

BioEnergy and BioFuels

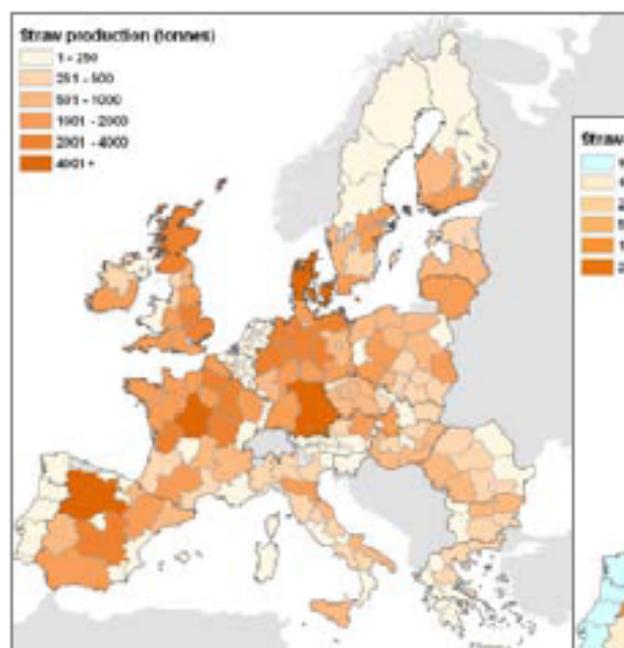
Possible lines of cooperation with African institutions

Fabio Monforti-Ferrario

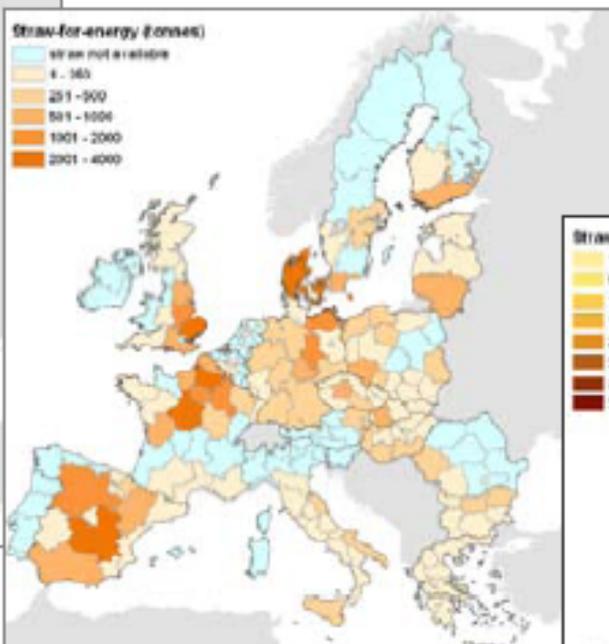
Action leader BioS – Sustainability of bioenergy.

Straw inventory

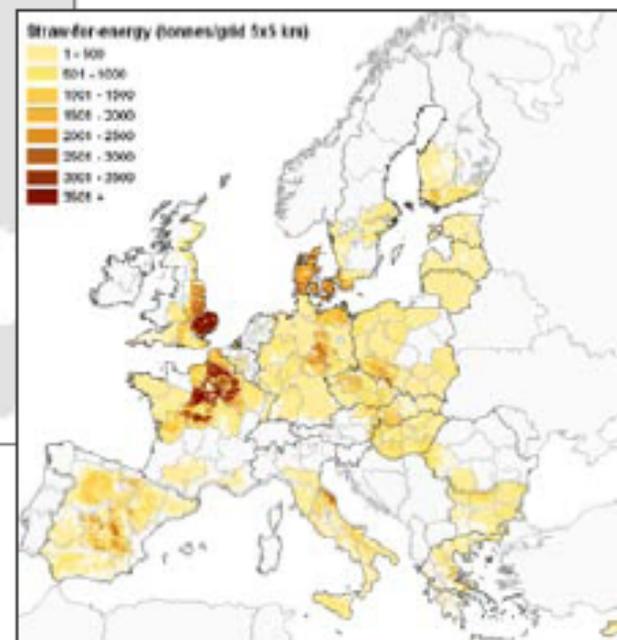
Straw from wheat & barley in 2003 (1000 tonnes/region)



Straw available for energy (1000 tonnes/region)

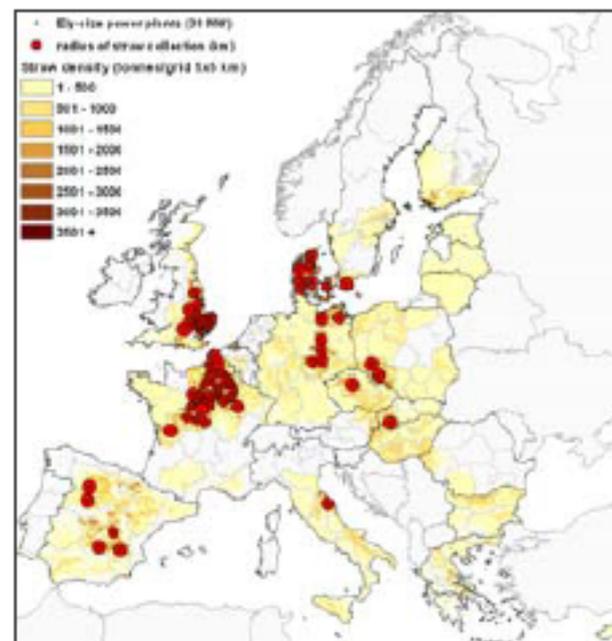
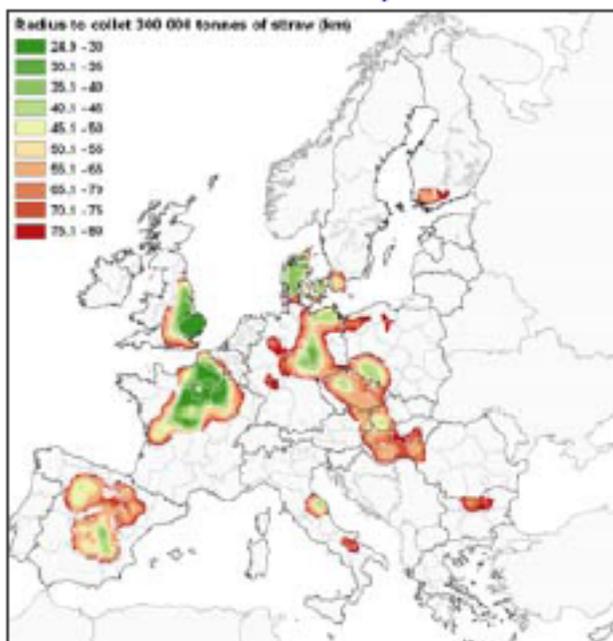


Density of straw for energy



Suitability map for localization of Ely-sized (38 MW) power plants

Collection radius for Ely straw consumption (+50% reserve)



EU could host up to **67 "Ely clones"** (38MW)

FR: 28 PL: 2

UK: 15 IT: 1

DK: 7 SE: 1

DE: 6 SK: 1

ES: 5 CZ: 1

Total capacity: **2.5 GW**

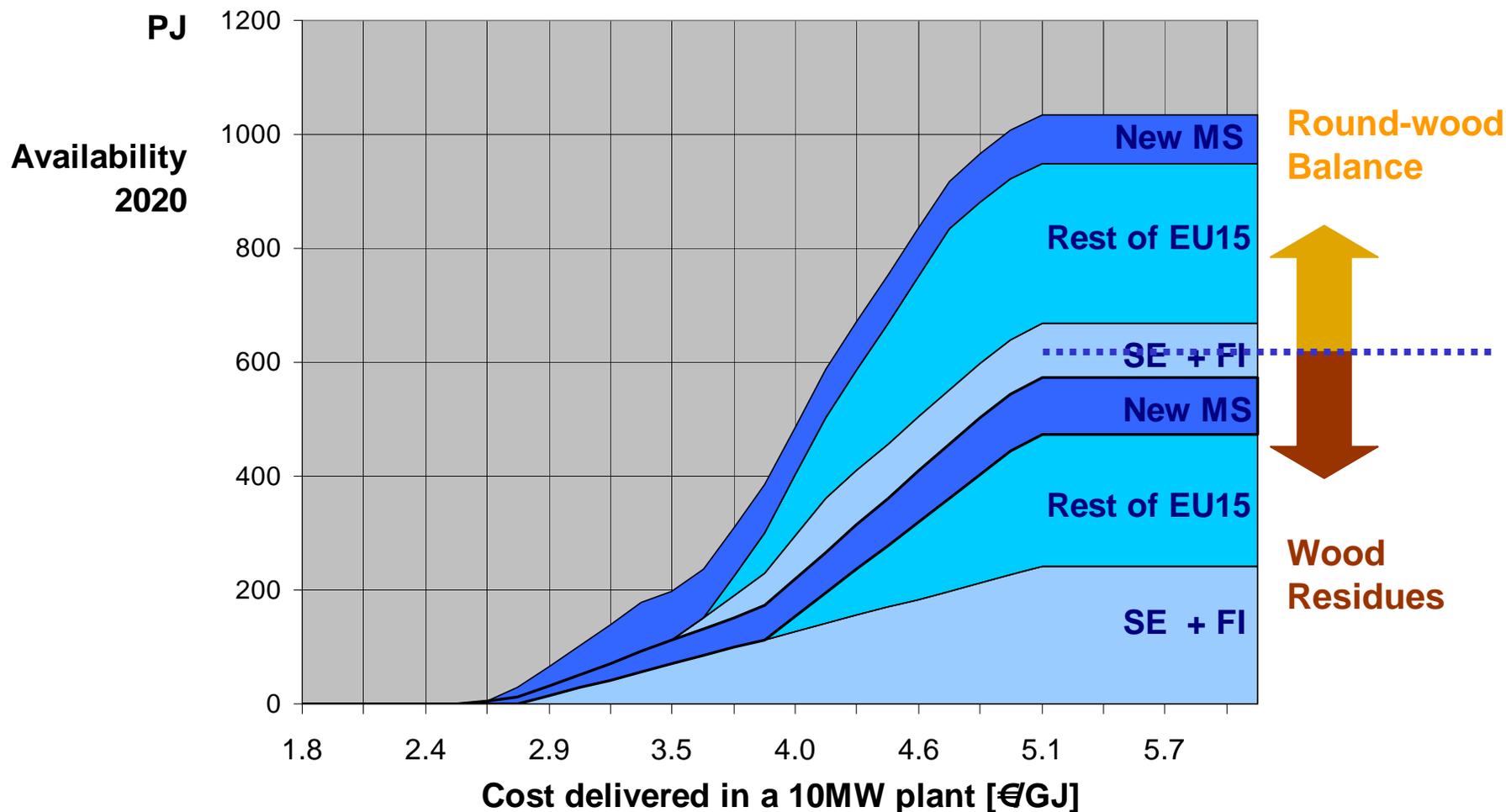
Straw energy utilized: **230 PJ** (LHV thermal)
(out of a total available **820PJ**)

Assumptions:

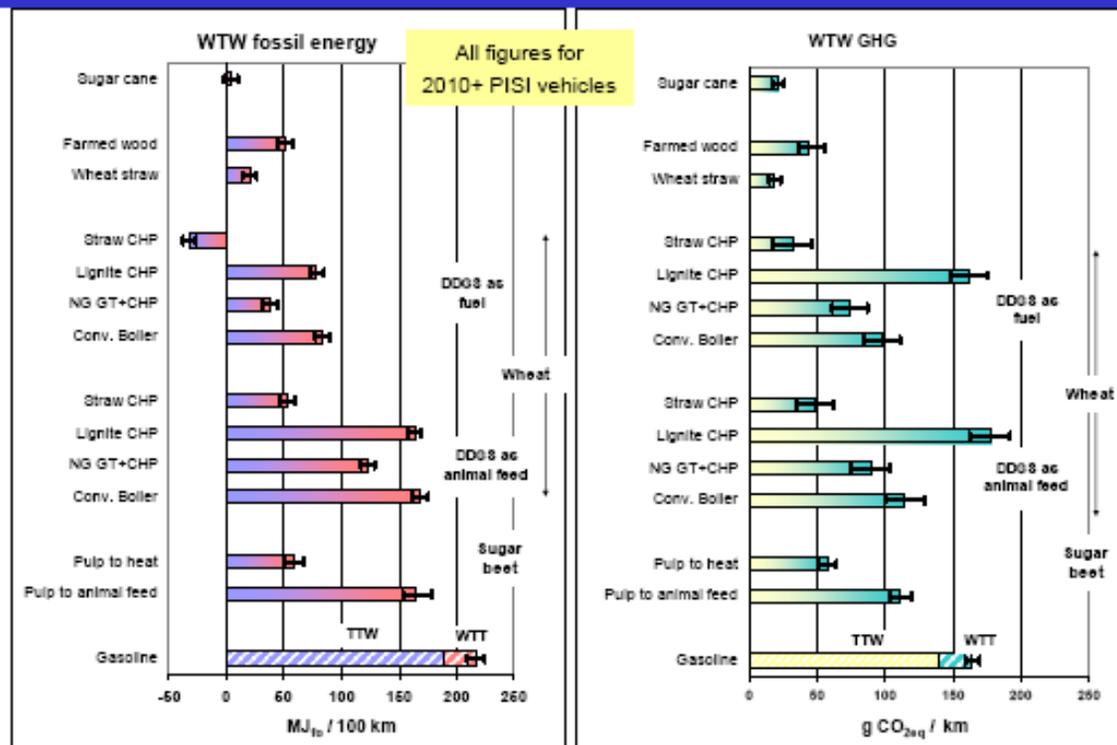
- yearly consumption 200 000 ton + 50% reserve
- transport distance up to 50km

BUT... straw-collection logistics needs to be assessed for each potential location

Availability of Wood Residues and Round-wood for Transport, Heat and Electricity, Year 2020



Ethanol



**New pathways
going to be
added
(e.g. jatropha)**

➤ **Use of by-products for energy yields lowest GHG emissions. Economics are likely to favour other uses, at least short term:**

- Sugar beet pulp
- Wheat DDGS

① Agro-Economic modelling
10% share → extra-lands
required per crop type/ region



② Spatial allocation of the extra lands per crop type
↓
③ Spatial estimation of land carbon stock changes (IPCC)
↓
④ Spatial estimation of GHG emissions (IPCC)
↓
⑤ Total ILUC emissions from biofuels policies

Global models include Africa.

Results of a modelling intercomparison study available in a few weeks for public consultation.

The Commission set up specific Sustainability Criteria (identical in the two Directives) for biofuels in use in EU (internal production or imported)

<p>GHG Impact</p>	<ul style="list-style-type: none"> ❑ <i>Minimum 35% GHG Emissions saving (50% from 2017, 60% from 2018)</i>
<p>Biodiversity</p>	<ul style="list-style-type: none"> ❑ <i>not be made from raw materials obtained from biodiverse areas (including primary forests)</i>
<p>Land use</p>	<ul style="list-style-type: none"> ❑ <i>Not be made from land with high carbon stock (i.e. wetlands, forested areas...)</i> ❑ <i>Not be grown on peatlands</i>
<p>Good agricultural conditions</p>	<ul style="list-style-type: none"> ❑ <i>Requirement for good agricultural and environmental conditions (as defined in Annex III to Council Regulation 1782/2003) and social sustainability</i>

Preservation of Biodiverse areas (primary forests and Highly biodiverse grassland)	Definition of criteria and geographical ranges
Account for Carbon emissions from LUC and preservation of high C lands (Forested areas and wetlands)	Guidance to calculate actual values for carbon stock changes
Assessment of impacts on peat-lands	Methodology to assess the impact of peat-lands drainage
Respect of environmental and social requirements outside EU	Multilateral agreements and voluntary schemes
Rules for calculating GHG emissions saving for biofuels/biomass pathways	Up-date of existing default values and addition of new ones
Cultivation on severely degraded / contaminated land	(bonus of 29 gCO ₂ eq/MJ) – definition and thresholds of degraded/contaminated
Assessment of ILUC	Policy proposal on how to address ILUC in EU legislation
Encourage Biofuels made from waste, residues, non-food cellulosic and ligno-cellulosic material, algae	Additional benefits (will count double towards the target)