Which **impactful changes** can agroforestry bring to your business model transformation?

Production model — Requires high commitment

Competitivity — Requires medium commitment

Revenue model — Requires high commitment

What is agroforestry?

Agroforestry is the intentional integration of trees and shrubs into crop and animal farming systems to create environmental, economic, and social benefits.

Why should you implement agroforestry?

Agroforestry enables positive impacts on production factors such as water, soil, climate, biodiversity... For farmers, it makes it possible to diversify products and income with fruits, fodder and the many uses of wood. The services provided by trees (anti-erosion actions, habitats and food for crop auxiliaries, landscapes, soil fertility and organic matter, litter resources, mulch, wood energy...) are perceptible in only a few years. Trees are also an excellent sustainable capital, which adds value to the farm.

What are the environmental and agronomic needs addressed by agroforestry?

🌱 Improve soil fertility and biodiversity

Improve soil structure and limit erosion

💧 Reduce water stress

What are the economic needs addressed by agroforestry?

€ Diversify production on the farm

€ Ensure a complementary source of income in the long term

VERTIGOLAB — ECONOMIE & ENVIRONNEMENT

Water SHIFT

MAVA — FONDATION POUR LA NATURE

What are the key figures for agroforestry? *

SOCIAL IMPACTS

ECONOMIC IMPACTS

AGRO-ENVIRONMENTAL IMPACTS

The overall productivity of agroforestry plots is higher than that of crop plots, up to **36% more biomass, and 60% more products sold.**

An average **increase in organic matter of about 50%.**

A potential carbon storage between 0.1 and 1.35 tC/ha/year.

Many agroforestry models have been developed in the Mediterranean basin with a wide range of cultures: **cereals, vineyards, livestock, market gardening.**

The high social value of agroforestry was recognized at EU level in 2005. With the Council Regulation on support for rural development by the European Agricultural Fund for Rural Development (EAFRD), the first grant support was made available for the creation of agroforestry systems due to their 'high ecological and social value'.

©AFAF

A total investment estimated between 600 and 1,000€/ha according to tree species **that can be covered from 50 to 80%** by support measures.

An average annual return of: 380€/ha/year for hybrid walnut 165€/ha for cultivated poplar 67€/ha for cherry tree

The Internal Rate of Return (IRR) varies **from 1% to more than 7%** for a cultivated plantation in agroforestry, depending on the tree species. One of the main profitability parameters of these long-term investments is the number of years to obtain the desired tree size.

POTENTIAL DEVELOPMENT

65 million hectares (40% of Europe's arable land) suitable for agroforestry for the following 4 tree species: walnut, cherry tree, poplar and oak

* For a density of 50 trees per hectare
** The "Internal Rate of Return" (or IRR) is an indicator of financial profitability. It is related to the concept of "Net Present Value" (NPV), which corresponds to the discount rate used to obtain a zero net present value for the investment.

How to implement an agroforestry system?

ON-FARM ISSUES

1. Decline in yields
2. Soil erosion problems
3. Commercial dependance
4. Polluted soils and water, pollution of catchment areas
5. Water consumption problems

KEY STEPS TO A SUCCESSFUL IMPLEMENTATION

1. Pedoclimatic and socio- economic diagnosis
2. Agronomic balance between trees and crops
3. Integration of exchange networks
4. Development of suitable markets
5. Presence of infrastructure and technical assistance

IMPACTS AND BENEFITS

1. Soil fertility and plant growth
2. Land restoration: reducing soil erosion and regulating water
3. Diversification of agricultural products
4. Reduction of water and soil pollution, biodiversity preservation
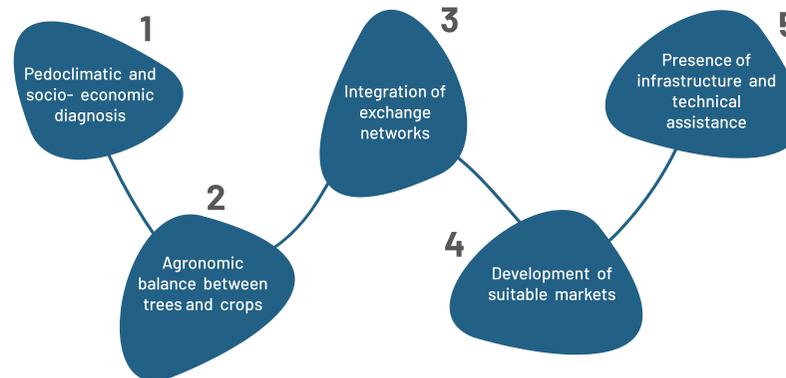5. Resilience to weather shocks

FIELD ADVICE

*"Thinking about your agroforestry project is not only a matter of anticipating the price of wood in 30 or 40 years. The agroforester must also think about **the place of trees in the functioning of their farm** and how it can help to respond globally to the limits of their current system. In concrete terms, **a project is set up in three stages**: a stage of pedoclimatic diagnosis (the choice of species adapted to its plots), a stage of socioeconomic diagnosis (to adapt the project to the operation of the farm and its evolution), and a stage of discussion on the main objectives of the project that will determine its structure (final selection of tree species, densities and spacing, mechanization, target area, etc.). Each agroforestry project is unique. It responds to a specific situation and to personal objectives. Agroforestry is therefore not a recipe that you apply: it requires you to build your own project, with all the unknowns that this implies. It is therefore essential to **move forward in a network, to encourage the exchange of experiences between farmers and technicians,** within a framework of participatory research."*

Fabien Liagre (In ADEME, 2015) - Co-founder of AFAC-Agroforestries, France

KEY CHALLENGES

Trophic competition risk in short term

There may be competition **between certain types of trees and the crops planted** for space, and therefore for light, water and soil nutrients.

Economic profitability in long term

The economic transition towards an agroforestry system must be **accompanied by financial support** to ensure the viability of the farm during the transition.

Technical improvements to be made

The modern version of agroforestry must consider the **requirements of its environment** (financial needs of the farmer, modern agricultural tools, etc.) to propose effective and adapted solutions.

How to go further?

MORE INFORMATION DOCUMENTS AND DATA

ADEME, 2015. Reintegrating trees into agricultural systems to diversify production and strengthen ecosystems.

Dupraz C, Liagre F. 2011. Agroforesterie : des arbres et des cultures. Paris: Editions France Agricole, 414 p.

FAO. 2017. Agroforestry for landscape restoration: Exploring the potential of agroforestry to enhance the sustainability and resilience of degraded landscapes. Rome. https://doi.org/10.4060/i7374e

Jose, S. 2009. Agroforestry for ecosystem services and environmental benefits: an overview. Agroforestry Systems, 76(1), 1–10. doi:10.1007/s10457-009-9229-7

Mosquera-Losada, M. et al. 2018. Agroforestry in Europe? A land management policy tool to combat climate change.

Therville C., Antona M., De Foresta H. 2020. The policyscape of agroforestry within Mediterranean protected landscapes in France. Sustainability Science, 15, n.spéc. Agroforestry for Sustainable Landscape Management: 1435-1448. https://doi.org/10.1007/s11625-020-00821-x

DISCUSS AND TEST PROJECTS, TOOLS AND NETWORKS

LIVINGAGRO is a cross-border project that addresses the challenge of knowledge and technological transfer in Mediterranean agriculture and forestry systems involving six organizations from four different countries (Italy, Greece, Lebanon and Jordan). It aims to achieve and share good practices for sustainable production, protecting biodiversity, enhancing transfer of innovation and increasing profitability for territories and main actors as well as stakeholders involved.

AFINET is a European thematic network that aims to support innovation in agroforestry by encouraging the transfer of knowledge between the different stakeholders in the development of agroforestry development.

AGFOSY is a European Erasmus + project to produce educational content for practitioners. It is based on the identification of good practices, drawn from concrete case studies, that will provide farmers with the skills and knowledge they need to implement agroforestry on their farms.

AGR'EAU is a project led by the French Association of Agroforestry in the Adour-Garonne Basin to propose generalizable practices combining the coverage of agricultural soils, the planting of trees and water management.

TAKE ACTION FUNDING SOURCES

Pur Project: Thanks to the financing of companies wishing to invest in their sector, in their territory and to offset their impact, Pur Projet finances and advises agroforestry and forestry projects carried out by farmers and foresters all over the world, particularly in the Mediterranean basin, through the "IciOnSème" program.

CAP aid: Agroforestry plots have been recognized as agricultural plots, thus benefiting from eligibility for CAP aid under the first and second pillars, within a limit of 200 trees per hectare. European measure to support investment in agroforestry (measure 222, article 44) provides financial support for the creation of agroforestry plots. The amount of aid can reach 80% of the installation costs. However, it only considers new plantations with an objective of wood production.

Agroforestry in French territory program is a program supported by the GoodPlanet foundation providing financial aid for the planting of agroforestry trees in France.