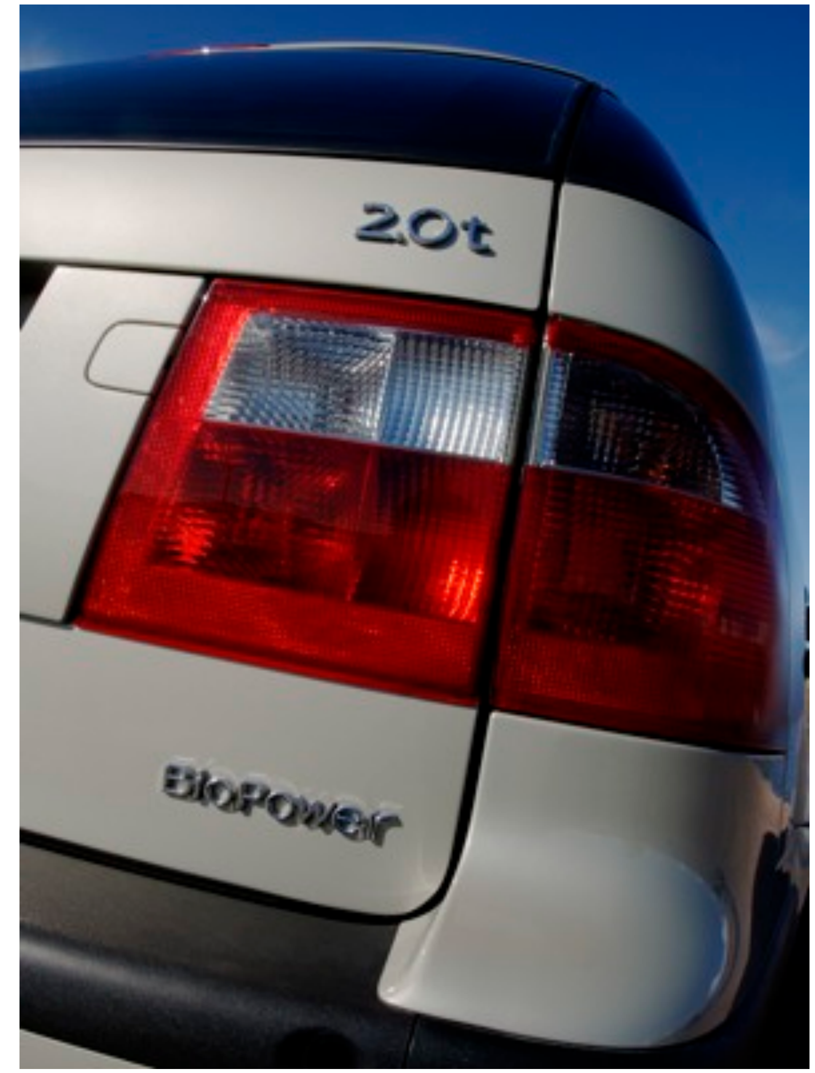
Ethanol for fuel

EU market and policy developments





BIOMASS RESEARCH & DEVELOPMENT INITIATIVE

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Secretary-General eBIO

Biomass R&D TAC

25 February 2009 – San Antonio U.S.A.

European Bioethanol Fuel Association

Outline presentation

- On eBIO
- The EU fuel ethanol market

  Production, Consumption, Trade flows & Raw materials
- Regulatory environment

  EU biofuel policy: goals, instruments and national implementation
- Outlook for the EU market
- Summary

eBIO and its goals

- About eBIO
  - Non-profit European Industry Association fostering bioethanol fuel production and use in the European Union.
  - Founded in May 2005 by 6 companies (now 60+ members representing the full value chain).
  - Represents majority of EU Bioethanol fuel production as well as EU market leaders.
- Goals
  - Remove legal and market barriers.
  - Shape public policy in favour of bioethanol fuel use.
  - Change society's attitudes and perceptions about oil and bioethanol visions.

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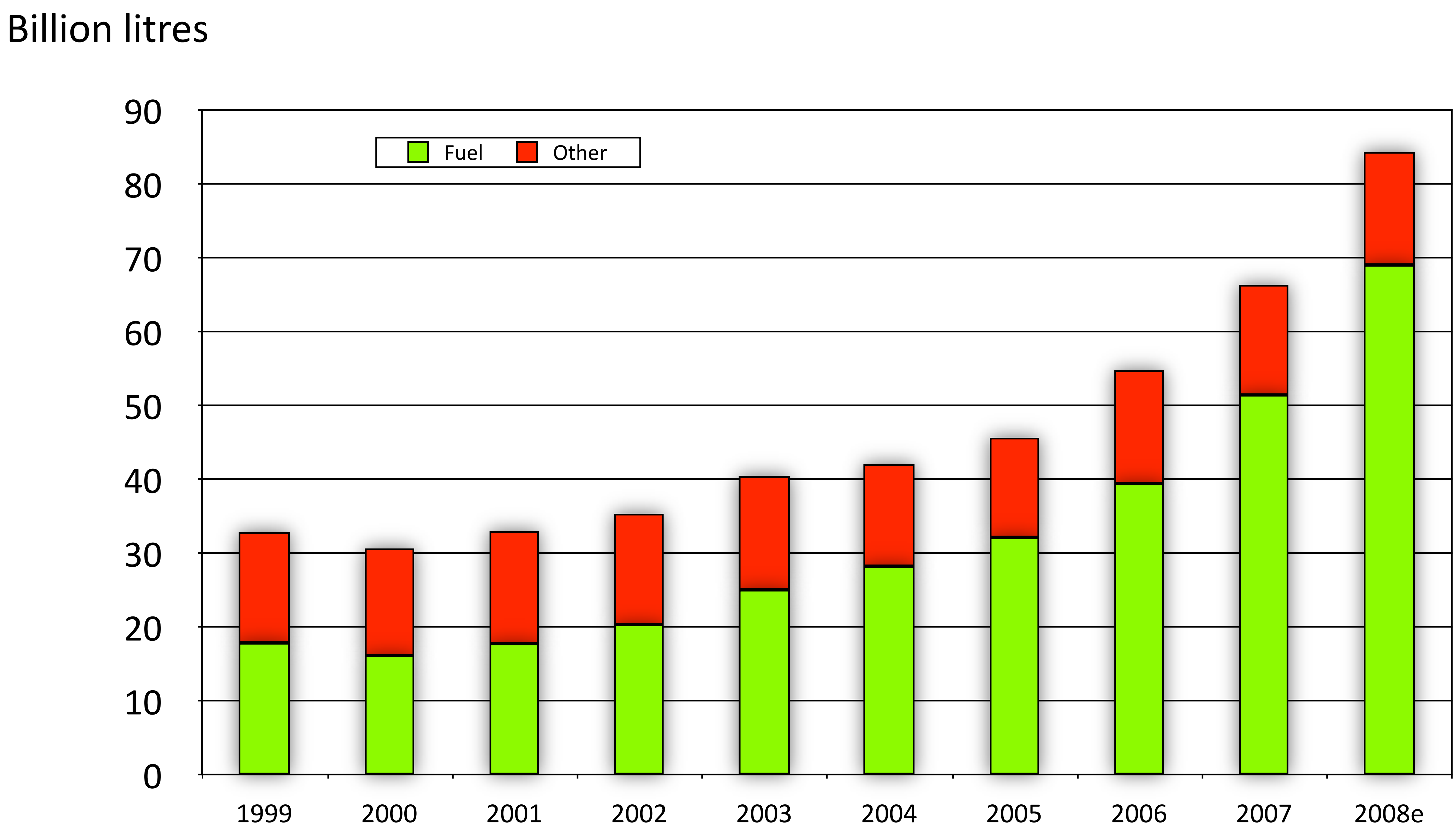
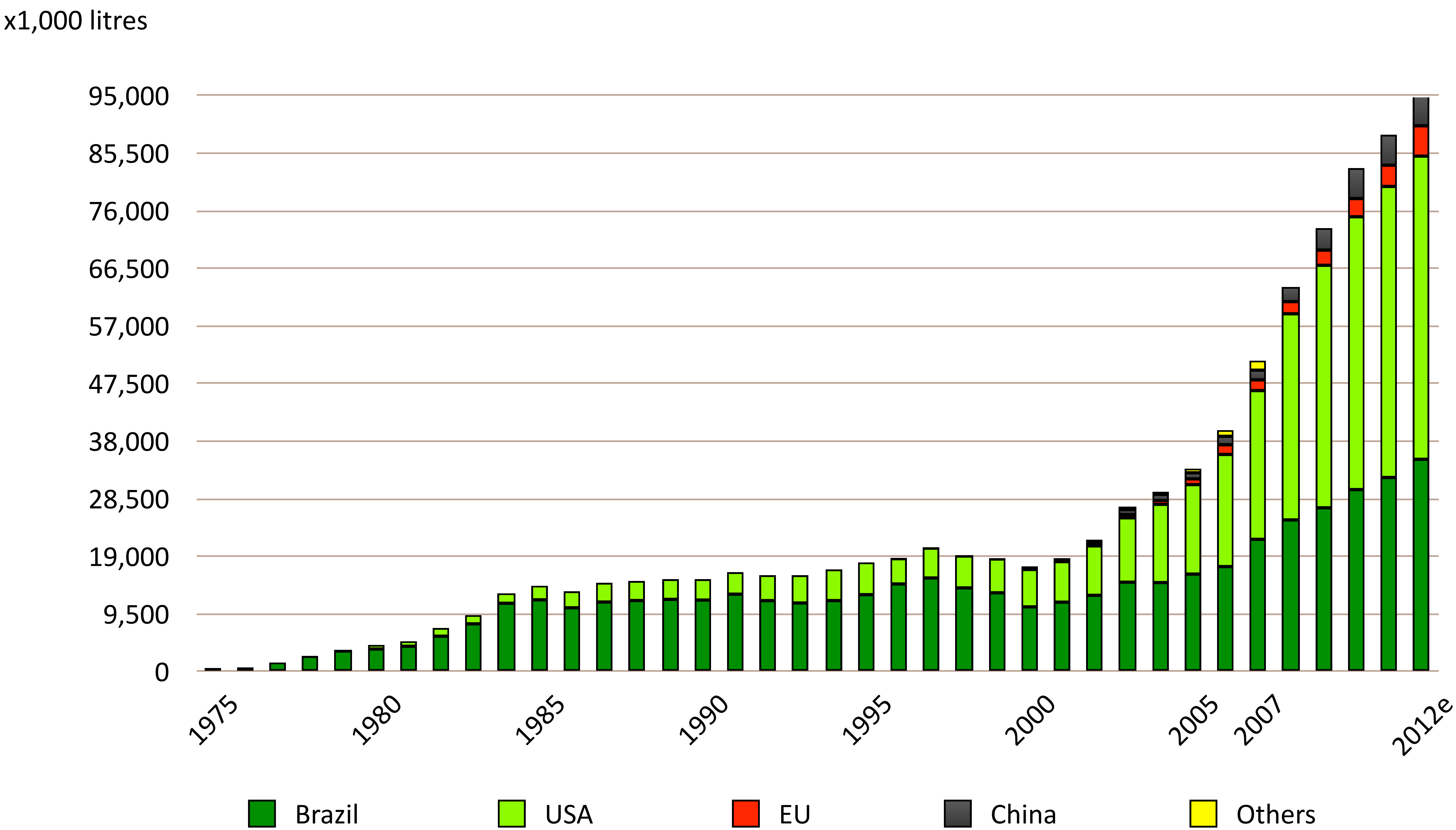
Global ethanol production by type (1999-2008)



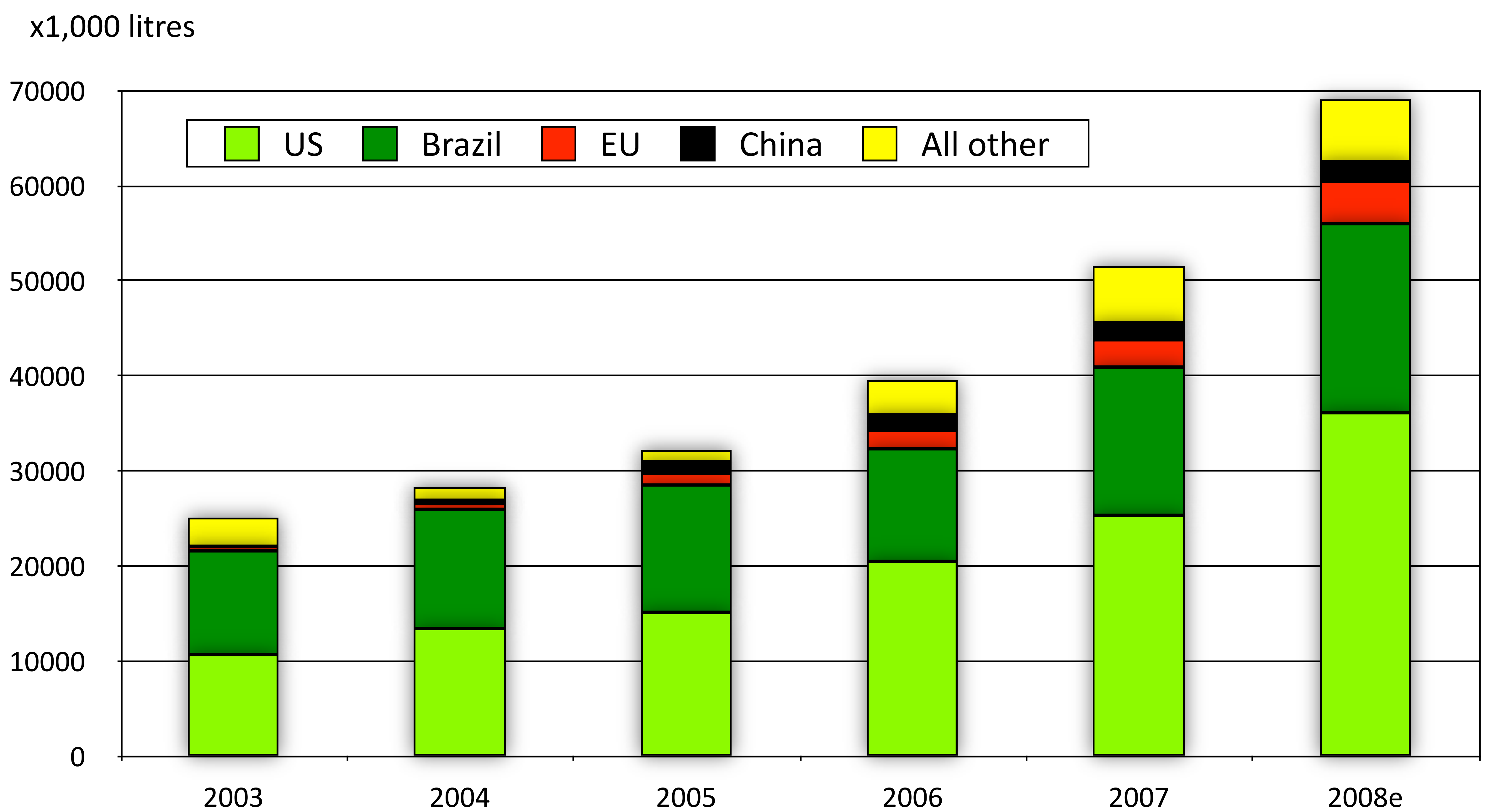
Sources: LMC, F.O.Licht

Global ethanol production for fuel (1975-2012e)



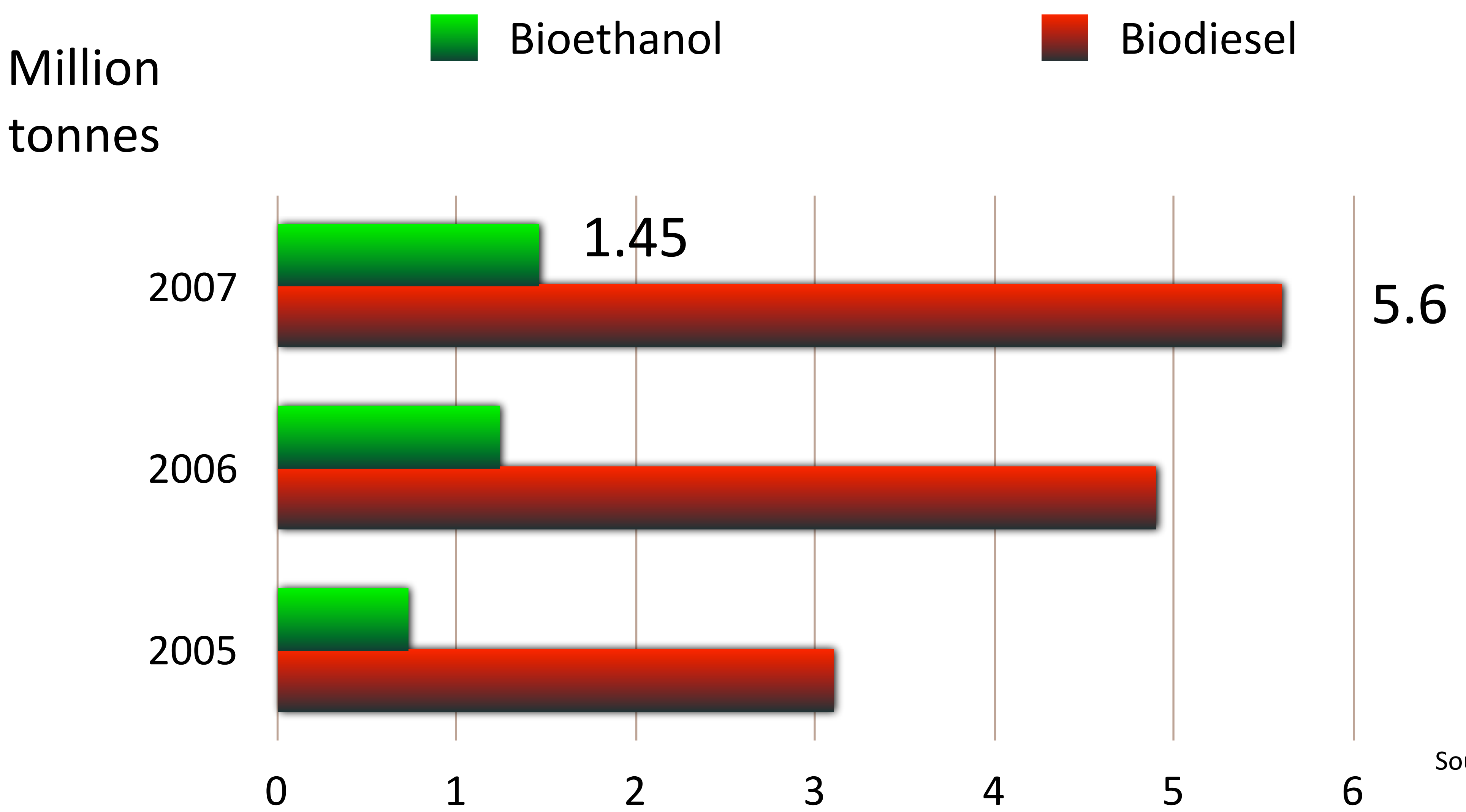
Sources: F.O.Licht, eBIO

Global fuel ethanol consumption, by major markets



Source: USITC

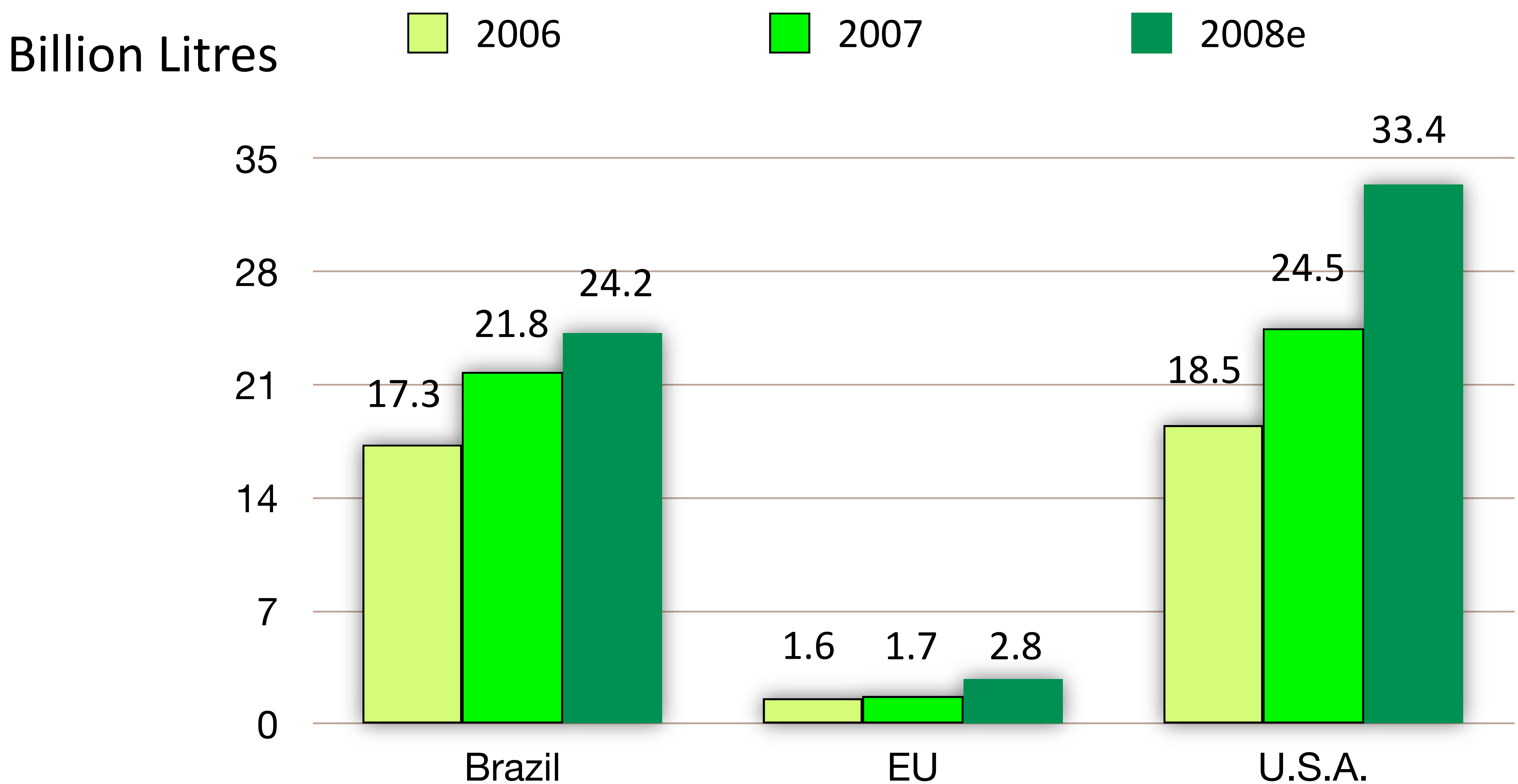
EU biodiesel and bioethanol fuel production



Sources: EBB, eBIO

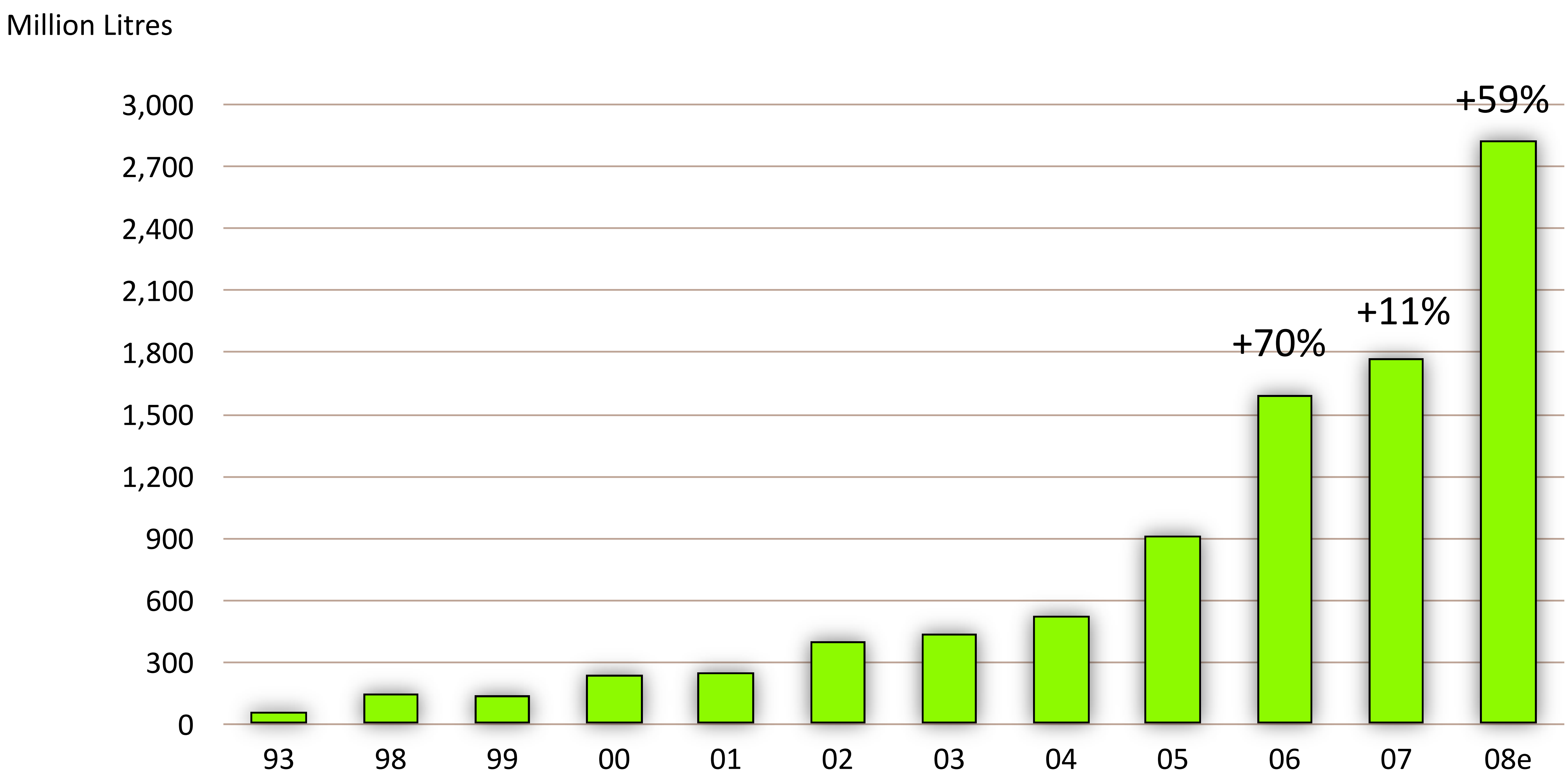
EU vs. U.S.A. and Brazil

Production 2006, 2007 & 2008



Sources: eBIO, F.O.Licht, IEA

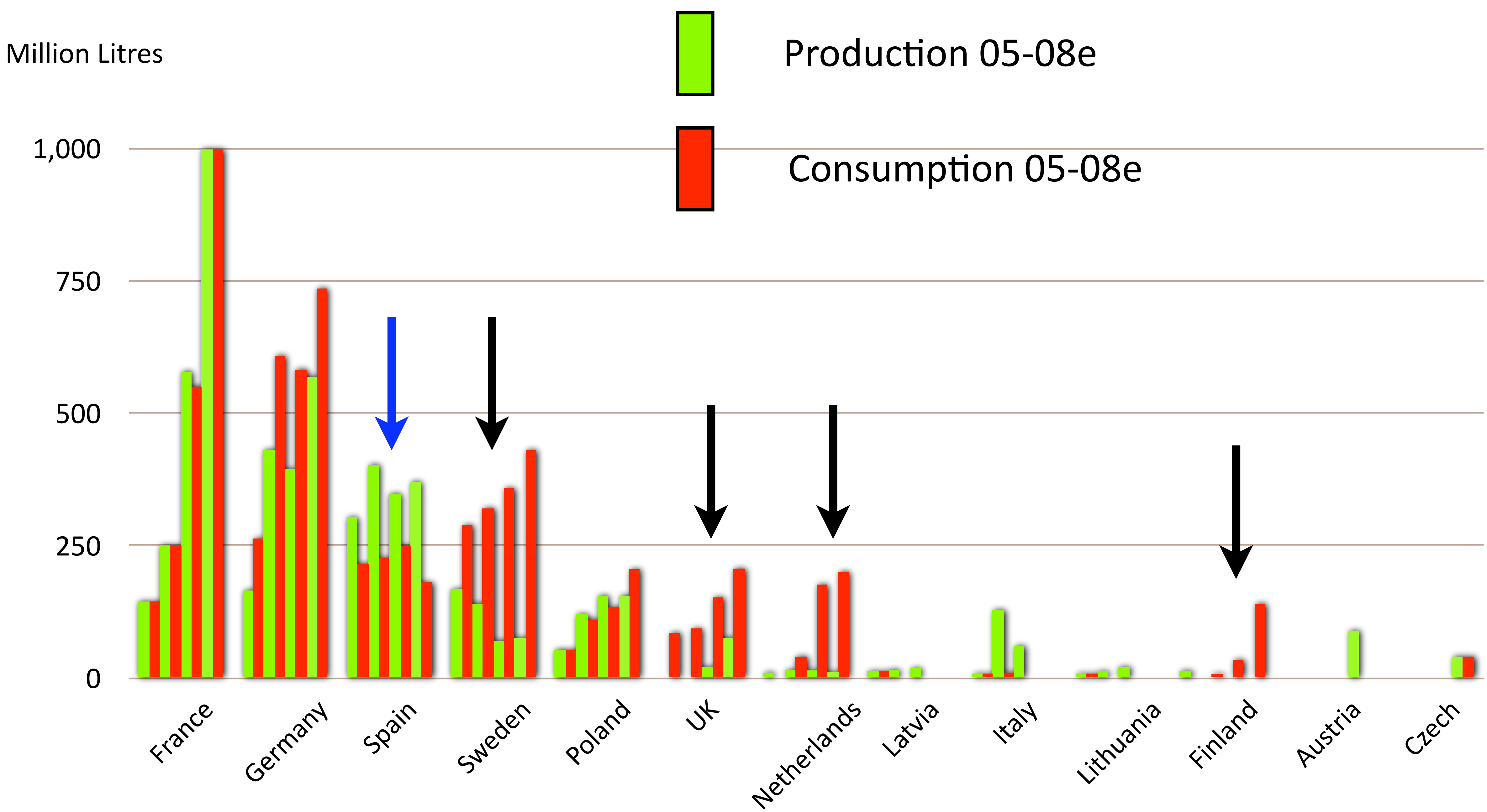
EU bioethanol fuel production (1993-2008)



Source: eBIO

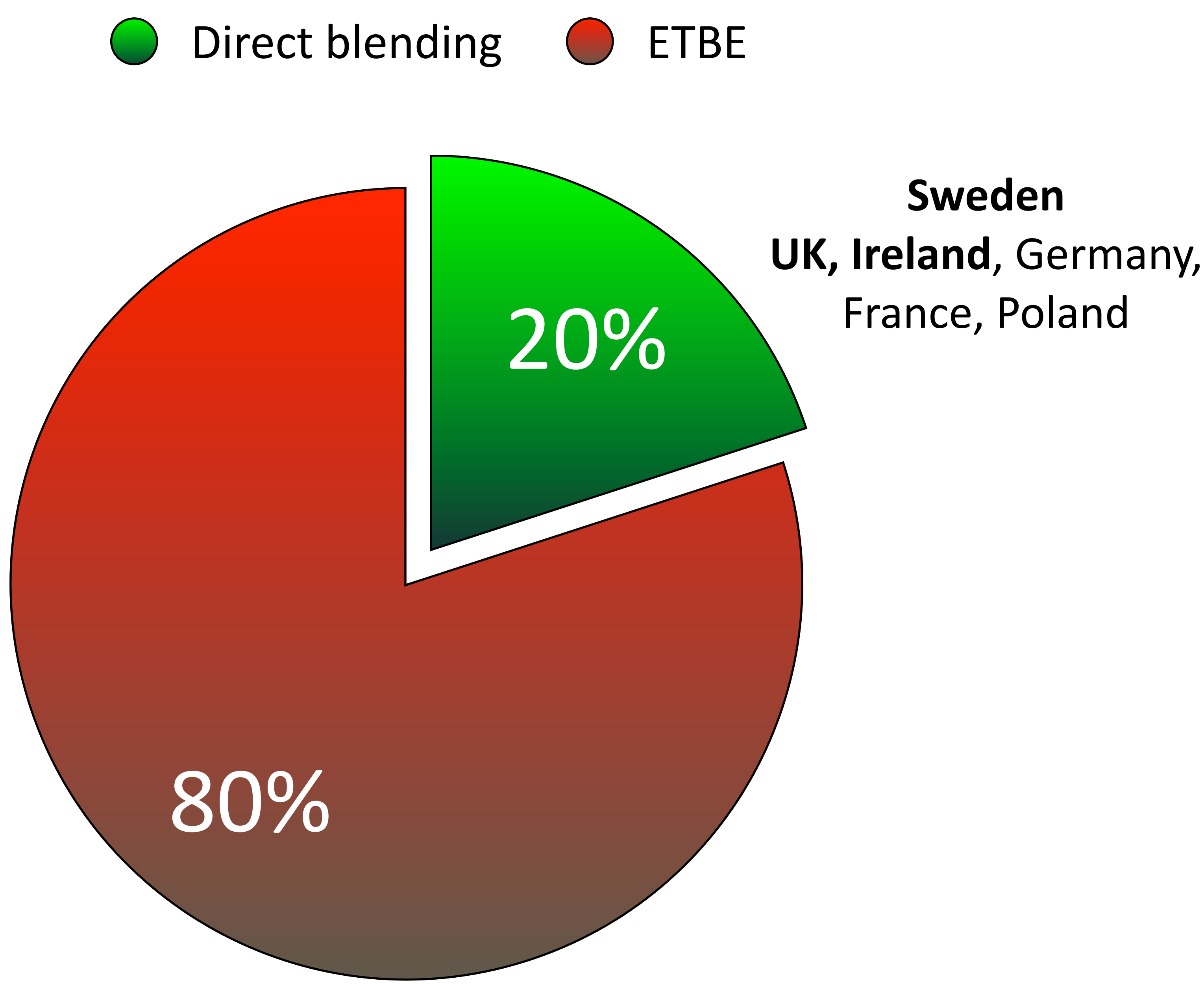
EU bioethanol production & consumption

by Country



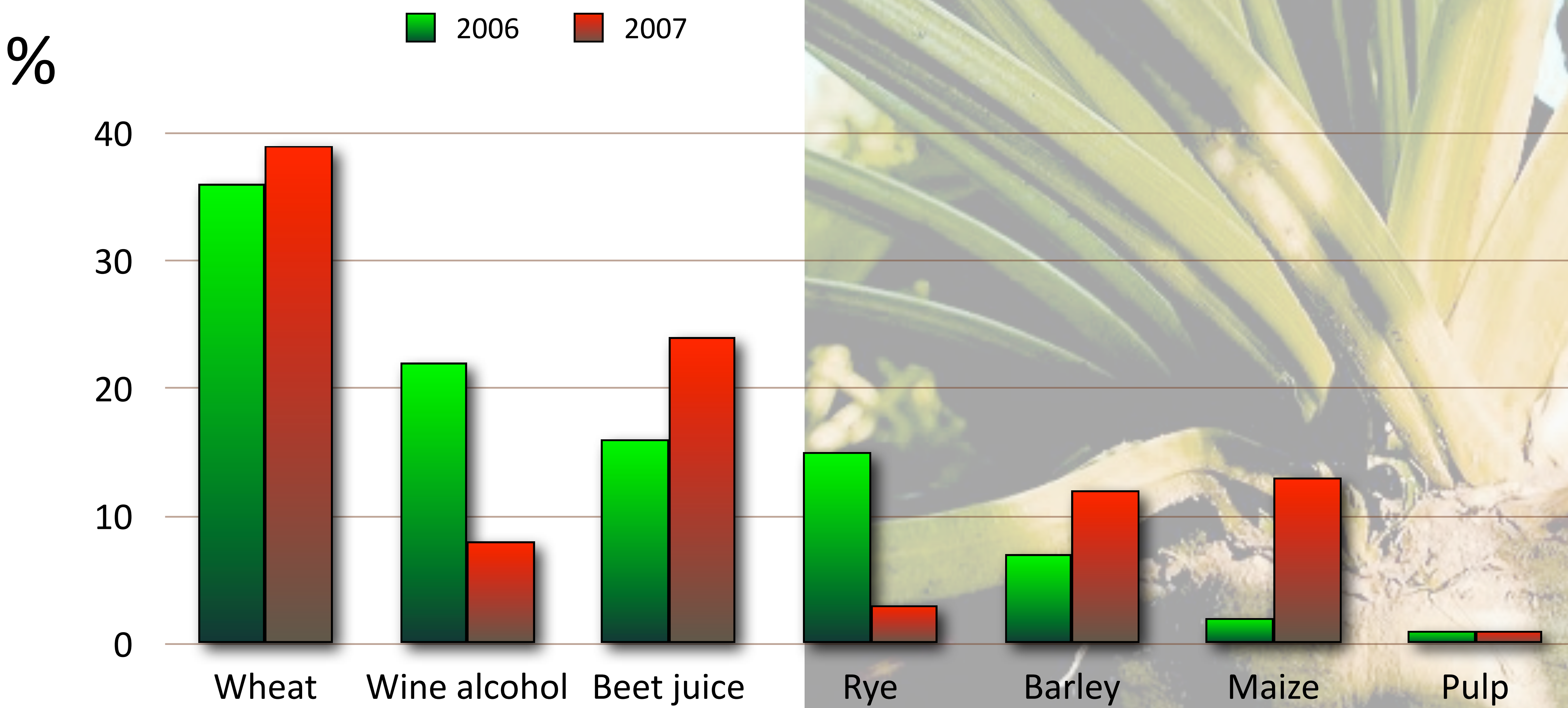
Sources: eBIO, F.O.Licht

How is bioethanol used in the EU (2007)



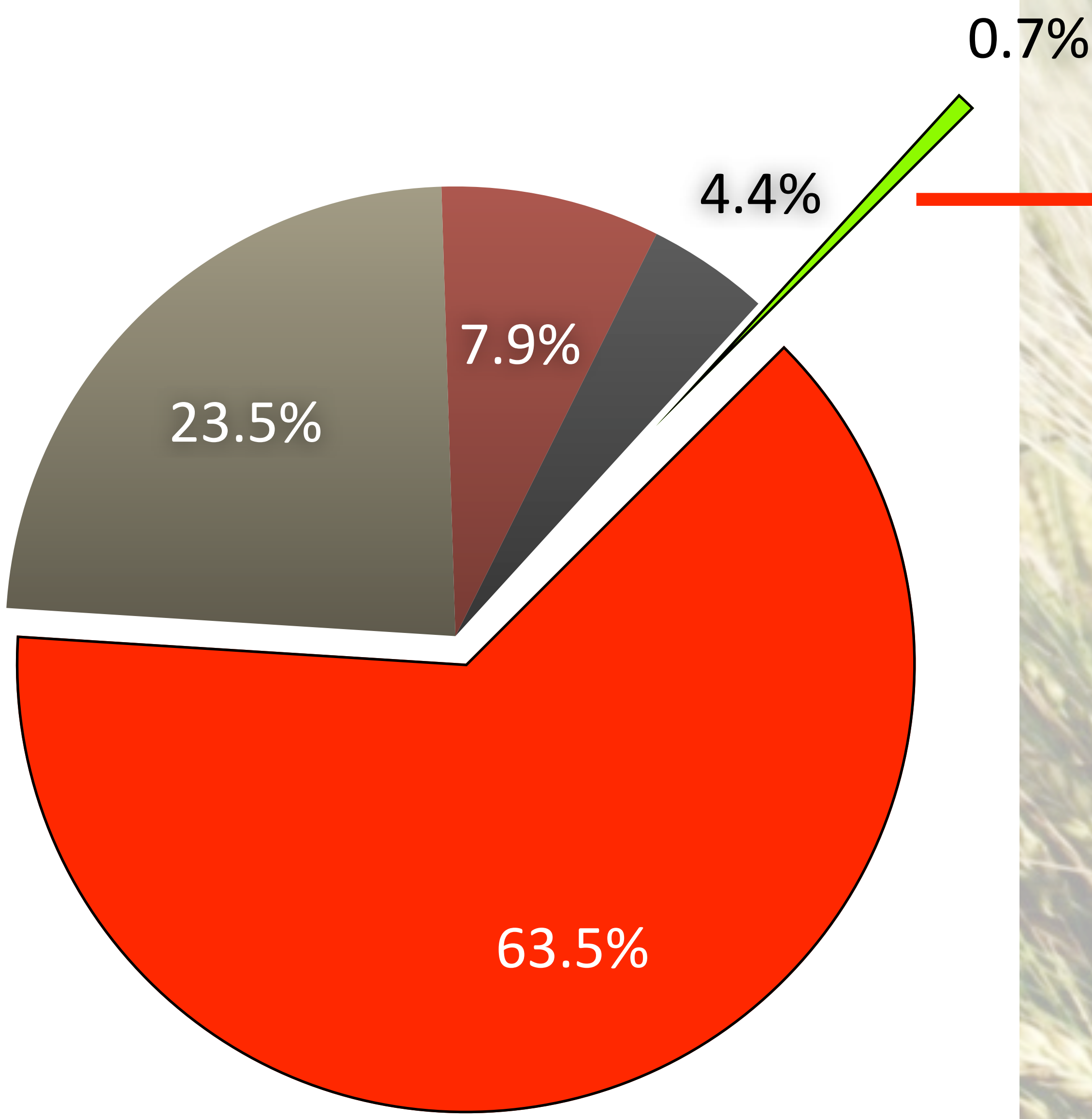
Source: LyondellBasell

Raw material used for EU bioethanol fuel production



Sources: eBIO & F.O.Licht

Cereal end-use in the EU *(Harvest 2007/08)*



1/3 goes into the feed chain indirectly as high protein cattle feed (DGGS) and replaces imported soy meal

- Animal feed
- food
- Industry
- Seed
- Bioethanol

Source: EU Cereal Management Committee

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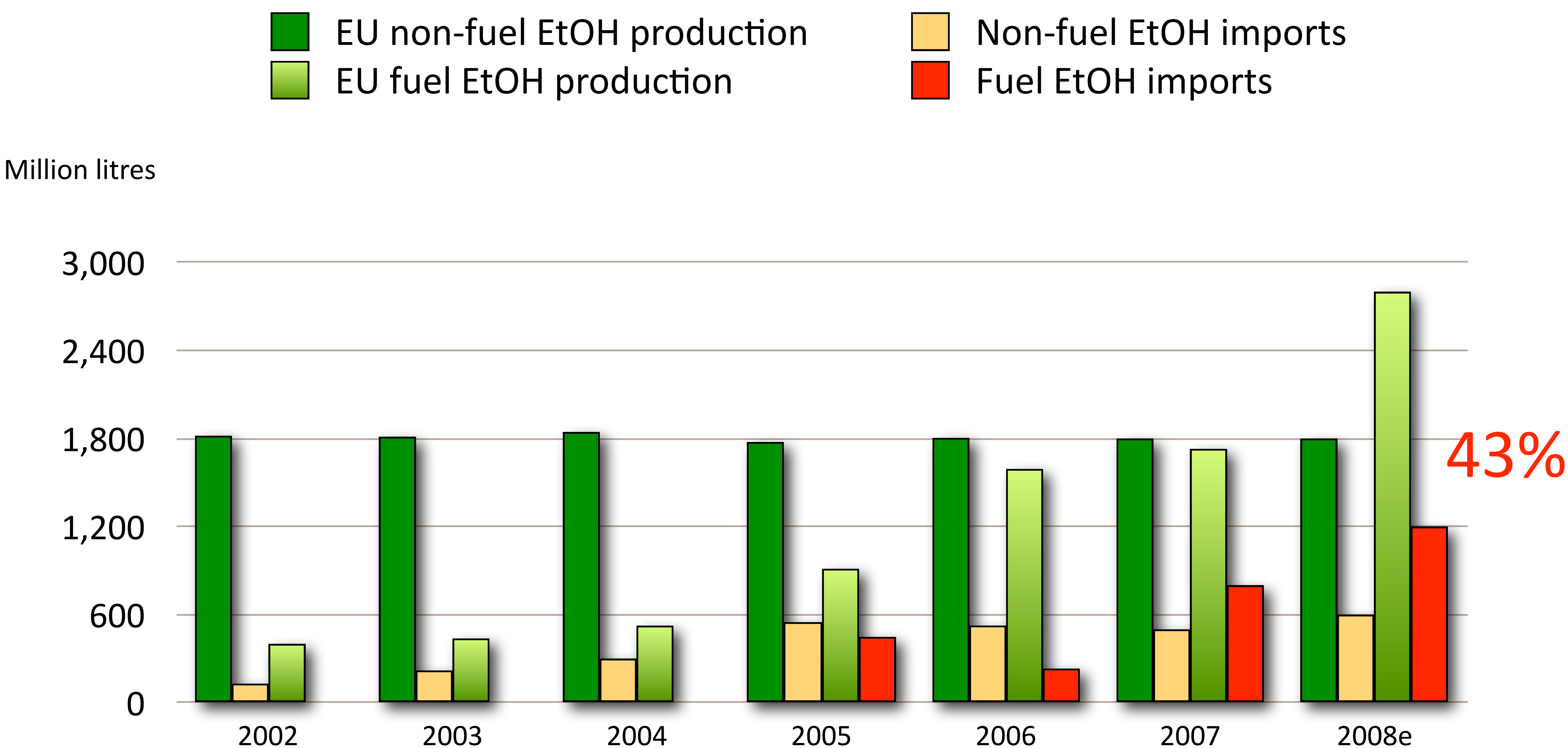
EU EtOH production & imports



Sources: F.O. Licht, eBIO, SECEX

EU total EtOH production vs imports (in million litres)

	2006	2007	2008e
EU production	3,440	3,580	4,600
Imports Brazil	245	550 / 1,007	809 / 1,400
Imports RoW	251	437	408
Total imports	496 (14%)	987 / 1,444 (27%) / (40%)	1217 / 1,808 (26%) / (39%)

Sources: EUROSTAT, DG AGRI EC, SECEX, eBIO

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EU objectives

- Reduction of GHG emissions from the road transport sector
- Improving security of supply (of energy for road transport)
- Boosting economy (agriculture, R&D)

EU legal framework (2003-2011)

- Biofuels Directive (2003/30/EC)
  - Sets reference values for the market share of biofuels (5.75%(e) at the end of 2010)
  - Member States must set national indicative targets taking the reference value into account
- Energy Taxation Directive (2003/96/EC)
  - Provides opportunity for Member States to introduce fiscal measures in favour of biofuels
- Fuel Quality Directive (2003/17/EC)
  - Sets upper limits in v/v on use of biofuels in fossil fuels

Promotional instruments

Member States are free to use instruments they deem to be the best (within well defined EU limits):

- Obligation / mandate *and/or*
- Quota *and/or*
- Tax measures *and/or*
- Quality standard *and/or*
- Investment / R&D support

EU: a story of different policy instruments - No Internal Market

Policy Instruments

Tax measures	Austria, France, Germany (E85), Sweden, Poland, Hungary, Ireland, Baltic states, Spain, UK, Belgium, Italy, Portugal, Greece, Romania, Slovenia
Obligation	Austria, Germany, Baltic states, Netherlands, Czech Republic, Slovakia, Slovenia, Romania, Finland, UK, Italy, Greece, Ireland (2009), Hungary (2009), Spain (2009)
Penalty	France, Germany, Italy, Poland, UK, Slovenia

Market Access

Closed	France, Italy, Belgium, Spain, Portugal
Relatively open	Austria, Germany, Baltic states, Poland, Sweden (E5), Ireland, Lithuania
Very open	United Kingdom, Netherlands, Sweden (E85), Finland, Czech Republic

National biofuel policy - Germany

- Use of biofuels is mandatory.
- National quota set, more ambitious than EU 2010 target and differentiated by biofuel
- Penalty (between 50 and 80 Eurocents/l) if quota not met
- Full tax exemption for E85, 2nd generation biofuel (until 2015) and reduced exemption for B100
- Use of ethanol for fuel is limited to undenatured ethanol only

Successful: **yes** (but not for B100)

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National biofuel policy - France

- National quota, more ambitious than the European 2010 target but not mandatory and differentiated by biofuel
- Reduction of excise duty for blenders on the biofuel part (excise duty is about 40% of the fossil fuel) or 160 Million Euro for each % incorporated
- Fiscal penalty for blenders if the volume used is less than the yearly national quota (450 million Euro for every % not blended)
- Blenders can buy only from government 'selected' biofuel producers
- Promotion of E85 (fuelling network)

Successful: **almost** (fiscal penalty not high enough)

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National biofuel policy - UK

- Mandatory use of biofuels (RFTO)
- Quota lower than EU 2010 target
- Fuel suppliers need to submit yearly reports on the carbon emission savings and sustainability of the biofuels
- Fiscal incentive combined with penalty (35p in 2009/10 and 30p in 2010/11)
- Denatured ethanol for fuel allowed. Means lower import duty (80% originates from Brazil)

Successful: **almost** (fiscal penalty not high enough)
Downside: high level of imports

National biofuel policy - Sweden

- No mandatory policy
- Full exemption of excise duty
- 5 additional fiscal measures to promote use of E85 cars
- In 2009 60% of filling stations need to offer E85
- Promotion of E95 busses
- Ethanol for E85 and E95 is classified as chemical substance: very low import duty

Successful: **yes**
Downside: high level of subsidies needed as well as high level of imports

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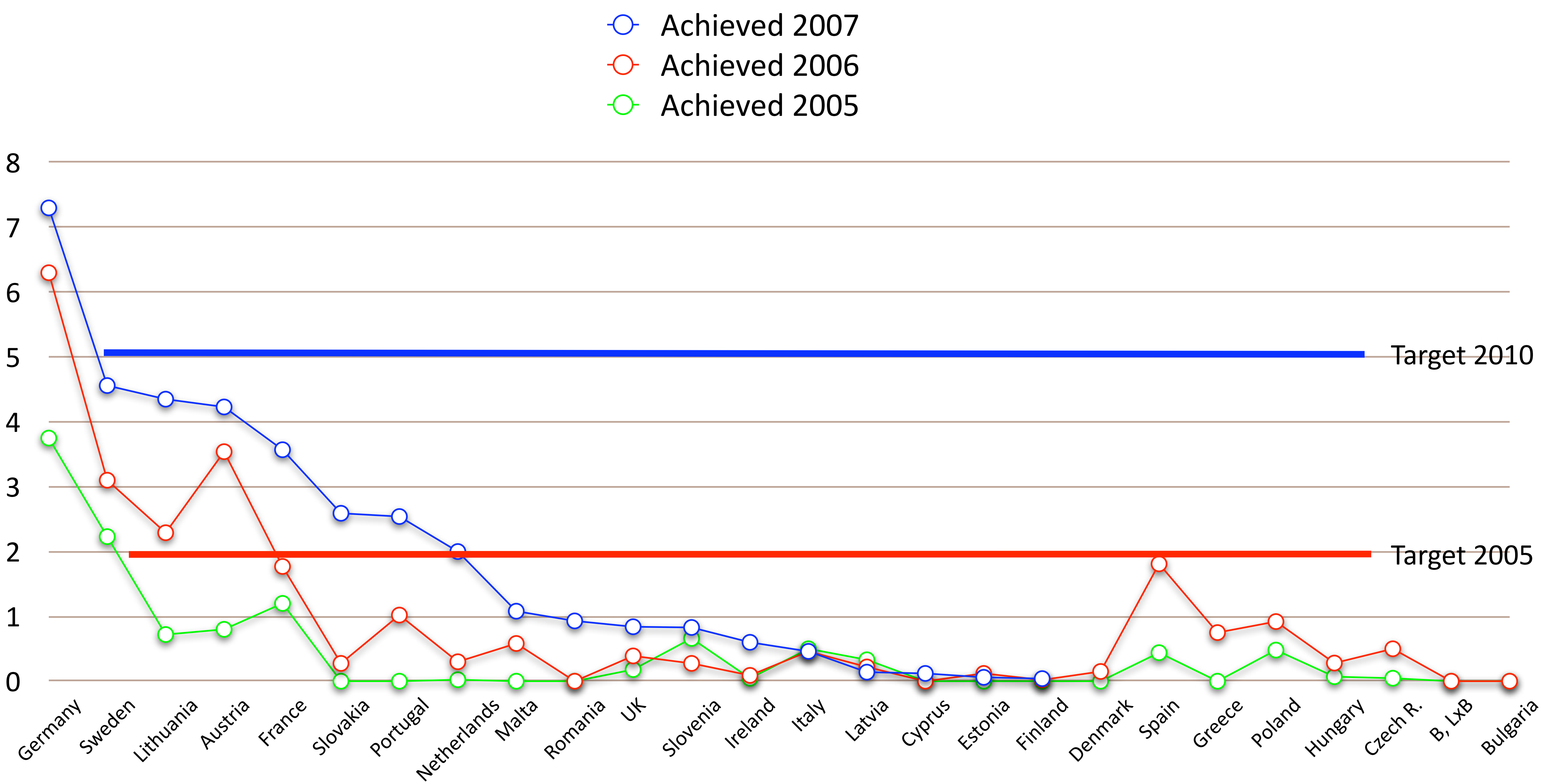
Biofuel target: reference value 2010



Greece, Denmark, Spain, Hungary, the Czech Republic, Poland, Belgium, Luxembourg and Bulgaria did not yet submit their report for 2007.

Source: Member State reports

Success factors for effective biofuel policy

- Obligation or mandate **<u>and</u>** penalty (not buy-out) high enough to ensure compliance
- Prescribed ethanol standard (un-denatured ethanol) to support home-grown biofuel production
- For pure biofuels (E85/B100):
  - full excise reduction
  - additional support measures (less road tax, lower insurance, exemption from congestion charges, buy-bonus)
- Investment / R&D support (2nd generation)

European Council Spring Summit 2007

- Political agreement to set a binding biofuels target of minimal 10%(e) by 2020
- 3 Conditions:
    - Only sustainable produced biofuels can be used
    - ‘2nd generation’ biofuels need to be commercially available
    - Revision of Fuel Quality Standards (to allow for higher blends)

Renewable Energy Directive

- Adopted in December 2008
- Towards harmonisation of national biofuel policies
- Sets binding national targets for renewable energy shares, including a 10% share in transport by 2020
- Requires National Action Plans
- Creates a sustainability regime for biofuels

Biofuels - sustainability criteria (1)

- Environmental sustainability criteria for biofuels :
  - GHG savings – minimum of 35% rising to 50% in 2017
  - No raw material from sensitive areas:
    - land with high carbon stock cannot be used (old forest, grasslands, protected areas)
    - No conversion of wetlands and continuously forested areas
  - (Carbon) Effects of land use changes (direct) to be accounted for
  - Bonus for crops from idle/degraded land
  - EU biofuels must meet "cross compliance" environmental rules

Biofuels - sustainability criteria (2)

- Social sustainability criteria
  - For non-EU countries compliance with international conventions
  - Monitoring impacts on people in poverty (food and social conditions)
- Indirect land use change effects (ILUC)
  - Reporting on possible effects before end of 2010
  - Propose changes to the law if required
- Bonuses for second generation biofuels and for electric vehicles

What's to be included in an action plan ?

- Physical and economic availability of biomass, including wood and wood residues, wastes and agricultural crops and residues, including by-products.
- Bio-energy targets at national, regional, local level
- Measures on mobilising new biomass resources (identification, cataloguing)
- Measures to create a competitive and sustainable market and supply chain, including consideration on imports
- Support mechanisms, including fiscal measures, energy crop scheme, afforestation, education and skills, information campaigns, research, development and innovation for high-energy yields

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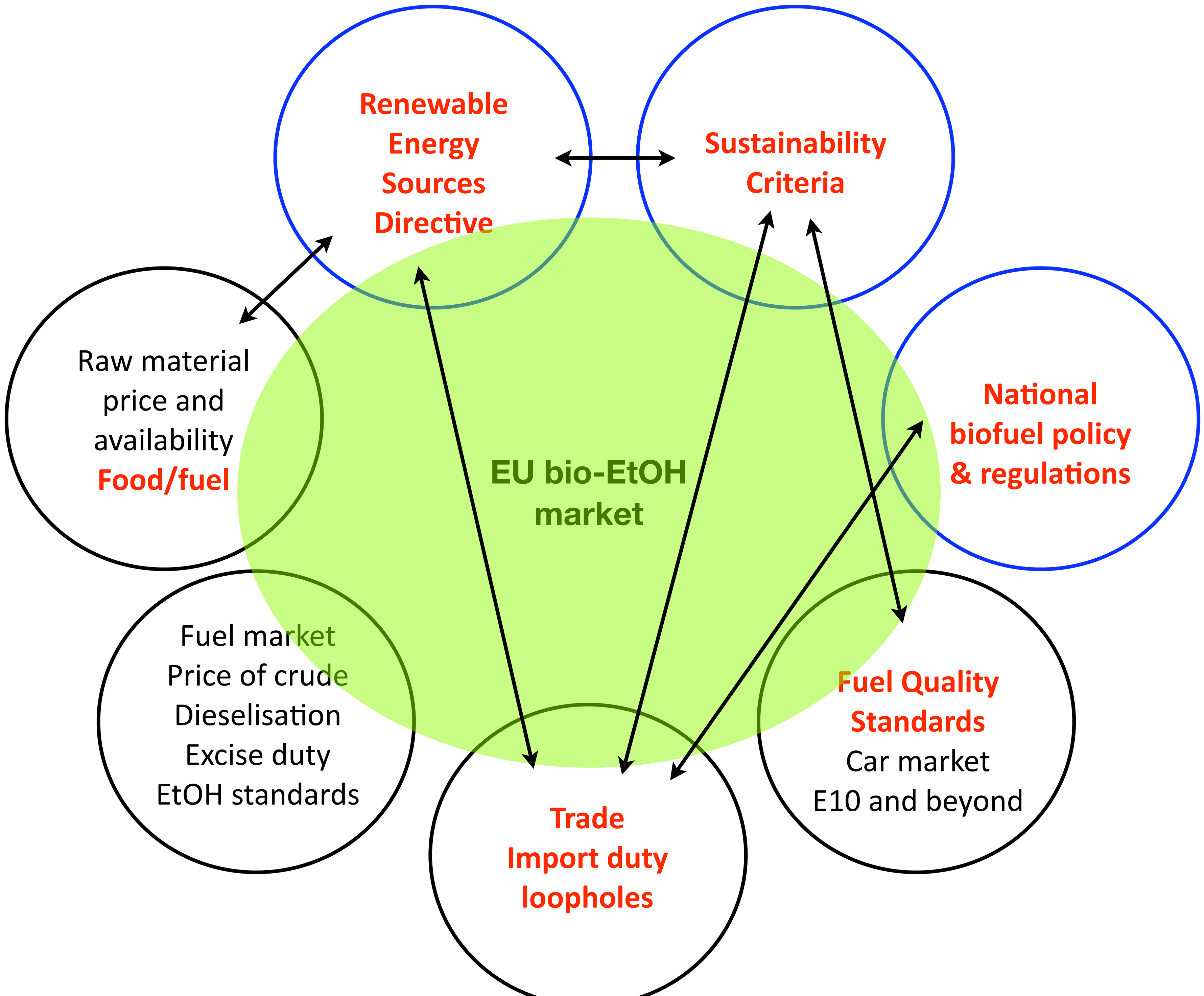
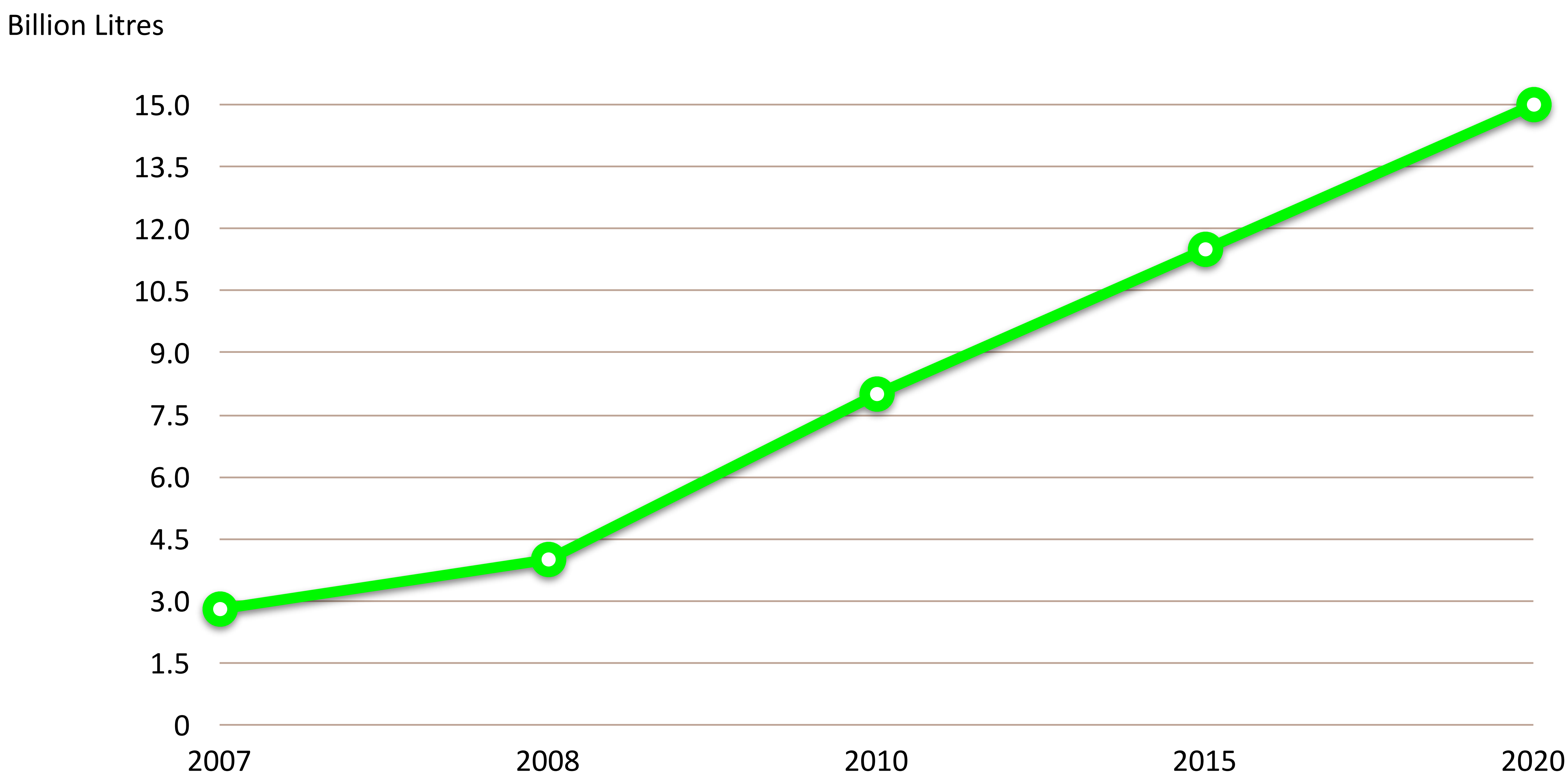
Issues that influence the EU market development



Estimated EU Bioethanol fuel demand (until 2020)



Source: eBIO

Variables influencing this curve

- Level of imports
  - *Plugging the loopholes in the tariff system;*
  - *Doha/Mercosur;*
  - *bi-lateral agreements*
- Development of electric vehicles (cars) + hydrogen
- Development of domestic Brazilian market and the global sugar market
- Price of crude oil

Summary

- At global level there is a continuous growth of fuel ethanol since 2000 not likely to change soon.
- The EU is a relative small producer characterized by a) variety of raw material and b) a patchwork of national rules and systems.
- Number of countries mandating ethanol use is growing.
- As of 2011 at the latest: EU biofuel use under strict conditions. EU is setting global standard. These standards will spill-over to other sectors.
- The EU EtOH market is set to be a growth market until 2020

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