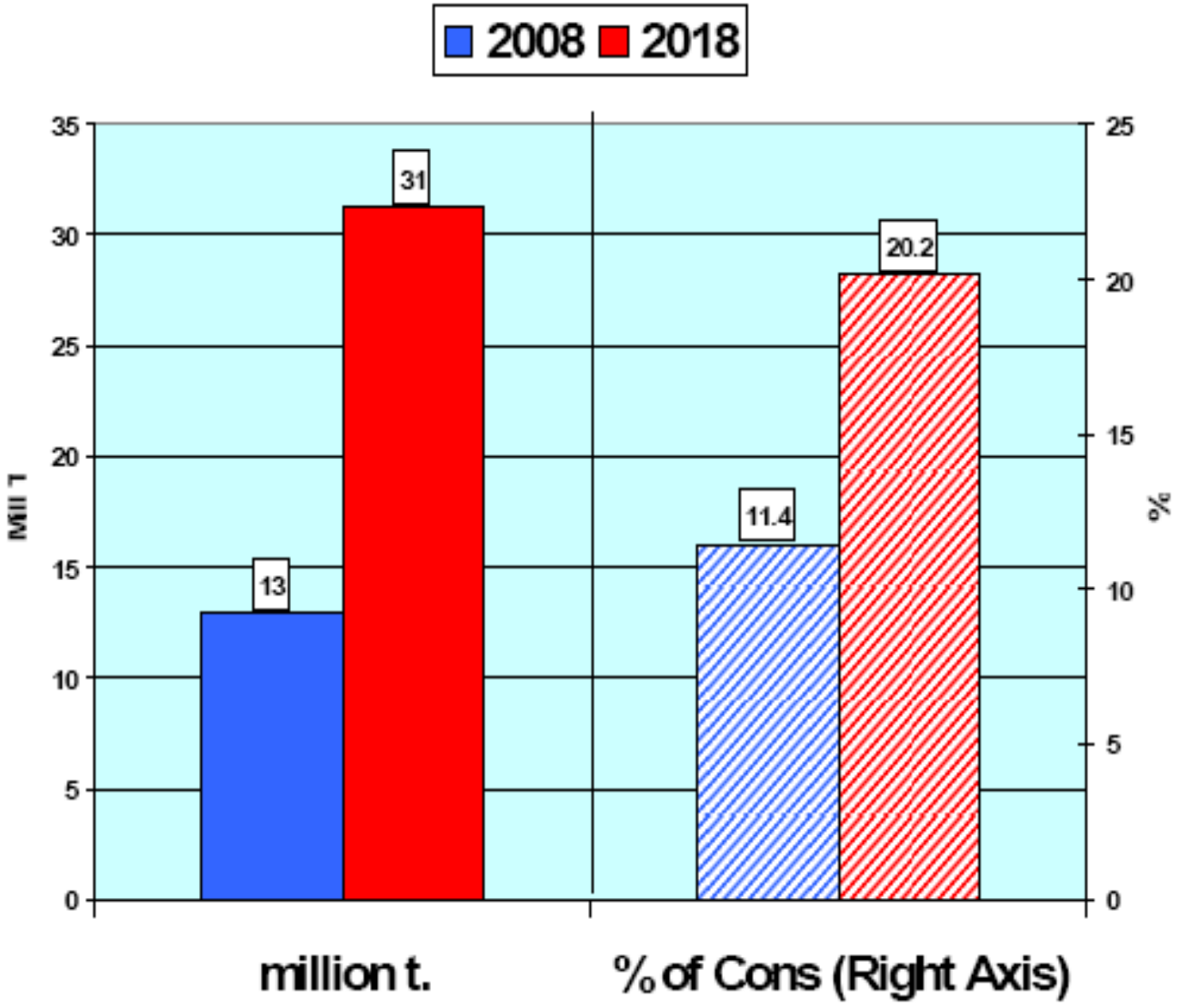
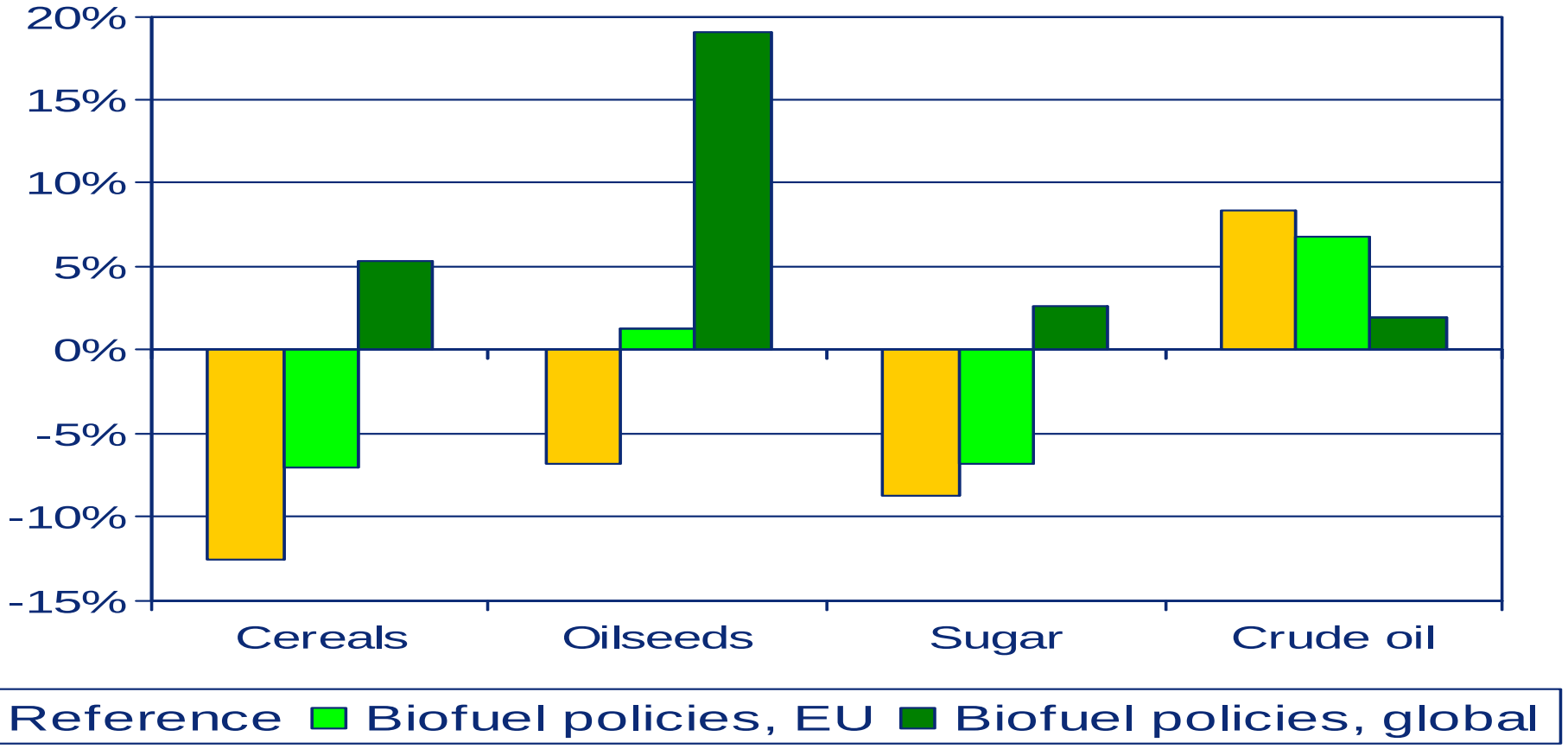


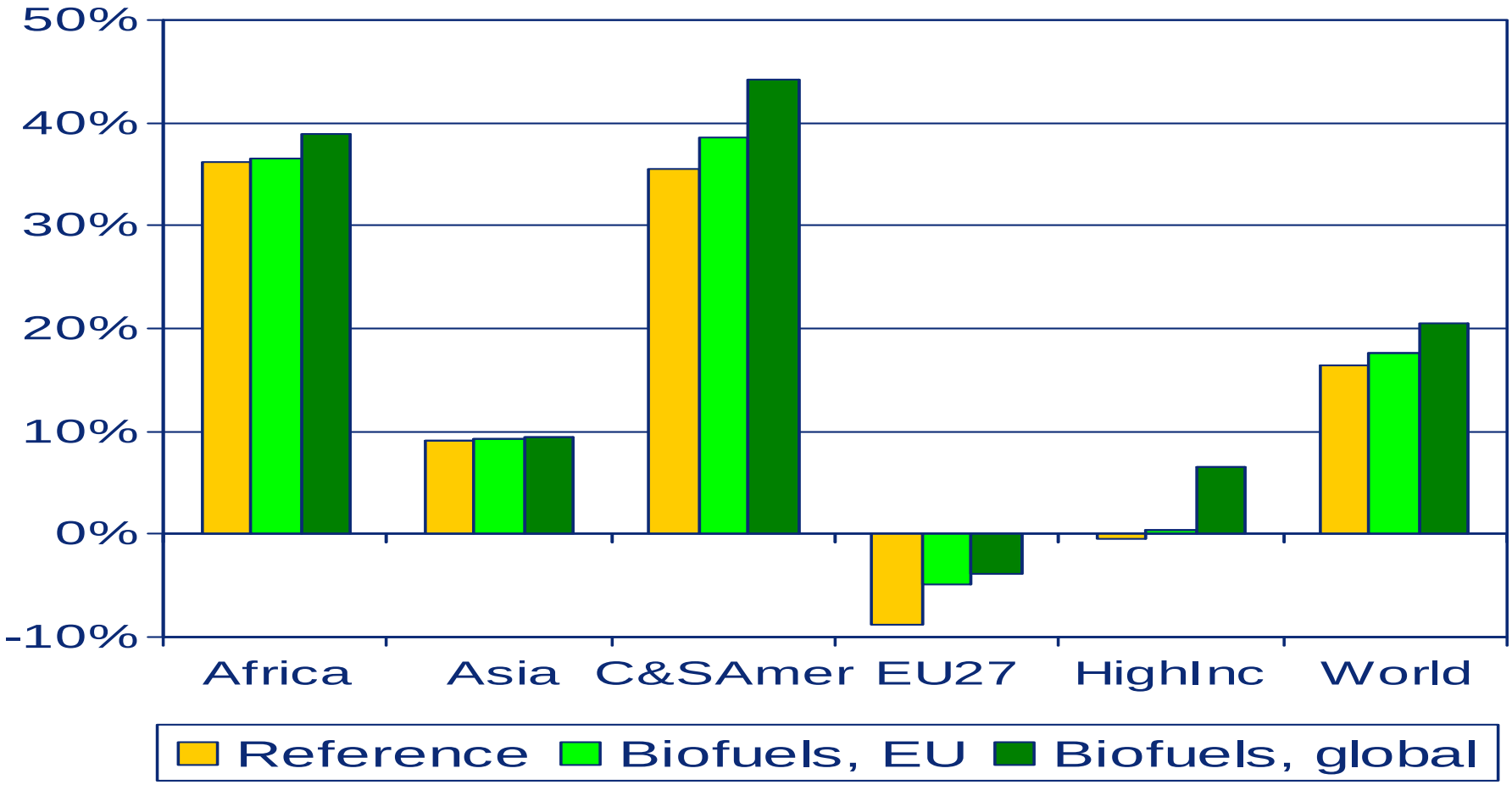
Fig. Major Veg. Oils Use for Biodiesel (excl. Jatropha)



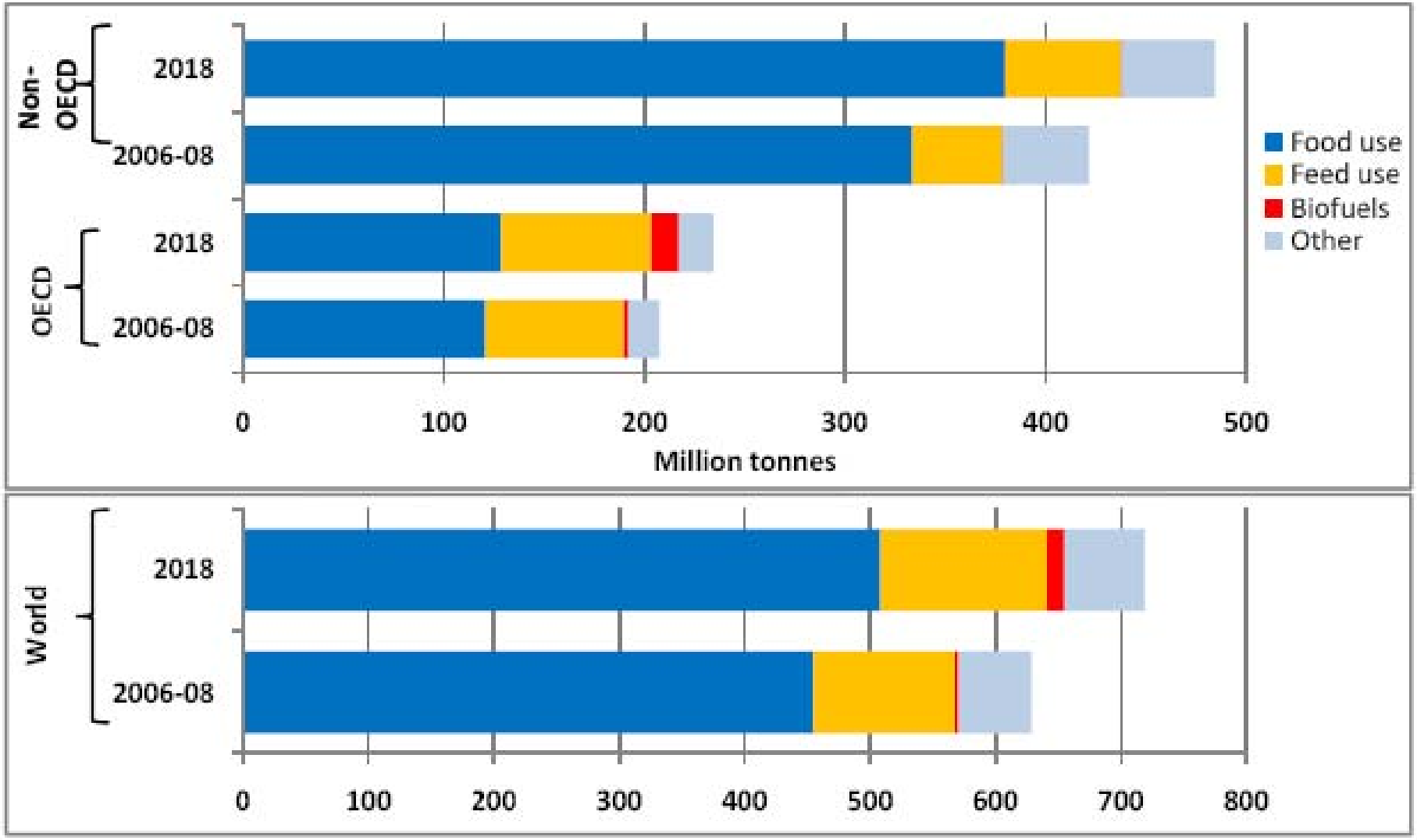
Impact Biofuel Directives on World Prices, in %, 2020 relative to 2001, source LEI



Impact Biofuel Directives on Agricultural Land Use, in %, 2020 relative to 2001, source LEI



Food remains main use for wheat …



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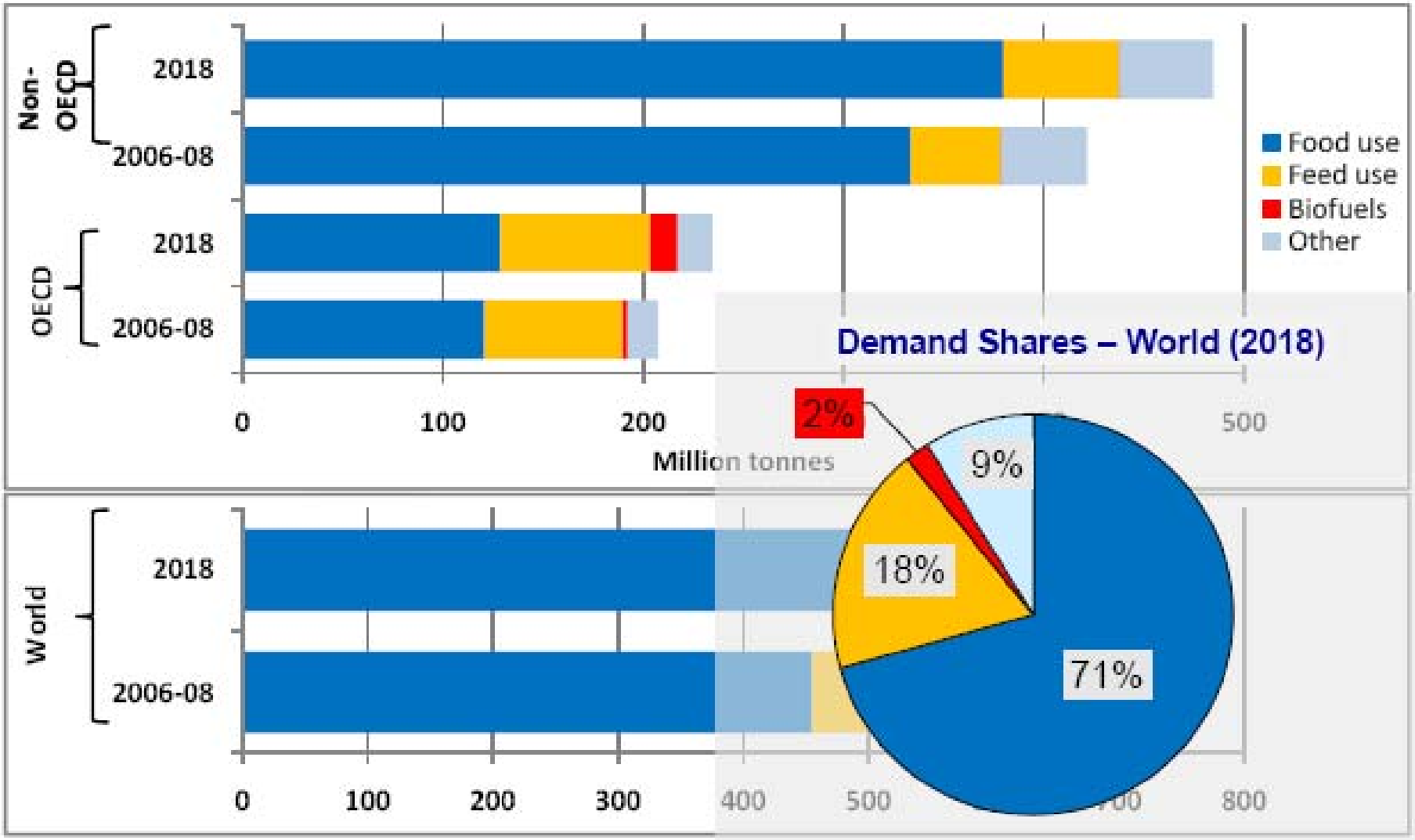
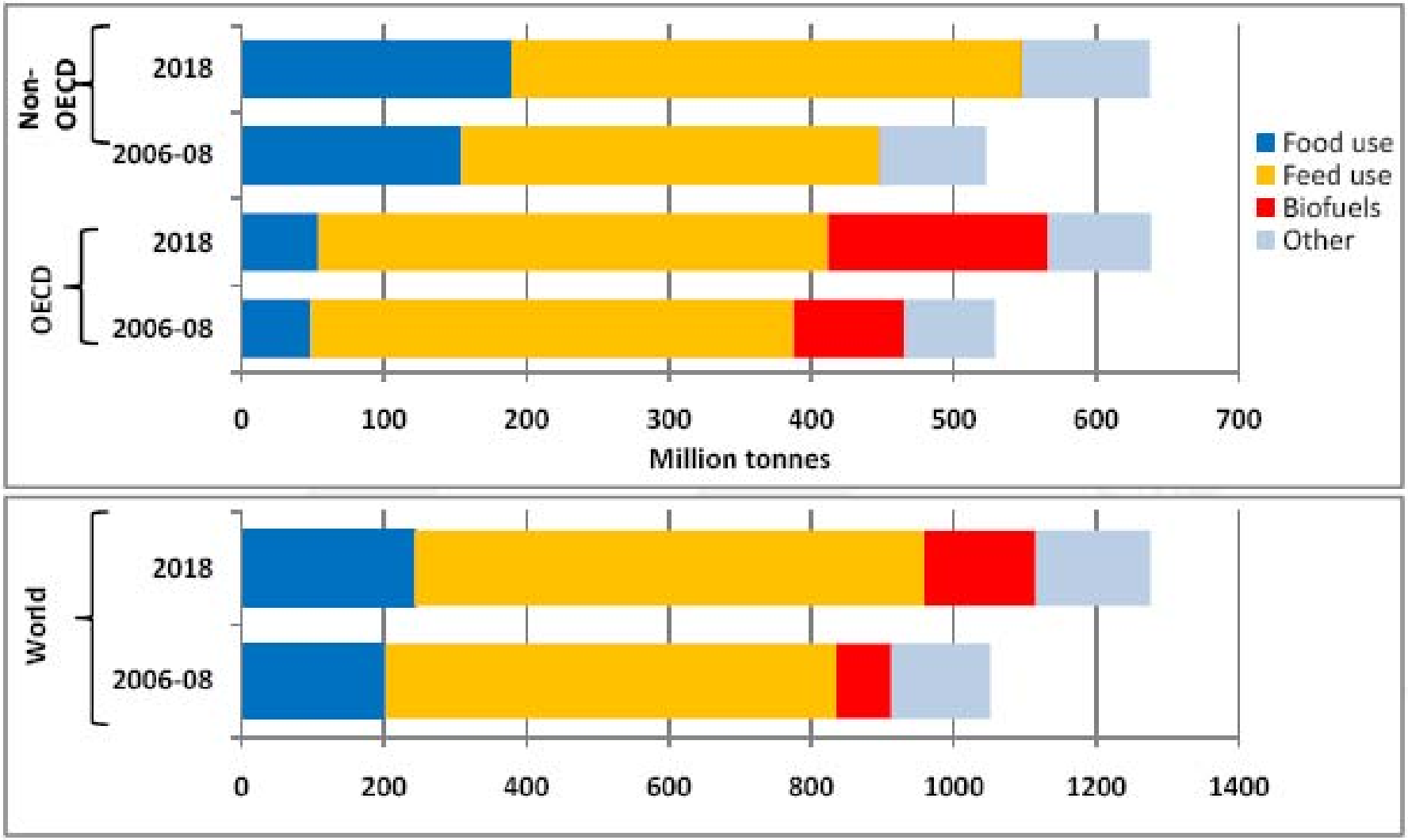


…while feed and fuel push coarse grain demand up



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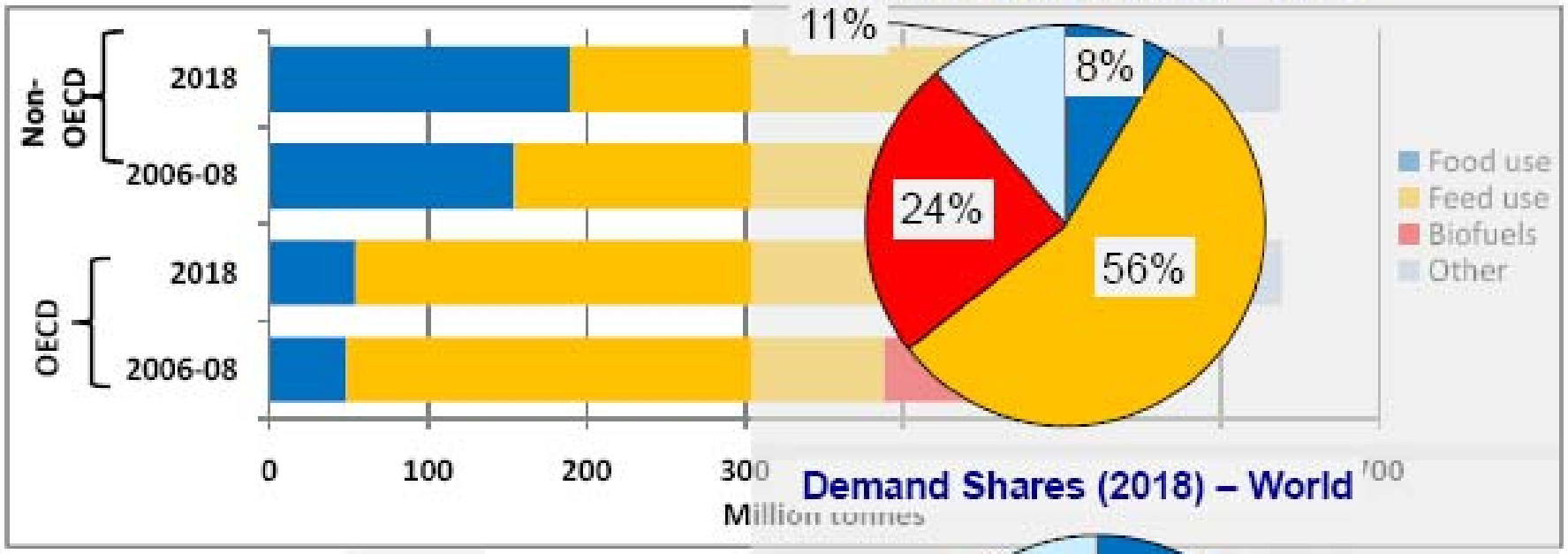
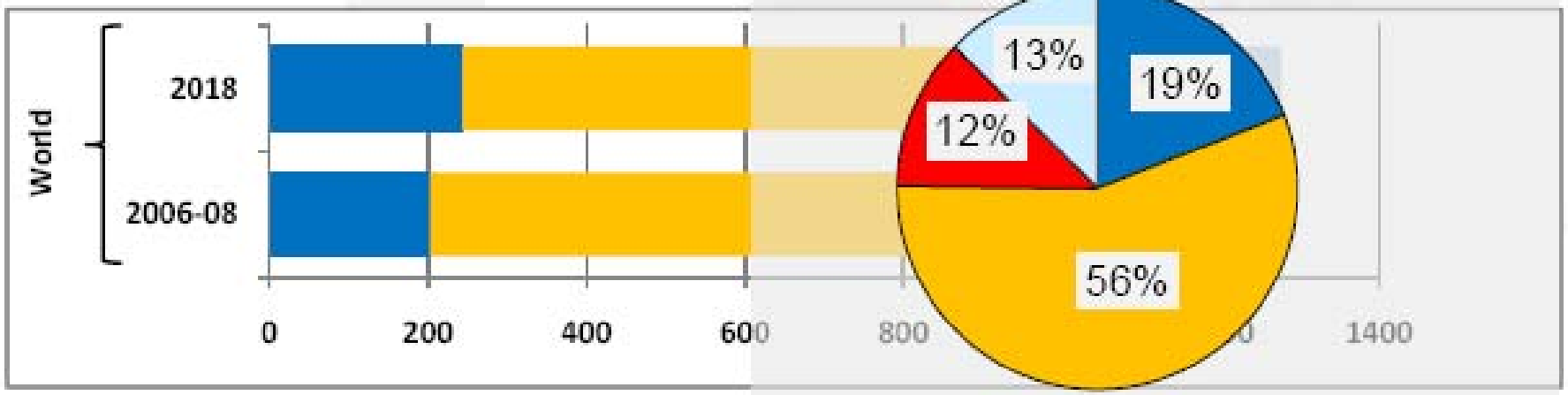
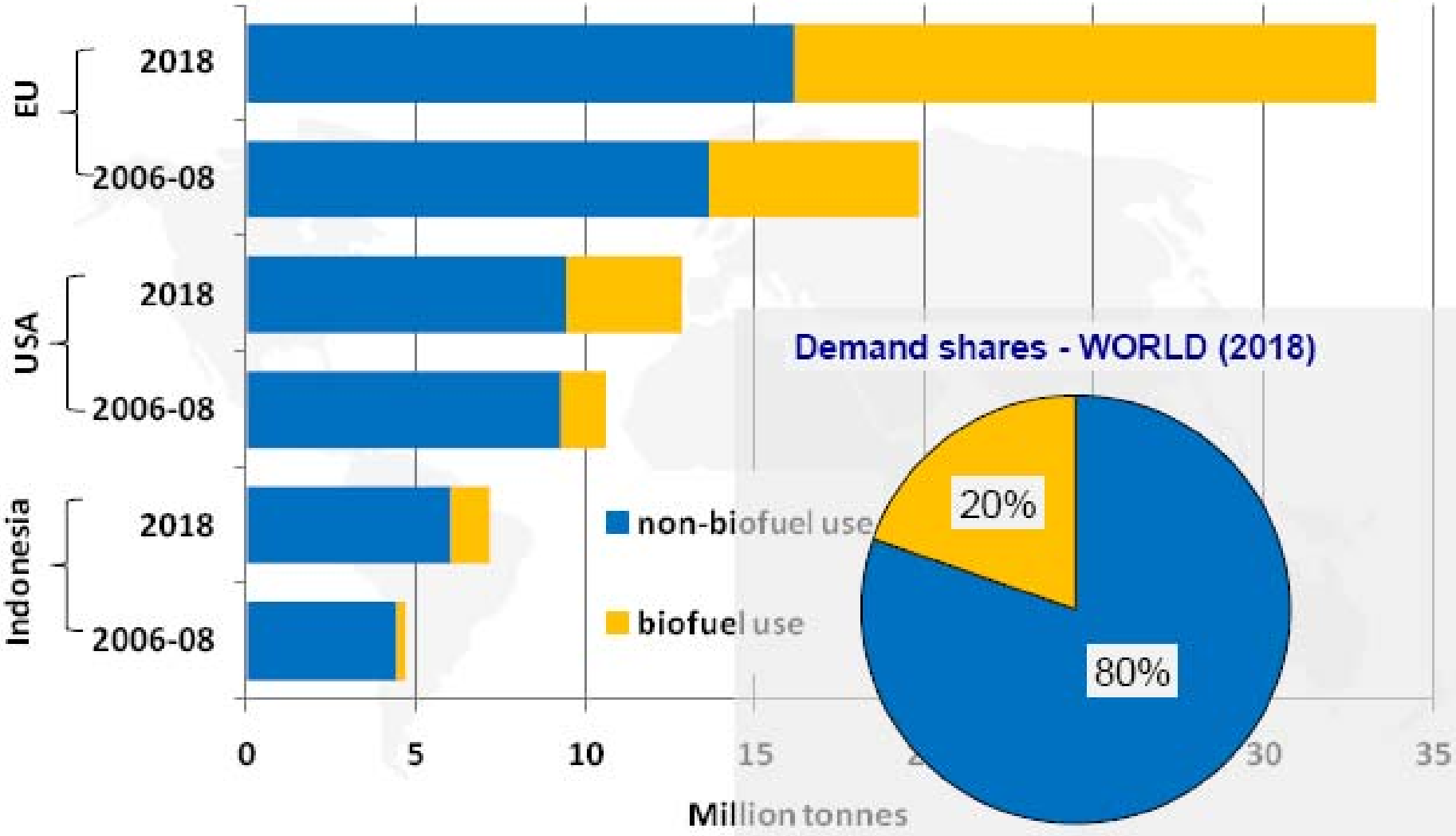
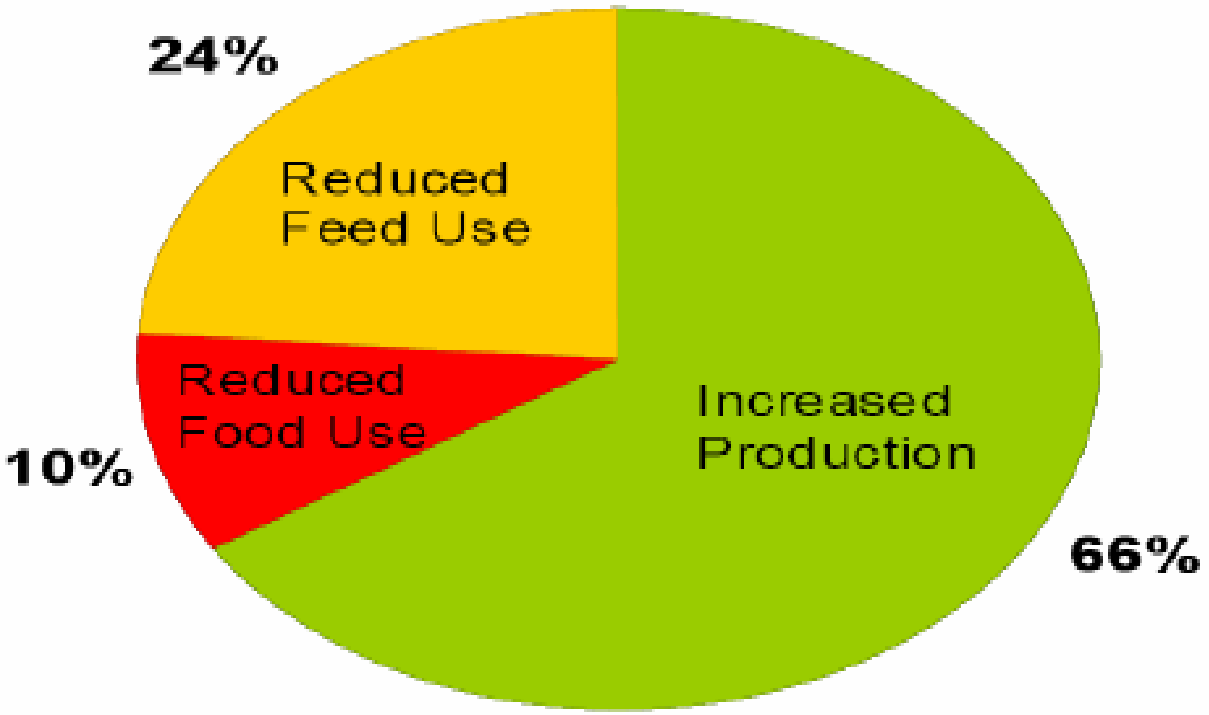




Biodiesel increasingly important demand driver for vegetable oil



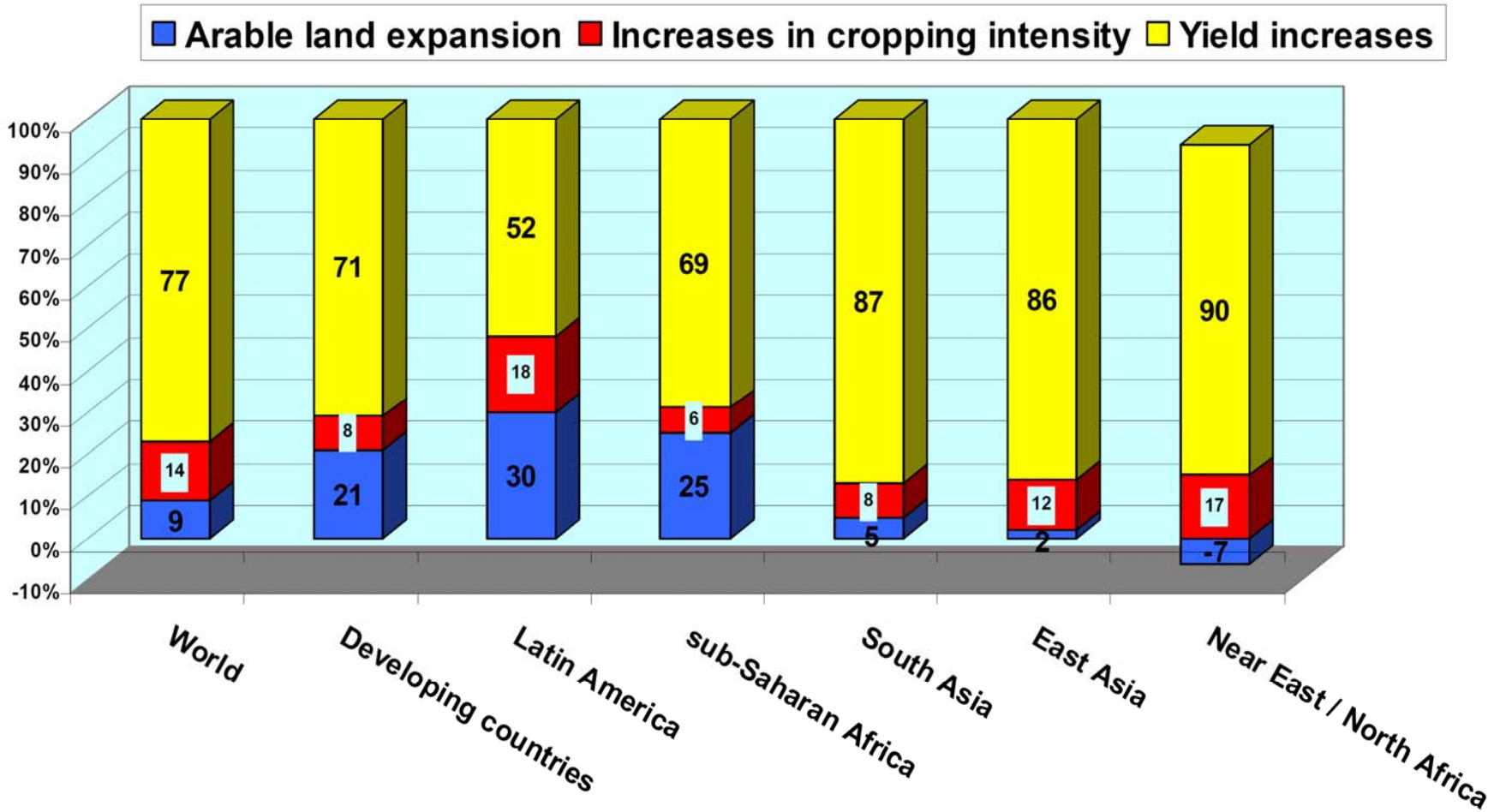
- How Will this additional demand be met?
  - OFID/IIASA (Cereals)



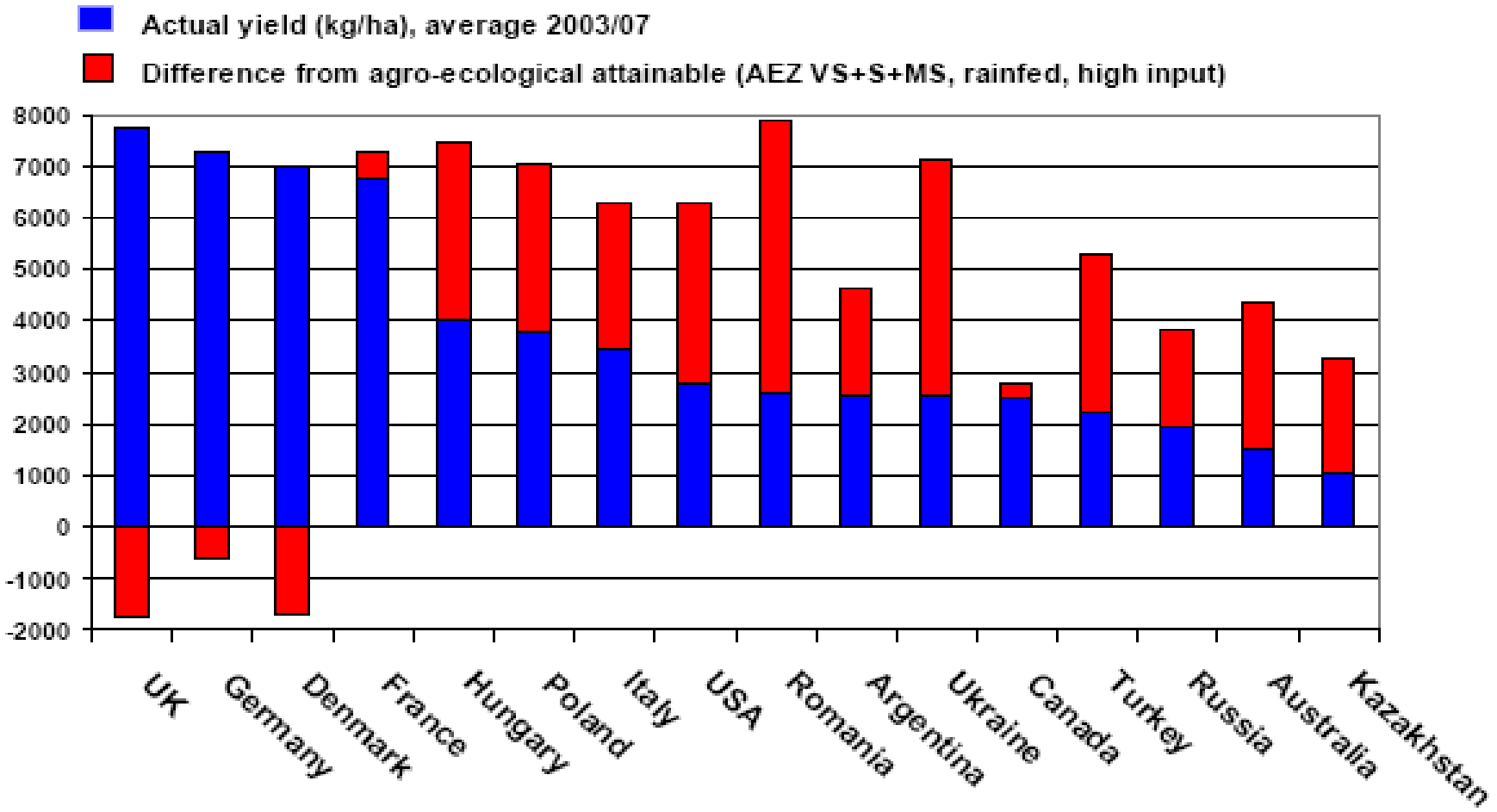
- And Will it Depress the growth of Food Consumption?
- What happened in recent years of biofuels explosion?

Sources of growth in crop production

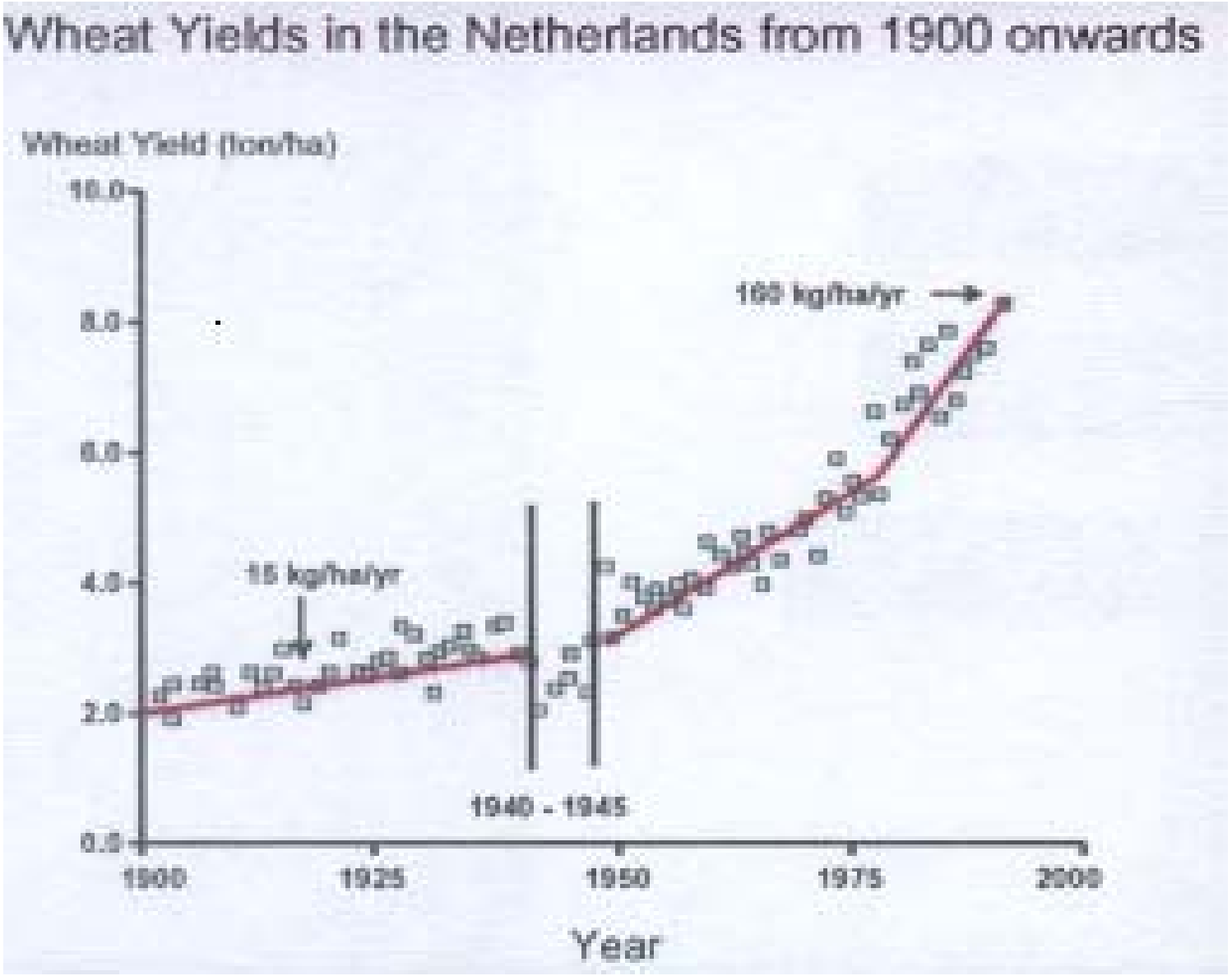
(2005/07 to 2050 (source FAO)

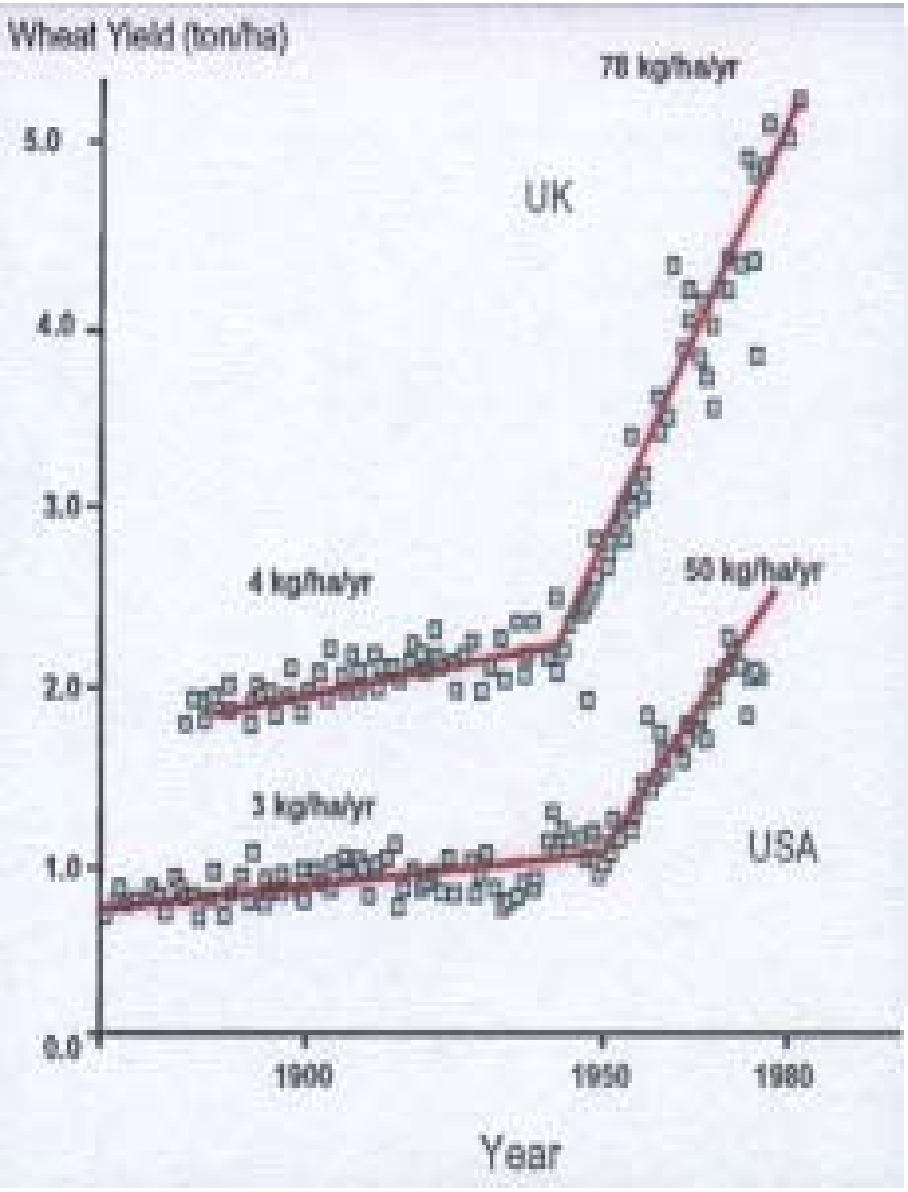


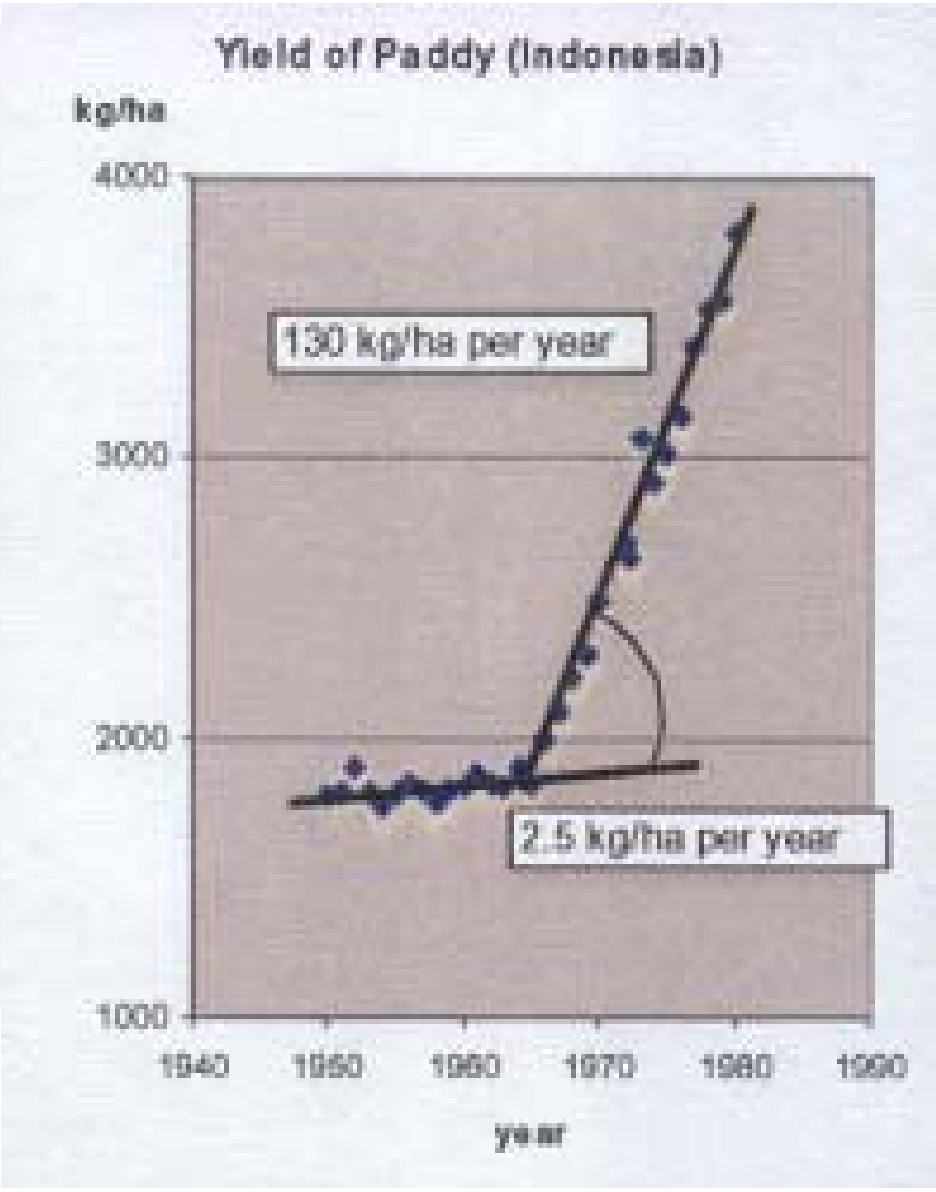
Yield increases and yield gaps (source FAO)



Wheat Yields in the Netherlands from 1900 onwards




Wheat Yield (ton/ha)
78 kg/ha/yr
UK
4 kg/ha/yr
50 kg/ha/yr
3 kg/ha/yr
USA
5.0
4.0
3.0
2.0
1.0
0.0
1900
1950
1980
Year


Yield of Paddy (Indonesia)
kg/ha
4000
3000
2000
1000
130 kg/ha per year
2.5 kg/ha per year
1940
1950
1960
1970
1980
1990
year

World land area in 2005 (total 13.400 mln ha; source FAO)

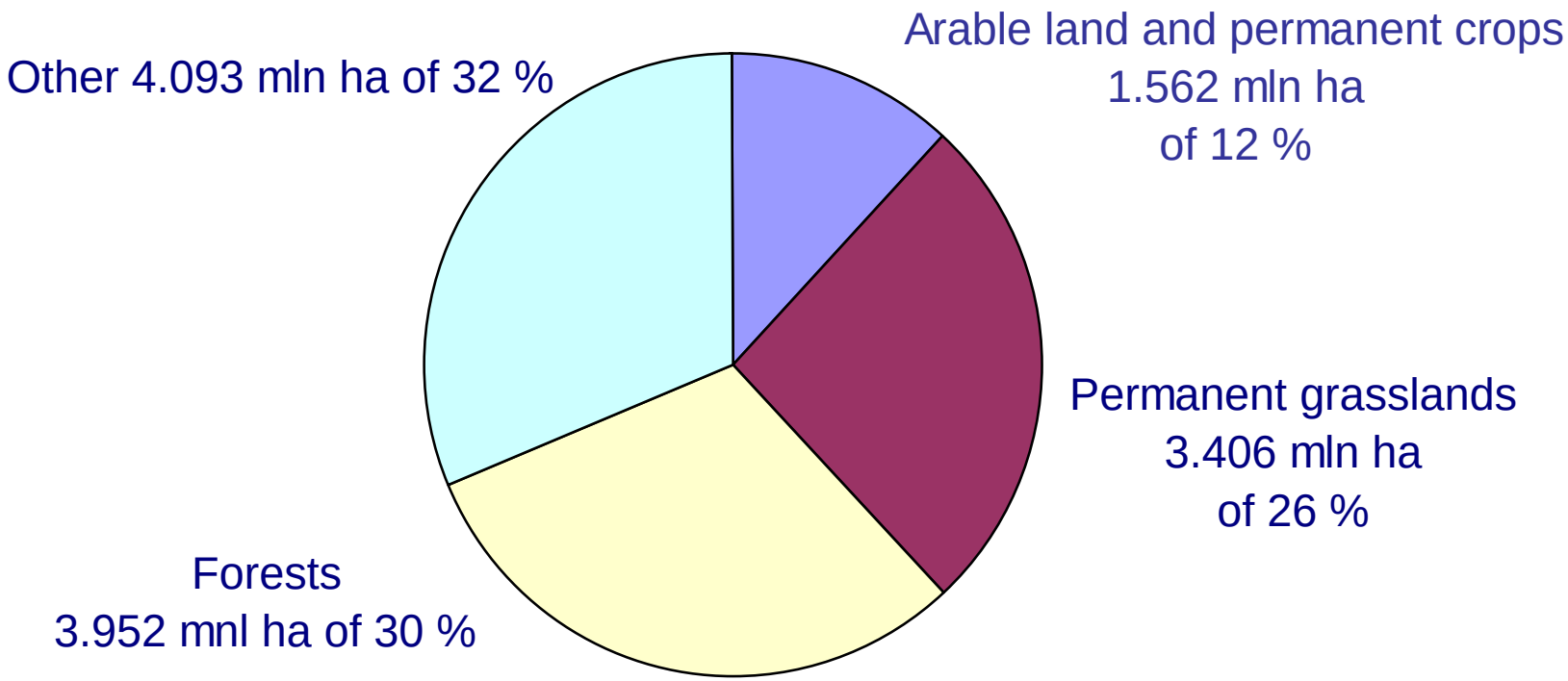


Table 3.2. Annual total factor productivity growth rates for livestock, 1961-2001

Region	Total Livestock	Ruminants	Non-ruminants
Developed countries	1.04	0.93	2.11
Developing countries	0.57	0.38	2.38
Least developed countries	0.54	0.4	1.24

Final remarks (1)

Distinguish in world food supply between:

1. Availability of food
2. Access to food
3. Utility of food
4. Crisis situations

Final remarks (2)

Take animal production more into account :

1. Of large importance in many countries as source for food as well as in cultural sense

2. Permanente grasslands and by-products important sources for animal feed

3. Animal production not a protein problem but a calory problem

4. Large efficiency improvements possible in many countries

Thanks for your attention