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USDA Agricultural Outlook Forum 2007

EU BIOFUELS POLICY AND EFFECTS ON PRODUCTION, CONSUMPTION AND LAND USE FOR ENERGY CROPS

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Presented: Friday, March 2, 2007

Breakdown of EU-25 gross energy consumption

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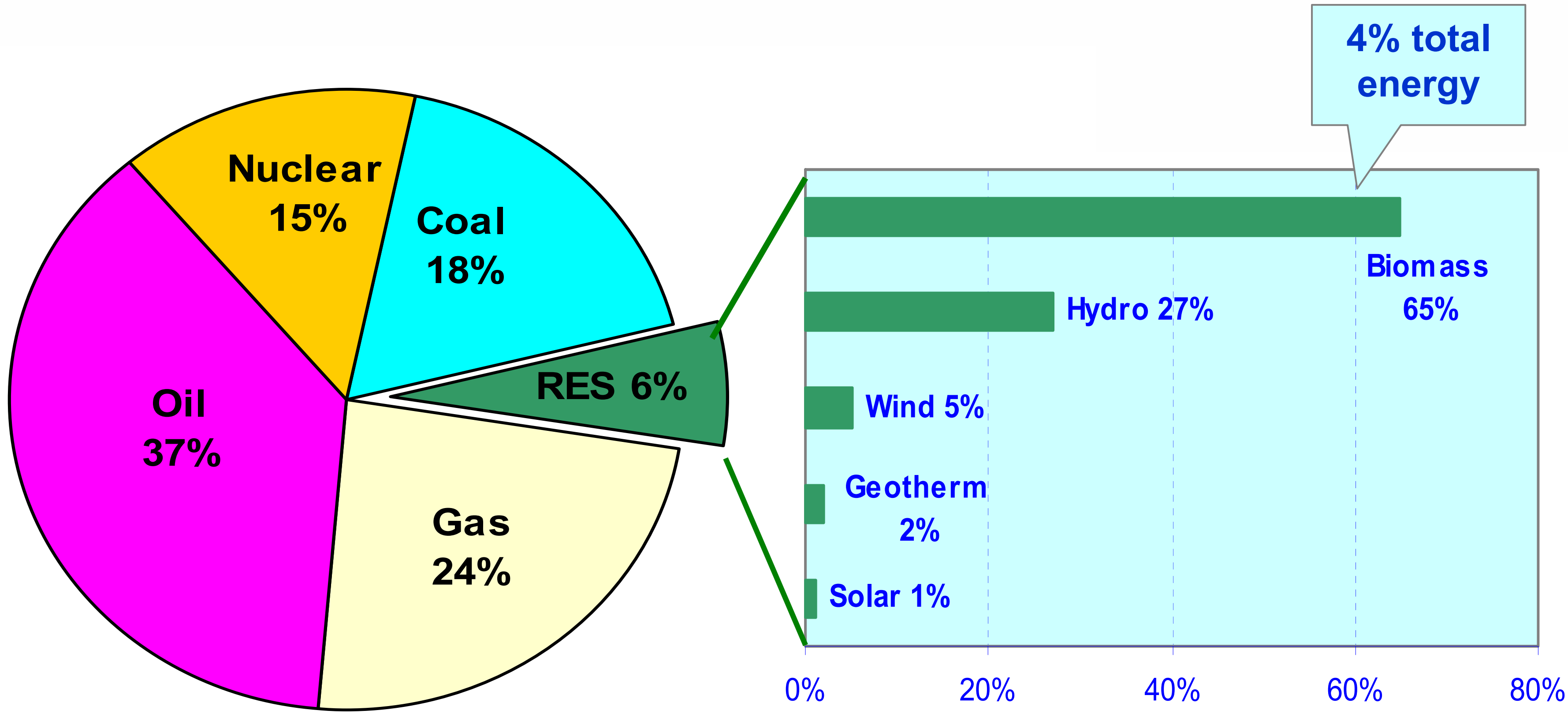

EU Policy for renewable energy

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EU legislation in place

- Directive on the promotion of biofuels: *reference target* 5,75 % by 2010
- Directive on energy taxation: *possibility* for tax exemptions
- Directive on green electricity: *reference target* 21 % by 2010

Renewable Energy Roadmap – policy proposals presented January 2007

- 20 % of total energy consumption based on renewable energy sources – a legally binding target
- 10 % of consumption of petrol and diesel in road transport replaced by biofuels in 2020 – a legally binding target
- New European legislation on the use of renewable energy sources in heating and cooling
- National Action Plans on how to achieve the targets

EU Policy for transport biofuels

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Why a specific policy for biofuels?

- Dependency on oil highest in transport
- Biofuels the only direct substitute available *now* on large scale
- Fastest *increase* of CO2 emissions in transport

Benefits from biofuels

- Security of supply – diversification on energy sources
- Reduction of CO2 emissions
- Stimulate technological development
- Rural development and employment

Measures

- EU-wide common target
- Member States choose their mix of policy instruments
- Reporting on progress
- EU support: research, energy crops, bioenergy measures in rural development programmes

Measures taken by EU Member States to promote biofuels

A range of measures :

- Tax reductions or exemptions for biofuels
- Tax reductions or exemptions linked to a quota system
- Biofuels obligations for fuel suppliers or filling stations
- Subsidies for energy crop cultivation (45 €/ha EU subsidy)
- Investment support or loans for biofuel production facilities
- Standards for distribution of biofuels
- Flexi-fuel vehicles as part of green public procurement
- Demonstration projects and marketing
- Consumer incentives including free parking, no congestion charge

Biofuels in EU Member States
% of road transport fuels 2003-2005

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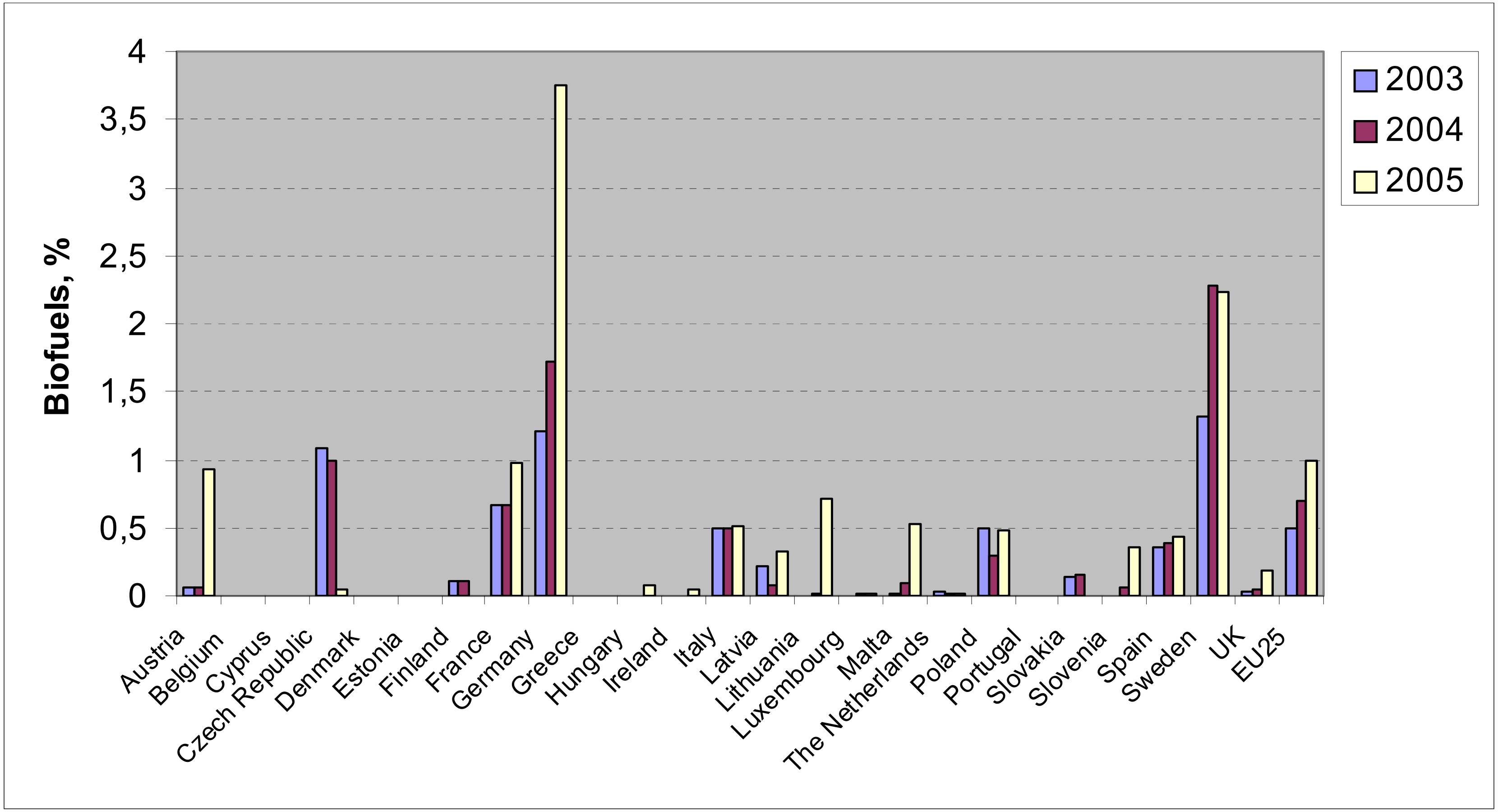

Production of biofuels in the EU

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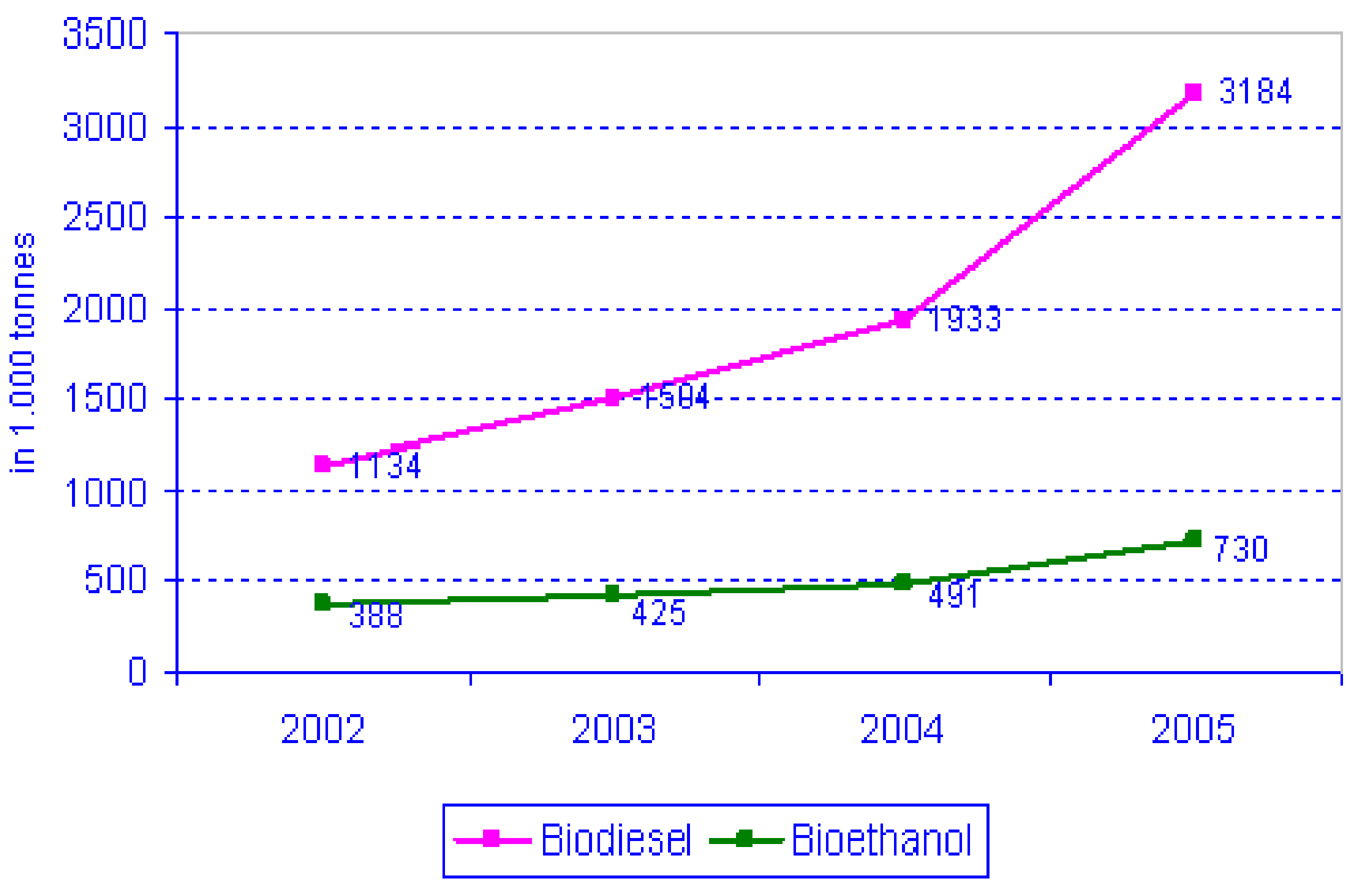

Biodiesel production in the EU

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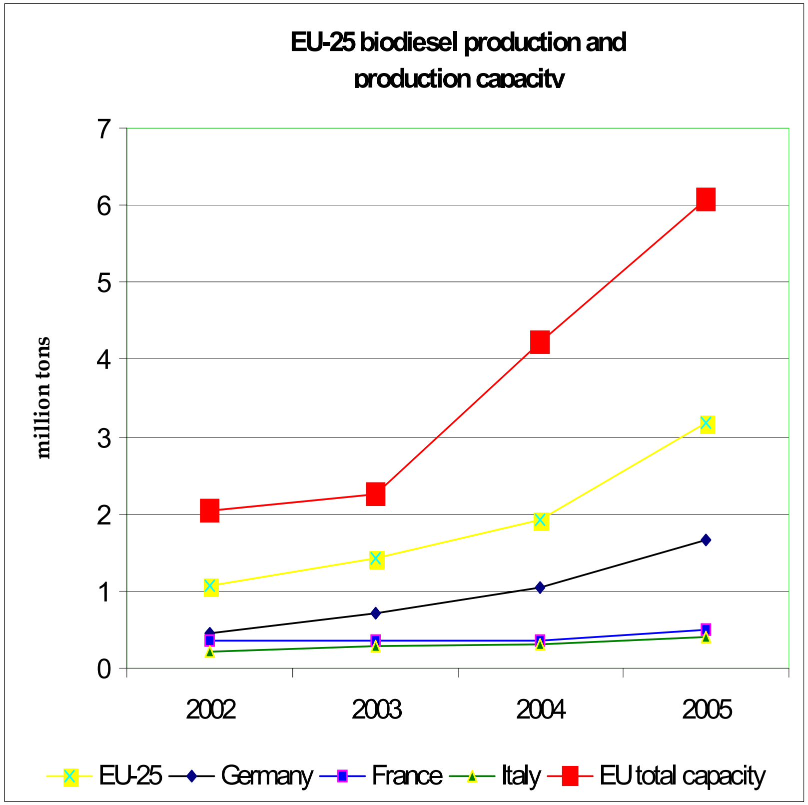
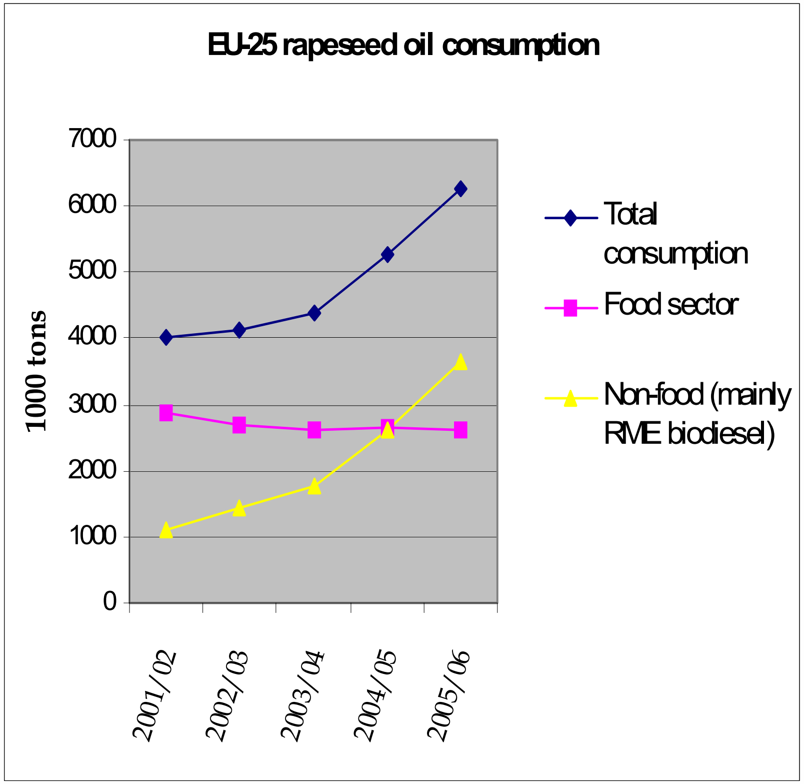
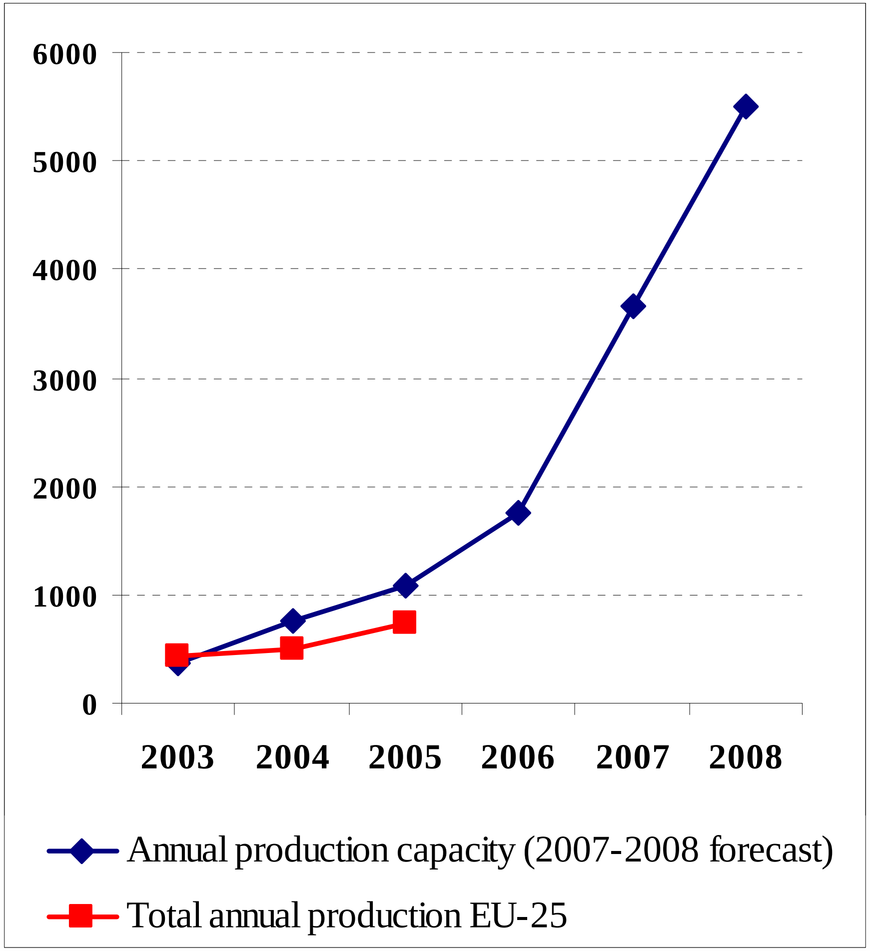
- 2005:biodiesel 80% of EU biofuels use
- 55 % of the car fleet runs on diesel
- Rapeseed the main feedstock





Bioethanol production capacity in the EU



Number of production plants

	2004	2005	2006	2007*	2008*
EU-25	13	17	23	38-49	47-63
Spain	2	2	3	4	5
France	4	4	6	9-10	11-12
Germany	2	4	5	5-6	5-8
Sweden	2	2	2	2	2
Poland	2	2	2	4	4

** estimates*

Average capacity utilisation rate:	
2003	89%
2004	65%
2005	68%

Feedstocks for EU biofuels

Bioethanol:

- EU grown cereals the main feedstock
- Limited quantities of EU grown sugar beet
- Imported ethanol produced from sugar cane
- In the future: cellulosic ethanol from straw and wastes

Biodiesel:

- Domestically grown rapeseed the main feedstock
- Smaller quantities of imported soy and palm oil
- In the future: second generation diesel mainly from farmed wood

Feedstocks for biofuels: current land use

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(Million hectares)	**2003 (EU-15)**	**2004 (EU-25)**	**2005 (EU-25)**
On **set-aside area**, of which – Rapeseed	0,9	0,6 *0,5*	0,9 *0,8*
With **energy crop premium**, of which – Rapeseed		0,3 *0,2*	0,6 *0,4*
Without specific support (estimated)	0,3	0,5	1,1-1,3
Total area	**1,2**	**1,4**	**2,6-2,8**

► **Energy crops : about 3% of the EU-25 arable area**

Feedstocks for biofuels: share of different crops

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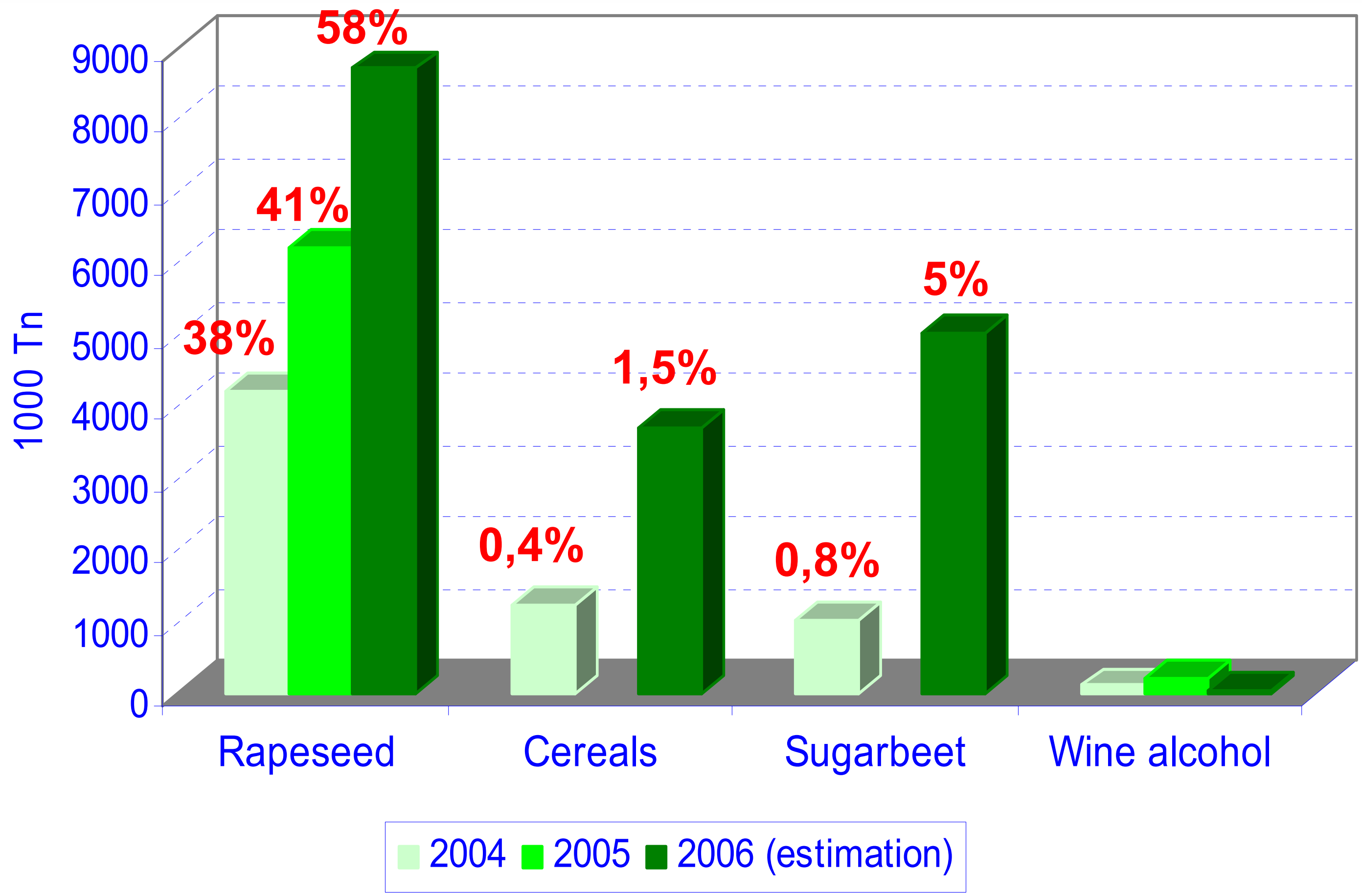

5.75% biofuel target – implications for land use in 2010

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- If the 5.75% target reached by 2010
  - ► Biofuels production: 24 million t replacing 18.6 million t of fossil fuels
  - ► 16-18 million ha of agricultural land needed
- Total agricultural area (EU-25): 103.6 million ha
  - ► About 18% for biofuels if all crops produced in the EU
- Possibilities for increasing supply:
  - Cereals stocks
  - Obligatory set-aside: about 4 million ha
  - Not cultivated land: 3,2 million ha
  - Export diversion
  - Productivity increases

2020 scenario: Where will EU biofuels come from?

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The EU pursues a **balanced approach to domestic production and imports**

- **Overall level of imports still limited**
  - **Ethanol (ethyl alcohol, mainly from Brazil): about 6-fold increase 2001 → 2005**
  - **Biodiesel: trade very limited until now**

- **2020 vision (10% target):**
  - **biomass/biofuels imports likely to be an important part of EU consumption (possibly up to 30%)**
  - **significant possibilities to increase EU- based ethanol production, less for biodiesel feedstocks**
  - **imports of biodiesel and/or biodiesel feedstocks bound to increase with large-scale consumption**

2020 scenarios: mix of biofuels (Mtoe)

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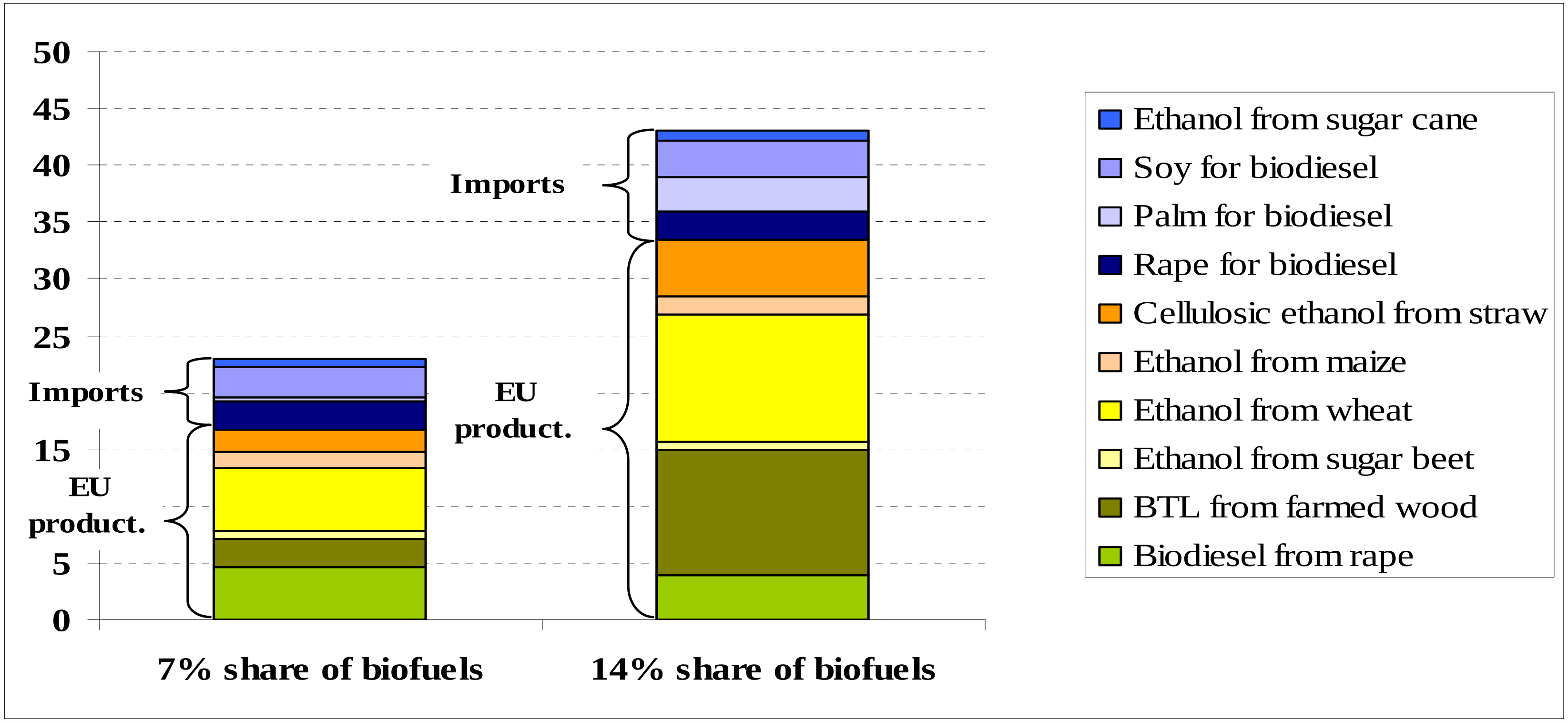

2020 scenarios: EU-25 arable land use (million ha)

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	7% share of biofuels	14% share of biofuels
rape for biodiesel	2.7	2.6
cereals for bioethanol	4.6	8.3
sugar beet for bioethanol	0.3	0.5
farmed wood or straw	0	6.9
TOTAL LAND FOR BIOFUEL PRODUCTION	7.6	18.3
non-biofuel arable production	84.8	80.8
idle arable land (set-aside)	7.7	3.4
TOTAL ARABLE LAND	100.1	102.5
* share of imports	27%	22%
* share of 2nd generation	20%	37%

2020 scenarios: Price effects of biofuel promotion

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Commodity	Average price 2006 (€/t)	Price change relative to 2006 average	
		7% scenario	14% scenario
common wheat	124	123 (-1%)	131 (+6%)
rape meal	109	69 (-37%)	63 (-42%)
rape oil	654	672 (+3%)	737 (+13%)
soy meal	170	119 (-30%)	104 (-39%)
soy oil	484	693 (+43%)	745 (+54%)
wood	No expected price effect		
oil	change relative to no	-1.5%	-3%
glycerine	No expected price effect		

Source for 2006: Oil World (for rape and soy); European Commission (for wheat)
Source for 2020: ESIM results except oil price effect estimated by Commission services on the basis of elasticities from Cooper (2003).

Challenges for biofuels policy

- Ensuring that the *field-to-wheels* environmental impact of biofuels is globally positive
- Impact on food and feed markets
- R&D to encourage development of 2nd generation biofuels
  - Diversification of feedstocks
  - Improve cost-efficiency
- Stable policy environment for the industry to develop

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Thank you for your attention