Initial Stakeholder Meeting Report
Traditional Agroforestry Systems
in Central and Northern Portugal

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Work-package	2: High Natural and Cultural Value Agroforestry
Specific group	Traditional agroforestry systems from central and northern regions in Portugal
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Location	Head Office of the Alvão Natural Park, Vila Real, Portugal
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1 Context

The AGFORWARD research project (January 2014-December 2017), funded by the European Commission, is promoting agroforestry practices in Europe that will advance sustainable rural development. The project has four objectives:

1) to understand the context and extent of agroforestry in Europe,
2) to identify, develop and field-test innovations (through participatory research) to improve the benefits and viability of agroforestry systems in Europe,
3) to evaluate innovative agroforestry designs and practices at a field-, farm- and landscape scale, and
4) to promote the wider adoption of appropriate agroforestry systems in Europe through policy development and dissemination.

This report describes one of about 40 initial stakeholder workshops to address objective 2. Further details of the project can be found on the AGFORWARD website: www.agforward.eu

2 Description of system

Rural populations in the central and northern regions of Portugal have used traditional agroforestry systems to diversify production and income, mainly in the form of home consumption and local sales. The diverse products resulting from these systems include animal products such as meat and milk; wood and non-wood forest products such as firewood, fruits, forage, and fodder; and agricultural products such as vegetables, olive, and grapes for wine production.

Due to the social and orographic characteristics of the region, the land use is fragmented creating an 'agroforestry mosaic' characterised by a high number of trees and shrubs species (Figure 1). According to the last farm structure survey in Portugal for 2013 (INE 2014), the agricultural land in the North and Central regions represents 33% of the total agricultural land in Portugal. Although there are a large number of farms, the mean farm size is only 6.5 ha (INE 2014).

Figure 1. The agroforestry mosaic in Alvâo Natural Park (Photos by Joana Amaral Paulo)

The following types of traditional agroforestry systems can be identified in the northern and central regions of Portugal:

2.1 Lameiros

Lameiros are natural pastures where trees are included either randomly or in hedges, borders and/or in riparian forests lines (Figure 2). These trees, traditionally built for field demarcation, are important for local fire wood consumption, animal fodder, soil protection from water or wind erosion (Pereira et al. 2004), and pasture improvement (Pereira et al. 2005).

Figure 2. Traditional landscapes of the *Lameiros* in Pinhel (Photos by Joana Amaral Paulo)

The tree species are quite diverse and include: *Alnus glutinosa*, *Quercus pyrenaica*, *Quercus rotundifolia*, *Pistacia terebinthus*, *Acer monspessulanum*, *Fraxinus angustifolius*, *Fraxinus excelsior*, *Ruscus aculeatus*, *Celtis australis*, *Laurus nobilis*, *Malus sylvestris*, *Arbutus unedo*, *Ulmus minor*, *Ulmus procera*, *Crataegus monogyna*, *Pyrus bourgaena*, *Rosa canina*, *Salix alba*, and *Daphne gnidium*. These areas, although characterized by deep and fertile soils, have been suffering abandonment as grazing is reduced in these regions (INE 2014). In turn, the abandonment of grazing rapidly changes the composition of the herbaceous stratus composition, increasing the presence of species with low pasture interest (Amaro 2009). In addition, the trees are frequently removed thereby decreasing biodiversity. It is difficult to assess the area of such systems due the lack of official inventory data.

2.2 Soutos e castinçais

These areas include low tree density stands of *Castanea sativa* species, on average 89 trees per hectare according to AFN (2010), managed for chestnut or high quality wood production in association to permanent pastures (natural or improved) for animal consumption (Figure 3). These areas are also frequently characterized by mixed stands with *Quercus pyrenaica* trees. According to the new forest inventory area assessment these systems are distributed along 41410 ha (ICNF 2013). According to INE (2013) this area annually produces 22000 tonnes of chestnuts.

Figure 3. Traditional *Soutos*. Location: Vila Real (Photos by FORESTIS and ARBOREA)

3   Participants

For the organization of the meeting, ISA collaborated with FORESTIS, a Portuguese Forest Association which represents 31 associations acting at a sub-regional scale, supporting more than 15000 forest landowners. The meeting was attended by 15 participants representing different associations, but only six answered the questionnaires. Most of the attendants were forest or environmental technicians representing local forest and environmental associations and one public organisation. ISA was represented by three members. Table 1 presents the list of the attendants to the meeting.

Table 1. List of attendees

Entity/property (number of participants)	Sector
CAPOLIB (1)	Farm/forest associations
AFACC (1)	Farm/forest associations
CAPOLIB (1)	Farm/forest associations
AFLODOUNORTE (2)	Farm/forest associations
AGUIARFLORESTA (2)	Farm/forest associations
URZE (2)	Farm/forest associations
ICNF (1)	Farm/forest associations
FORESTIS (2)	Farm/forest associations
ICNF (3)	Public institution
AFACC (1)	Farm/forest associations

4   Program for meeting

The meeting was held at the head office of the Alvão Natural Park in Vila Real. The meeting started at 9.00 am with the reception and registration of the participants (Table 2). It was followed by a brief welcoming of the participants made by FORESTIS and ISA, including a brief presentation of the program of the day and the objectives of the Shareshop. ISA followed with the presentation[1] '2nd Shareshop of the AGFORWARD Project – Agroforestry that will advance rural development (in Portuguese)' focused on the 'agroforestry' concept, European projects already completed and under development (Figure 4). This was followed with a the presentation of the 17 minute film: 'Agroforestry: perspectives and challenges'. Participants were then asked to present themselves to the audience. Presentations focused on their experience with agroforestry systems and their expectations for the workshop.

Table 2. Programme for the meeting

09.00	Reception and registration participants
09.30	1st Part: Welcome and Agroforestry explanation
	- AGFORWARD project and reasons and objectives of the Shareshop - Joana Paulo (ISA)
	- Agroforestry/AGFORWARD/EURAF – Joao Palma (ISA)
10.15	Film presentation: 'Agroforestry : perspectives and challenges' (17 min)[2].
10.35	Attendant's presentation: activity, type of property, agroforestry systems included and expectations from the Shareshop.
11.10	Coffee Break
11.20	2nd Part: Open discussion session
	- Identification of problems, challenges and good practices in agroforestry systems
	- Potentialities and limitations of the new agroforestry systems.
13.00	Closing: questionnaire and acknowledgments.

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[1] Available @ http://prezi.com/8pttfzzt-r5w/1o-shareshop-projecto-agforward/

[2] Available @ http://agforward.eu/index.php/pt/247.html

After the coffee break the open discussion session was carried out (Figure 4), focusing on:

- The identification of problems, challenges and good practices of the traditional agroforestry systems from the region
- Discussion on the potential and limitations of the new and traditional agroforestry systems.

Details on the contents and conclusions of this session are presented in Section 5 of this document. After the open discussion, questionnaires were distributed to the participants.

Figure 4. Project presentation and open discussion

5   Open discussion

The open discussion focused on the traditional systems of the Northern region and it allowed the collection of participant opinions regarding agroforestry practices, the constraints related to their maintenance, and limitations for the extension to other agroforestry systems such as the ones presented in the workshop by the organizers. The discussion covered knowledge of agroforestry and issues of agroforestry policy and development.

5.1   Agroforestry concept and knowledge

Agroforestry is a known concept to the participants, traditionally applied in the systems named as *Lameiros* and *Soutos and castinçais* (described in Section 1). These systems are characterized by silvopastoral practices where the trees help i) maintaining the pasture, ii) guarantee animal forage along the year (fodder), iii) to promote animal shelter and wellbeing and iv) producing additional products with economic value.

- It would be good to demonstrate the positive externalities of these agroforesty systems including, for example, demonstration trials, pilot projects, and knowledge transfer.
- *Lameiros* are presently in decline due to the abandonment of pastoral activities.
- Some areas of *Soutos and castinçais* are now being managed exclusively for fruit production due to the high price of chestnut and the decrease of pastoral activities. As a consequence the management of these areas is 'evolving' to pure forest management, with consequences on the characteristics of the understory, namely the increase of fuel load, increasing fire hazard.

5.2   Agroforestry policy and development

Minimum area limits for the application to rural development funding is the main constraint for the development of new projects (see Section 1 for description). The large majority of the stakeholders

think that they do not have the minimum area of land required. However the latest version of the Portuguese Rural Development Programme, particularly the support for "new agroforestry systems" has a minimum of 0.5 ha and the Forest Management Plan is only compulsory for investments larger than 25 ha[3].

- The need of co-financing and the need of a minimum value of investment under the rural development funding is a limiting factor for the maintenance and promotion of these systems, even when applications are made by associations of landowners.
- Several participants in the workshop demonstrated interest in implementing agroforestry practices using tree species such as *Fraxinus* sp. or *Populus* sp. for wood production.
- The knowledge on the existing measures for support of agroforestry systems implementation in Portugal was unclear.
- The problems related to the size of the farms and the problems associated to the pastoral activities have been hampering investments and promoting both land abandonment or land use change towards pure forest management and production.

6   Questionnaire results: ranking aspects of agroforestry systems

Six participants completed a brief questionnaire which sought to highlight the key positive and negative aspects of the agroforestry systems. The questionnaire asked to rank the importance of the positive and negative aspects of agroforestry, from 1 (highest) to 10 (lowest). To help the interpretation of results, scoring points were given to the answers as it is shown in Table 3. Twenty-five points were given to the item ranked first. One point to the item ranked tenth. For each item, the points were added and the total points producing Table 4 (positive) and Table 5 (negative).

Table 3. Scoring points for each the rank

Rank	1	2	3	4	5	6	7	8	9	10
Points	25	18	15	12	10	8	6	4	2	1

Results suggest that positive aspects (Table 4) are mostly related to socio-economic effects, such as profit and income diversity, and environmental benefits, such as the promotion of biodiversity and wildlife habitat.

Table 4. The top 10 **positive** aspects of agroforestry systems as perceived by stakeholders

Rank	Effects	Aspect	Final score
1	Socio-economy	Profit	72
2	Environmental	Biodiversity and wildlife habitat	70
3	Production	Diversity of products	41
4	Socio-economy	Income diversity	41
5	Management	Labour	35
6	Environmental	Change in fire risk	28
7	Production	Timber/wood/fruit/nut production	27
8	Management	Management costs	27
9	Socio-economy	Rural employment	26
10	Socio-economy	Local food supply	25

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[3] Agroforestry measure in the RDP available @ http://www.gpp.pt/pdr2020/m/Medida8_Ac8.1_SilviculturaSustentavel.pdf

Negative aspects also highlighted the need of improving knowledge on the economic viability and management feasibility of the agroforestry systems. In socio-economic terms the main negative concerns were linked to real market opportunities (market risk and business opportunities) and on the role played by public administration (inheritance and tax and administrative burdens). In management terms, the difficulty of mechanisation (mainly due to the small size of farms in the region); the uncertainty on the project implementation (project feasibility) and on the labour and costs management (complexity of work, labour, management Costs). Finally, just "Changes in Fire Risk", was considered as a possible environmental negative effect (Table 5).

Table 5. The top 10 **negative** aspects of agroforestry systems as perceived by stakeholders

Rank	Effects	Aspect	Final Score
1	Socio-economy	Market risk	55
2	Management	Mechanisation	50
3	Management	Project feasibility	47
4	Management	Complexity of work	36
5	Socio-economy	Inheritance and tax	33
6	Management	Labour	18
7	Management	Management costs	18
8	Environmental	Change in fire risk	15
9	Socio-economy	Administrative burden	15
10	Socio-economy	Business opportunities	14

7   Qualitative written responses

Three respondents gave a written answer to the question: "What constraints and challenges could be addressed by changes to an existing agroforestry system or establishing a new agroforestry system?" Two answers were related to the size of the farms as farms in this region of Portugal are typically smaller than other regions:

"The areas I have are so small and so spaced between them that I would have some difficulties in mechanizing these systems."
"With the Property Regime we have in the region, it would be really difficult to implement these type of systems."

The third respondent considered a constraint the increase of fire risk due to the increase of the numbers of trees in the landscape. On the question related to the potential solutions and research themes, the two answers evidenced the importance of increasing knowledge on the production processes related to agroforestry products in order to improve quality and reduce costs.

8   Next steps

The participants indicated an interest in supporting research related to agroforestry systems, namely the implementation of new agroforestry systems acting as demonstration sites, and other activities related to the project. All the participants asked to receive the project newsletter, which will be distributed by the associations present in the workshop. After the meeting, individual meetings with stakeholders were organized during the following months.

9 Acknowledgements

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