AF4EU Buzz: Unveiling Beekeeping Value Chain and Sustainable Agroforestry Practices in the EU

COUSO-VIANA, A.[1], RODRÍGUEZ RIGUEIRO, F.J.[1], FERREIRO-DOMÍNGUEZ, N.[1], HOSSEINI, A.[2], VALIÑO, E.[3], FOURNARAKOS, A.[4], FOUNTAS, S.[4], PANTERA, A.[5], PAPADOPOULOS, A.[5], CASEY, J.[6], ZANDER, P.[2], CIOLFI, M.[7], PARIS, P.[7], ALDREY-VÁZQUEZ, J.[8], TABOADA-IGLESIAS, M.J.[9], RIGUEIRO-RODRÍGUEZ, A.[1], FERNÁNDEZ-LORENZO, J.L.[1], GONZÁLEZ-HERNÁNDEZ, M.P[1], ROMERO-FRANCO R.[1], MOSQUERA-LOSADA M.R.[1]*

[1]Department of Plant Production and Engineering Projects. School of Higher Polytechnic Engineering. University of Santiago de Compostela (USC), Lugo, Spain.
[2] Farm Economics and Ecosystem Services, Leibniz Centre for Agricultural Landscape Research (ZALF), Müncheberg, Germany.
[3]Department of Innovation and European Projects, Fundación Empresa Universidad Gallega (FEUGA), Santiago de Compostela, España.
[4]Department of Natural Resources Management and Agricultural Engineering, Agricultural University of Athens (AUA), Athens.
[5]Department of Forestry and Natural Environment Management, Agricultural University of Athens (AUA), Athens.
[6]Forestry Area, Agriculture and Food Development Authority (Teagasc), Carlow, Ireland.
[7]Institute of Agro-environmental and Forest Biology, National Research Council (CNR), Porano, Terni, Italy.
[8] Department of Geography, Faculty of Geography and History, University of Santiago de Compostela, Santiago de Compostela, Spain.
[9]Department of Electronics and Computing, School of Technical Engineering, University of Santiago de Compostela, Santiago de Compostela, Spain.
*corresponding author: e-mail: mrosa.mosquera.losada@usc.es

Abstract. This study examines the honey farm value chain developed within the European Agroforestry Business Model Innovation Network (AF4EU) project, which aims to promote agroforestry practices across Europe. Despite being the world's second-largest honey producer, the EU still requires imports to meet domestic demand (European Commission, 2024). The AF4EU project created value chains through co-creation workshops. Honey farms were recognized as significant across all climatic regions involved in the project, with participants identifying direct sales of honey and other products as the main revenue stream. Inputs such as beehive production and post-harvest machinery were considered external to the farm, while ecosystem services and training emerged as key outcomes. This study highlights the importance of short supply chains and traditional beekeeping knowledge in supporting sustainable honey production.

Keywords: Value chains, business model innovation, apiculture, honey, ecosystem services.

1. Introduction

The European Union remains the world's second-largest honey producer, with 286,000 tons produced in 2022. However, due to high consumption, imports are necessary to meet domestic demand (European Commission, 2024). Honeybee colonies are essential for both agriculture and the environment, providing crucial ecosystem services such as pollination. Beekeeping is practiced across all EU countries, and apiculture interventions are included in the CAP Strategic Plans for 2023-2027, which are designed at the national level. Agroforestry systems integrate woody components (trees or shrubs) with agricultural and/or livestock activities on the same land, following agroecological principles (Mosquera-Losada et al., 2018). The adoption and recovery of agroforestry systems present an opportunity to improve profitability and resilience in the short to medium term (Kay et al., 2019). The project Agroforestry Business Model Innovation Network (AF4EU), funded by the Horizon Europe, aims to promote agroforestry in Europe through multi-actor approaches. The objective of this work is to present, describe and analyze the honey farm value chain constructed in AF4EU.

2. Materials and methods

The value chains in the AF4EU project were developed through workshops with participants from the 11 Regional Agroforestry Innovation Networks (RAINs). Each RAIN, organized using the AFINET project methodology, included around 20 people, with at least 40% producers and 20% advisors, and other stakeholders, including researchers, policymakers among others. In the first RAIN meeting, participants proposed 33 innovative agroforestry farm projects. In the second RAIN, participants formed small groups to create value chains for the selected farms, including honey farms, detailing inputs, outcomes, and products, and identifying internal versus external activities in their regional context. The resulting regional value chains were consolidated into a joint European version. In the third RAIN, participants validated and refined these supra-regional value chains, adding relevant elements and adjustments. The final value chains were created by incorporating the contributions from the third workshop.

3. Results

The honey farm value chain was initially considered relevant in Italian, Greek, and the Galician RAINs. Later, RAINs in Finland, France, Portugal, and Slovakia also recognized honey farms as important within their contexts. Therefore, honey farms were regarded as significant across all three climatic regions (Atlantic, Meidterranena, Contiental-Boreal) participating in the project (Figure 1). Most inputs were considered external to the farm, including activities related to beehive production, machinery, as well as quality control and standardization

services. All RAINs identified honey, propolis, pollen, and royal jelly as key products derived from harvesting, with direct sale as the main revenue stream. Nearly all regions considered ecosystem service provision as a key outcome, besides, training and education, particularly focused on preserving cultural heritage, also recognized as important benefits of beekeeping

4. Discussion

Direct sales to consumers are identified as the primary output for the produce within the value chain. This sales channel has been described as the main output for European honey, shortening the supply chain and increasing the value of honey (Legowski et al., 2019). The importance of beekeeping in the EU, in terms of hive numbers and production (European Commission, 2024), is reflected in the widespread consideration of the value chain in most RAINs within AF4EU. Besides traditional reveneue streams, innovative services, such as beehive rentals to provide pollination services to agriculture, are gaining traction.

Stakeholders have identify certification and standarization of the produce as important for the value chain, emphasizing aspects related to farm governance. Therefore, the society identifies that the establishment of cross-pollination ecosystems are crucial for achieving policy goals like pollinator preservation and sustainable honey production (Maderson, 2023). Integrating ecosystem services and diverse revenue streams can enhance the honey value chain's role in supporting EU sustainability and ensuring farmer profitability.

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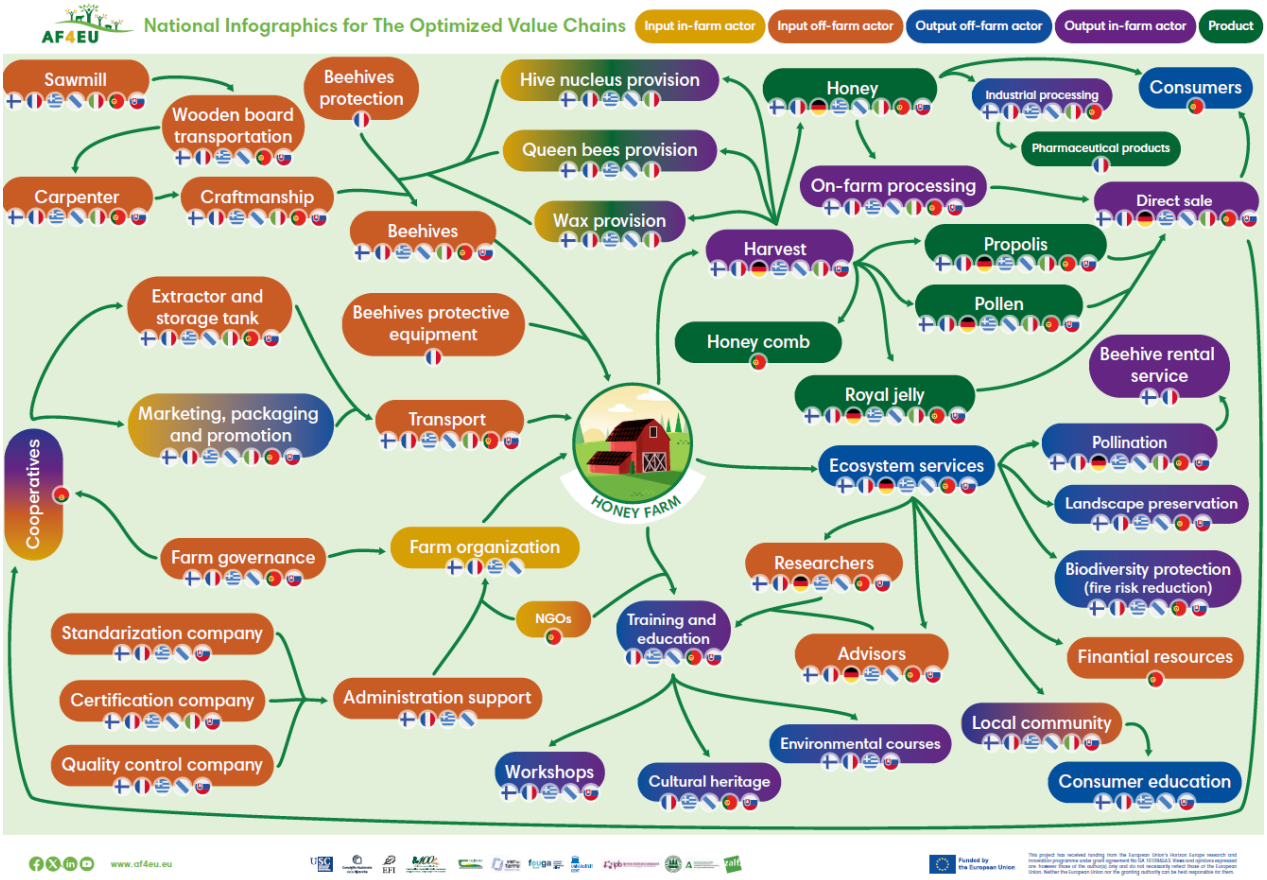

Figure 1. Honey farm value chain showing internal (yellow) and external (orange) inputs, internal (blue) and external (purple) and the products derived from production

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