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“Key questions for future research on Mediterranean forests”

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

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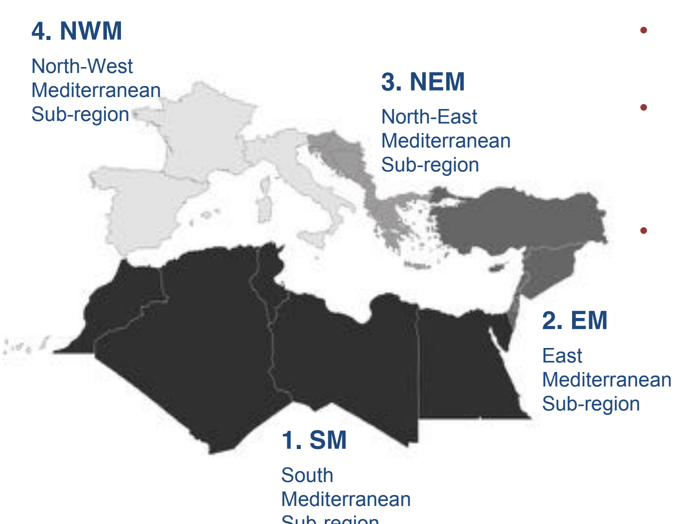
Outline

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

1.Context

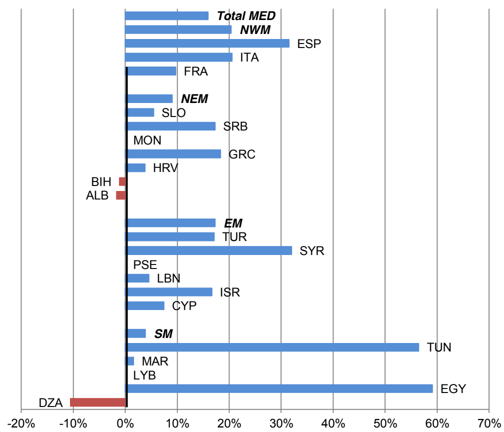
Mediterranean region (Plan Bleu, 2009)



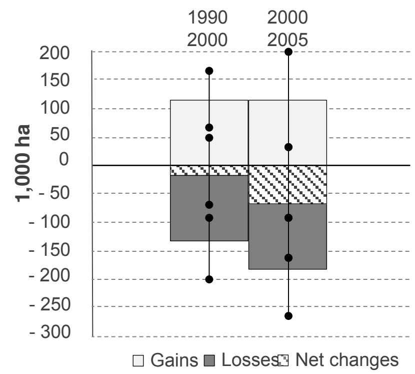
- 21 countries
- 4 sub-regions
- Forests: ~ **74 Mha**
  (forest cover: 9.5%)
- Uneven distribution:
  - 73% NEM + NWM
  - 17% EM
  - 11% SM

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) Thermophillous 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

NWFP: Products of biological origin other than wood derived from forests, other wooded land and trees outside forests (FAO 1999)

- **Forest Products**
  - Timber Products
  - **Non-Timber Products**
    - Non –Timber Forest Products
      - Fuelwood
      - Small wood
    - **Non-Wood Forest Products**
      - Flora
      - Fauna

Source: adapted from FAO (1999)

Why NTFP are important

Southern and Eastern Med Regions | **Northern Med Regions**

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

Southern and Eastern Med Regions

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

Northern Med Regions

Urbanization and better living standards

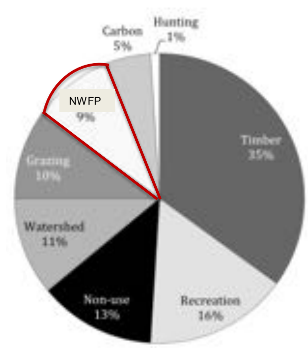
- less profitability of traditional forestry based on timber
- increasing demand for social and environmental products
- rural development and environmental policies in support

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)

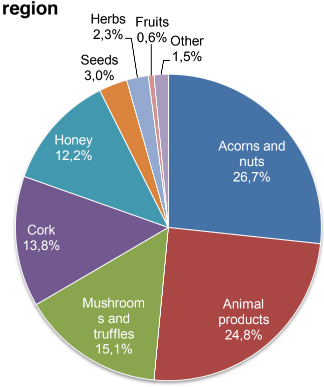
Many NWFP are self-consumed or informally traded.

NWFP

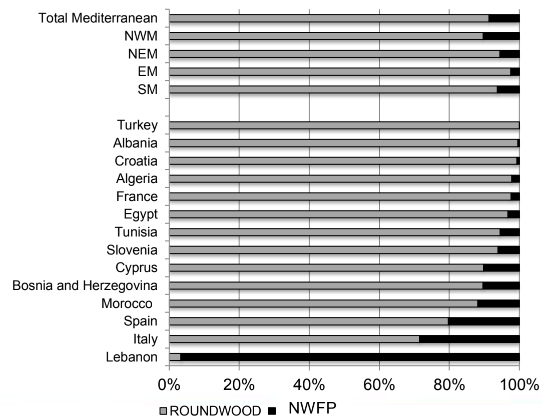
Data collected from FAO FRA 2010.
Cover just 14 out 21 countries, and do not refer to all products (e.g. Argan oil in Morocco, pine seeds partially reported, etc.)

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

Pine resin

Cork

Data source	Pine seeds: Production (tons)	Pine seeds: Value (M €)	Pine resin: Production (tons)	Pine resin: Value (M €)	Cork: Production (tons)	Cork: Value (M €)
FAO FRA 2010	16,545	*48.7	1,705	0.9	101,428	163.3
Alternative Min	5,295	83.8	8,343	2.6	142,300	142.3
Alternative Max	18,992	307.7	9,821	3.2	142,300	327.3
	Perez et al., 2004; NFC, 2005 and 2012; Mutke et al., 2012 and 2013; Sfeir, 2011; Daly et al., 2012; GDF, 2009.		IGN, 2013; Spanos et al., 2010; NFC, 2007; Cesefor, 2009; Magrama, 2011; GDF, 2009; Satil et al., 2011.		APCOR, 2010; Daly et al., 2012.	

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

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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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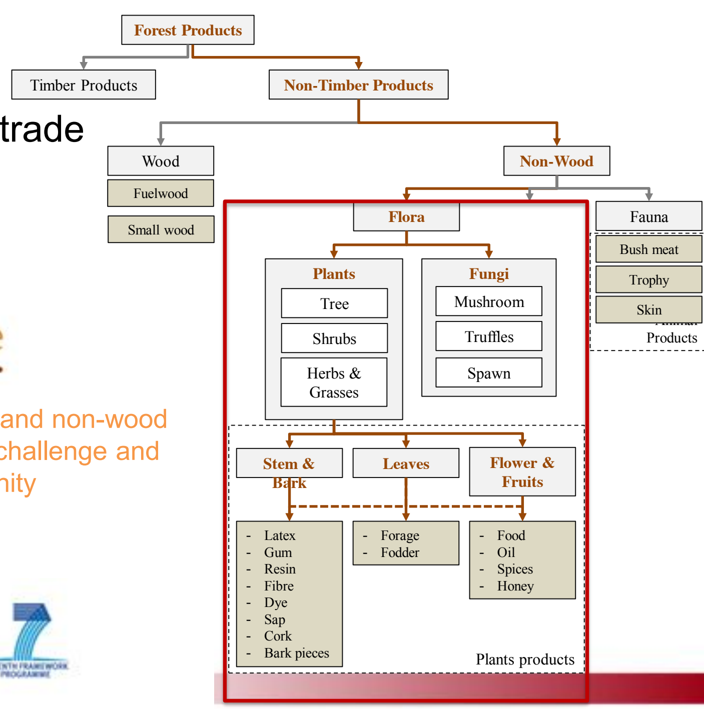
International trade



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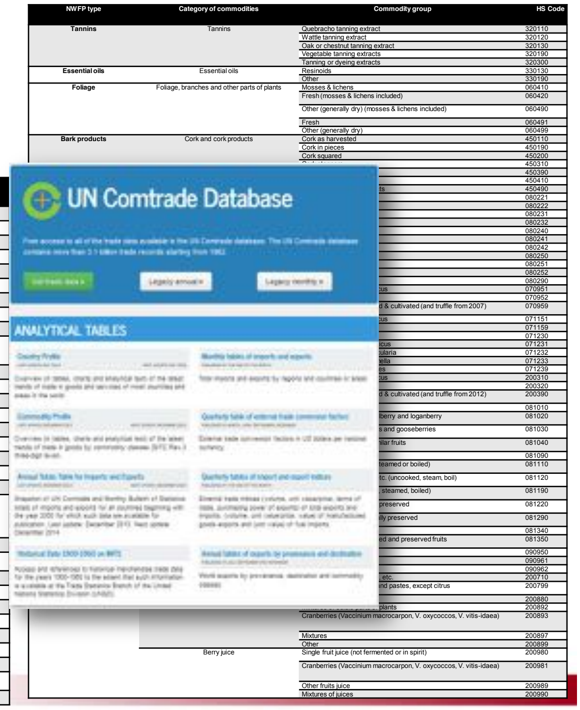
To commercial classification (HS system)

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
		Foliage
	Extracted from tree (tree is kept alive)	Sap
		Natural gums and resins
		Exudates
	Bark and cork	Bark products
	Fruits & flowers	Tree flowers
		Fruits
		Edible nuts
Tree dependent products	Wild fungi	Wild mushrooms
		Truffle
	Flower and bug substances collect by animals	Honey and Bee Products
Forest understory products	Berries	Berries
	Forest plants	Live tree/plants
		Medicinal and aromatic plants
		Mosses & lichens
	Litter	Litter
	Peat	Peat
	Animal and animal parts	Wild fish
		Game meat
		Living animals
		Animal parts
		Ants eggs

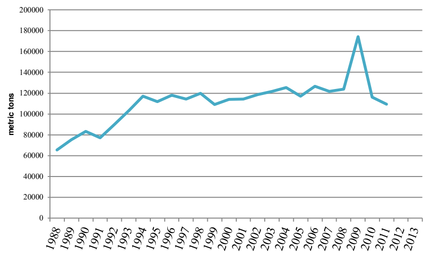


NWFP for which some EU countries are key actors in the international trade

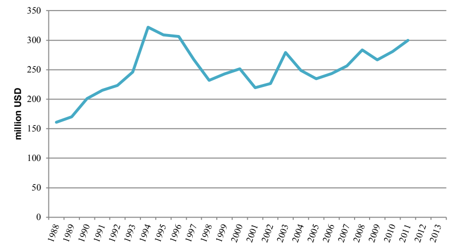
- Cork
- Chestnuts
- Tannins (refinement)
- Wild mushrooms(truffles)

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	149,6	Japan	72,5	Japan	54,4	Japan	59,0
France	13,8	China	21,9	China	23,1	France	26,6
USA	11,5	USA	16,0	France	21,7	Italy	24,2
Asia, nes	9,8	France	13,9	USA	19,9	Switzerland	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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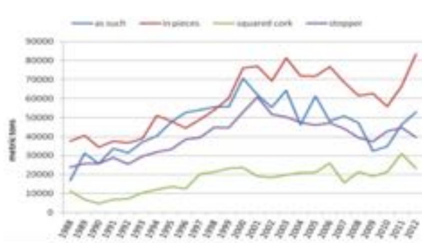
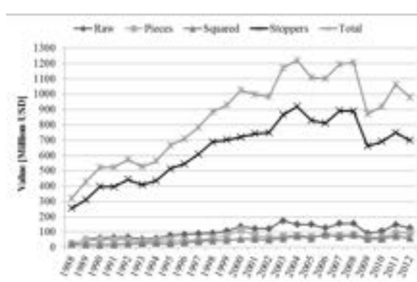
Cork





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	28,5	Italy	29,3	Italy	29,1	USA	17,5
Germany	16,2	Germany	18,9	USA	13,5	Germany	9,4

Imports (million USD)

2000		2005		2010		2012	
France	192,7	France	205,3	France	189,5	France	181,3
USA	115,6	USA	146,1	USA	137,4	USA	150,1
Australia	58,8	Spain	73,1	Spain	49,7	Spain	47,0
Spain	55,4	Australia	55,5	Italy	46,3	Italy	44,8
Germany	52,1	Italy	45,1	Chile	30	Portugal	38,0

- 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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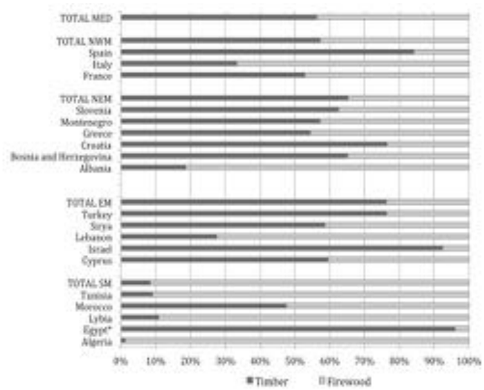
Firewood

- 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 estensivation
- 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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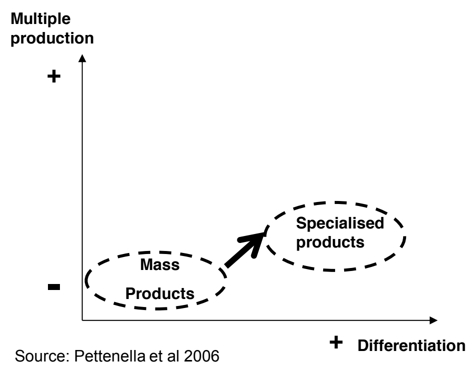
Two other strategies

b) Specialties

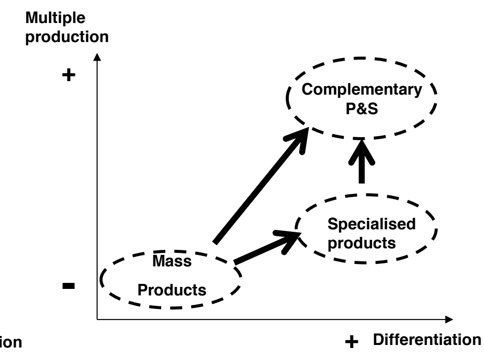
e.g high added value niches products

c)Complementary products & services:

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



Source: Pettenella et al 2006



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

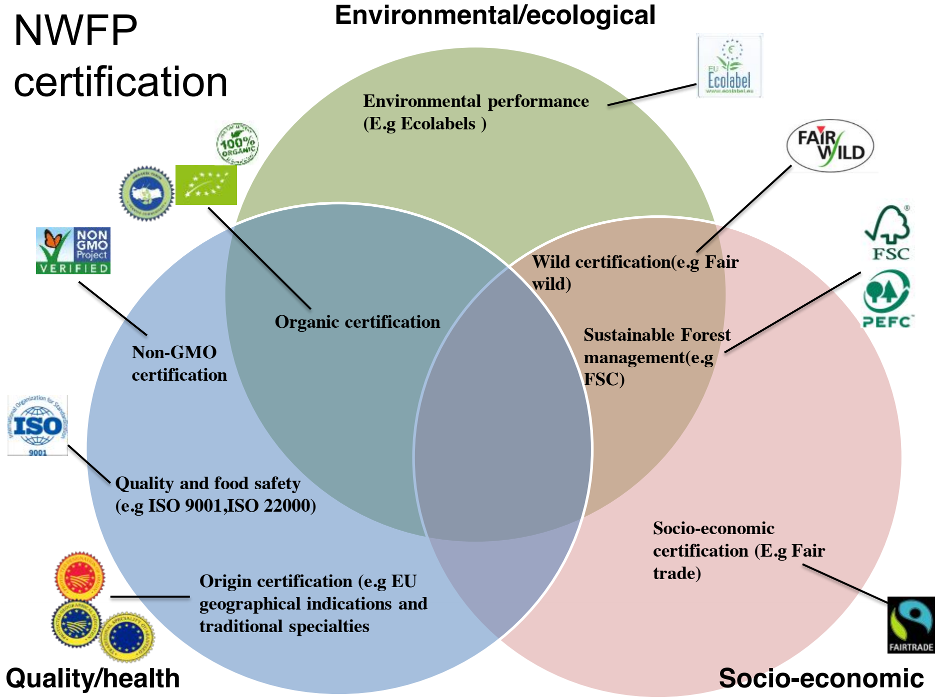
Nolvelty: product development

Chestnuts liquor

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

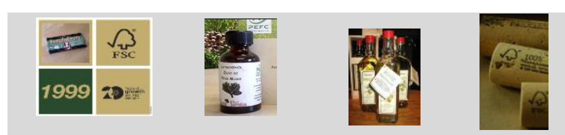
Cork products

NWFP certification



- **Sustainable Forest Management Certified NWFP**

Main Scope: Assessment of Sustainable Forest Management

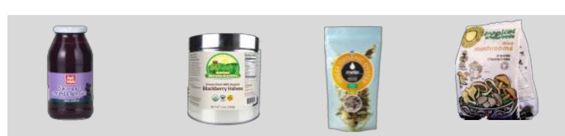


- **Wild certified NWFP**

MS: Assessment of sustainable wild harvesting

- **Organic certified NWFP**

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

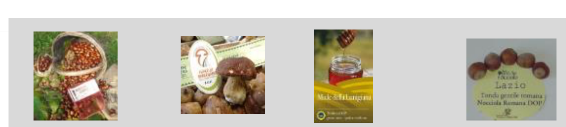


- **Fair Trade certified NWFP**

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	24
Spain	3	4	-	1	10
NMM	24	12	0	4	43
Total	27	16	3	5	54

4 Honey

13 chestnuts

4 nuts

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 dicussion at EU)

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

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