

RURAL DEVELOPMENT AS PILLAR II TO FOSTER AGROFORESTRY

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Abstract

Agroforestry practices and systems are sustainable use land management that should be fostered by the global and European Union policies. Within the Common Agrarian Policy (CAP) there are opportunities to foster agroforestry practices and systems that are not fully recognized as agroforestry but that should be improved. Main challenges of agroforestry are linked to a better technical and economic knowledge of these practices including recognition of added value through the value chain, as well as to the increase of agroforestry as sustainable land use among the students, public and farmers and better policy design.

Keywords: Common Agricultural Policy; measure 8.2; agricultural lands; forest lands

Introduction

The Common Agricultural Policy (CAP) is structured in two main Pillars: Pillar I that is fully funded by the European Union and Pillar II that is co-funded between the EU and the European member states. Rural Development is organized by official measures provided by the EU that are mainly designed by the Member states in agreement with the European Union. These measures are based on the Regulation 1305/2013, in the delegated acts and in the specific orientative measures provided by the European Commission. The aim of this paper is to evaluate the current stage of the Rural Development Programmes and agroforestry practices in the different European Union countries considering aspects related to agroforestry practices and systems, agroforestry at landscape level and supporting education and innovation.

Agroforestry practices in the Rural Development Programmes

Mosquera Losada et al. (2016) identified 27 measures within the 2014-2020 Rural Development Programmes that promote the integration of woody vegetation with agricultural product delivery from the lower storey (Mosquera-Losada et al. 2016; Santiago-Freijanes et al. 2018a). However this high number of measures tackling agroforestry makes difficult to evaluate the impact—including the spent money-of Pillar II on the agroforestry practices promotion. A summary of the main agroforestry activities (silvopasture/silvoarable/forest farming) can be seen in Table 1. The measure with the highest number of agroforestry practices implementation associated is the agri-environment measure (10.1) as happened before (214 in the CAP 2007-2013 period), mainly linked to meadow orchards (Santiago-Freijanes et al. 2018b). In total close to 467 measures are somehow promoting agroforestry from which hedgerows, followed by forest strips, and forest farming and meadow orchards are the most important.

Table 1: Number of regional programs that supported different agroforestry measure activities within the CAP 2014-2020 on which woody perennial vegetation is linked to agricultural activity such as Meadow orchards associated to silvopasture agroforestry practice, forest strips, hedgerows and isolated trees linked to silvoarable/silvopasture agroforestry practice on agricultural land and forest grazing and mountain pastoralism (silvopasture practice) and forest farming in forest lands (Mosquera-Losada et al. 2018c).

Agroforestry measure/activity		1.1	1.2	2.1	2.3	4.1	4.2	4.3	4.4	5.1	6.1	6.3	7.4	7.6	8.1	8.2	8.3	8.4	8.5	8.6	9.1	10.1	11.1	11.2	12.1	13.2	15.1	16.5	Total	
AGRICULTURAL LAND	Meadow orchards					3	2	6						3								52	1							67
	Forest strips							20					1	7		1				5	1	34			1	1	2	1		74
	Hedgerows	1	1	1	1			1	42	1			1	7		2	1			3		53	1	1	3	1		1		122
	Isolated trees							16						5						1		33			4	1		1		61
FOREST LAND	Forest grazing						2								1	3		1	2			14								23
	Forest farming (apiculture)		1	1		6	2				2	1			1					5		34	8	6						67
	Forest farming (not apiculture)		1	1		1	1		1												12	1								18
	Mountain pastoralism					3	6	4						4									17	1						
Total		1	3	3	1	10	3	9	83	1	2	1	2	23	2	6	1	1	11	18	1	185	10	7	8	3	2	3	467	

Agroforestry measure 8.2 linked to agroforestry practices in agricultural lands

Agroforestry measure was established thinking of the potential that silvoarable practices have to mitigate climate change, protect waters and promote biodiversity. However, in the 2007-2013 CAP, the uptake of the agroforestry measure was really low compared with the afforestation measure (Mosquera-Losada et al. 2016; Santiago-Freijanes et al. 2018a), being silvopasture more promoted (mostly in Hungary) than silvoarable agroforestry practices (mostly in France). There are at least three main reasons explaining the lack of success of agroforestry measure in the past that were partially solved in the current CAP. Firstly, the agroforestry measure in the CAP 2007-2013 should be compared with the other two measures aiming at introducing a woody component (measures 221 and 223). A maintenance period was supported in both measures that did not exist in measure 222, that could lead to a loss of Pillar I payments. When farmers established woody perennials under 221 or 222 measures they could implement also agroforestry as they could have some crops and usually animals to maintain the land in good conditions but keeping the payment for maintenance. This situation was partially solved in the current CAP as measure (8.1) supporting afforestation and the other (8.2) supporting agroforestry can be funded for both the establishment and maintenance of the established afforested and agroforestry land. However, the maintenance period was half for the measure 8.2 (5 years) compared with 8.1 (10 years) that could move farmers from 8.2 to 8.1 selection. A second important aspect that prevents from measure 8.2 adoption is that it only supported new establishment of agroforestry practices (Mosquera-Losada et al. 2018c) but not improvement or recovery of already existing agroforestry systems. However, this was modified with the OMNIBUS regulation that allows payment to improve already existing agroforestry lands. As a third aspect to make agroforestry measure more successful for the post-2020 we recommend that eligibility and therefore Pillar I payments should be ensured and that a clear recognition of the deliveries of agroforestry that is recognized by the FAO as one of the best forms for agricultural systems to mitigate and adapt to climate change.

Agroforestry measure 8.2 linked to agroforestry practices in forest lands

Agroforestry practices such as forest farming and silvopasture specifically linked to forest lands are not funded by Pillar I. Forest farming consist in the combination of an agricultural activity delivering an agricultural product described in Annex 1 in a forest land. These agricultural products could be medicinal plants, mushrooms but also small fruit tree production growing as a lower story. Forest farming activity is not clearly quantified across Europe. The knowledge of this activity is linked to the economic value it provides (Mosquera-Losada et al. 2018c), which can damage these activities due to the uncontrolled and over-extraction. Honey is another product that is usually linked to woody perennials placed in agricultural and forest lands. Herbaceous vegetation has a shorter period of flowering than woody perennials that could also be complementary in the flowering time therefore extending the period of honey production.

Silvopasture is a key agroforestry practice linked to forest lands to prevent from forest fires. In many places, forest grazing provides environmental benefits, for example besides the reduction of forest fire risk in some areas, it can be expected an increase of biodiversity through the creation of micro-environment heterogeneity from faeces, selective consumption and trampling mimicking the presence of wild large mammals in nature (Mosquera-Losada et al. 2016). Moreover, the use of biomass from those areas should also be promoted to maintain the forest health (by extracting the excess of dead wood whilst respecting biodiversity purposes) and to enhance the circular economy (fuel substitution by biomass).

Agroforestry at farm and landscape level

In addition to the Pillar II measures to promote agroforestry at plot level, there should be opportunities to encourage farmers to increase sustainability at farm and landscape level. These levels should be linked to a better distribution of the on-farm resources when feeding animals (i.e. extending the grazing season in forestlands) or providing feed during the summer (branches) and autumn (fruit) periods. The integration of woody perennials at landscape levels by cooperation among farms should be promoted to be linked to the payment for results concept linked to initiatives such as the Results-Based agri-environment schemes linked to the provision of ecosystem services linked to better biodiversity, and soil, water and air quality to pursue climate change adaptation and mitigation.

Innovation and agroforestry: the AFINET project

The Agroforestry Innovation Network European Union Project aims at fostering agroforestry innovation in Europe. As a thematic network, it is in between Rural Development and Research European Union Programmes. From this network, a set of challenges have been described (Villada et al. 2018) that could provide some insights to foster agroforestry implementation in Europe linked to technical issues, economic, communication and policy improvements.

- a) Technical issues: more knowledge about the best combinations among woody perennials and lower storey agricultural production is needed and should be dispersed this links with more research and adequate dissemination pathways linked to education activities. A wood example of this is the Focus Group of Agroforestry: Agroforestry: “Introducing woody vegetation into specialised crop and livestock systems. How to develop agroforestry as a sustainable farming system which can boost agricultural productivity and profitability?” carried out by the EIP-Agri (2017)
- b) Economic issues: Agroforestry products are based on the better use of the in-farm resources (light, soil fertility...) and therefore these systems need fewer outputs to deliver agricultural products. Moreover, the combination of woody perennials and lower story production should be linked to a better profit by obtaining money from both products but also by enhancing the quality of the products and a better added-value return to farmers through the value chain.
- c) Communication: linked to education in primary and high schools but also linked to a better improvement of farmers education strategies.
- d) Policy: better policies have been highlighted as a main drawback by farmers when they speak about agroforestry expansion that can be solved through different initiatives that can be seen in Mosquera-Losada et al. (2018a, b, c, d).

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axudas a etapa posdoutoral DOG n8122, 29/06/2016 p.27443, exp: ED481B 2016/0710”). The views and opinions expressed in this article are purely those of the writers and may not in any circumstances be regarded as stating an official position of the European Commission.

References

- EIP-Agri (2017) Agroforestry: introducing woody vegetation into specialised crop and livestock systems. How to develop agroforestry as a sustainable farming system which can boost agricultural productivity and profitability? <https://ec.europa.eu/eip/agriculture/en/focus-groups/agroforestry-introducing-woody-vegetation> (accessed 07/05/2018).
- Mosquera-Losada MR, Santiago Freijanes JJ, Pisanelli A, Rois M, Smith J, den Herder M, Moreno G, Malignier N, Mirazo JR, Lamersdorf N, Ferreiro Domínguez N, Balaguer F, Pantera A, Rigueiro-Rodríguez A, Gonzalez-Hernández P, Fernández-Lorenzo JL, Romero-Franco R, Chalmin A, Garcia de Jalon S, Garnett K, Graves A, Burgess PJ (2016) Extent and success of current policy measures to promote agroforestry across Europe. Deliverable 8.23 for EU FP7 Research Project: AGFORWARD 613520. (8 December 2016). <http://www.agforward.eu/index.php/en/extent-and-success-of-current-policy-measures-to-promote-agroforestry-across-europe.html> (accessed 06/05/2018).
- Mosquera-Losada MR, Santiago-Freijanes JJ, Aldrey JA, Ferreiro-Domínguez N, Pantera A, Rigueiro-Rodríguez A (2018a) Agroforestry within the Pillar I: including woody perennials in Pillar I lands to foster sustainability. IV EURAF Conference (this volume).
- Mosquera-Losada MR, Santiago-Freijanes JJ, Aldrey JA, Rois-Díaz M, Ferreiro-Domínguez N, Pantera A, Rigueiro-Rodríguez A (2018b) Agroforestry and the environment in the future European CAP. IV EURAF Conference (this volume).
- Mosquera-Losada MR, Santiago-Freijanes JJ, Rois M, Moreno G, den Herder M, Aldrey JA, Ferreiro-Domínguez N, Pantera A, Pisanelli A, Rigueiro-Rodríguez A (2018c) Agroforestry in Europe: a land management policy tool to combat climate change. Land Use Policy (in press).
- Mosquera-Losada MR, Santiago-Freijanes JJ, Moreno G, Herder M, Aldrey JA, Rois-Díaz M, Ferreiro-Domínguez N, Pantera A, Rigueiro-Rodríguez A (2018d) Agroforestry definition and practices for policy makers. IV EURAF Conference (this volume).
- Santiago-Freijanes JJ, Pisanelli A, Rois-Díaz M, Aldrey-Vázquez JA, Rigueiro-Rodríguez A, Pantera A, Vityi A, Lojka B, Ferreiro-Domínguez N, Mosquera-Losada MR (2018a) Agroforestry development in Europe: Policy issues. Land Use Policy (in press).
- Santiago-Freijanes JJ, Rigueiro-Rodríguez A, Aldrey JA, Moreno G, den Herder M, Burgess P, Mosquera-Losada MR (2018b) Understanding agroforestry practices in Europe through landscape features policy promotion. Agroforest Syst. <https://doi.org/10.1007/s10457-018-0212-z>.
- Villada A, Verdonck P, Ferreiro-Domínguez N, Rodríguez-Rigueiro FJ, Arias-Martínez D, Rois-Díaz M, den Herder M, Paris P, Pisanelli A, Reubens B, Nelissen V, Paulo JA, Palma JHN, Vityi A, Szigeti N, Borek R, Galczyńska M, Balaguer F, Smith J, Westaway S, Rigueiro-Rodríguez A, Mosquera-Losada MR (2018) AFINET: Agroforestry Innovation Thematic Network IV EURAF Conference (this volume).