



BENEFITS AND CONSTRAINTS ASSOCIATED TO AGROFORESTRY SYSTEMS: THE CASE STUDIES IMPLEMENTED IN ITALY WITHIN THE AGFORWARD PROJECT

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AGFORWARD
Agroforestry for Europe



Consiglio Nazionale delle Ricerche





This presentation includes:

- 1. Introduction** to AGFORWARD project and the Participatory Research and Development Network (PRDN)
- 2. Methods:** collection of qualitative and quantitative data
- 3. Main findings:** key issues and challenges, stakeholders' perceptions
- 4. Concluding remarks and perspectives:** further research needs

Montpellier 23-25 May 2016

AGFORWARD project



FP7 European research project AGFORWARD –
www.agforward.eu (2014-2017)

AIMS

Promoting agroforestry (AF) practices that can support European rural development

- i) to understand the context and the extension of AF practices in Europe;
- ii) to identify, develop and field-test the innovations (through a participatory approach) in order to improve the benefits and the viability of AF systems in Europe;
- iii) to evaluate innovative projects and practices to evaluate innovative agroforestry designs and practices at a field-, farm- and landscape scale;
- iv) to promote the wider adoption of appropriate agroforestry systems in Europe through policy development and dissemination.

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Methodology

3 workshops (WS) were organized June - September 2014

Total sample of 48 stakeholders representative of:

- a) farmers
- b) professional associations, farm advisors, local policy makers;
- c) AGFORWARD researchers



- i) **High Natural and Cultural Value Agroforestry**, Sardinia region, with a focus on scattered oaks mixed with permanent or temporary pastures or intercropped with cereals and/or fodder crops;
- ii) **Agroforestry for High Value system**, Umbria region, with a focus on olive orchards intercropped with wild asparagus and grazed by poultry;
- iii) **Agroforestry for Livestock Farmers**, Veneto region, with a focus on organic free-range pigs combined with shortrotation coppice with poplar and willow growing for biomass production.

The Participatory Research and Development Network - PRDN

The **PRDN** strongly involves stakeholders to better understand and develop the functioning of AF systems and enables research activities to respond to problems and opportunities as identified by local stakeholders

Each WS was divided into 2 phases

- 1. Qualitative data:** *key issues and challenges were elicited through a moderated discussion among stakeholders*
- 2. Quantitative data:** *stakeholders' perceptions of AF systems were elicited by submitting a questionnaire to stakeholders*

Questionnaire: participants assigned a score from 1 to 10 to each positive and negative issue of AF systems

The answers were classified in "**Very Important**" (range 1-4), VI; "**Important**" (range 5-7), V; "**Less Important**" (range 8-10), LI; **no answer**, NI. A value was assigned to each range: VI=3; V=2; LI=1; NI=0. The frequency of answers per each factor distributed to the different classes was calculated as well as the total score obtained from the sum of the n. of cases multiplied the value of the relative class.

PRODUCTION

- Animal health and welfare
- Animal production
- Losses by predation
- Crop or pasture production
- Crop or pasture quality/food safety
- Disease and weed control
- Diversity of products
- Timber/wood/fruit/nut production
- Timber/wood/fruit/nut quality

ENVIRONMENT

- Biodiversity and wildlife habitat
- Carbon sequestration
- Change in fire risk
- Climate moderation
- Control of manure/noise/odour
- General environment
- Landscape aesthetics
- Reduced groundwater recharge
- Runoff and flood control
- Soil conservation
- Water quality

MANAGEMENT

- Complexity of work
- Inspection of animals
- Labour
- Management costs
- Mechanisation
- Originality and interest
- Project feasibility
- Tree regeneration/survival

SOCIO-ECONOMY

- Administrative burden
- Business opportunities
- Cash flow
- Farmer image
- Income diversity
- Inheritance and tax
- Regulations
- Local food supply
- Marketing premium
- Market risk
- Opportunity for hunting
- Profit
- Relationship between farmer/hunter
- Relationship between farmer/owner
- Rural employment
- Subsidy and grant eligibility
- Tourism

Main findings

KEY ISSUES AND CHALLENGES

Improve
management
skills

- Optimize biological synergies among the components of the systems
- Increase qualitative and quantitative productivity of the systems
- Protect grazing animals from wild fauna

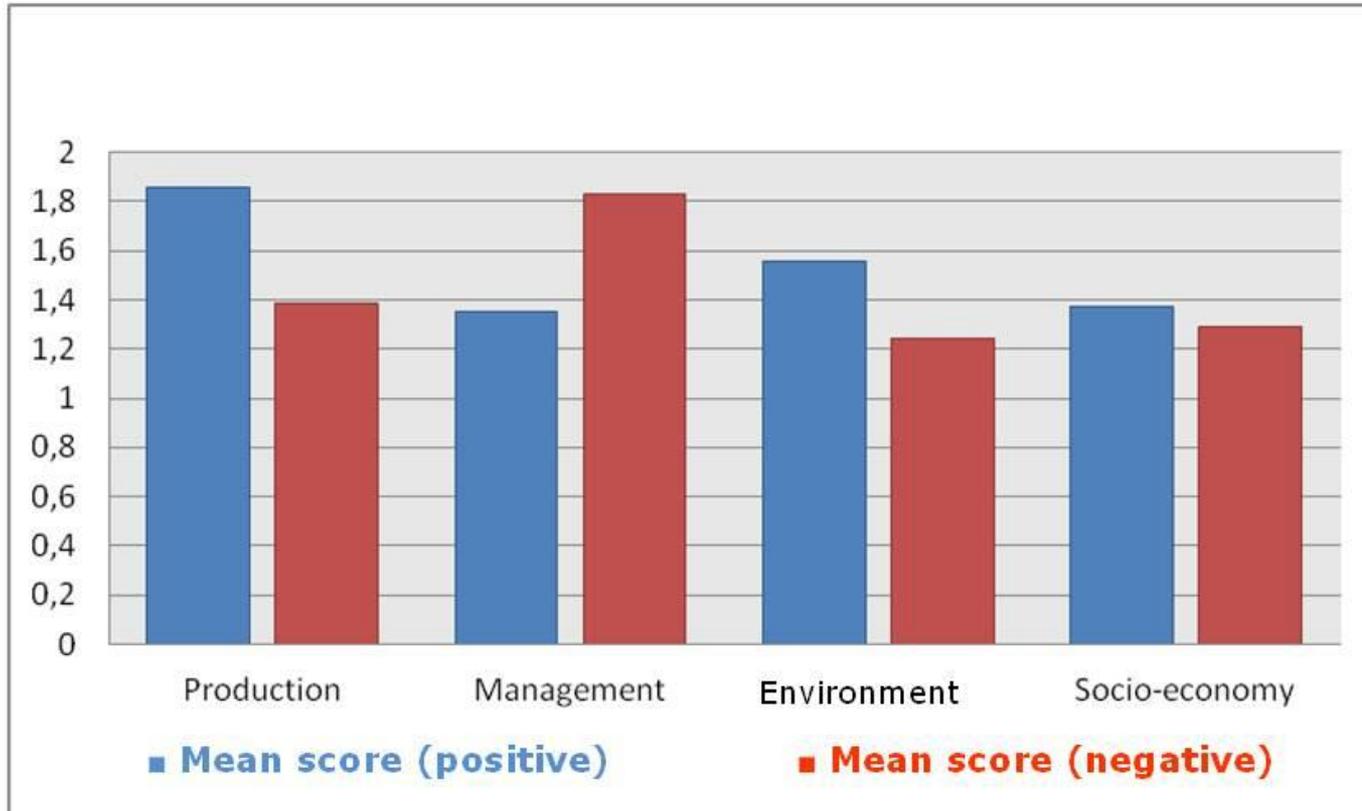
Enhance
economic
value

- Identify viable and marketable agroforestry products
- Implement valuable chain for agroforestry products

Raise
stakeholder
awareness

- Improve communication and sharing of knowledge among stakeholders
- Organize educational training for farmers, students, professionals

STAKEHOLDERS' PERCEPTIONS

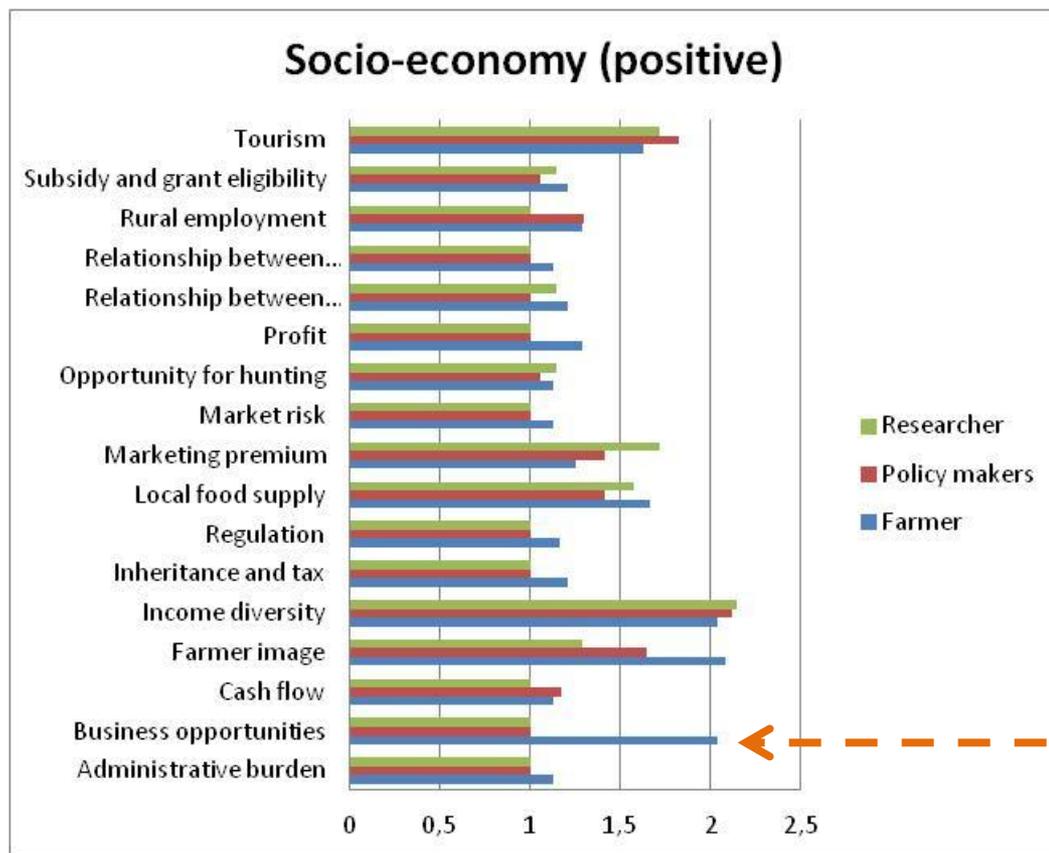


Significant differences between positive and negative answers according to macroareas, on the total 48 stakeholders (Wilcoxon test)

Macroareas	P-value <0.05
Production	<0.001
Management	<0.001
Environment	<0.001

Significant differences among responses on each item according to the Professional Categories (Kruskall-Wallis test)

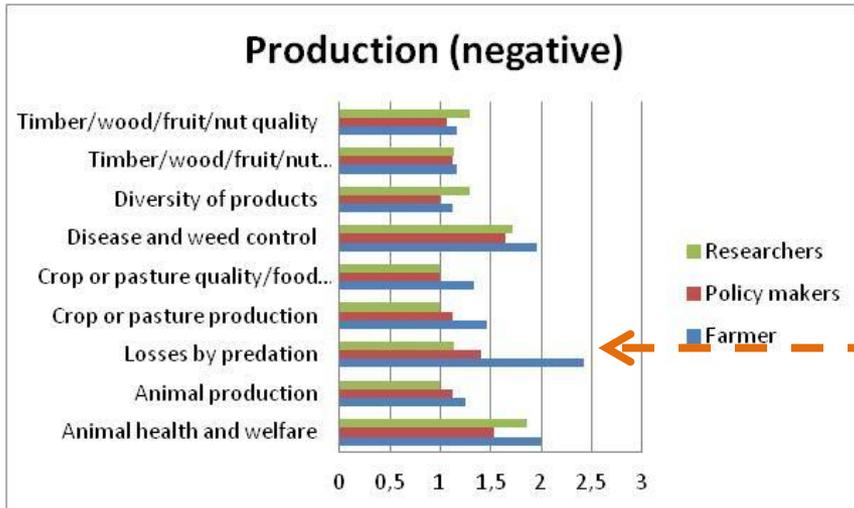
24 farmers, 17 policy-makers, 7 researchers



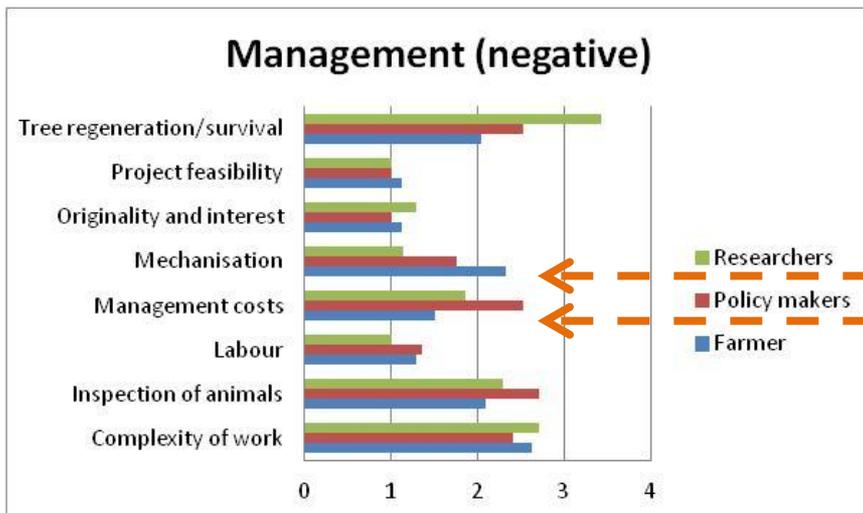
Items – Socio-economy	P-value
	<0.05
Business opportunities	0.00224
	2

Significant differences among responses on each item according to the professional categories (Kruskall-Wallis test)

24 farmers, 17 policy-makers, 7 researchers



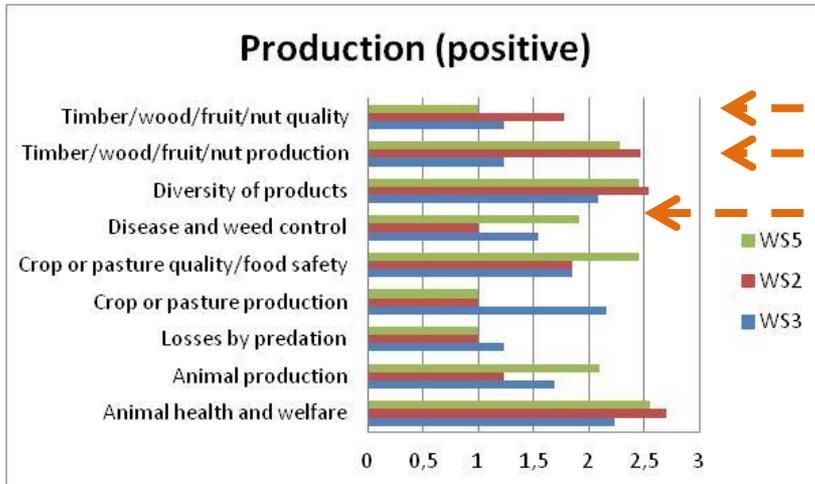
Items - Production	P-value
	<0.05
Losses by predation	0.03268



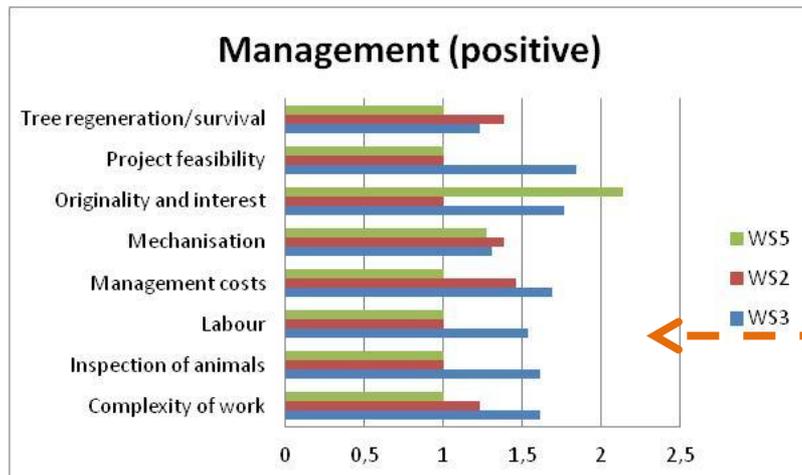
Items - Management	P-value
	<0.05
Mechanisation	0.02047
Management costs	0.02813

Significant differences between responses on each item according to WSs (Kruskall-Wallis test)

WS2, WS3, WS5

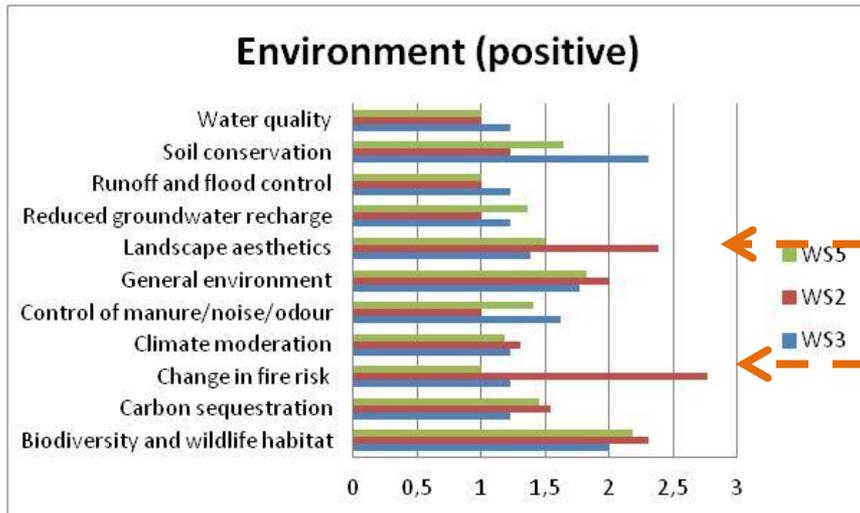


Items - Production	P-value
	<0.05
Timber/wood/fruit/nut production	0.02228
Timber/wood/fruit/nut quality	0.01801
Disease and weed control	0.0001236

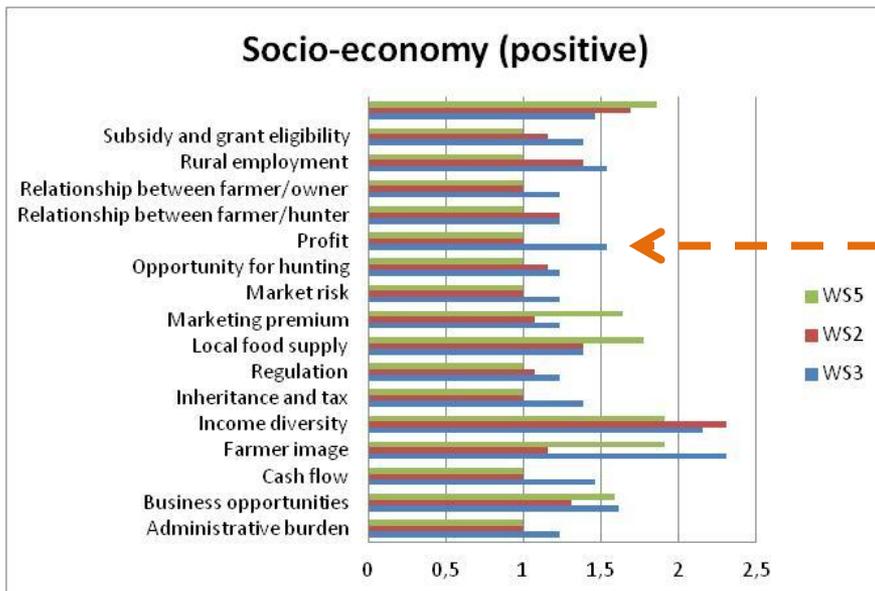


Items - Management	P-value
	<0.05
Labour	0.01479

WS2, WS3, WS5



Items - Environment	P-value
	<0.05
Change in fire risk	9.972e-07
Landscape aesthetics	0.03663



Items - Socio-economy	P-value
	<0.05
Profit	0.01479

Concluding remarks and perspectives

Stakeholders perceive that agroforestry systems can deliver **high quality products** respecting and **improving the environment**.

At the same time they remark some key **management constraints**, such as **mechanization** and relative **management expenses**.

Moreover, they would direct further research needs to:

- enhance the **economic value** of AF products (valuable products, certification)
- raise stakeholders' **awareness of AF systems** (communication)

Differences, among the **Professional Categories**, related to the negative responses on each item

- **Production - Losses by predation (farmers)**
- **Management - Mechanization (farmers)**
- **Management - Management costs (policy makers)**

Differences, among **WSs**, related to the positive responses on each item

- **Production - Timber/wood/fruit/nut production (WS5, WS2)**
- **Production - Timber/wood/fruit/nut quality (WS2)**
- **Environment - Change in fire risk (WS2)**
- **Environment - Landscape aesthetics (WS2)**

THANK YOU VERY MUCH FOR YOUR ATTENTION!

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