

Development of value chains for agroforestry systems

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Highlights

- Agroforestry products must compete with conventional markets
- REFOREST project analysis at farm, EU and value chain levels
- Methods: Multi-Level Perspective, Living Lab surveys, surveys of farmers, statistical data analysis
- Aim: identify drivers of AF business models in Europe

Introduction. Adoption of agroforestry (AF) systems by farmers is often motivated by environmental awareness and collaboration with academic partners. However, such decisions ultimately need to withstand market conditions. Agroforestry products must compete with cheaper and well-established conventional products, while the added value generated should primarily benefit producers rather than intermediaries within the value chain. In this context, European policies provide limited support for value chain development, focusing mainly on land-based payments, certification schemes, and compliance with basic Common Agricultural Policy (CAP) environmental requirements.

This study is based on the Reforest project milestone “New AF value chain development” and the deliverable “Value chain analysis.” The research presents the results of a three-level assessment: (1) testing new AF products at the farm level, (2) evaluation of AF farming systems at the EU level and (3) analysis of AF value chain development..

Methods. At the first level, innovative products of AF systems have been assessed through interviews with farmers. The second analysis drew on a value chain assessment of European AF systems, based on data from 26 AF farms and general FADN data. The farms were classified into major farming types and evaluated according to the Multi-Level Perspective (MLP) criteria. Thirdly, opportunities for value chain development were further assessed for multiple AF products originating from Reforest Living Labs (LL) using detailed questionnaires and the (MLP) analytical framework. The integrated assessment identified key factors influencing value chain development and enabled the formulation of potential agroforestry business model concepts. Finally, a generalized value chain model was developed in the perspective of farming system typology.

Results

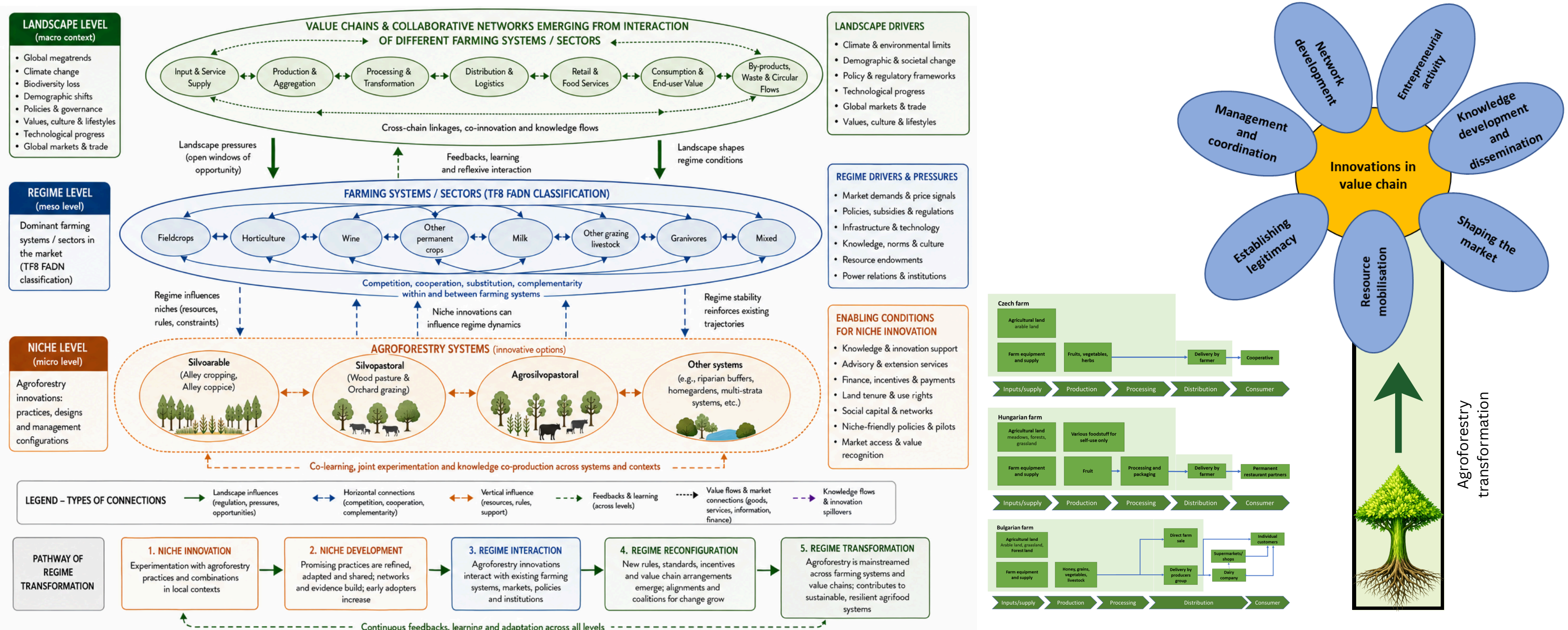
Niche level - AF systems

The development of value chains at the level of a specific farming system involves the creation of additional products resulting from the introduction of trees into agricultural areas. Depending on the type of agroforestry system (silvoarable, silvopastoral, agrosilvopastoral and other), a single farm can generate a wide range of food and non-food products and services, which must be somehow delivered in to the market. An example of this type of product is charcoal (biochar), the production process for which we have tested in Poland. However, we have failed to bring it to market due to ever-changing domestic regulations. AF farms can still produce biochar for their own use, but not as a product for the market. In the case of other products at REROREST Living Labs, the market entry was successful and served the AF farms well.

The Czech, Hungarian and Bulgarian LLs (silvoarable to large extent), which had been established for some time, entered the market without much difficulty with products such as vegetables, fruits and honey. From the outset, the business focused on direct sales and the initial processing of products on the farm. It also joined forces with local retailers who already had shops and transport facilities. The competitive edge of AF products - particularly silvopastoral - stemmed, from a number of factors, including consumer trust, the fact that the products originated from regions with a high degree of naturalness, and the attainment of certifications, including organic farming. Additional services and products were also provided, such as herbs, timber from the forest, training courses, accommodation and participation in breeding programmes for endangered animal breeds.

Regime level - Farming systems/sectors

Operating at the level of production systems (e.g. arable, dairy, granivores, fruit or mixed farming) requires a high degree of organisation if we are to expand the system by introducing AF. Economies of scale force farms and businesses either to reduce their output for the sake of the environment, or to make an extra effort to diversify their business model. We have observed that, in some cases, large producers with a strong market position have gradually introduced AF and its products into an already well-established market. The LL results indicate that systems linked to milk and beef production have the greatest potential for transformation into agroforestry systems, whilst delivering the greatest benefits. This involves a significant shift in farm management practices but offers numerous benefits resulting from the combination of trees cultivation and grazing. The situation is similar for poultry and pork production. Field crops (cereals, vegetables) offer fewer benefits and require usually greater trade-offs, and return from investments take longer. An additional limiting factor of the AF transformation is the considerable political, climatic and demographic diversity across Europe. Higher purchasing power in north-western Europe and developed processing infrastructure allows AF products to establish themselves on the market, whereas in CE Europe they face usually stiffer competition from conventional products. Some regions have to contend with high labour costs, whilst others face an exodus of people from rural areas; as a result, most AF farms rely on the labour of the farmer and his family.



Landscape level - Value chain and cooperation networks

REFOREST LL has adopted various strategies to establish a stable market position. Some farms and businesses, such as those in the UK, already had a strong market position before they began their transition to AF farming. Others had to build their market from scratch, relying on the support of agricultural policy and loyal consumers. For many farms, the turning point was the introduction of product processing and direct sales, which allowed them to retain greater added value. Others went further, closing the entire value chain, including marketing and sales, and sometimes incorporating transport. Upstream in the value chain, these values were also modified by the introduction of agroforestry. The use of certain inputs, such as fertilisers, plant protection products and veterinary medicines, could be reduced thanks to the ecosystem services provided by the presence of trees. Several farms began to produce their own fodder and fertilisers.

Many LLs have focused on working with a small but trusted group of stakeholders, such as research centres, associations, cooperatives, consultancy firms and specific consumer groups. This has made it possible to avoid handing over profits to intermediaries and to exchange knowledge and contacts within a community of like-minded people with shared interests. Larger initiatives were able to benefit from shared platforms for information exchange and trade, shared transport, and other advantages arising from cooperation.

Value chain model of agroforestry

Our systemic analysis showed, that AF farms and enterprises represent a wide spectrum of business model value chains within different farming types. There are farms of a few hectares as well as large agri-holdings. The specialisation of production is very broad, from field crops to vegetables to silvopastoral systems to food forests. For this reason, a generalised business model for agroforestry is difficult to formulate. However, all these types of farms have certain characteristics in common, which have influenced the success of their initiatives.

Take-home message

- At the agroforestry system level, it is important to make the best possible use of the potential of its components: field crops, trees and animal products; however, this requires access to the market or direct sales. CAP support did not significantly influence farmers' decisions to convert their farms to an agroforestry model.
- At the farming system/sector level, we observed AF is most easily introduced into farms practising livestock grazing (dairy or beef), and therefore support for this type of production can indirectly aid the development of agroforestry.
- At the value chain level, processing and sales are key, as is collaboration with a trusted group of stakeholders who share the same goals and beliefs, particularly when it comes to consumers.

Literature:

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