For a greener Europe, look to the Global South

Agroforestry approaches can fix Europe's food systems + help meet its climate and biodiversity goals

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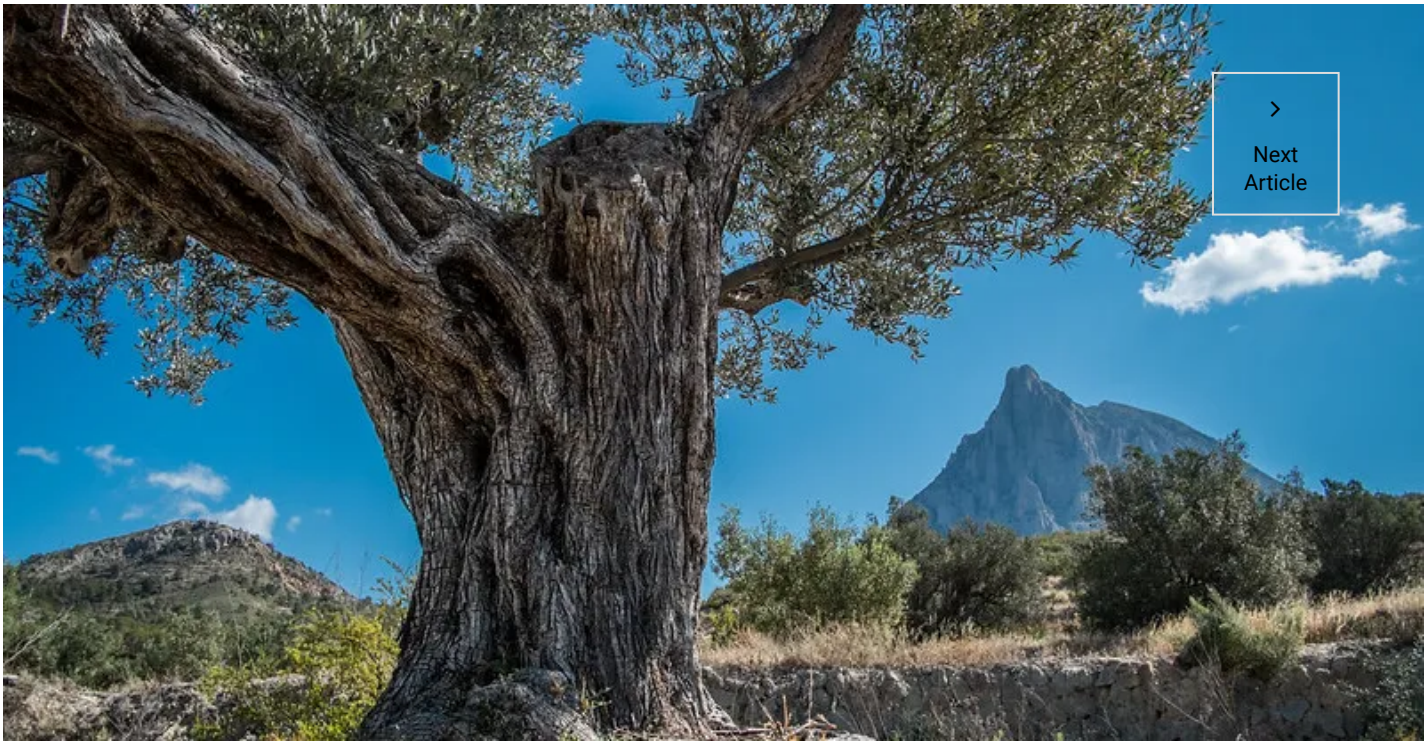

As the olive-growing region of southern Spain becomes hotter and drier, agroforestry approaches developed in the Global South offer adaptation solutions. Photo by Willy Verhulst/TravelMag

Generations of agricultural policies that favored cropland and pasture over forests have resulted in the destruction of billions of trees across Europe.

Now, as the world faces the dual emergencies of climate change and biodiversity loss, Europe has committed to reducing greenhouse gas emissions from its food systems and making them more sustainable. The region has also set a goal of planting 3 billion trees — in addition to those usually planted — by 2030.

But a transition to a more sustainable food system that is lower in emissions and more resilient to climate change will require policy makers to think beyond forests to the role of trees in both urban and rural areas, especially on farmland. And for that, they could find inspiration in approaches from the Global South.

“To achieve forest restoration goals, you need to have a landscape-scale perspective,” says Tim Pagella, a senior lecturer in forestry at Bangor University in Wales who contributes to the university’s master’s programme in agroforestry.

“Agroforestry is a good option, but because agriculture policy and forest policy in Europe generally have been separate areas, agroforestry falls through the cracks,” says Pagella, who has has been working closely with CIFOR-ICRAF to design and implement agroforestry programmes, including capacity building of agroforestry experts across Asia and Africa.

In much of the Global South, however, combining trees with crops and livestock has long been an important strategy for maintaining both ecosystems and farmers’ livelihoods, especially amid the uncertainties of climate change. The same could be done in Europe, experts say, as long as researchers, extension workers, and policy makers keep the focus on the farmers.

“To design a good agroforestry system, you have to understand the farmer’s needs and ensure that the design is appropriate for the people, the place and the farmer’s purpose,” says Anja Gassner, science and policy adviser for the Global Landscape Forum. “If you don’t keep those basic principles in mind, there is a risk that the intervention could fail.”

Trees hiding in plain sight

Until just a few years ago, in Europe, only crop land, pasture, and grassland were eligible for farm subsidies. Farmers were penalized for having more than around 100 trees per hectare on their land. That changed in 2019 with the European Green Deal, which made sustainable food systems a priority, with agroforestry as a key component.

It’s not that European farms have no trees at all. There are trees in hedgerows bordering crop fields, buffer areas along streams, and other parts of the landscape, but farmers and policy makers alike tend not to recognize them as part of a productive agricultural system, Pagella says.

These “trees outside forests” have also been overlooked in most countries’ carbon accounting, as national inventories generally include only forests.

As of this year, however, Europe’s Common Agricultural Policy (CAP) recognizes food production systems that combine trees with crops, livestock, or both, using techniques such as wood pastures, alley cropping, hedges, trees in groups or lines, orchard intercropping and grazing, alternating cropping and grazing, multi-layer gardens, and urban home gardens.

But while agroforestry research has been increasing in Europe, particularly by researchers connected with the European Agroforestry Federation (EURAF), which promotes policy, experts say the research does not necessarily lead to more trees on farmers’ fields and in landscapes.

“Agroforestry in Europe has gained political attention in recent years, but there is a huge gap between the academic and policy discussion around agroforestry and providing knowledge, support, and funding to farmers to assure that the trees they do have on their farms live up to their full potential,” says Gassner.

Countries that are beginning landscape restoration programmes often focus on conservation rather than making trees part of productive landscapes, Pagella adds.

“To enable tree planting on private land, you must balance the landowner’s need to make the land productive with the policy goal of conservation,” he says. “Because those goals are often not aligned with each other, we have to demonstrate that trees add to the productive value of the farm, by controlling erosion, improving soil quality and providing other services, such as pollination. Once farmers realize that, they plant and maintain trees, and the conservation goals are attained, too.”

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Keeping the landscape in mind

There are two different ways to achieve that goal, dubbed 'land sharing' and 'land sparing.' In land sharing, human use of nature is combined with protection and conservation, such as by combining forests with crops or livestock — cattle may roam among trees during the day, for example, providing organic fertilizer as they graze. In land sparing schemes, governments set aside natural forest areas, preserving them for the habitat and ecosystem services they provide.

In both approaches, planners must think beyond the trees.

"If you want to use agroforestry to deliver restoration goals, you have to look at the entire landscape," Pagella says. "You need to think about what opportunities exist for different forms of agroforestry and the type of agroforestry you want across your landscape, and you need to encourage farmers to develop those systems."

By thinking about the landscape, planners can help ensure that agroforestry contributes to biodiversity conservation — providing habitat corridors for wildlife, for example — and help farmers adapt to climate change. In Wales, where Pagella lives, the average temperature of rivers is rising, and scientists expect that to have a significant impact on surrounding ecosystems. Planting trees around the headwaters to provide dappled shade would help cool the water, he says. This demonstrates the need to prioritize different parts of the landscape to achieve desired restoration outcomes from tree planting.

European regions that lend themselves to a landscape approach to agroforestry planning include southern France, where small farmers already face increasing drought, and the olive-growing region of Spain, which is likely to have a climate more like that of Morocco in the near future.

Look South for inspiration

As European planners design agroforestry interventions, they would do well to look to the Global South. Four decades of work with small farmers in Africa, Asia and Latin America have given rise to three key principles of agroforestry design, Gassner says.

The first principle is to keep the farmer at the center of any agroforestry intervention. Environmental goals such as biodiversity conservation, water management, or mitigating climate change must not take precedence over the farmer's priorities, she

says, and interventions must contribute to farmers' livelihoods and help buffer them against economic or climate-related risks.

Second, Gassner says, "In agroforestry, one size does not fit all." Interventions must take into account the characteristics of the farm, as well as the farmer's skills and interests, and must use species that meet the farmer's expectations for product yield. Planners must also consider any constraints that might make it difficult for a farmer to switch from conventional farming to agroforestry.

Finally, the agroforestry system should create synergy, enabling crops, livestock, and trees to interact in mutually beneficial ways, Gassner says. The interaction should make the best use of water, energy and nutrients, while keeping competition for them in balance. Including a diversity of species gives farmers more food options and market opportunities while providing a range of ecosystem services.

"You know this synergy has been achieved when the productivity of the agroforestry system, with its multiple components, is greater than productivity would be if the crops, livestock, and forest were managed separately," she says.

Throughout the Global South, there are various examples of how researchers have helped farmers to put these principles into practice.

In Uganda, community seed banks and decentralized tree nurseries have enabled farmers to develop portfolios of crops and trees that contribute to better livelihoods and more resilient landscapes while boosting nutrition and food security.

Northwestern Vietnam has offered lessons in incorporating well-chosen tree species into agricultural systems, as well as ensuring the participation of local farmers in all stages of agroforestry projects, from initial design through policy development. And in Brazil, researchers and farmers have worked together to identify ways to scale up restoration and improve livelihoods in the country's Cerrado and Caatinga ecosystems.

"Trees are valuable for landscape restoration because they can do so many things — produce timber or non-timber products like fruit and nuts, control erosion, improve soil quality, help manage water, sequester carbon, and so on," Pagella says. "But some of these uses involve trade-offs. If you cut a tree for timber, for example, you lose the

ecosystem functions. Good agroforestry design takes these trade-offs into account by including various tree-based options to provide a wide array of benefits across the landscape."

For more information on this topic, please contact Anja Gasner, director for Europe of CIFOR-ICRAF at a.gassner@cifor-icraf.org.

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