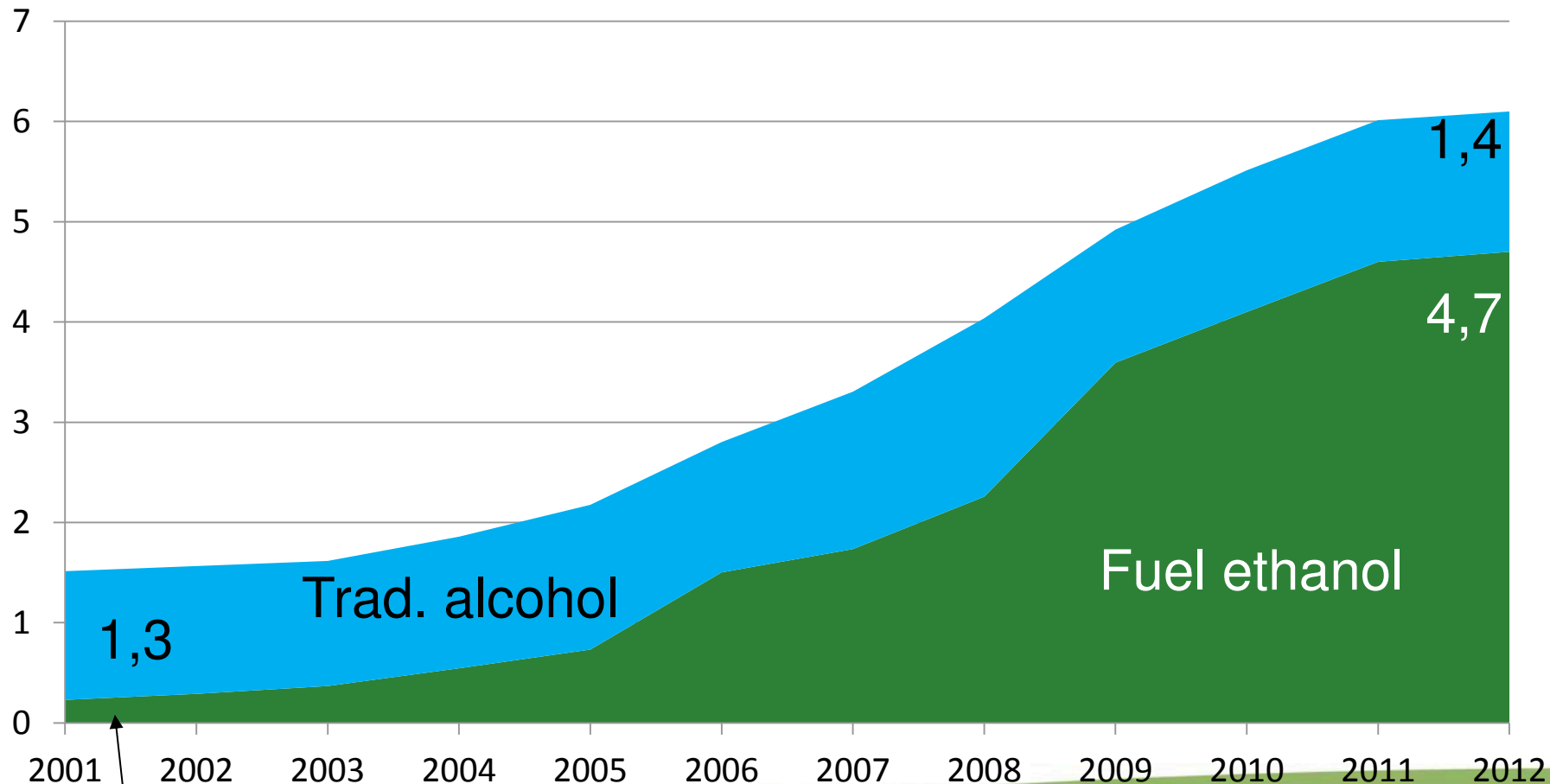


Prospects for sugar beet ethanol production in the EU ?

Alain JEANROY
Chief executive officer
French sugarbeet growers' association (CGB)

1. Overview of the European ethanol market

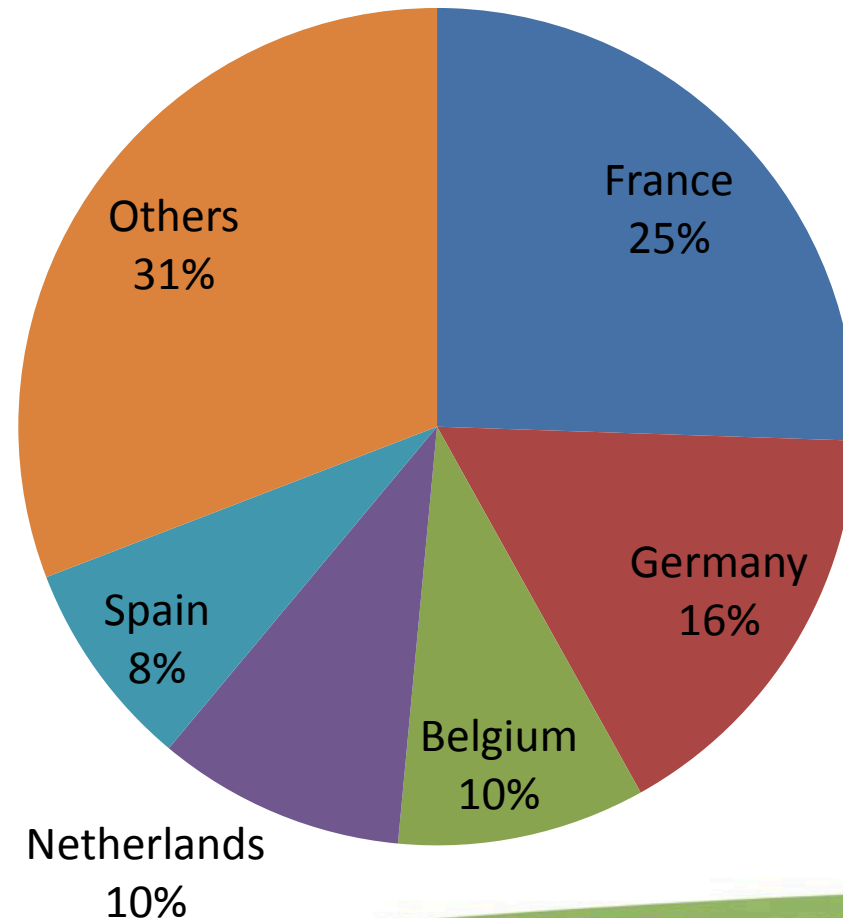
EU agricultural ethanol production (bln litres)



0,2

1. Overview of the European ethanol market

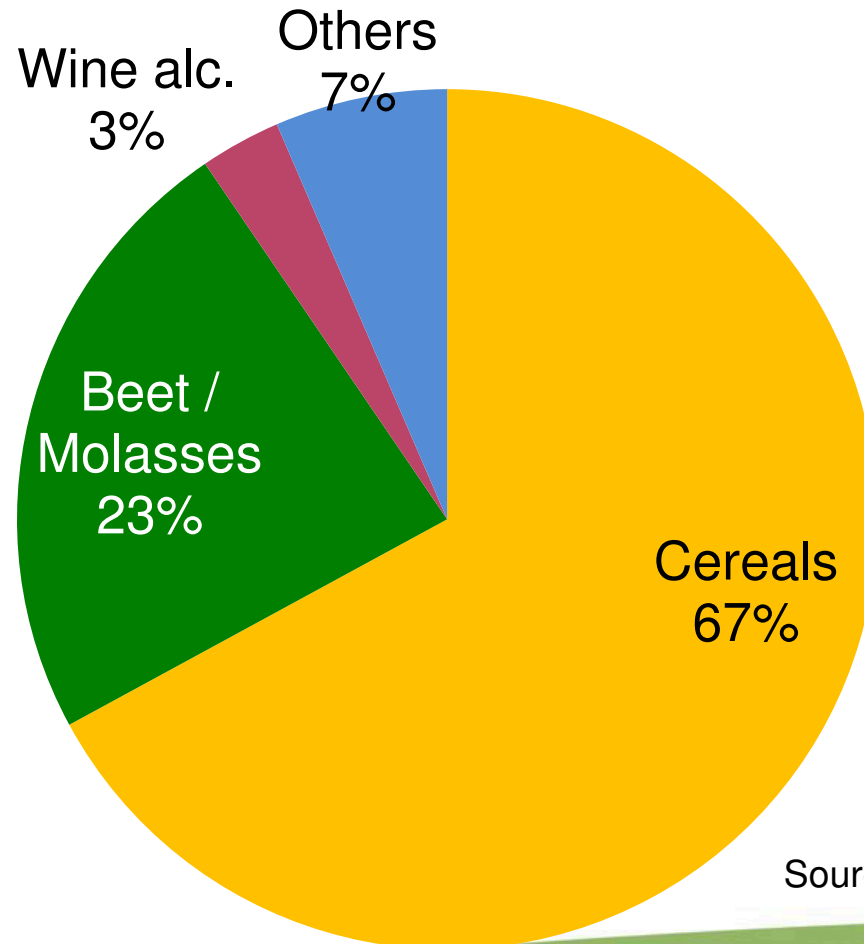
EU Fuel ethanol production : main players in 2012



Source: FO Licht / CGB

1. Overview of the European ethanol market

EU production of fuel ethanol by feedstock in 2012



Source: European Commission

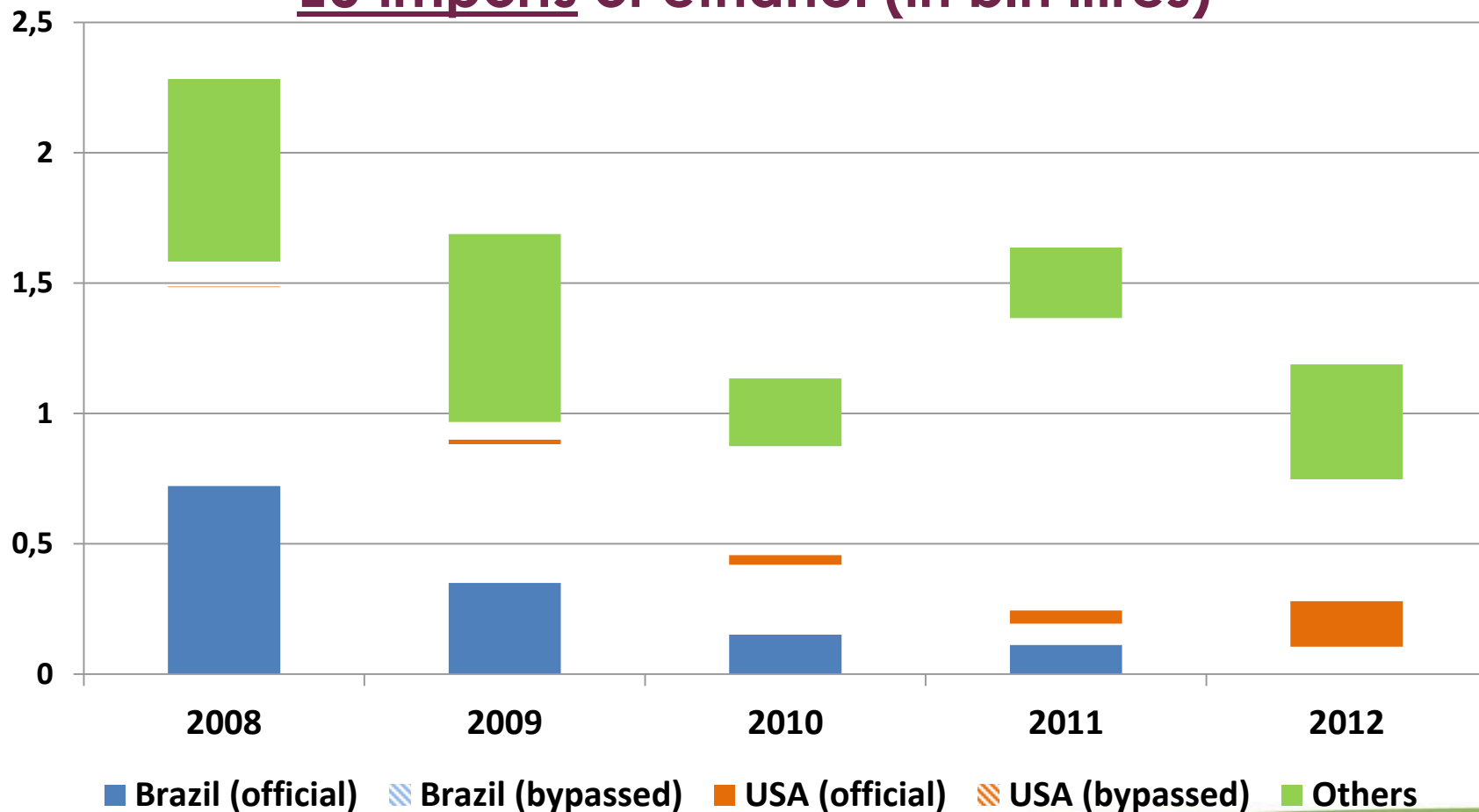
1. Overview of the European ethanol market

EU fuel ethanol balance sheet in 2012

(in bln litres)	Most likely data
<u>Resources</u>	
Production (FO Licht)	4,7
Imports (EU/CGB)	1,0
<u>Disposals</u>	
Exports	-
Internal cons. (EU/CGB)	5,7

1. Overview of the European ethanol market

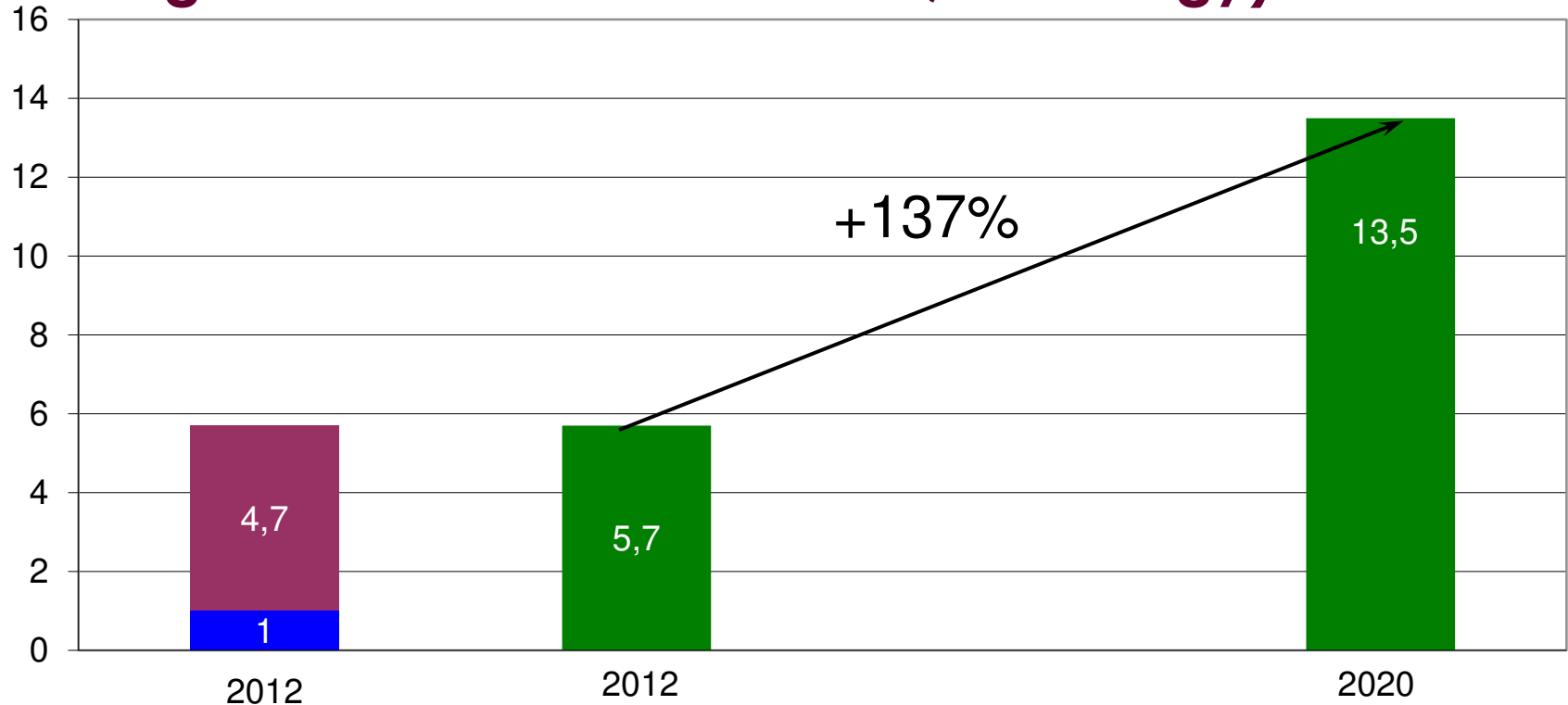
EU imports of ethanol (in bln litres)



Source: Eurostat, SECEX, USITC

2. Prospects for the fuel ethanol European market

Expected G1 fuel ethanol balance
(RED target – forecasted share of 8,5% energy)



Source: NREAP'S / CGB

■ Import ■ Production ■ Demand

2. Prospects for the fuel ethanol European market

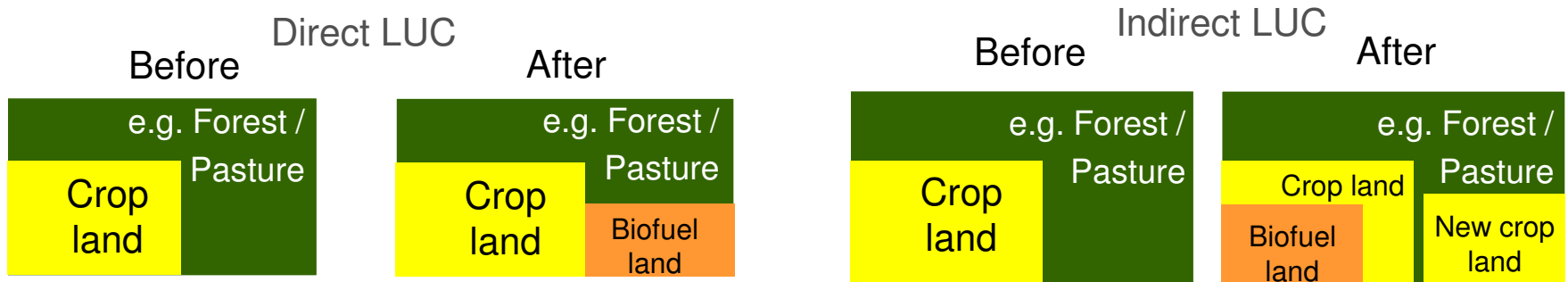
Based on the National renewable action plans notified to Brussels, an overall demand for 1st generation fuel ethanol of 13,5 Bln liters can be expected

This demand is a rough estimation to be further complemented in the light of several potentiel effects:

- Future energy taxation frame / balance diesel/gasoline (+)
- Bearish trend of fuels consumption in the EU (-)
- Share of renewable electricity in transport (EV) (-)
- Multiple counting for 2nd generation and biofuels from waste and residues (-)
- ILUC regulation (-/+ ?)

2. Prospects for the fuel ethanol European market

- ILUC issue : demand for biofuels may lead to ILUC as a result of need for additional crop production



- ILUC Directive proposal by EC (october 2012)**
 - ✓ 5% energy capping for 1st generation biofuels
 - ✓ ILUC factors to be taken into account in the GHG balance as of 2021
 - ✓ Multiple counting for “advanced” biofuels (G2 and biofuels from waste and residues)
- EU Biofuel sector is against ILUC factors and multiple counting and claims a 8% share for G1 biofuels and 2% share for “advanced biofuels”

2. Prospects for the fuel ethanol European market

Regarding its current industrial capacity, meeting this demand will require an increase of the EU production capacity.

=> regarding ways to enhance EU ethanol production sugar beet ethanol development is an appropriate answer

3. Sugar beet ethanol : a smart business model

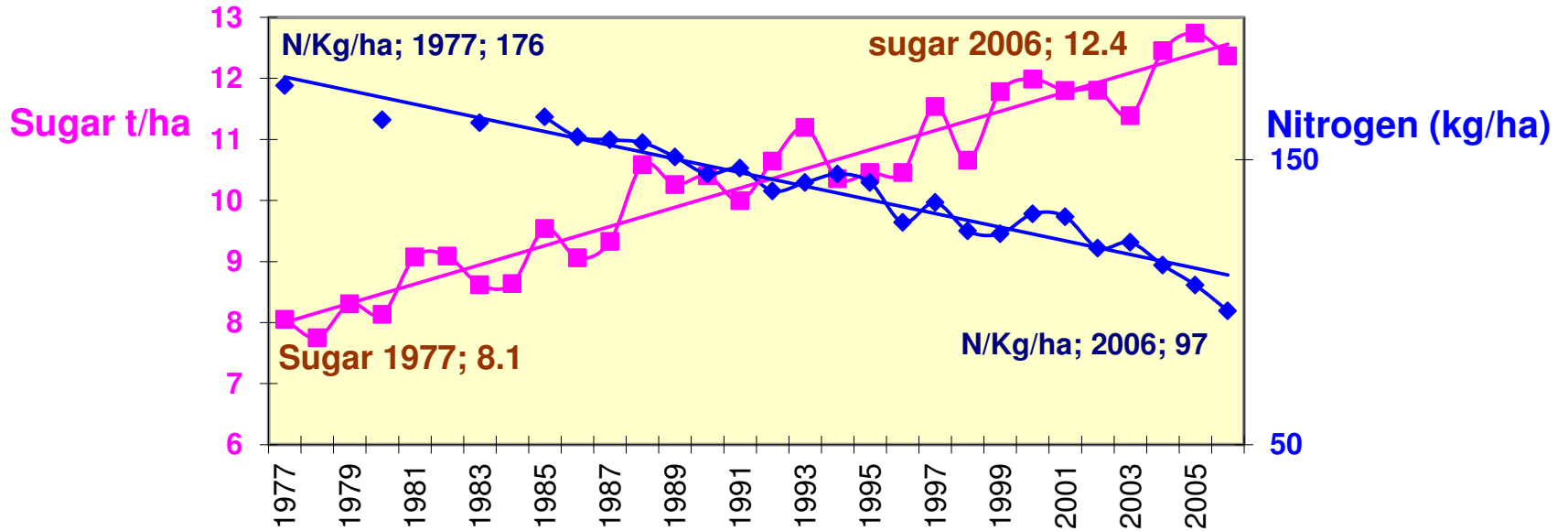
Highly sustainable...

The beet offers great competitive advantages as an ethanol feedstock :

- Increasing yields of beets/ha with less and less inputs => target of 100t/ha in 2020, i.e. 10.000 l/ha

3. Sugar beet ethanol : a smart business model

Evolution of nitrogen inputs (blue curve) and sugar yields per ha (pink curve) in France, since 1977



Sources: CGB (1977-1996), ITB (1997-2006)

Compared ethanol yields for different feedstocks

	beet	cane	corn	wheat
ethanol yield (litres / hectare)	8000-9500	6500-7500	4000	3200

3. Sugar beet ethanol : a smart business model

Highly sustainable...

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- Needs less water compared to other crop

3. Sugar beet ethanol : a smart business model

Compared water needs of different feedstocks

	beet	cane	corn	wheat
average water need (in mm)	500-600	900-1000	600-800	600-1500

3. Sugar beet ethanol : a smart business model

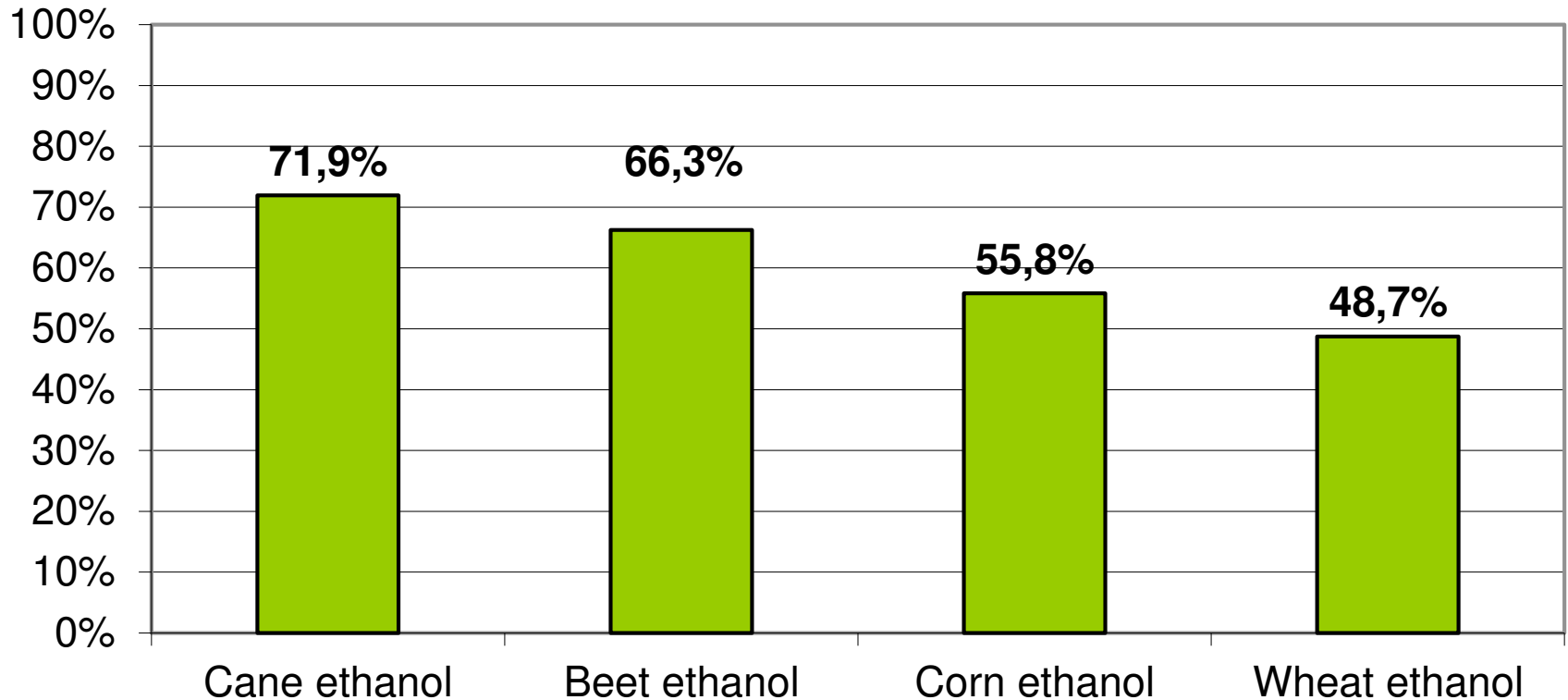
Highly sustainable...

The beet offers great competitive advantages as an ethanol feedstock :

- Increasing yields of beets/ha with less and less inputs => target of 100t/ha in 2020, i.e. 10.000 l/ha
- Needs less water compared to other crop
- Provides one of the best GHG balances of biofuels produced in Europe (around 65% according to various official sources)

3. Sugar beet ethanol : a smart business model

GHG emissions reduction rate
(% of reduction of g. eq. CO₂/MJ compared to gasoline)



Source : Lifecycle analysis of biofuels, French environnement agency, 2010

3. Sugar beet ethanol : a smart business model

...economically viable and offering the best income to farmers

Ethanol production from beet is currently developing the following two models :

- full beet plant
- flexible plant (that uses starch and juices for 10 to 15%)

From the economic point of view, the best compromise is to complete an existing sugar factory with a bioethanol plant using raw and thick juices.

Conclusion: bet on the beet !

- **Strong demand for sustainable ethanol in the EU could boost beet in the coming years**
- **Sugar beet has all the required trump cards to contribute to a significant share of the global EU ethanol demand on the basis of 2005 areas.**
- **The use of pulp (2nd generation ethanol, biogas) could strengthen the weight of beet in the european ethanol industry.**