



Agroforestry: french agricultural education is involved

In the face of climate change, agriculture may be one of the solutions as a lever of **attenuation** and **adaptation**.

Soil carbon storage ("4p1000" initiative) and intensive reintroduction of **trees into agricultural production processes** are efficient options.

Thus, French agricultural education through the strategic project "Enseigner à produire autrement 1 et 2" ("Teaching to produce differently 1 and 2") and the National Development Plan for Agroforestry, is committed to the implementation of agroforestry in high school farms. Its teaching is also included in many vocational training diplomas with structuring pedagogic projects.



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86

agricultural schools
involved in agroforestry
projects

14

projects of "Animation
and development of
territories" since 10 years
explicitly dedicated to
trees and agroforestry

10

agricultural schools
involved in the CASDAR*
project 'Agro-ecological
transition' (2014-2018) on
agroforestry projects

7

R&D projects in which
agricultural high schools
are involved

3

training of teachers'
sessions on agroforestry
in the national training
catalogue since 2015

In vocational training diploma

Tree-studies are involved in many ways:

In the referentials of the '**ENVIRONMENT**' sector, the tree is studied with biodiversity and the services that they can provide to the ecosystem in mind.

Trees were missing for a long period from the referential of the '**AGRICULTURAL PRODUCTION**' sector. They were introduced in the courses with the "Agro-ecological project for France", and also in the courses that agricultural high schools are free to organize, according to local issues and built with local actors. Thus, agroforestry begins to regain its rightful place in the production processes.

The crucial issue is the **CONNECTION** between two major fields of agricultural education and training: environment and production. A promising path is emerging through inter-sectoral educational projects where teachers organize the interaction between different cultures and knowledge that often ignore each other. Pedagogical situations, starting from territorial issues, are thus particularly rich in learning in order to change views and representations, to consider the complexity of urgent societal issues.



In Saint-Yrieix la Perche, explanation to students on the interest of chestnut trees in plots and various methods of protecting young trees.

© Claire Durox.

AFAF: French agroforestry association

AGROOF: Organization specialized in agroforestry

CASDAR: Special purpose account for agricultural and rural development.

DGER: Directorate-General for Education and Research (French Ministry of Agriculture).

RMT: Mixed technology network.

Structuring project

Since the mid-2000s, the «Animation and development of territories» mission of agricultural education has been supported by two specific mechanisms of the Ministry of Agriculture. Teachers or young engineers are mobilized for three years on a project linking an agricultural high school and its territory. About fifteen projects have thus focused on agroforestry, with very diverse inputs: orchards, intra-plot trees, multifunctional hedge management, carbon sinks, etc.

For instance at agricultural high school of **Mirecourt**, several projects aim to develop a silvicultural culture in the minds of agricultural production students. The idea is that the rural tree spreads into agricultural practices, including to better mitigate and adapt to climate change.

In **Romans-sur-Isère**, the design of the orchard-gardening is based on various combinations (truffle trees / perennial aromatics / vines - lime tree / lavender - fruit trees / market gardening). Apprentices are closely associated to the project.

In **Rochefort-Montagne**, the 'Carbon sinks and biodiversity' project aims to improve connectivity of hedges while showing its numerous functions: herds and soil protection, wood-production, and biodiversity (honey plants).

In **Melle**, the hedges management plan concerning the 28 km long hedges of the training farm, was conducted with the 'Prom'haies' association. In the future, cooperation between production and land-use management will be planned.

Moreover, 10 agricultural high schools are involved in the CASDAR project 'Agroecological transition' (2014-2018) on agroforestry projects.

Find information on the 'Agro-ecological transition CASDAR' on agroforestry projects: <https://urlz.fr/9Jm8>

The www.adt.educagri.fr website highlights many experiences (dispositifs / 1/3 temps / recherche des projets)



© Philippe Cousinié.

In Pamiers, agroforestry plot, planted in 2013 (common walnut trees, sycamore maples, alisiers), near the drinking water catchment drinking. With the challenge of being organic and autofertile in this constrained area.



© Bergerie nationale.

Planting two agroforestry plots at the Bergerie Nationale de Rambouillet, accompanied by AGROOF.

Involvement in research and development projects

French agricultural high schools are involved in many R&D projects with two kinds in particular: the 'CASDAR' and 'RMT' projects.

For example, in the '**ARBELE CASDAR**' (2015-2018) on the place of trees in livestock systems, the Nancy-Pixerécourt and Aubenas agricultural training centers participated in the organization of technical days.

The CASDAR '**SMART**', (2014-2017) regarding orchard-gardening (two training centers were involved: Blois and Avignon).

The CASDAR '**AgroEcoPérennes**' (2018-2021) is about innovations in viticulture and arboriculture.

The CASDAR '**RESP'HAIES**' (2018-2021) tackles the question of economical viability of tress-systems. 5 French agricultural high schools (Melle, Bressuire, Rochefort Montagne, Coutances, St-Lô) are involved in order to introduce new practices on their farms and experiment on innovative pedagogical practices.

In the '**Agroforestries RMT**' (2014-2018), the tree is considered as a sustainable production factor. 5 educational institutions are involved (www.rmt-agroforesteries.fr). A new project is being built for 2020-2024.

One of the five '**CASDAR AFFACC**' projects (2013-2015) focusing on agroforestry aimed to prepare future farmers to climate change (Mirecourt).

The **ERASMUS+** project about agroforestry '**AGROF-MM**' (2016-2018) involves 9 countries. Its aim is to train 150 professionals in Europe, and improve the pedagogical tools in order to make agroforestry training sustainable. The French association of agroforestry (AFAF), Agrosup Dijon and the agricultural high schools of Mirecourt and Bourg-lès-Valence are partners of this project. More information on <http://agrofmm.eu/index.php/fr/>

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In Bressuire, project on the valuation of wooded heritage with construction of chestnut barriers (intergenerational).

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Transition knowledges at stake

Reinroducing trees into agricultural production systems means to more or less re-organize them, but also change the way of thinking, reasoning and knowledge of students.

Our experience in several working groups led to highlight the following key-points:

- 1 **Representations** and **conceptions** regarding trees and farming production should be pushed forward, for students, farmers and teachers.
- 2 Beyond awareness-raising, it is training in theoretical and practical **silvicultural knowledge**, from an agro-ecological and sustainability perspective, in knowledge on biodiversity and agro-ecosystems, and in territorial mediation, that is at stake.
- 3 Do not mistake the professional activities conducted by farmers, counselors... for **learning situations** built and conducted by teachers, but better connect them.
- 4 Do not mistake 'DOING' and '**UNDERSTANDING**': formulation, explanation, reflexivity on practices are essentials for a change/transition process.
- 5 The training problematic, in agricultural schools and in the field, are of the same order. Thus, **cooperation** between workers, teachers, researchers and students is essential.

The national support of training center is a catalyst for initiatives

Units of the National support system for French technical agriculture education (Bergerie nationale Rambouillet, Montpellier Supagro Florac, Agrosup Dijon, Réso'them/DGER) are involved in supporting agroforestry projects in high schools. These are also supported by regional representatives.

Thus, within the theme of 'Landscape, Tree and Agriculture', the CEZ-Bergerie nationale and the various departments of the Ministry support national working groups regarding pedagogical and technical valorization in multifunctional hedges management.

This concerns two main issues:

- How to assist managers of training farms to develop trees and multifunctional hedges in their production process?
- How to support teachers in engaging students in an expansion, a change of their view regarding trees, and allow them to renew professional and citizen practices?

Thus, a set of pedagogical and technical resources has been developed (movies, articles, posters, etc.) are accessible:

<https://urlz.fr/9Jn6>

<https://urlz.fr/9Jn8>

<https://urlz.fr/9JES>



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