



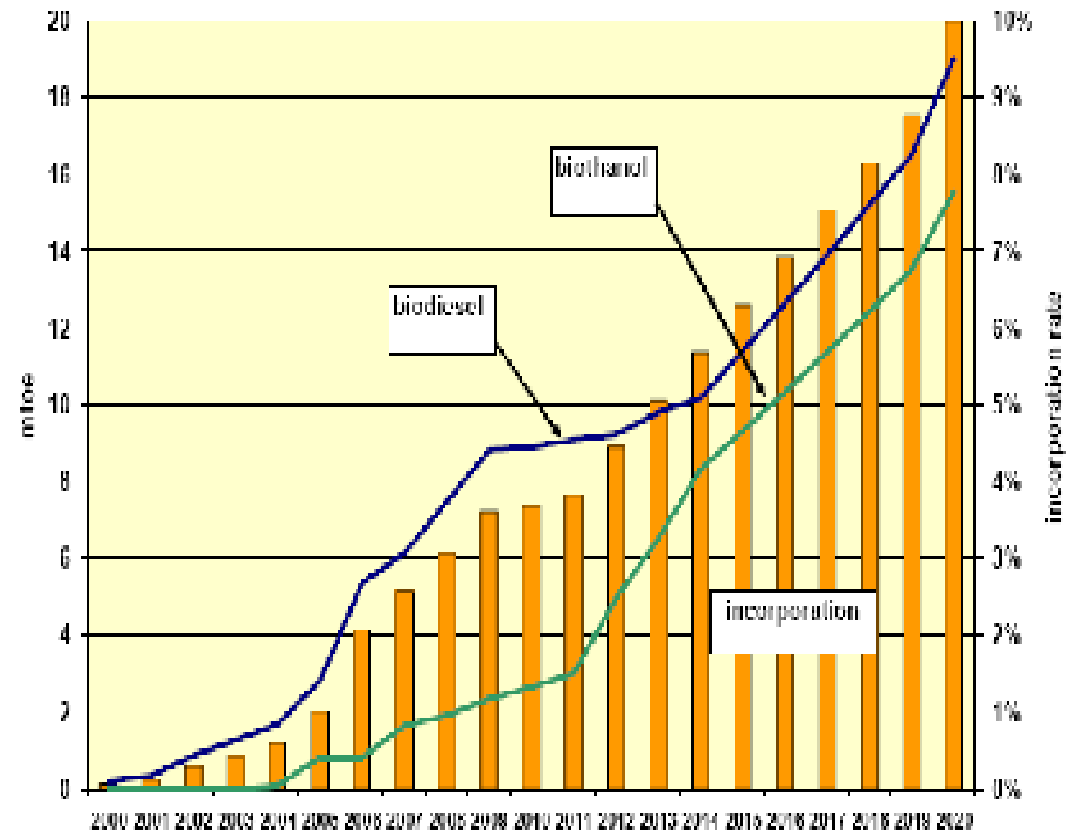
# Biomass Feedstocks – Can Agriculture and Forestry Meet Future Market Demand?

Stakeholder Plenary Meeting  
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# Demand for biofuels

- Demand for transport fuels is expected to rise by 30% over 30 years (2000- 2030)
- Biofuel Targets:
  - 2010 is for 5,75% biofuels (18 Mtoe)
  - 2020 is for 10% biofuels (35 Mtoe)
- Current Use of biofuels (~3.5 Mtoe)
- Import- export figures not clear yet

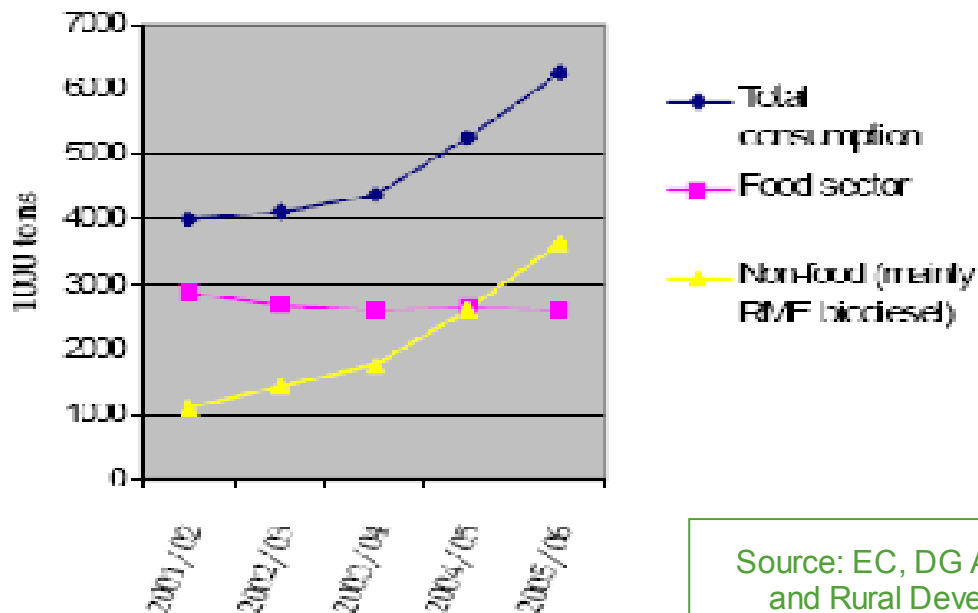


# Current State

- Rapeseed dominating feedstock for the biodiesel market. Cultivated area increased from 2.5 Mha in 1995 to 6.2 Mha in 2007 mainly due to the biodiesel market increase.
- Cereals prime feedstocks for EU ethanol with limited quantities of EU grown sugarbeets.
- Imported ethanol from sugarcane.

(Million hectares)	2004 (EU-26)	2005 (EU-25)	2006 (EU-25)
On set-aside area, of which	0,6	1,0	1,0
– Rapeseed	0,5	0,75	0,7
With energy crop premium, of which	0,3	0,7	1,3
– Rapeseed	0,2	0,4	0,8
Without specific support (estimated)	0,5	0,7-0,9	1,4-1,6
<b>Total area</b>	<b>1,4</b>	<b>2,4-2,6</b>	<b>3,7-3,9</b>

EU-25 rapeseed oil consumption



Source: EC, DG Agriculture and Rural Development

► Energy crops : 3 - 4% of the EU-25 arable area

- Limited uptake for non-food crops for energy and fibre (3.7-3.9 mio ha in 2006). FR & DE have larger share with UK, ES, PL, HUN and LI following.

## 2020 scenarios: EU25 arable land use (Mha)

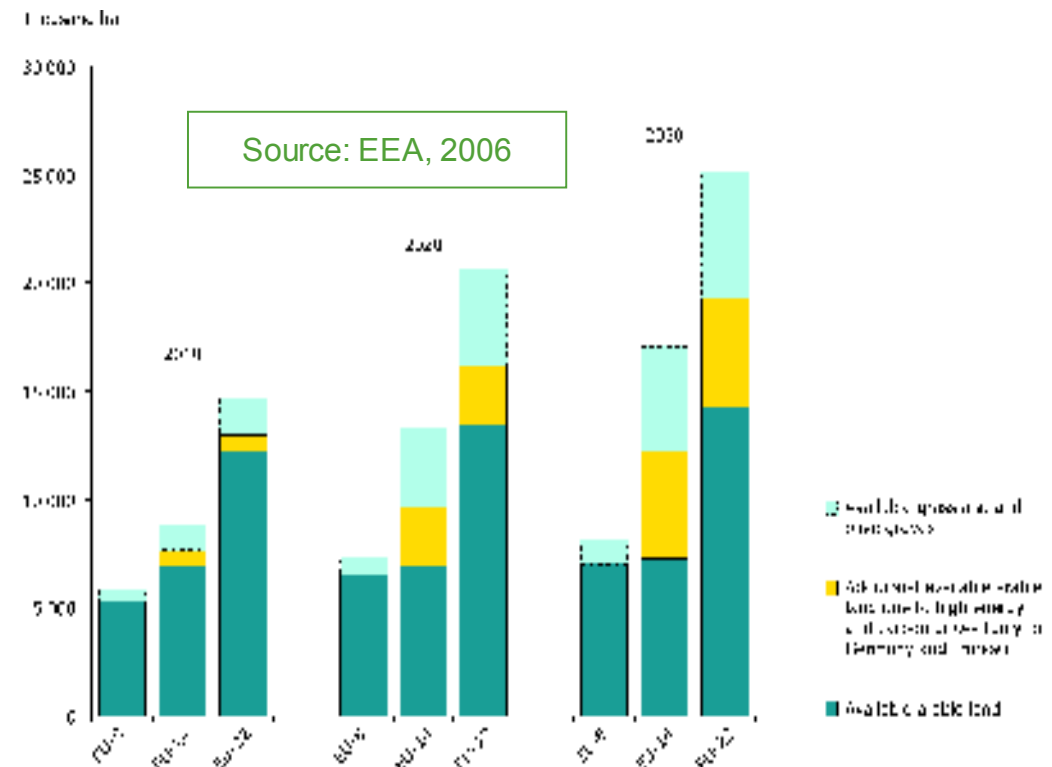
	7% share	14% share
Rape (BD)	2.7	2.6
Cereals (BETH)	4.6	<b>8.3</b>
S/beets (BETH)	0.3	0.5
Wood/ straw (BTL)	0	<b>6.9</b>
Total land b/fuels	7.6	18.3
Non b/fuel arable	84.8	80.8
Idle land (Set aside?)	7.7	3.4
Total arable land	100.1	102.5

Sources: EC, DG Agriculture and Rural Development  
ESIM model

- **Considerable differences in the size and vegetation pattern within EU 27 and consequently in their biomass potential. Wide variations in current land use and cropping patterns are expected due to climate change.**

## 2nd generation feedstock higher yielding

- Cereals yield would increase by 30%- 40% if straw & grain would be used.
- Whole crop maize is among the highest yielding crops
- Use of non agricultural land for SRC
- Use non land based resources (animal wastes and process by- products, etc).



## Constraints

### *Physical*

- Land availability/quality: marginal land have to meet both economic & sustainability criteria
- Efficiency of agricultural lifestyle: optimised water management, cropping strategies, etc.
- Accessibility of resources, lack of infrastructure to handle bulky materials

### *Market*

- Food, feed, etc.: work towards optimising synergies

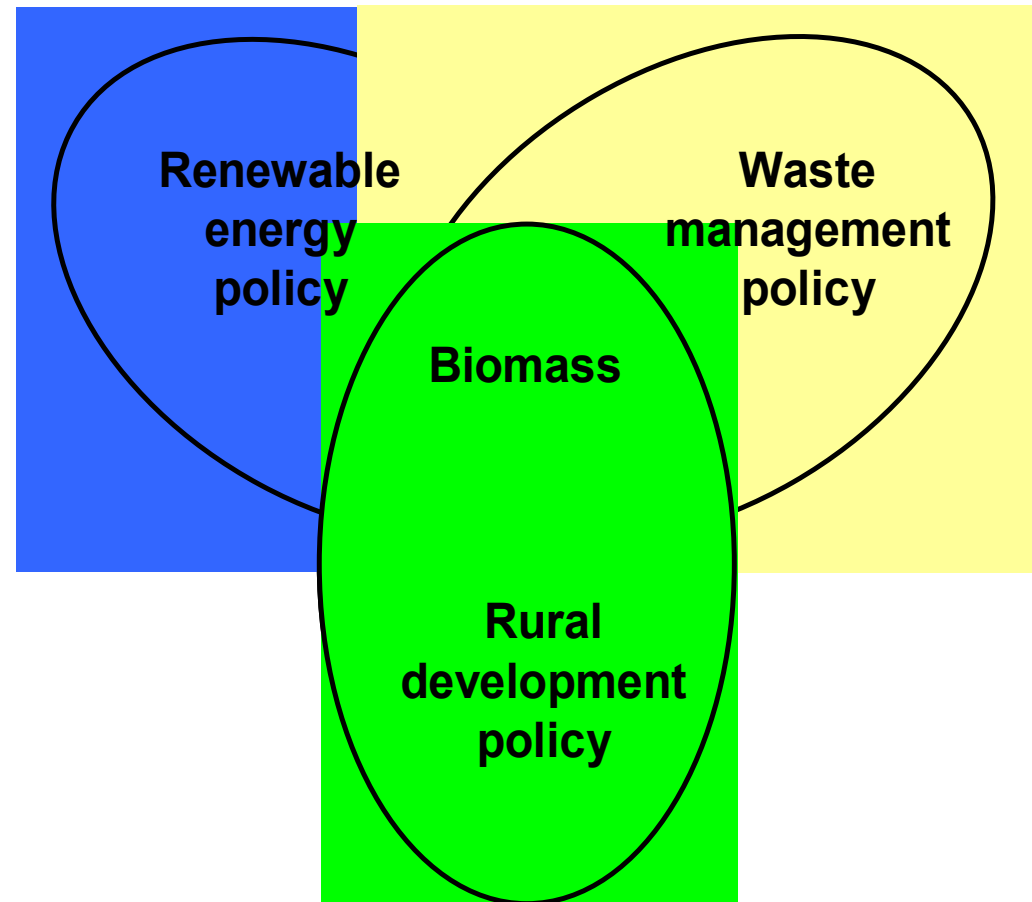
### *Sustainability*

- Biodiversity
- Carbon emissions from land use change

### *Behavioural aspects*

- Increase consumer awareness with education, labelling, promotion campaigns, etc.
- Enhance communication with involved parties i.e. agriculture & forest communities

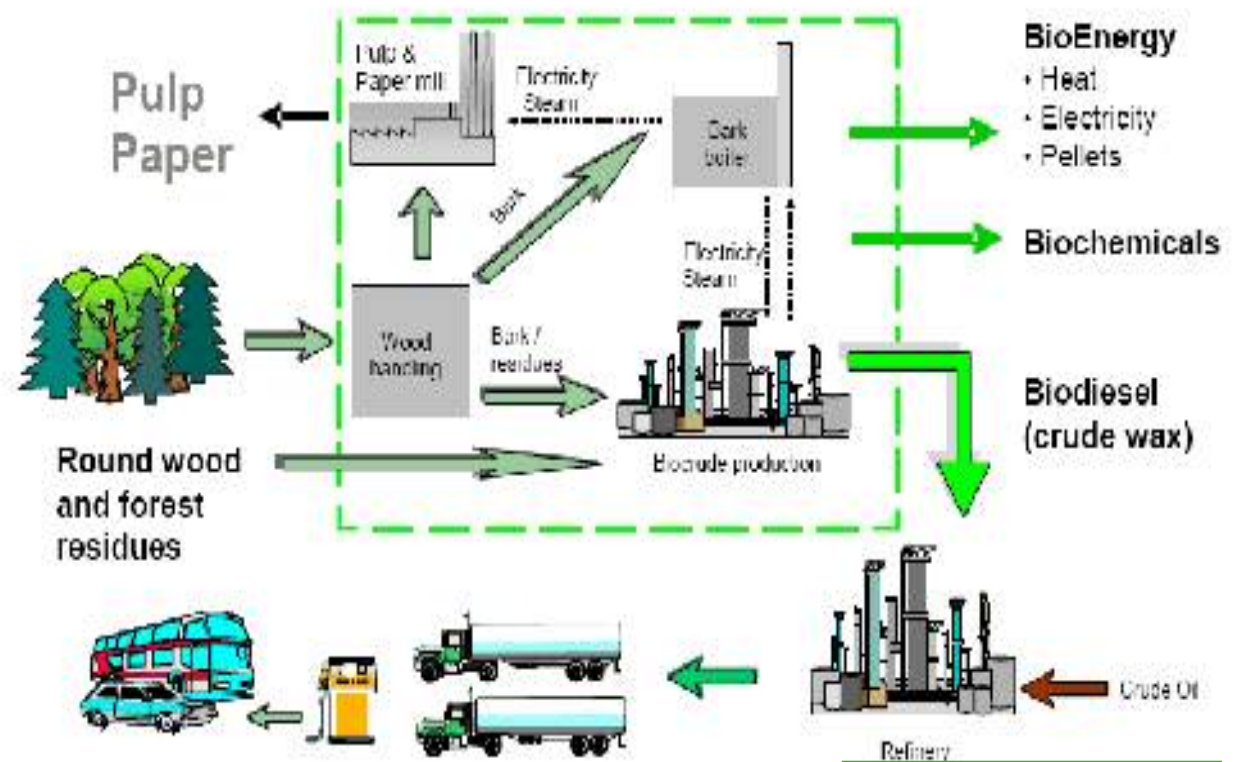
- To use marginal lands
- To increased markets
- To diversify production
- To increase land use efficiently
- To sustain jobs in rural communities
- Enhance sustainable practices in agriculture, i.e. Optimise water management, introduce innovative cropping patterns, etc.
- Use the lignocellulosic crops as 'sustainable strategies' for different agricultural systems depending on climate and ecology.



# Forestry

- Total annual increment of 600 million m<sup>3</sup>
- 60- 65% of the annual increment is harvested
- Metla's study (01/2008) about 190 million m<sup>3</sup> of forest chips (logging residues, small diameter trees and stump wood) can be harvested annually from EU's forests without touching the raw material supply of forest industries.
- Total theoretical potential, that is left outside current industrial and firewood use, if over 700 million m<sup>3</sup>/year including all biomass components of the trees. With the harvestable potential (190 mill. m<sup>3</sup>) about 36 MToe energy can be produced.

- Paper & pulp industry is the world's largest producer and user of bioenergy
- Biofuel production integrated within paper pulp & mill activities



Source: Metla, 2008

Source: VTT, 2007

## Biofuels: A new opportunity for agriculture & forestry

- Why?
  - Diversification of agro-forestry products & activities
  - Added value with innovative products
- How?
  - Decrease 'pressure' for biomass availability by improving efficiency of 'whole-chain' i.e. field, logistics, industry
  - Integrate chains (mass & energy flows, biomass and biomaterials production)
  - Built on Best Practice Examples
- Challenges!
  - Arable land vs. other land uses
  - Food, feed, etc, vs. energy
  - Electricity/ heat vs. biofuels
  - Imports
  - Sustainable provision of feedstocks
- Future steps
  - Cascade raw material uses to fully take advantage of the economic added value, environmental benefits and job creation potential
  - Mobilise existing biomass resources, activate new ones, increase productivity



‘The landscape around us **is** changing, so by integrating our activities and increasing synergies we can adapt successfully’

*Thank you*