



FORESTERRA ERA-NET final conference
Lisbon, Portugal, 24-25 November 2015
“Key questions for future research on Mediterranean forests”

NTPF, including biomass for energy, as a market force in the Mediterranean basin

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Outline

- Context
- NTFP data (NWFP and firewood)
- NWFP market strategies
- Biomass for energy: strategies

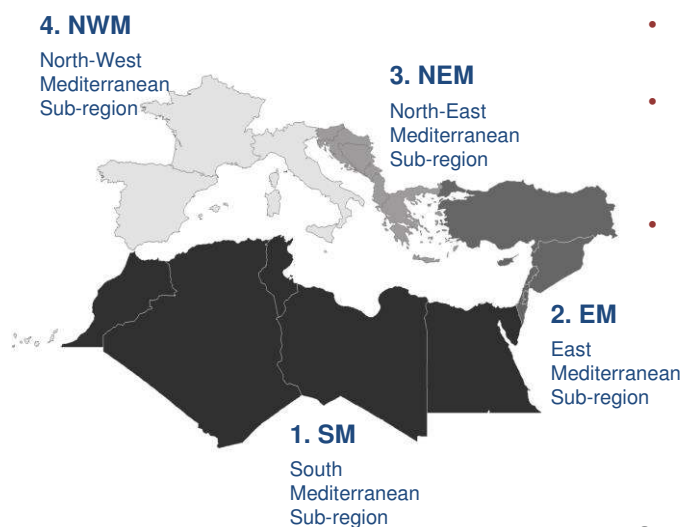
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1.Context

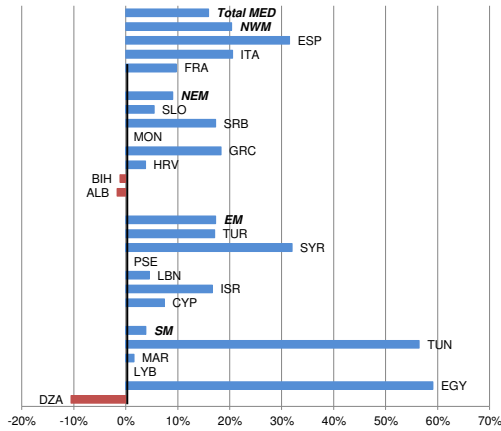
Mediterranean region (Plan Bleu, 2009)



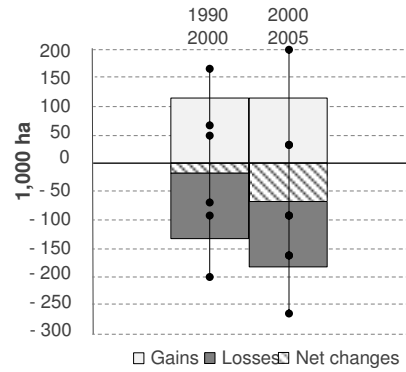
- 21 countries
- 4 sub-regions
- Forests: ~ **74 Mha**
(forest cover: 9.5%)
- Uneven distribution:
 - 73% NEM + NWM
 - 17% EM
 - 11% SM

Source: own elaboration from FAO FRA 2010

% forest area variation in Mediterranean countries and sub-regions, 1990-2010



Changes in area covered by Mediterranean forest types*, 1990-2005



* (i) Thermophilous deciduous forests; (ii) Broadleaved evergreen forests; (iii) Coniferous forests of the Mediterranean, Anatolian and Macaronesian region; (iv) Floodplain forests (Barbati *et al.*, 2011)

Source: Masiero (2014) from FAO 2010 and 2013

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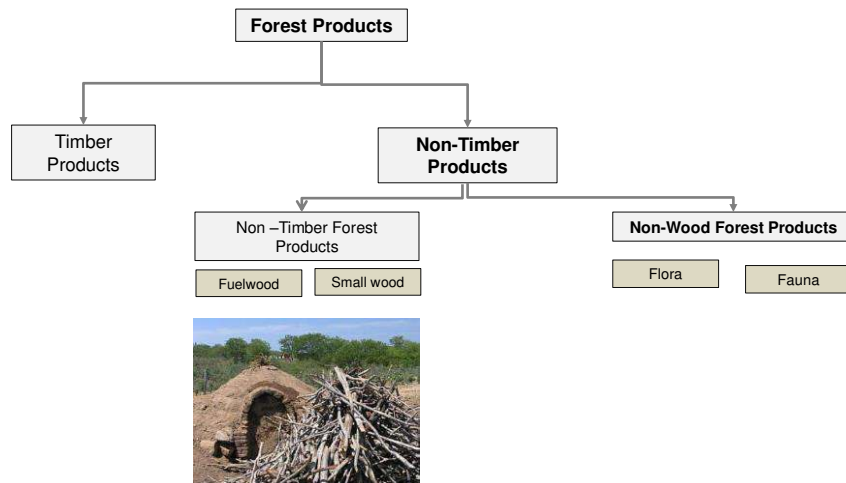
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Source: adapted from FAO (1999)

Why NTFP are important



Southern and Eastern Med Regions

Traditionally used and consumed, especially in rural areas, and traded

- NTFP still primary sources for the subsistence of local economies
- Often cases pressure over the resources



Northern Med Regions

Urbanization and better living standards

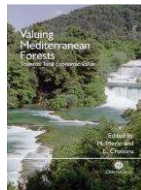
- less profitability of traditional forestry based on timber
- increasing demand for social and environmental products
- rural development and environmental policies in support



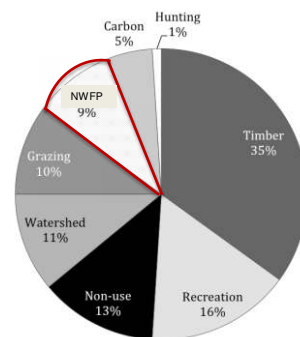
Growing interest for NTFP: they can contribute in improving the profitability of forests based enterprises and to rural development

2. NTFP data

- NWFP**



Merlo, M., Croitoru, L. (eds.) (2005)



Grazing and NWFP are the most important benefits in the Southern (€36/ha) and Eastern sub-regions (€10/ha), exceeding by far the wood forest products benefits.

For the northern countries: €26/ha.

“...a substantial underestimate as important forest benefits are not estimated for many countries” (Merlo and Croitoru, 2005)

Many NWFP are self-consumed or informally traded.

NWFP

Data collected from FAO FRA 2010.

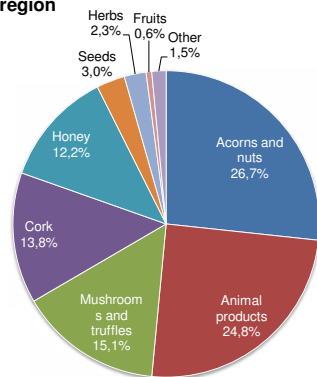
Cover just 14 out of 21 countries, and do not refer to all products (e.g. Argan oil in Morocco, pine seeds partially reported, etc.)

Total value: **€822.44 M**

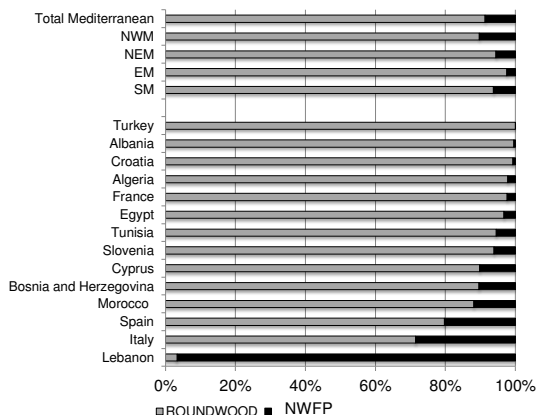
Average unit value:

€18.10/ha

Relative incidence of NWFP types on the total economic value of NWFP in the Med region



% incidence of wood & NWFP production value in MED countries and sub-regions



Source: Masiero (2014) from FAO, 2010

Alternative estimations for selected products

Pine seeds



Data source	Production (tons)	Value (M €)
FAO FRA 2010	16,545	*48.7
Alternative Min	5,295	83.8
Alternative Max	18,992	307.7

Perez et al., 2004; NFC, 2005 and 2012; Mutke et al., 2012 and 2013; Sfeir, 2011; Daly et al., 2012; GDF, 2009.

Pine resin



Production (tons)	Value (M €)
1,705	0.9
8,343	2.6
9,821	3.2

IGN, 2013; Spanos et al., 2010; NFC, 2007; Cesefor, 2009; Magrama, 2011; GDF, 2009; Satil et al., 2011.

Cork



Production (tons)	Value (M €)
101,428	163.3
142,300	142.3
142,300	327.3

APCOR, 2010; Daly et al., 2012.

FAO (2005): **212.9M€** → Alternative est. **228.7 ÷ 638.2M€**

Why problems with NWFP data:

- For household consumption
- Informal trade
- Not reported in national statistics or lack in reporting
- Difficult in the definition: what is in and what is out. An array of products, not the full range assessed
- Mixed wild with cultivated

Focusing on
the part that
is formally
traded



Vantomme (2003): “the best available NWFP statistics so far, are those on NWFP that are internationally traded”.

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International trade



Multipurpose trees and non-wood
forest products, a challenge and
opportunity

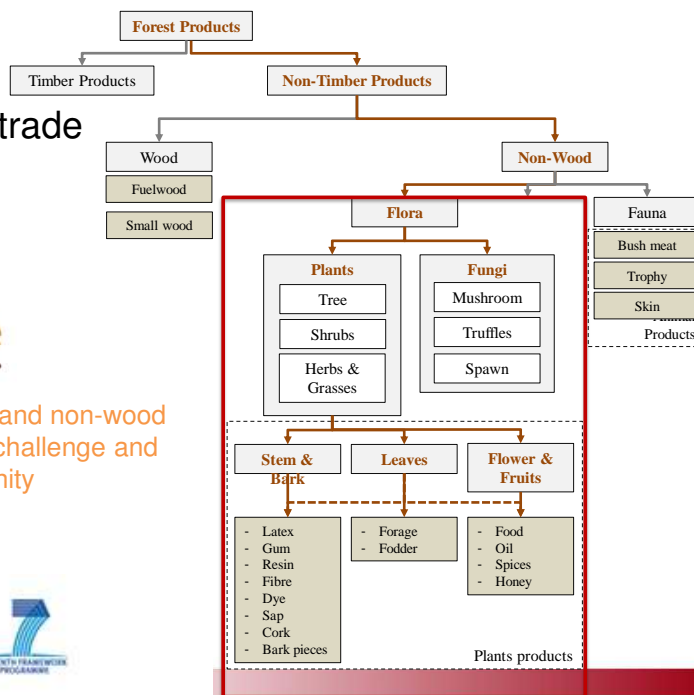
www.star-tree.eu



Funded by the European Union



SEVENTH FRAMEWORK
PROGRAMME



To commercial classification
(HS system)

From ecological classification

Ecological position	NWFP category	NWFP types
Products of the stem, leaves or tree reproductive system	Stem-based Products (tree is cut)	Christmas tree
		Fibre
		bio-refining
		Tar
		Tannins
		Sorbitol and mannitol
	Leaf based products (branches are removed from the stem)	Essential oils
		Phytochemical
		Pigments
	Extracted from tree (tree is kept alive)	Sap
		Natural gums and resins
Tree dependent products	Bark and cork	Exudates
		Bark products
	Fruits & flowers	Tree flowers
		Fruits
Forest understory products	Wild fungi	Edible nuts
		Wild mushrooms
	Flower and bug substances collect by animals	Truffle
		Honey and Bee Products
	Berries	Berries
		Live tree/plants
	Forest plants	Medicinal and aromatic plants
		Mosses & lichens
	Litter	Litter
		Peat
Animal and animal parts	Wild fish	Wild fish
		Game meat
	Living animals	Living animals
		Animal parts
	Ants eggs	Ants eggs
		Ants eggs

NWFP type	Category of commodities	Commodity group	HS Code
Tannins	Tannins	Quercus tannin extract	320110
		Myrica tannin extract	320130
		Oak or chestnut tannin extract	320190
		Vegetable tannin extract	320200
		Tanning or dyeing extracts	320300
Essential oils	Essential oils	Essential oils	330100
		Other	330190
		Essences & tinctures	330210
		Fresh mosses & lichens (includes)	960420
		Other (generally dry) (mosses & lichens included)	960490
Folage	Folage, branches and other parts of plants	Tea	090100
		Other	090190
		Other (generally dry) (mosses & lichens included)	960420
		Other (generally dry) (mosses & lichens included)	960490
		Other (generally dry) (mosses & lichens included)	960490
Bark products	Cork and cork products	Cork	450100
		Other (generally dry)	450200
		Cork in bulk	450300
		Cork in pieces	450390
		Cork, squared	450400
		Other	450410
		Other	450420
		Other	450430
		Other	450440
		Other	450450
		Other	450460
		Other	450470
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		Other	450510
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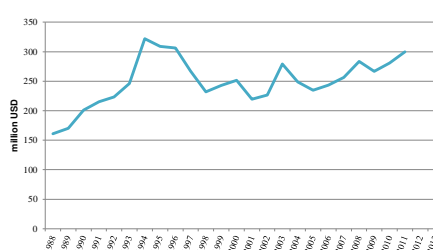
Chestnuts



Global trade of chestnuts: quantity



Global trade of chestnuts: value



Exports (million USD)				
2000	2005	2010	2011	
China 85.4	China 66.5	Italy 73.2	Italy 79.7	
R. of Korea 84.3	Italy 64.1	China 70.1	China 78.4	
Italy 40.2	R. of Korea 53.0	R. of Korea 45.4	R. of Korea 48.1	
Portugal 13.1	Portugal 11.8	Portugal 22.5	Portugal 25.8	
Spain 9.0	Turkey 9.4	Spain 16.6	Spain 20.0	
Imports (million USD)				
2000	2005	2010	2011	
Japan 140.6	Japan 72.5	Japan 54.4	Japan 59.0	
France 11.5	China 21.9	China 23.1	France 20.7	
USA 11.5	USA 16.0	France 20.7	France 20.7	
Asia, ncs 9.8	France 10.0	USA 19.0	USA 19.5	
Switzerland 6.8	Switzerland 10.9	Germany 17.8	China 19.1	

- Italy is (probably was) the largest traders in the world (~26% of world trade) in term of value
- There is a new trend on import: due to the Asian Gall-Wasp

Source: our elaboration from UNComtrade data (2013)

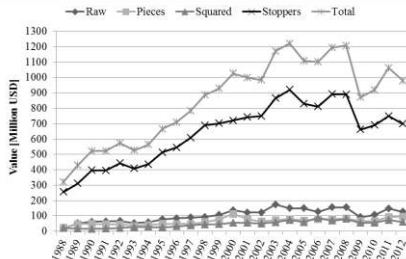
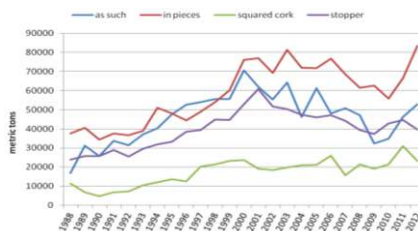
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Cork



Exports (million USD)				
2000	2005	2010	2012	
Portugal 502	Portugal 592.1	Portugal 483.1	Portugal 524.0	
Spain 58.6	Spain 79	Spain 81.6	Spain 87.7	
France 53.7	France 38	France 33.2	France 27.9	
Italy 28.8	Italy 29.8	Italy 29.1	USA 17.5	
Germany 16.2	Germany 13.9	USA 13.5	Germany 9.4	
Imports (million USD)				
2000	2005	2010	2012	
France 192.7	France 203.3	France 189.5	France 181.5	
USA 115.6	USA 146.1	USA 137.4	USA 150.1	
Australia 58.8	Spain 23.1	Spain 10.7	Spain 17.0	
Spain 55.4	Australia 55.5	Italy 10.5	Italy 11.5	
Germany 32.1	Italy 49.1	Chile 30	Portugal 58.0	

- In 2012, the global traded cork: 0.159 M tons
- Cork stopper is among the most valuable NWFP-by product exported from Med Region (accounts for the 94.7% of the global export value) of the cork
- Portugal main exporter in the world

Source: our elaboration from UNComtrade data (2013)

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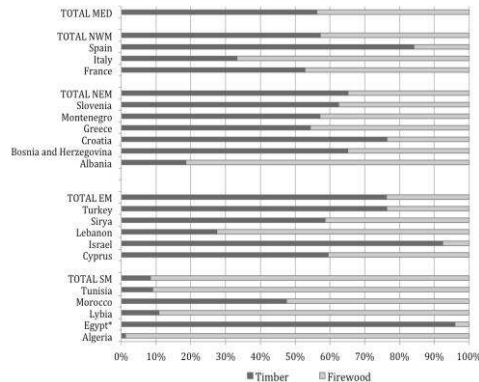
• Firewood

- FAOSTAT data: in the Med region roundwood production (timber+firewood): 139.8 Million CUM/year in the period 1990-2010
- In 2010 firewood accounted for 51% .

Incidence depends on countries:

- SM higher than 90%: essential source of energy
- Other regions from 20-42%

Timber and firewood incidence on total roundwood production in Mediterranean countries and sub-regions (2010)



Source: Masiero (2014) from FAOSTAT, 2010

A significant proportion is produced and marketed through informal channels (FAO,2013). In general, data on firewood are underestimated (e.g FAO FRA of Italy, 2010)

- Relevance of firewood confirmed by import: in the MED region 10.1MCUM/year of roundwood imported → timber diminishes, while firewood import increases (from 3 to 16%)
- Italy and Turkey: 1st and 4th firewood importer worldwide



Widespread use of firewood as fuel is linked to



Strong rural dimension
of the Mediterranean
Region



Biomass for energy: growing
demand for renewable energy
sources in the framework of
environmental policies (GHG
saving)

E.g. Italy and France have set
2020 targets for covering 44% and
54% respectively of their
renewable energy production with
solid biomasses (Proforbiomed,
2012)

3.NWFP market strategies

a) Mass products – mass markets

- large amounts of standardized products for a large number of consumers
- competitive factors: reducing production costs → relatively low prices
- capital intensivation, land and labour extensivation
- high risks (market instability-biological risks)

Wild-semiwild collection
vs
Cropped products/industrial
production



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We have seen that we are competitive for some products but...

...in many Mediterranean rural areas, mass market is not a winning strategy for promoting multifunctionality of forests and sustainable local development

Competitive advantages of the Mediterranean region:

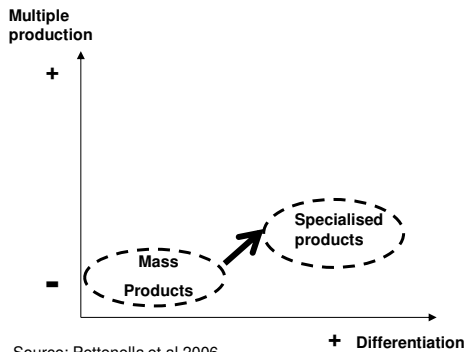
- Long traditions of multifunctional forest management systems (no much space for very extensive forest investments)
- High quality landscapes
- Territory rich of culture, traditions, biodiversity
- Good connections with the more advanced economies (demand for tourism)
- Rather positive external socio-economic conditions: e.g greening of the policies (CAP)

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Two other strategies

b) Specialties

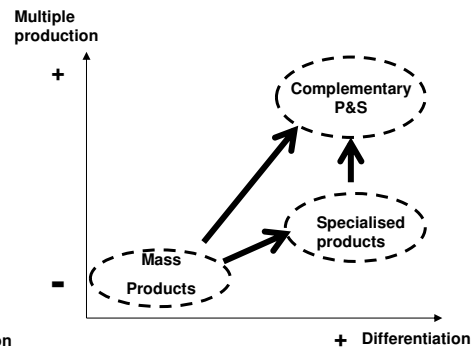
e.g high added value
niches products



Source: Pettenella et al 2006

c) Complementary products & services:

synergies with services
(tourism, recreation), and with
other economic operators



b) Specialised products

Well differentiated products, often available in relatively limited quantities, for a target market.

Which marketing mix?

- 4 Ps** {
- **Products:** quality assurance, certification, packaging, links with a territory or/and a local tradition
 - **Place:** direct sales
 - **Price:** selling systems
 - **Promotion:** local association, e-marketing



Trentino-South Tyrol

supply chain survey

- Chestnuts production is a traditional, now rediscovered, activity
- ~430 Small chestnuts farms, less than 1ha on average)
- Many different chestnuts ecotypes related to specific areas
- Consumers recognises locality and quality
- Prices higher than “standard” chestnuts (at retailer 8-10€/kg vs 4.5-5 €/kg)
- The totality consumed within the region, with short food value chains



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Nolvelty: product development



Chestnuts liquor



Package for making the traditional *castagnaccio* cake (based on chestnut flour, pine seeds, raisins)



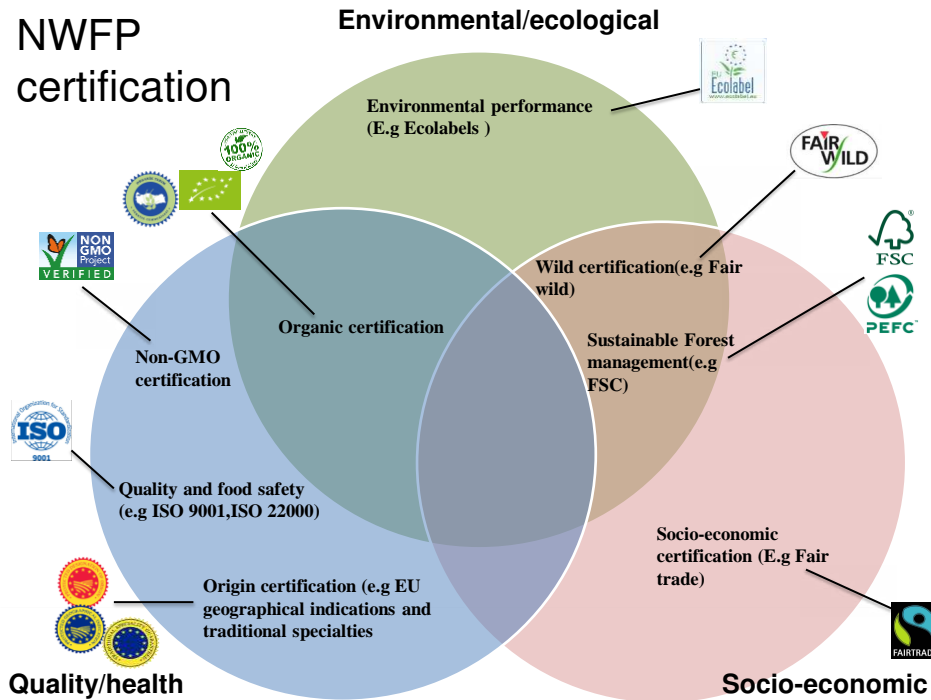
Cork products

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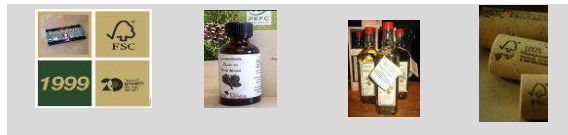
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NWFP certification



- **Sustainable Forest Management Certified NWFP**

Main Scope: Assessment of Sustainable Forest Management



- **Wild certified NWFP**

MS: Assessment of sustainable wild harvesting



- **Organic certified NWFP**

MS: Insurance of organic production (e.g. no use of pesticides, not contaminated areas)



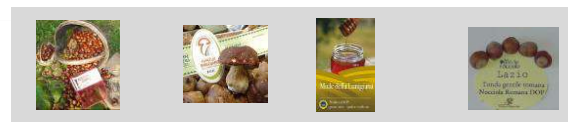
- **Fair Trade certified NWFP**

MS: Assurance of fair prices and empowerment of producers



- **Origin and traditional specialties certified NWFP**

MS: Assessment of the origin and the traditional know-how



- Forest certification (FSC/PEFC) (ITA, ESP and FRA + TUR)
- Fairtrade certification (1 case, MOR)
- FairWild (2 cases, BiH and ESP)
- Geographical indications and traditional specialties (see table below)

Country	Dried fruits	Honey	Oils	Spices	Total
Morocco	-	-	1	--	1
SM	0	0	1	0	1
Cyprus	1	-	-	-	1
EM	1	0	0	0	1
Greece	2	1	2	1	6
Slovenia	-	3	-	-	3
NEM	2	4	2	1	9
France	4	4	-	-	8
Italy	17	4	-	3	25
Spain	3	4	-	1	10
NWM	24	12	0	4	43
Total	27	16	3	5	54



4 Honey



13 chestnuts



4 nuts

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c)Complementary products and services

Territorial marketing: Road, trail, path... the tools for connecting different economic actors and stakeholders:

Chestnuts road
Truffles road
Mushrooms road
Pine Kernels road
etc.



Associazione Tutela dei marroni di Castione



- big chestnut festival
- recreational activities, chestnuts tour



NWFP can become an imago product for a specific territory, linking traditions and landscape → complement rural incomes and sustain territorial management

local ecotypes are represented



- successful against chestnuts gall wasp

www.marronicastione.it

4. Biomass for energy: strategies

Different problems and dynamics between **South-East** and North Mediterranean regions



Initiatives mostly focus on stimulating efficient use of forest resources by local communities:



- improved managing/ harvesting techniques
- efficient technology for heating and cooking
- Establishment of new forest plantations can help

While in the **Northern Mediterranean** regions

- Development of forest biomass sector can offer excellent opportunities for the mobilization of the production potential of forests and development of a green economy
- Wood and wood waste used for electricity, heating and cooling production is the biggest source of renewable energy in the EU (EU, 2014).
- *International Energy Agency (IEA): biomass is a 'sleeping giant' of renewable energies*



Gigantism of plants

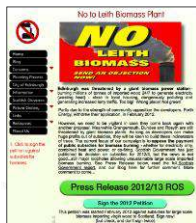


e.g. Tilbury (UK), on Thames. 742 MW (biggest biomass plant in the world)



Fire in 2012: 4-6.000 t pellet burned

Located near harbours → rely on import and long supply chains



Plans for a 200MW power station at the port of Leith in Scotland have been scrapped.

The company behind the scheme, Forth Energy (a joint venture between Forth Ports and Scottish and Southern Electric), came under fierce opposition with more than 1,800 letters of objection to the council. Local opposition group No Leith Biomass have campaigned hard on local pollution and international sustainability issues, and there has been direct action at the company's offices.

In a statement Forth Energy stated that their discussion to withdraw the Leith application was due to the Port being considered as a hub for the offshore wind industry. This positive move was tempered by the fact that the company say they are still committed to plans for three other biomass power stations, located in Dundee, Grangemouth and Rosyth of 100MW each.

- For the efficient use of these resources, reducing the energy losses from the generation process and optimising logistics, the best organizational models are those based on small and micro co-generation plants or on local district heating plants (Gonzales et al, 2014)

Encourage:

- Short supply chains
- Small plants, for district heating+ electricity
- Sustainability criteria (in discussion at EU)



This represents the main situation in the Med region: a good example of a decentralised renewable energy sector.

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Dr. Enrico Vidale



Dr. Riccardo Da Re



Prof. Davide Pettenella



www.star-tree.eu

Multipurpose trees and non-wood
forest products, a challenge and
opportunity



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