

AGR'EAU: A FARMER-CENTERED GRASSROOTS EFFORT TO DEVELOP A RESOURCE-EFFICIENT, ECO-FRIENDLY, CLIMATE-SMART AGRICULTURE ACROSS THE ADOUR-GARONNE CATCHMENT BASIN (SOUTH-WEST OF FRANCE)

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Mechanised, input-rich intensive agriculture is largely responsible for the curses of land erosion, soil degradation, biodiversity loss, water pollution, and the worsening impact of floods and droughts – and suffers from their consequences. In the Adour-Garonne catchment basin of south-western France, local farmer associations have been developing agroforestry systems to tackle these challenges for over 20 years. Their approach has been economic as well as environmental: the agroforestry systems they have selected, adapted and promoted increase the yields not just of crops, but also provide fuelwood, timber, fibre, ramial chipped wood, woodchip bedding for livestock and more.

The Agr'eau programme, a network of nearly 300 farms of all types and sizes across the watershed, was launched in 2013 to build on these experiences. Agr'eau encourages its farmers and research partners to develop and validate highly resilient systems together that complement local agroforestry practices with no-till, cover crop farming practices. The result is a multi-level form of agriculture that maximises the plant cover of the soil, both spatially and temporally. Recorded benefits include:

- Enhanced soil biota – the “motor” of fertility – as well as above-ground biodiversity, including pollinators and other beneficial crop organisms;
- More photosynthesis per unit of land area, and therefore more productivity;
- More economically resilient farmers thanks to newly diversified income sources (that have been shown to create new economic activities locally);
- Optimised water cycle and enhanced quality of water bodies (both above and below ground);
- Higher carbon capture, in both soils and the tree biomass;
- Reduced input requirement, especially of pesticides and fertilizers due to greater ecological resilience and of fossil fuels due to no-till farming.

At a landscape level, this approach is optimised by Assisted Natural Regeneration (ANR) of trees in riparian zones, on field boundaries, on road verges and so on – in short, in most of the numerous “lost spaces” that can easily be made more productive in terms of both resources and ecosystem services.

These innovative agroforestry systems provide effective mitigation against daunting challenges ranging from food security to energy production, climate change and ecosystem degradation. There is an increasing need for farmers to adapt to environmental and economic shocks and to transition to a more resilient form of farming. Such farming will always be more diversified and will always seek to cleverly use ecosystem services to reduce costs and increase benefits. The transition to this new kind of farming requires creativity and a capacity to innovate. But above all, it demands a clear and subtle understanding of the farm and its environment. What Agr'eau shows is that farmers who make the effort to engage in this continual improvement process find that their patience is amply rewarded.



Figure 1: Mechanised, input-rich intensive agriculture is largely responsible for the curses of land erosion, soil degradation, biodiversity loss, water pollution, and the worsening impact of floods and droughts – and suffers from their consequences.



Figure 2: A well thought-out reintegration of trees and shrubs in the agricultural landscape can help preserve and restore soil, water, and biodiversity as well as help regulate the micro-climate all year round.

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