

Work-package group 3: Agroforestry for high value tree systems

Specific group: Intercropping and grazing of olive orchards in Italy

Date of meeting: 27 June 2014

Date of report: 6 August 2014

Location of meeting: Spoleto, Perugia, Italy

Author: Adolfo Rosati, CRA - OLI, Spoleto, Perugia, Italy

Contact: adolfo.rosati@entecra.it



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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 the system

Over one million ha of olive (*Olea europaea*) orchards risk abandonment in Italy, since the low price of olive oil and the de-coupling of subsidies from the production imply that harvesting the olives is not cost-effective. Since removing trees is illegal, the orchards risk large scale abandonment. The agroforestry system, described here, proposes to combine crops and animals with the olive orchard with the aim of providing additional and alternative income for the farmer, while improving the sustainability of the system.

The particular focus of this system is the intercropping of wild asparagus (*Asparagus acutifolius*). This species, which has an already established market for its spears, naturally tends to grow in abandoned olive orchards. Grazing animals, particularly poultry (*Gallus gallus*), are proposed as an additional source of income while providing weed control and fertilization, thus lowering costs and impact of the orchard management. Other crops/animals, compatible with olive production, may be also considered, based on stakeholders' suggestions and interests.



Figure 1. Grazing chickens in the olive orchard



Figure 2. Wild asparagus in the olive orchard

3. Participants

About 25 people attended the meeting, but only 21 registered; four curious people looked on but did not want to be actively involved! Of the 21 registered stakeholders, 14 returned the questionnaires, of which 13 completed it in a consistent way so the analysis refers to 13 questionnaires for the ranking of the positive and negative aspects.

Of the 14 completing a questionnaire, seven (50%) were aged 36-50 (50%), three were aged 51-65 (21%), whilst two were aged 20-35, and two were over 65. There were nine farmers, of whom five had an agro-tourism business. There were two farm workers, and the rest of the participants were consultants, scientists, and retired people. Although many were invited, no restaurant owners or operators came, but one indicated that he wanted to be informed of future events and activities as he processes several hundred kilograms of wild asparagus each year.



Figure 3. Initial discussions on the opportunities and challenges of olive orchards intercropped with wild asparagus

Table 1. List of participants and their profession

N°	Profession	Questionnaire	No	Profession	Questionnaire
1	Retired	yes	12	Retired	no
2	Farmer	yes	13	Farmer	yes
3	Farmer	yes	14	Farmer	yes
4	Hand labour on farm	no	15	Farmer	yes
5	Local administrator	no	16	Local Administrator	no
6	Farmer	no	17	Hand labour on farm	yes
7	Farmer	yes	18	Hand labour on farm	yes *
8	Scientist	yes	19	Scientist	no
9	Farmer	yes	20	Farmer	yes
10	Consultant	yes	21	Entrepreneur and Local Administrator	yes
11	Retired	no			

* = Not counted for the statistics about positive and negative aspects because incorrectly filled.

4. Meeting programme including field visits

The meeting started at the CRA conference room in Spoleto, with a brief presentation of the project AGFORWARD and of agroforestry, particularly olive agroforestry systems, given by the AGFORWARD lead participant for CRA (Adolfo Rosati). Participants were asked to introduce themselves and their interests. A second presentation was given by Alice Cartoni from the University of Perugia on the opportunities and problems related to free range poultry grazing. She gave particular emphasis on a project for a portable butchering facility that can provide the butchering service directly at the farm, allowing farmer to legally harvest their animals without having to build their own butchering house.

Afterwards, a bus took the participants to visit an olive agroforestry system with poultry grazing in the orchard, which had started with a previous project initiated by CRA, within the Rural Development Programme, at a private farm (Azienda Bachetoni). The group then visited the experimental farm of CRA, where wild asparagus have been intercropped in both a traditional and a super-high-density olive orchard, as well as in an open field without trees. The participants were then taken back to the conference room in Spoleto, where they completed the questionnaires. Some potted asparagus plants were donated to the participants in the hope that they would provide feedback on their experiences.

**Redditi aggiuntivi nell'oliveto
con pollo, asparago selvatico ed altre
colture/allevamenti consociati all'olivo**

**Incontro tecnico con agricoltori
e loro associazioni, trasformatori, ristoratori,
agronomi e altri portatori di interesse**

**Nell'ambito del progetto AGFORWARD
finanziato dalla UE, VII Programma Quadro**

ore

Programma:

09:00 Registrazione e presentazione del progetto AGFORWARD
09:15 Il pollo allevato nell'oliveto, tecniche e leggi.
09:30 Trasferimento in autobus all'azienda Bachetoni (Polli
nell'oliveto, località Paradiso di Pianciano) e ai campi del
CRA OLI (Asparago selvatico coltivato nell'oliveto, vicino
Castel Ritaldi). Rientro al CRA OLI in via Nursina a Spoleto.
12:30 Dibattito finale, compilazione di un questionario, scambio
di contatti.

**27 giugno 2014
ore 09:00**

**via Nursina 2
c/o Sede CRA-OLI
- Spoleto -**

Consegna di piante di
asparago selvatico e
telo pacciamante in
omaggio ai partecipanti.

**E' gradito comunicare
la presenza
tel. 0743/49743
(orario ufficio)**

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Figure 4. Brochure with programme of the meeting



Presentation on the portable butchering facility (notice the asparagus pots on the table!)



Visiting the asparagus intercropped with olives in a super high density olive orchard



Visiting the asparagus intercropped with olives in a traditional olive orchard



Visiting the asparagus in a pure stand



The excitement for the innovations inspired some music (notice the bag pipe)



An asparagus's perspective

Figure 5. Photos of the field visits to CRA's experimental farm of olive orchards intercropped with wild asparagus

5. Positive and negative aspects of agroforestry

As mentioned, 13 valid questionnaires were collected. Based on these, the positive aspects of agroforestry systems most often selected by the respondents were soil conservation and animal health and welfare (Table 1). The negative aspects of agroforestry systems, most often selected by the respondents, were the complexity of the work and issues of mechanization (Table 2).

Table 1. Positive aspects of agroforestry system as identified by respondents

Positive aspects	Respondents	Respondents (%)
Soil conservation	9	69
Animal health and welfare	8	62
Crop or pasture production	6	46
Diversity of products	6	46
Farmer image	6	46
Originality and interest	5	38
Biodiversity and wildlife habitat	5	38
General environment	5	38
Income diversity	5	38
Crop or pasture quality/food safety	4	31
Disease and weed control	4	31
Complexity of work	4	31
Project feasibility	4	31

Table 2. Negative aspects of agroforestry system as identified by respondents

Negative aspects	Respondents	Respondents (%)
Complexity of work	7	54
Mechanisation	7	54
Losses by predation	6	46
Regulation	6	46
Inspection of animals	5	38
Management costs	4	31
Administrative burden	4	31
Market risk	4	31

6. Key issues, challenges and best practice

In the discussion that followed, the group identified additional key issues and challenges specific to the use of asparagus as an intercrop for olives.

- What is the productivity and the quality of asparagus spears grown in the tree shade vs. in open field
- Types of mulching for the asparagus and interactions with animals
- How to manage the asparagus vegetation so it does not interfere with olive harvest
- Does mowing down the asparagus vegetation before olive harvest depress asparagus yield and survival?
- Can other animals be used to weed and fertilize the olive-asparagus agroforestry system?
- Can the system be applied to viticulture instead of olive orchards?
- Can insect eating animals (i.e. ducks and chickens) control the vectors of 'flavescence dorée' (*Scaphoideus titanus*) in viticulture?
- How to legally harvest and process the poultry on a small scale at reasonable cost and without bureaucracy.
- Market opportunities for such AF products.

Examples of interesting or best practice

In terms of the intercropping and grazing of olive orchards, the group identified the current examples of interesting or best practice.

- Mowing the asparagus before olive harvest
- Planting the asparagus only along the tree rows
- Mulching the asparagus plants with plastic woven mulch
- Using geese to weed vineyards
- Using naked neck poultry breed is a good compromise between grazing ability and growth performance

7. Potential innovations and next steps

Moving forward, the group proposed three potential innovations

- Develop best practices for growing wild asparagus in the olive orchard
- Develop portable butchering facilities for processing the meat at small scale
- Propose other viable crops/animal species with good marketability to be intercropped

At the end of the meeting, the participants completed two questionnaires. Nine participants (82% of those who answered this question) were interested in being actively involved in a network group focused on grazing and intercropping in orchard systems.

8. Acknowledgements

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