

Biofuel Support: New Links between Agriculture, Energy Markets and Climate Change

Martin von Lampe

Directorate for Trade and Agriculture



Joint meeting of the Intergovernmental Group on Oilseeds, Oils and Fats (30th session),
Intergovernmental Group on Grains (32nd session) and the Intergovernmental Group on Rice (43rd
session), Nov. 4-5, 2009, Santiago, Chile

Background:

OECD-FAO Outlook 2009-2018

OECD-FAO
Agricultural Outlook
2009-2018

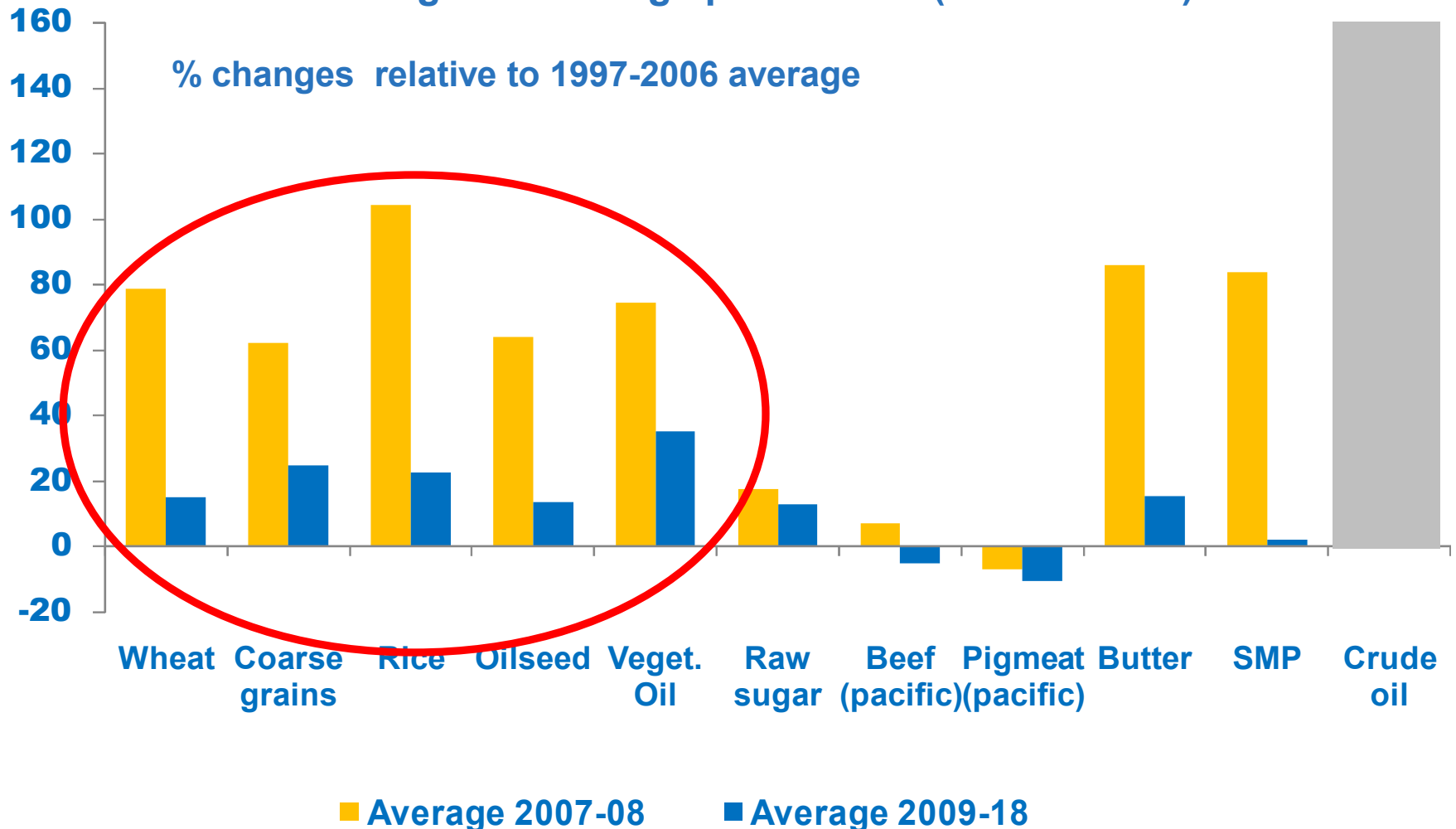
- OECD-FAO Agricultural Outlook – conditional projections set up annually
- Commodity prices in real terms to remain at or above 1997-2006 levels
 - Crop prices have strongest gains; 10-20% on average
- Production increases in the range of 10 to 40%
- Developing countries driving the global demand and trade gains



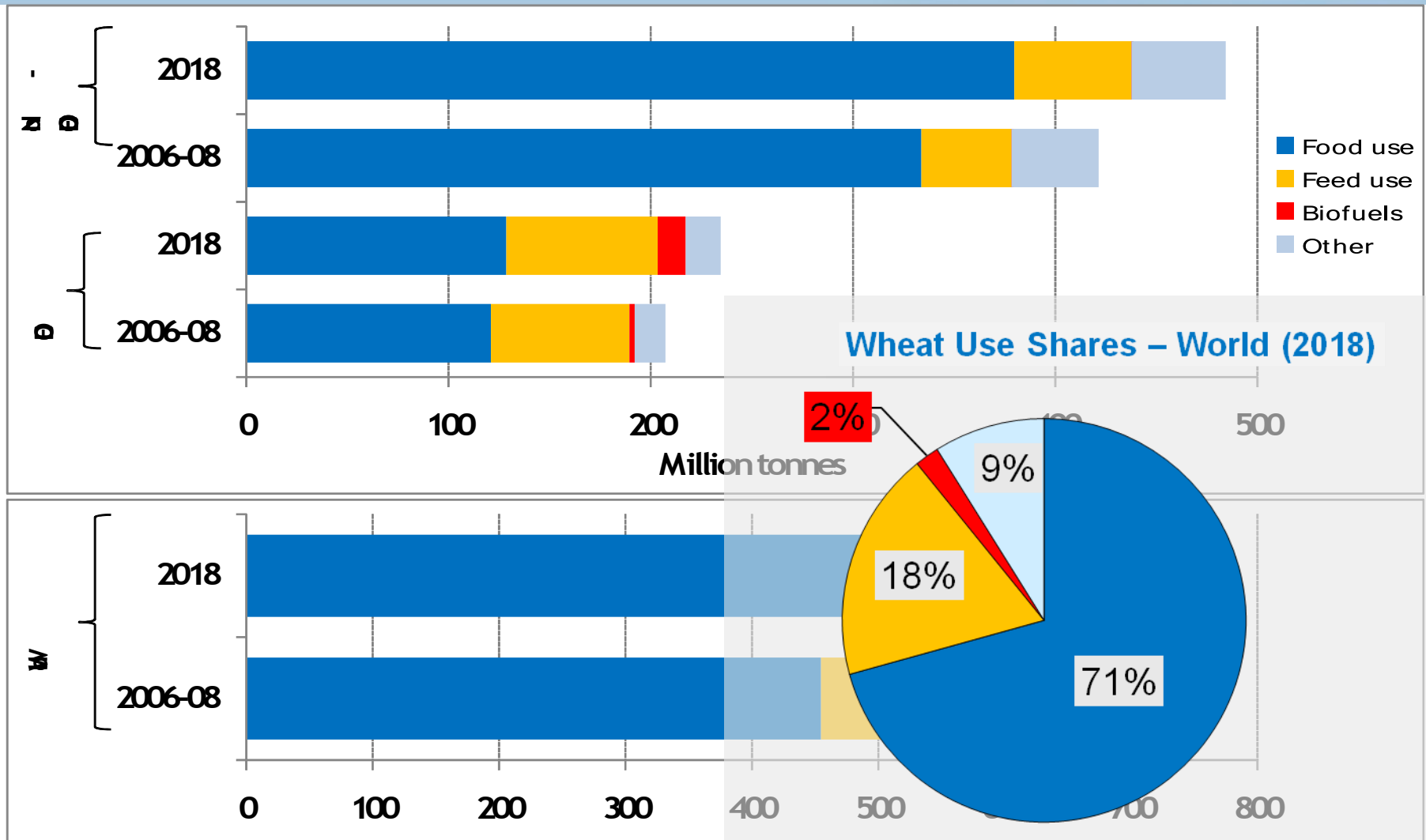
2009

Most commodity prices at higher average levels

Changes to average price levels (in real terms)

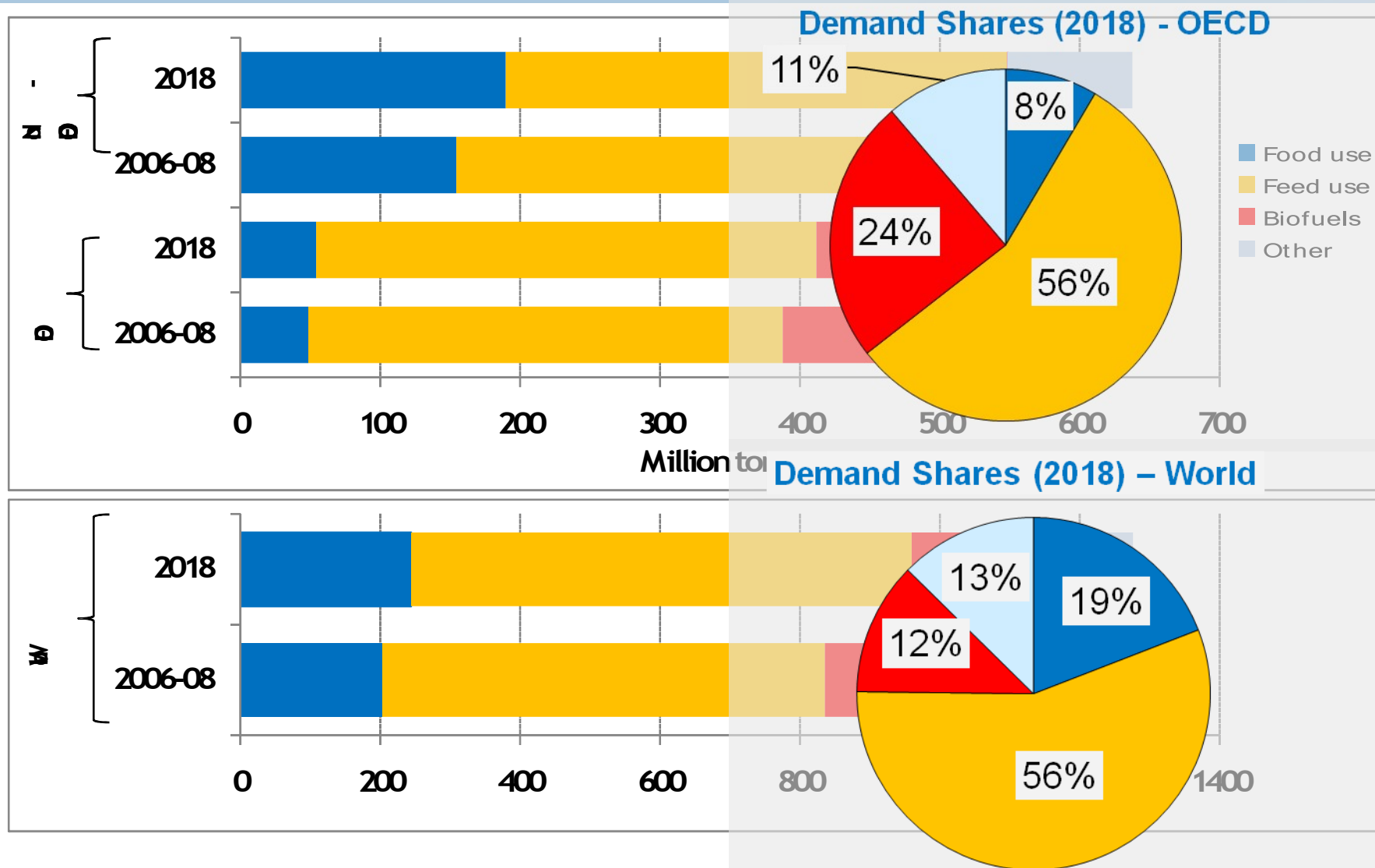


Food remains the main use for wheat ...



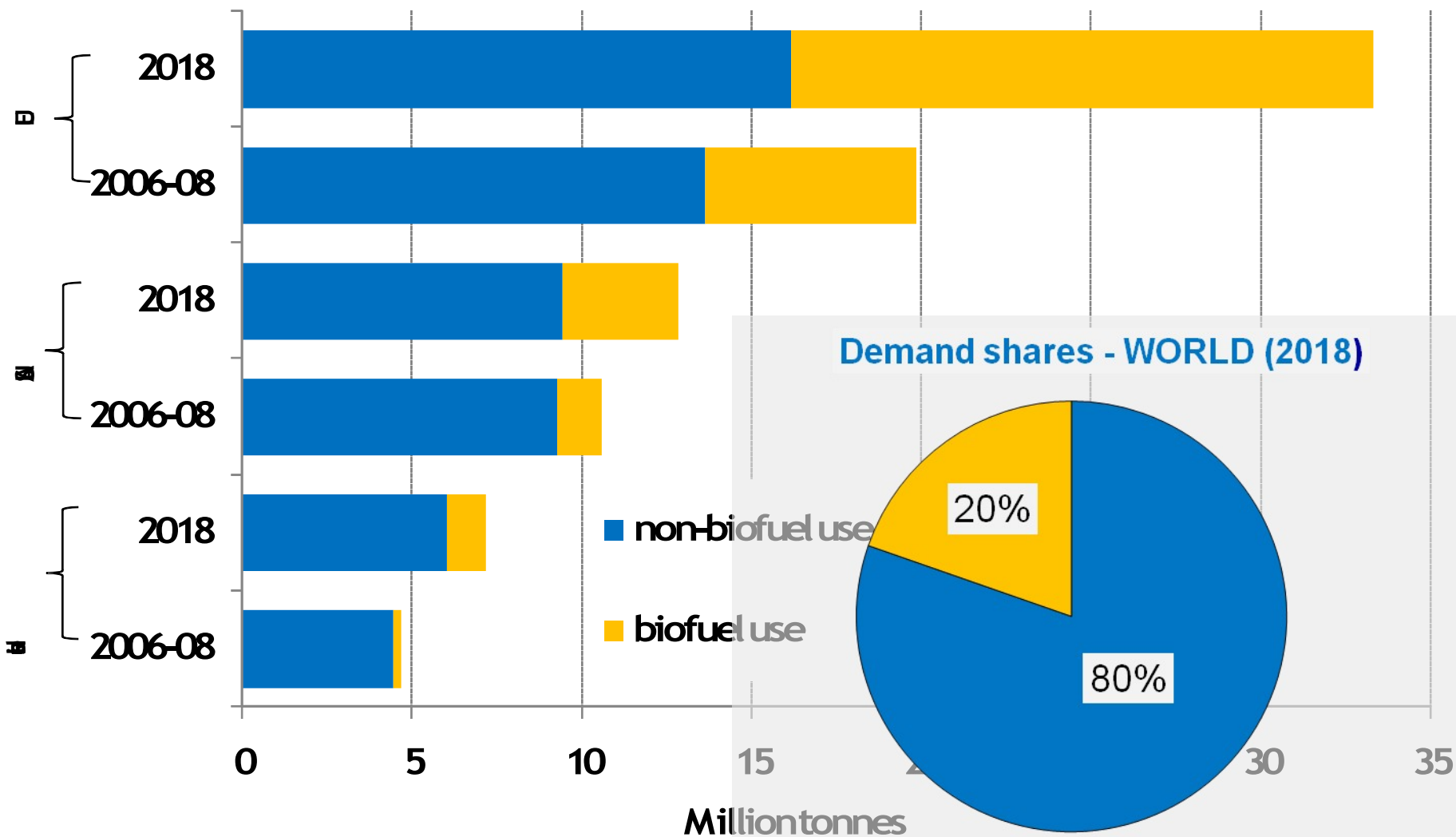


... while feed and fuel push coarse grain demand up





Biodiesel increasingly important demand driver for vegetable oil





Policy issues: questions

- How far do biofuel markets in OECD countries depend on policy support (subsidies, mandates, trade barriers)
- How effective are biofuel support policies in saving GHG emissions?
- How are agricultural prices affected?



Policy issues: analysis

- Debate on biofuels needs to distinguish between
 - First and second generation biofuels
 - Different feedstocks
 - Market developments and support policies
 - Policy objectives pursued
- Focus on support policies (mainly in OECD)
- Combine model-based forward-looking analysis with biophysical information

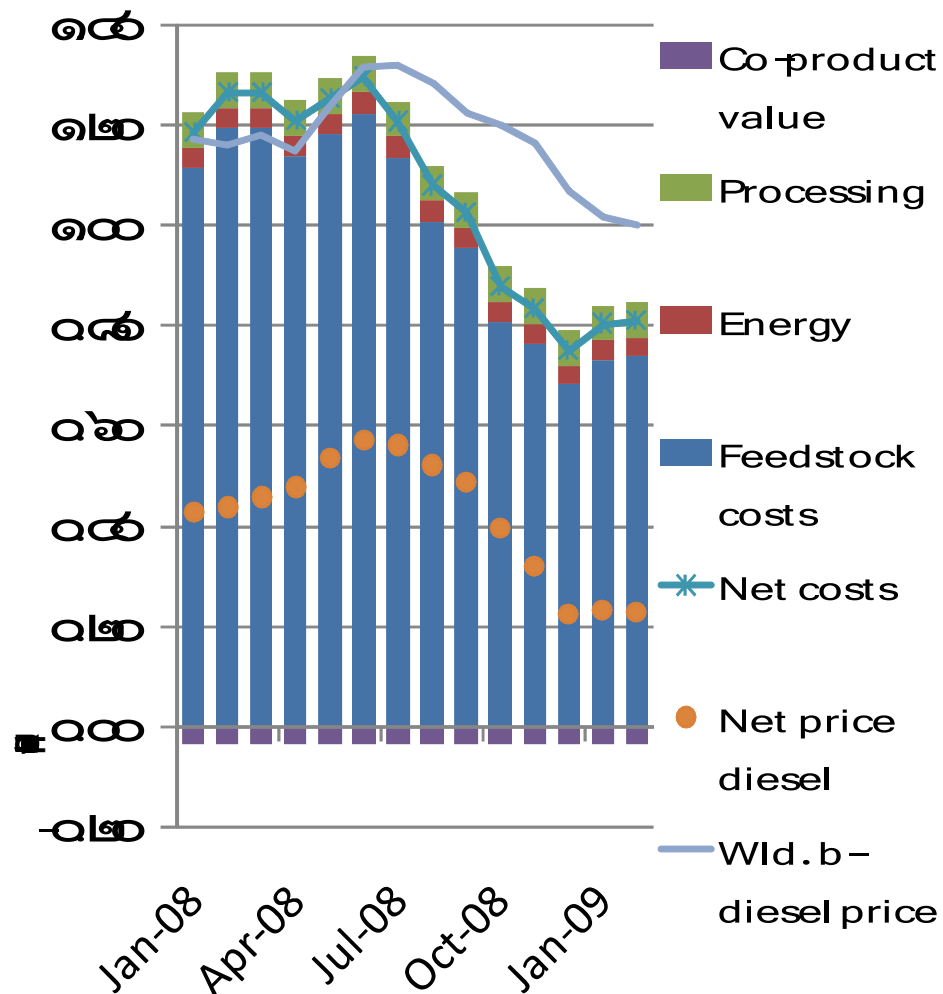
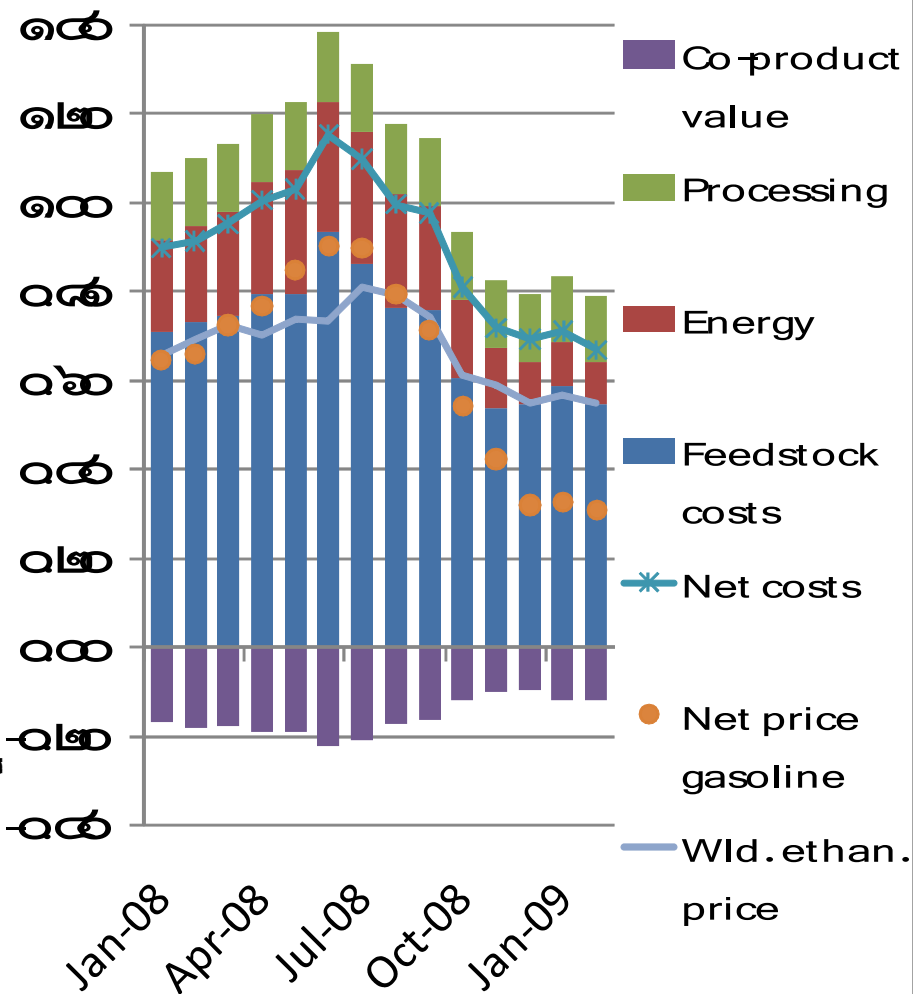




Profitability of biofuels depends on support

US ethanol

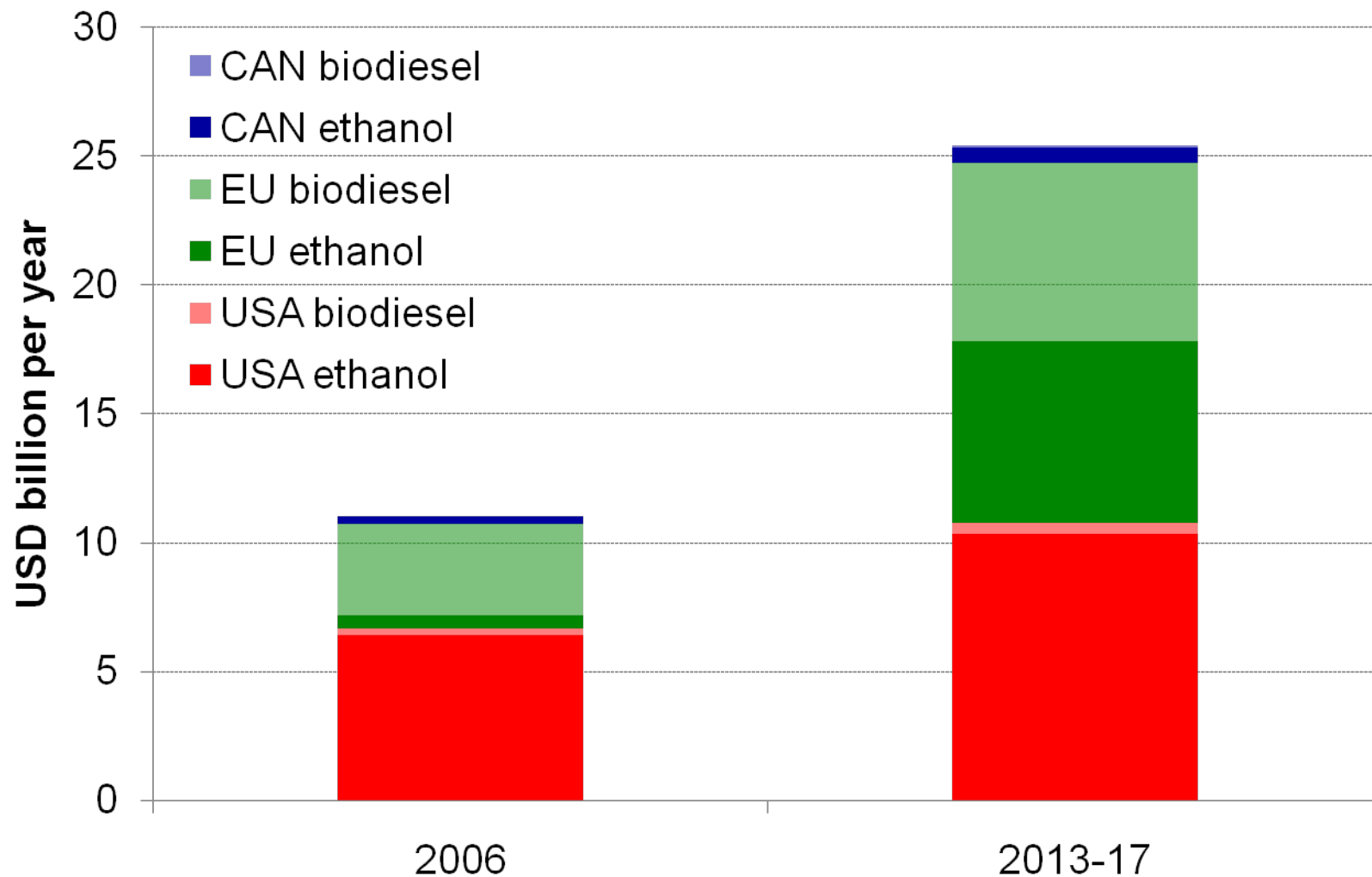
EU





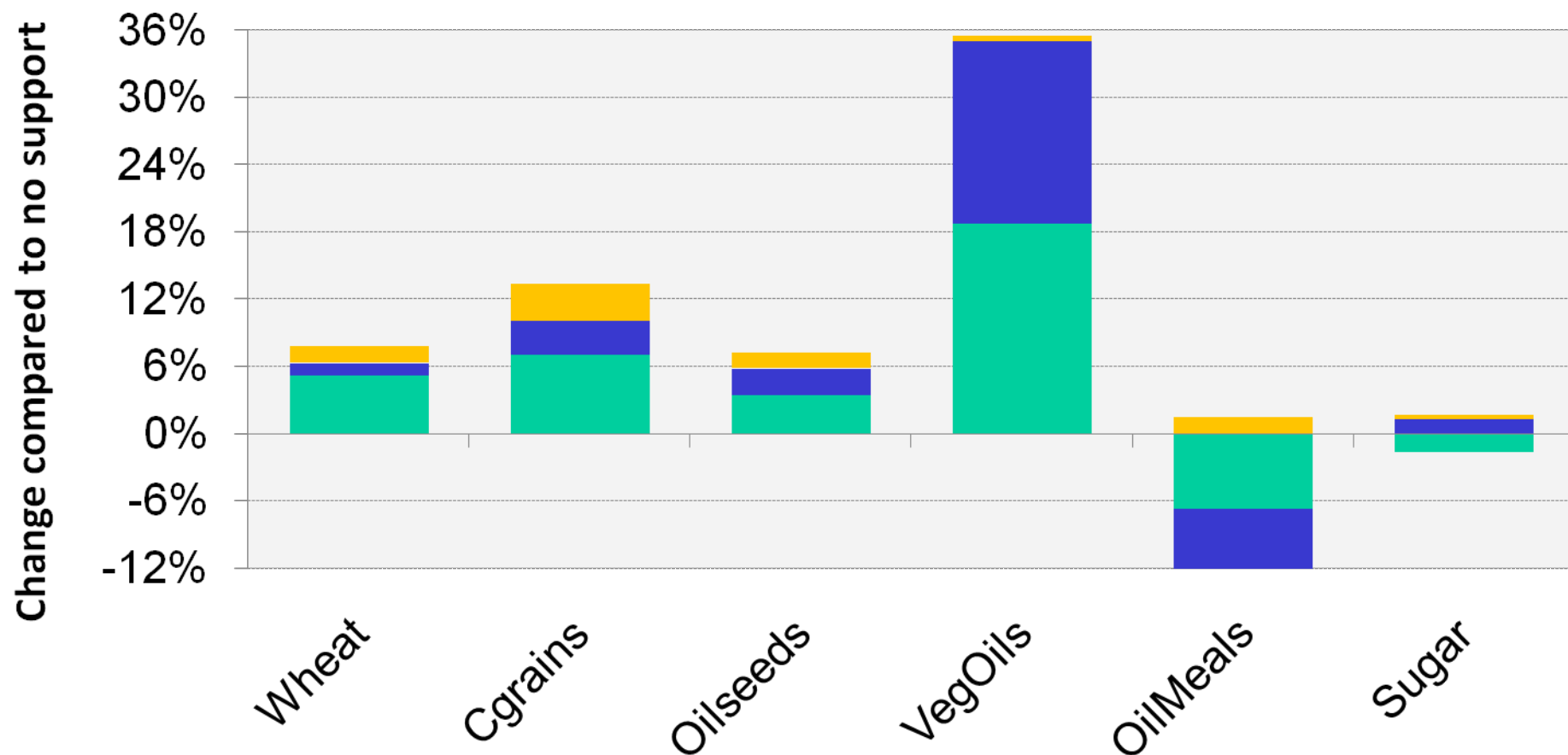
Current and projected levels of support

(2007 policies)

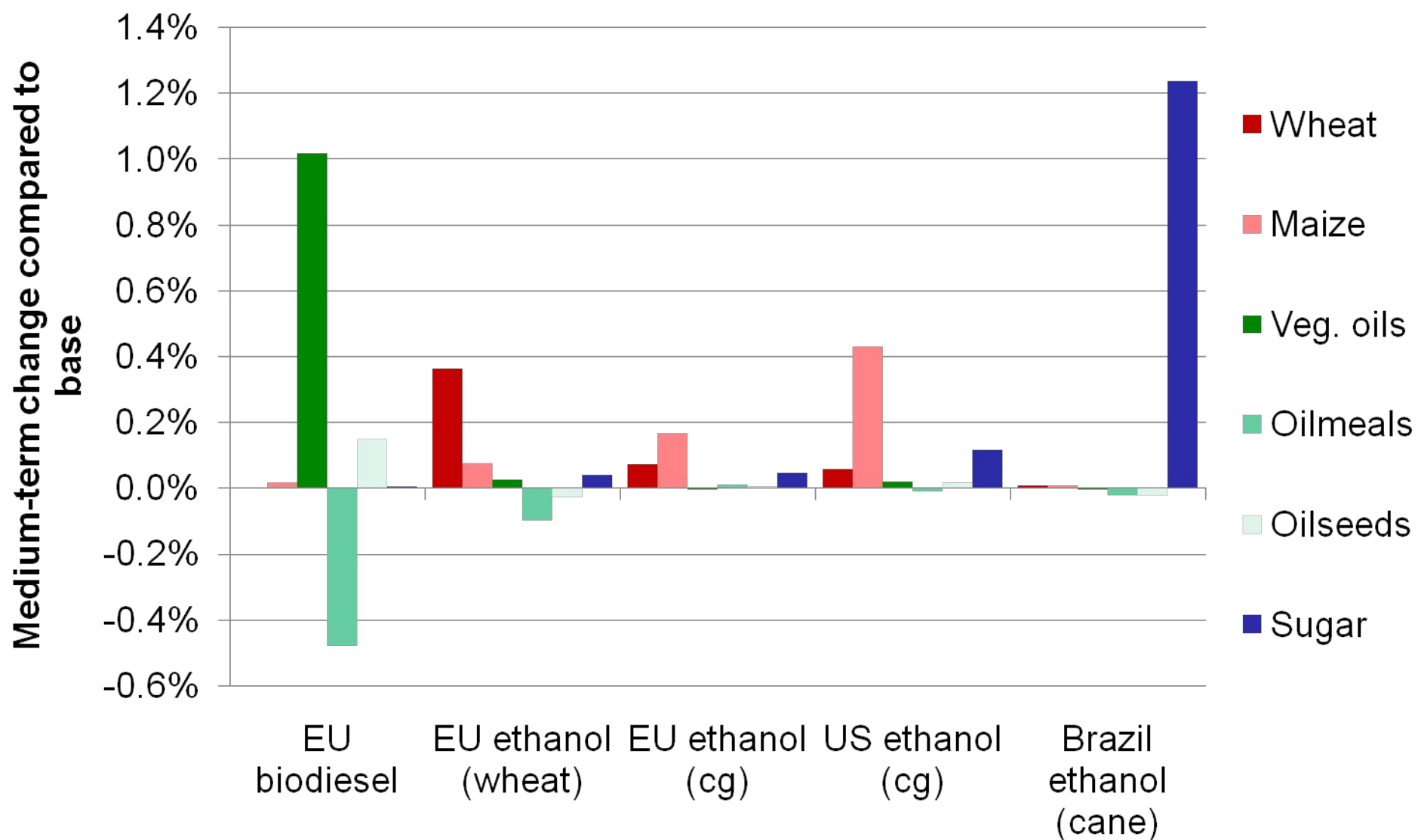


Impact of old and new biofuel policy programmes on world crop prices, 2013-2017 average

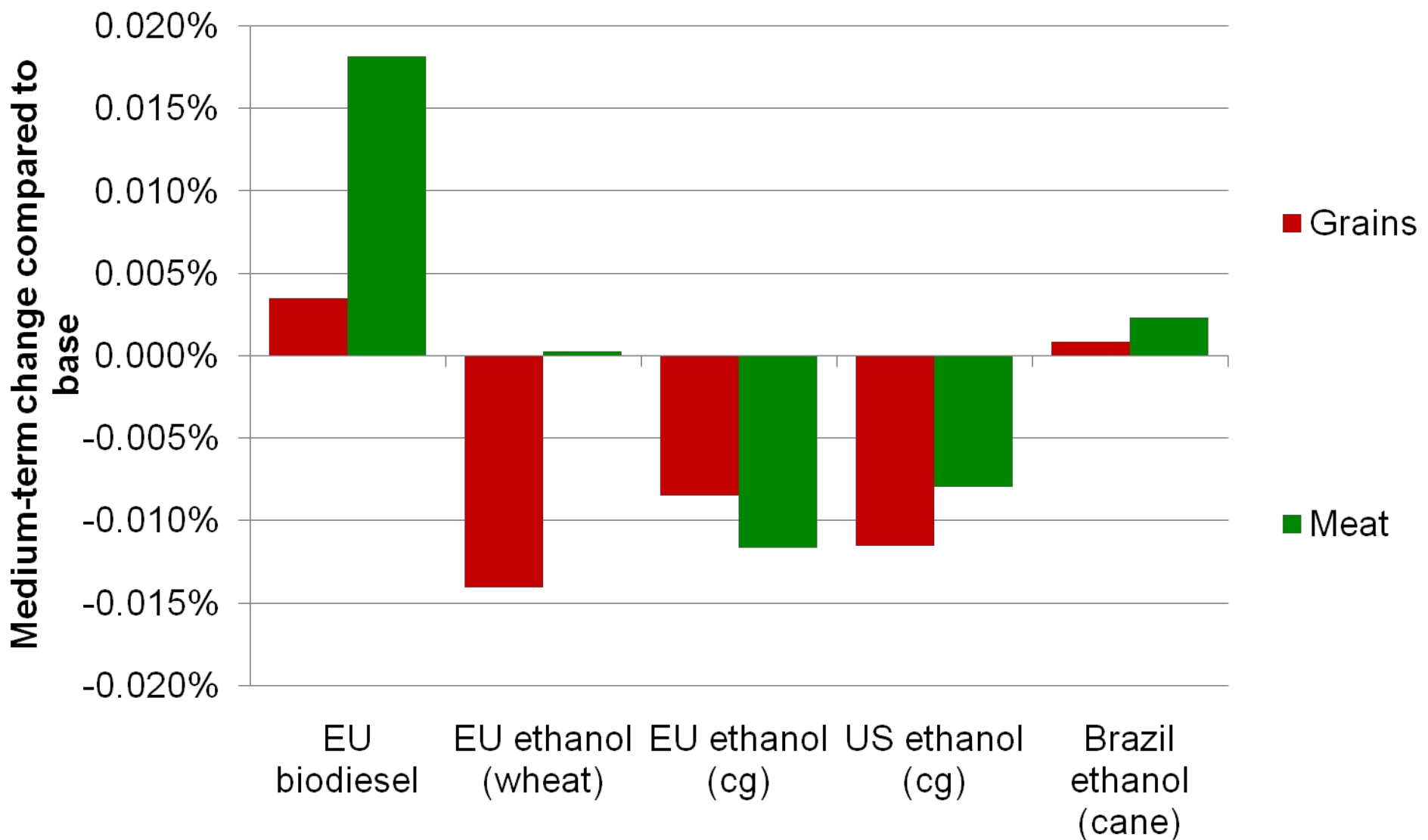
■ 1 - 2007 Policies ■ 2 - New Initiatives - 1st Gen. ■ 3 - New Initiatives - 2nd Gen.



Biofuels all the same? Impact of 1 bn l additional biofuels on world prices



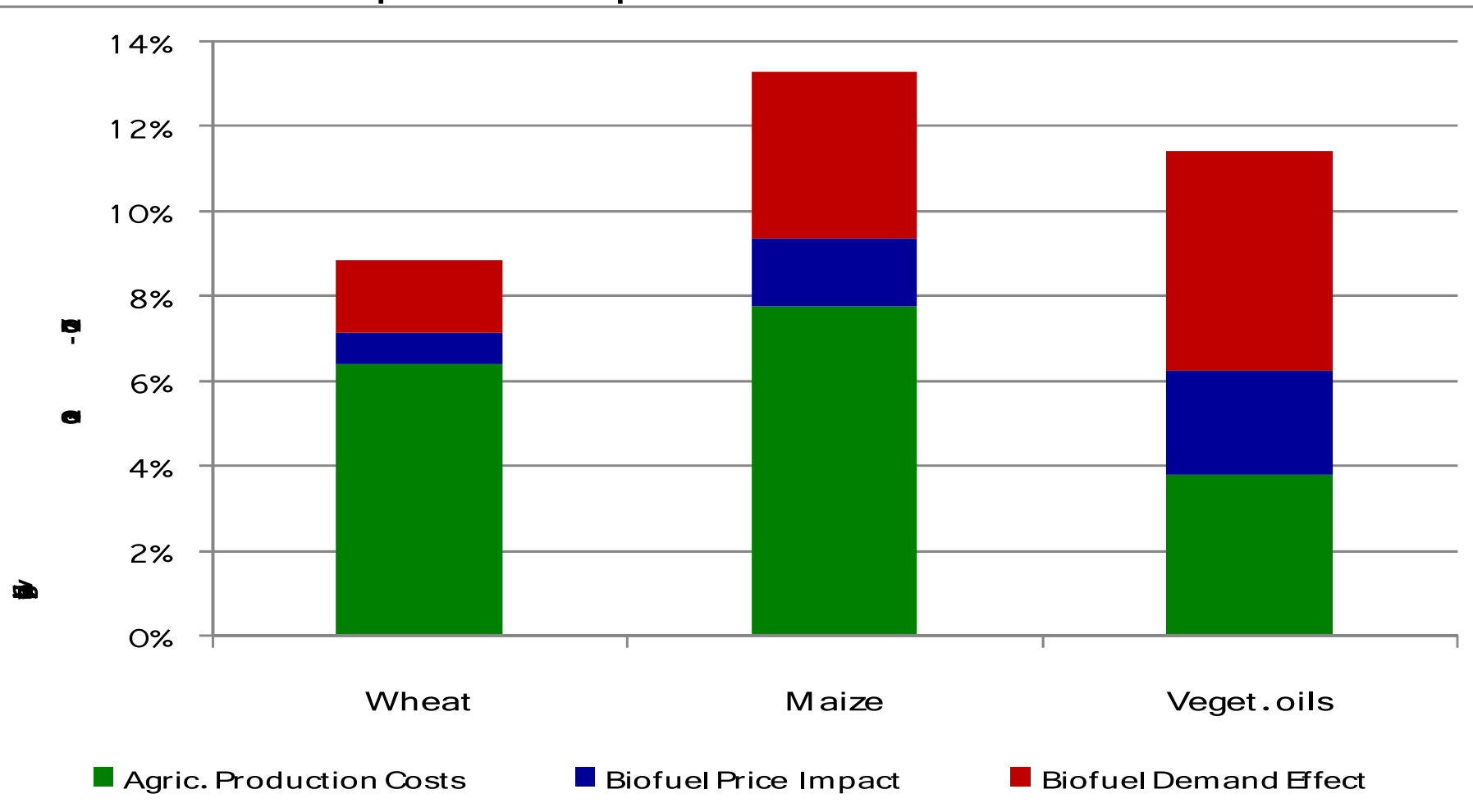
Impact of 1 bn l additional biofuels on global grain and meat consumption





Impact of alternative oil prices on commodity prices

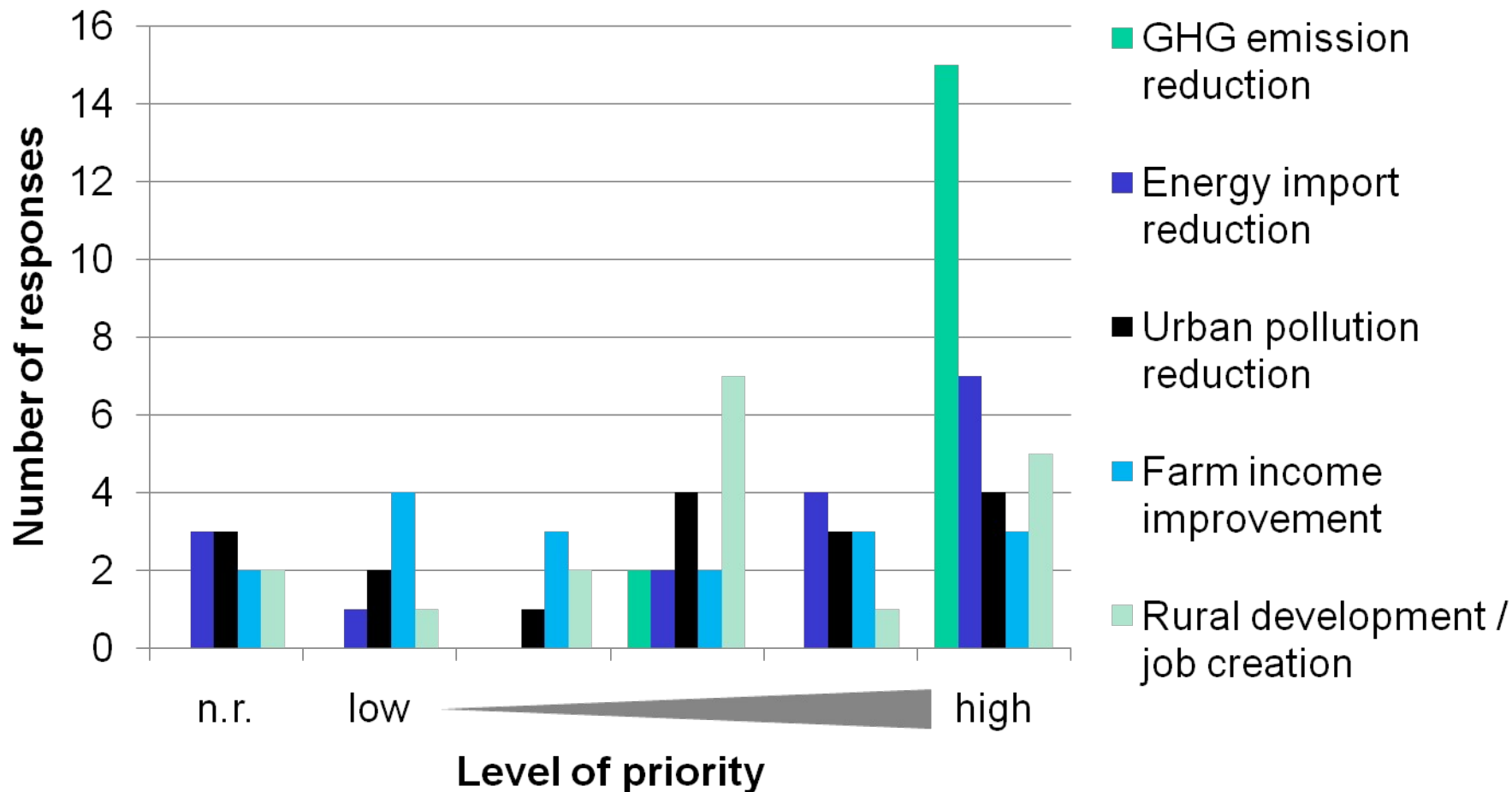
Medium-term impact of oil price at ~USD100 instead of USD70





Reducing GHG emissions among prime objectives

Indications of priority of bioenergy policy objectives by various countries





How Effective Are Biofuels?

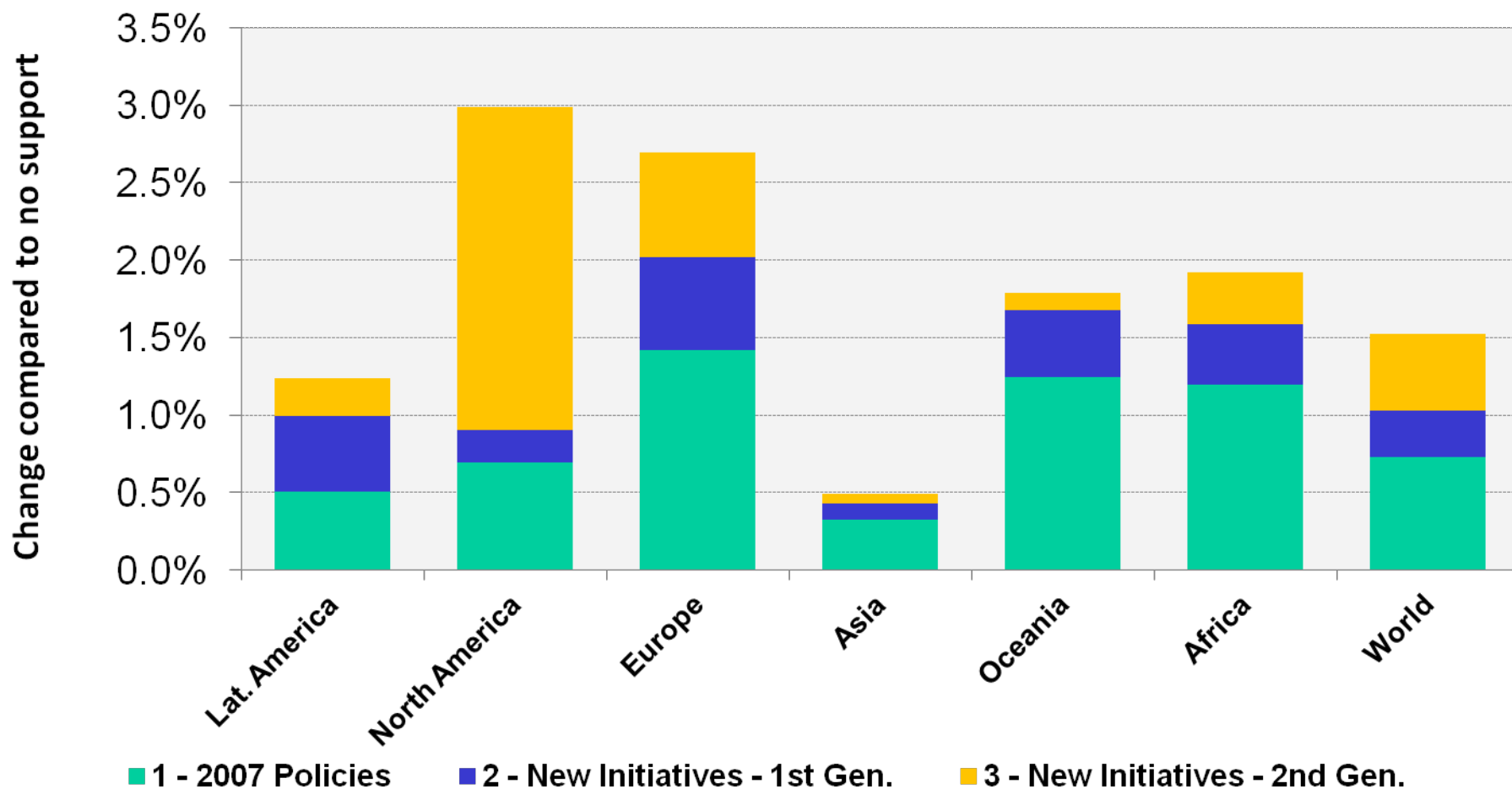
	GHG savings (CO2 equivalent)	
	From %	To %
Ethanol from wheat	30	55
Ethanol from maize	10	30
Ethanol from sugar cane	80	90
Ethanol from sugar beet	40	60
Biodiesel from vegetable oil	40	55

«How Efficient are Biofuel Support Policies?

- Support policies in Canada, US and EU save
 - 15 to 27 million t CO₂-eq per year around 2015
 - ≈ 0.5% to 0.8% of their projected transport-related emissions
- Support policies are estimated to cost USD 25 billion per year around 2015
- Policy support to biofuels costs USD 960 to USD 1700 per tonne of GHG (CO₂ equivalent) saved



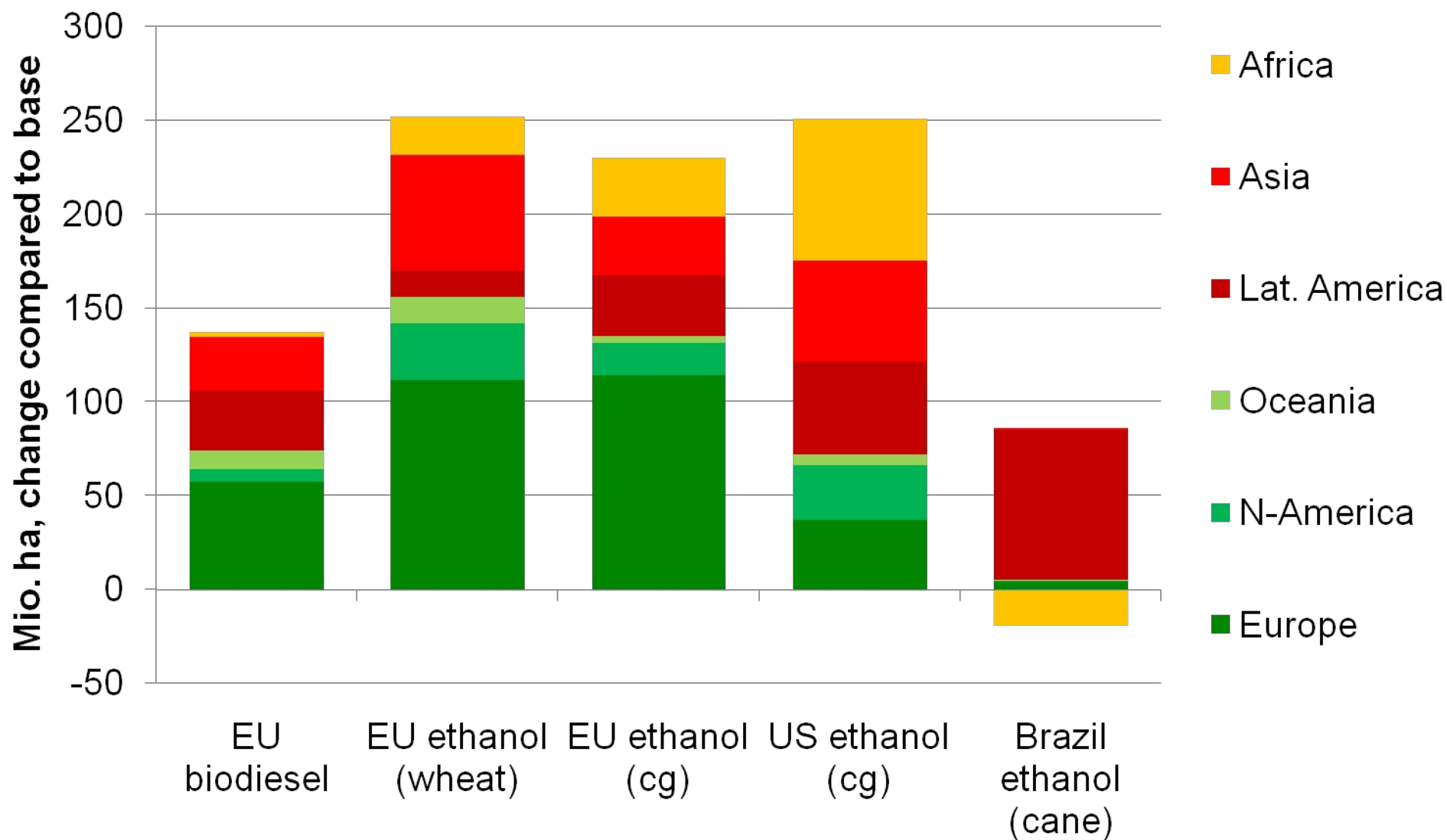
Impact of old and new biofuel policy programmes on world crop area, 2013-2017 average



Note: Total area harvested for cereals, oilseeds, sugar crops and fuel-biomass



Impact of 1 bn l additional biofuels on crop area





Land use changes

- Globally some 6.5 million ha more land for cereals, oilseeds and sugar crops (current policies)
 - Partly slowing down reductions in land use (Europe, North America)
 - More than 2 million ha additional growth in Latin America, Asia and Africa
- If converted from permanent grassland (low carbon stock land → optimistic assumption): Additional emissions of $55\text{t CO}_2 / \text{ha} = 110$ million t CO_2
 - ~ 4 times the annual emission savings
 - More sensitive areas: more additional emissions



Policy Considerations

- Biofuel support policies in OECD countries are costly
- Savings of GHG emissions and fossil energy use are limited
 - Sustainability standards are key
 - Need to cover indirect effects
- Biofuel support policies have impacts on global commodity prices
 - Not negligible, but often overestimated
 - One of few driving factors that can be changed



Benefits from free trade in biofuels

- Larger production of cane-based ethanol
 - Much larger GHG savings (if produced sustainably)
 - Much lower costs for taxpayers and consumers
- Less use of cereals for biofuel production
 - Price effect of biofuels on wheat nearly halved
- Area expansion in Latin America to be monitored



The Way Forward

- Alternative policy approaches may offer greater benefits
 - Reduced energy demand, GHG emissions
 - Freer trade in biofuels
 - Accelerated introduction of second generation biofuels that do not rely upon current commodity feedstocks
- Bioheat, biopower and biogas could represent significant opportunities



Thank You

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Contact us:

Martin.vonLampe@oecd.org