

BioEnergy and BioFuels

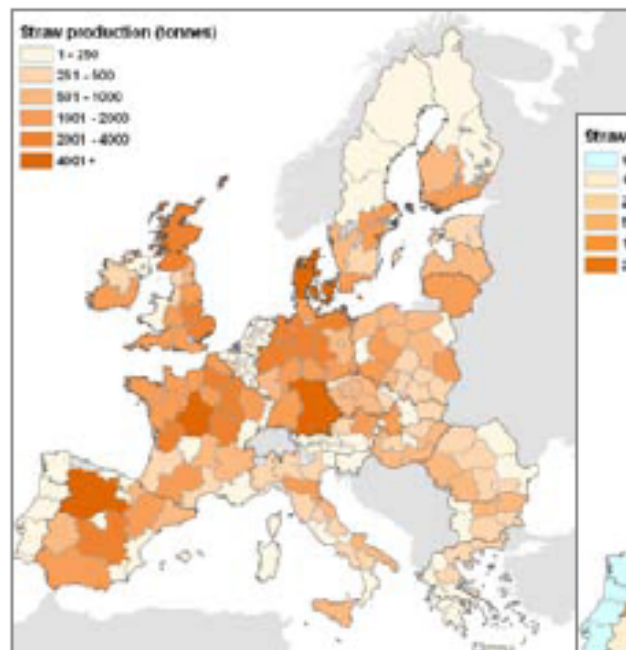
Possible lines of cooperation with African institutions

Fabio Monforti-Ferrario

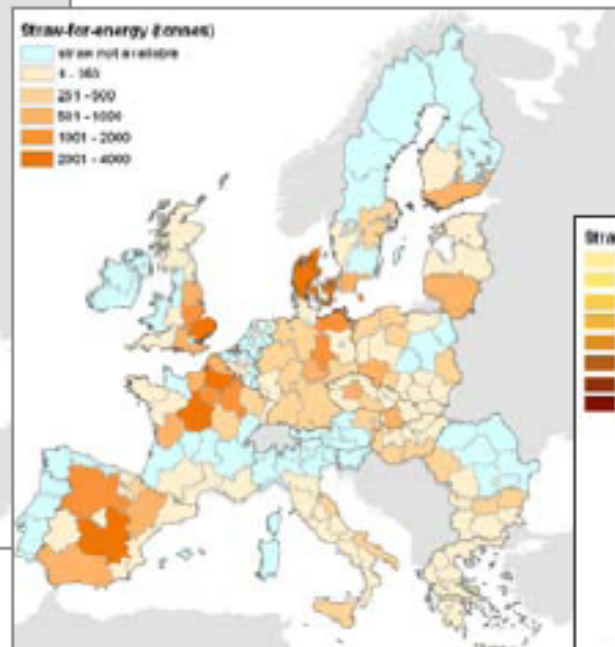
Action leader BioS – Sustainability of bioenergy.

Straw inventory

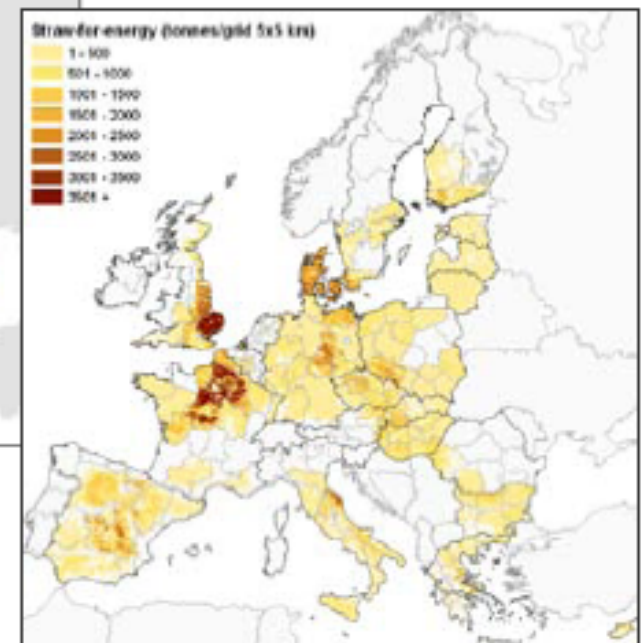
Straw from wheat & barley in 2003 (1000 tonnes/region)



Straw available for energy (1000 tonnes/region)

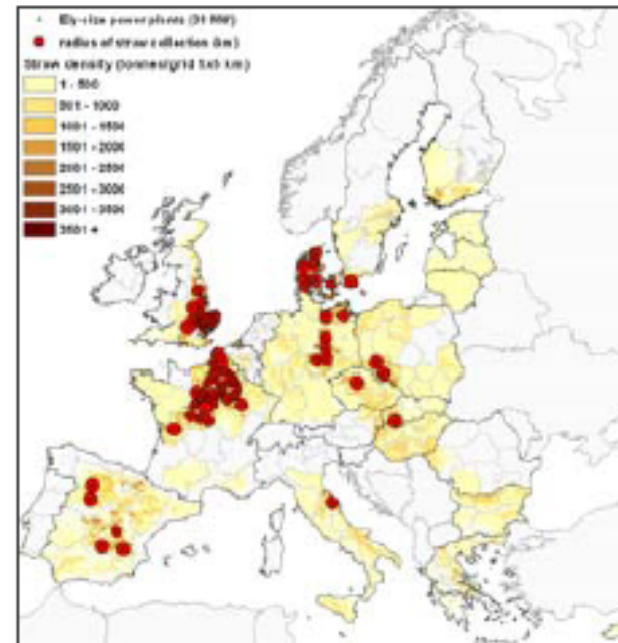
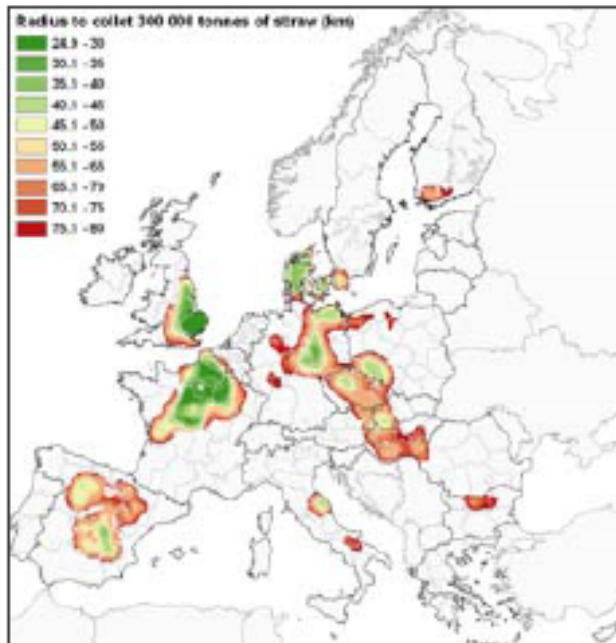


Density of straw for energy



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**

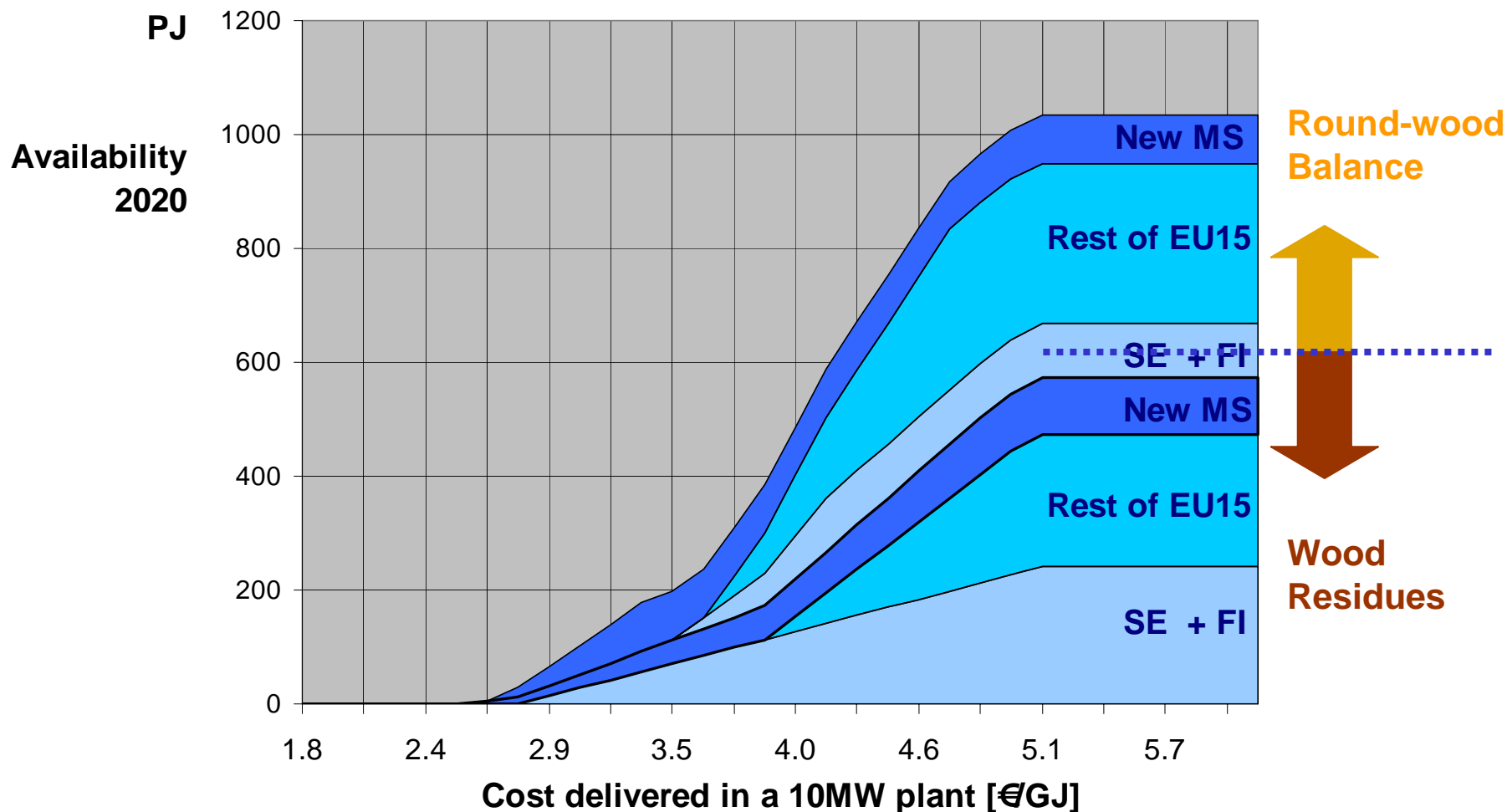
Straw energy utilized: **230 PJ** (LHV thermal)
(out of a total available 820PJ)

Assumptions:

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

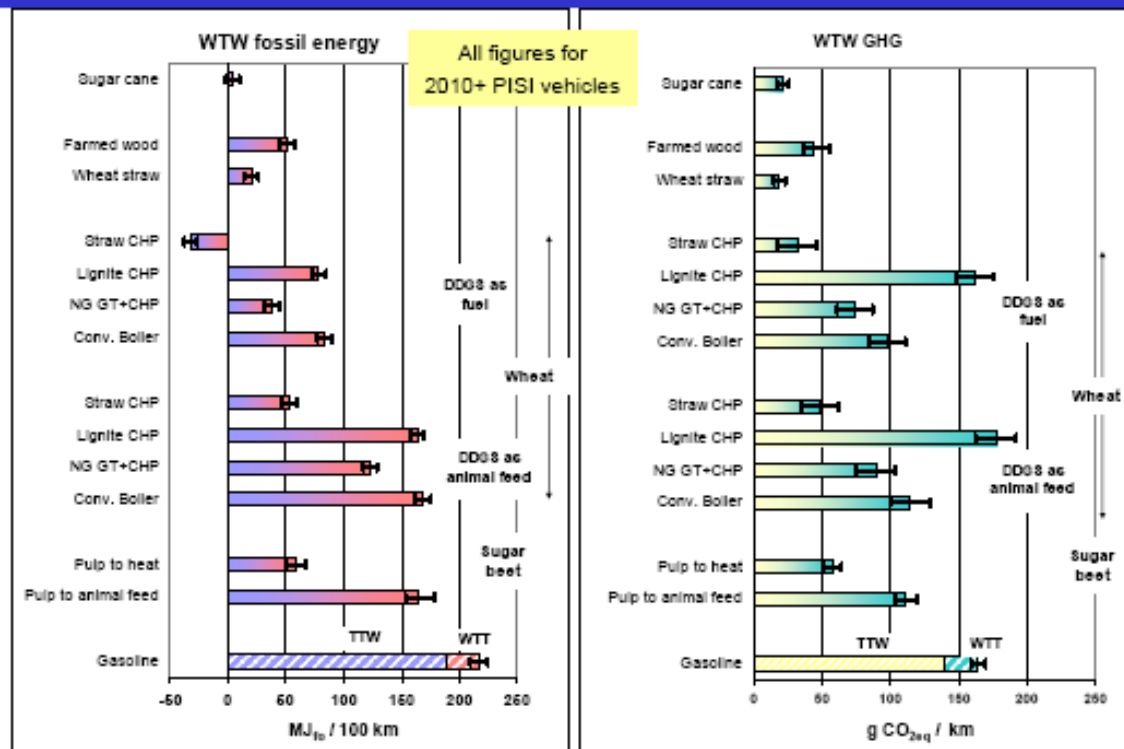
BUT... straw-collection logistics needs to be assessed for each potential location

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



JRC-EFI-METLA Expert meeting data on Forest-based biomass for energy: Cost/supply relations and constraints in Joensuu 18-20 September 2007

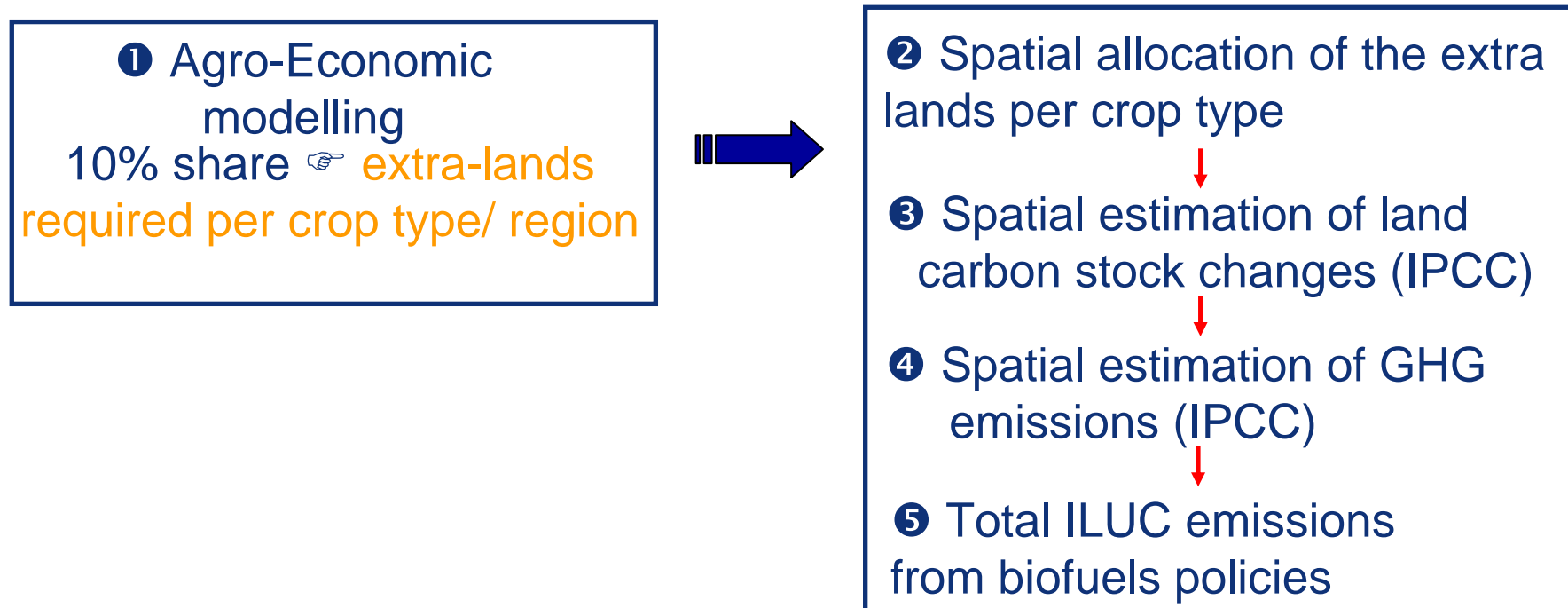
Ethanol



**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



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)

GHG Impact	<ul style="list-style-type: none"> ❑ <i>Minimum 35% GHG Emissions saving (50% from 2017, 60% from 2018)</i>
Biodiversity	<ul style="list-style-type: none"> ❑ <i>not be made from raw materials obtained from biodiverse areas (including primary forests)</i>
Land use	<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>
Good agricultural conditions	<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>

4 – Certification schemes

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)