GROWING TREES ON FARMLAND

© Ties Rademacher, Trees on farmland in Eys, the Netherlands.

Smart choices to plant 3 billion additional trees

A policy brief by ELO & WWF

ELO
European Landowners' Organization

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Introduction

The EU Biodiversity Strategy for 2030: Bringing nature back into our lives[1] includes as one of its flagship targets to plant "at least 3 billion additional trees in the EU by 2030, in full respect of ecological principles". It is announced that the new EU Forest Strategy, planned for 2021, will include a roadmap, likely with further details on how this initiative will be implemented.

The European Landowners Organization and the WWF European Policy Office welcome this initiative of the European Commission. We strongly believe that planting trees and shrubs can bring multiple benefits to nature and people, but only when this is done appropriately and it is complementary to managing existing forests in a sustainable manner.

Besides proposing an increase of the quantity, quality and resilience of European forests, the EU Biodiversity Strategy for 2030 recognises that "tree planting is particularly beneficial in cities, while in rural areas it can work well with agroforestry, landscape features and increased carbon sequestration", thus underlining the multifunctionality of trees.

This policy brief will focus specifically on the planting of trees and shrubs on agricultural land. We aim to contribute to the policy debate showcasing some of the best choices available for doing so, seeking co-benefits and supporting the restoration of farmland biodiversity. Considerations about the quantification of the tree planting target[2], or any detailed technical recommendations[3] are beyond the scope of this policy brief, which primarily aims to provide general guidance and policy recommendations.

Why grow trees on farmland?

Producing timber and other wood and non-wood products are one obvious reason to plant trees, as it can increase the income on the farm, even if it will take time before it provides revenue. Additionally, farmers and landowners are increasingly being encouraged to have more environmental considerations when farming, and reintroducing trees and shrubs on farmland, as well as preserving existing ones, can become one of their main tools to contribute to flood protection, capture and store carbon, diversify landscapes, regenerate soils, prevent water pollution or restore biodiversity. Trees and shrubs enrich the farmland environment by providing a habitat for many types of flora and fauna. Biodiversity-rich farmland in Europe typically combines semi-natural vegetation such as pastures, with a high density of landscape features like trees, large hedges and copses, which also increase ecological connectivity. But woody vegetation can also offer multiple co-benefits for very diverse types of farming, boosting their resilience and even their productivity in certain conditions[4] .

Some typical examples of co-benefits include reducing the negative impact of wind on crops, providing shade in pastures and additional fodder for livestock, or extending the growth season of pastures, which are all relevant in the face of current environmental challenges. Recent research is also pointing at other benefits, like protecting pollinators and pest regulators, increasing the protein content of cereal grains, or enhancing the capture of air moisture. Trees can also cause some disbenefits to adjacent fields or to certain wildlife. Examples of these are excessive shade, water competition, increasing the risk of weed spread or hosting wildlife that can cause damages to crops or ground-nesting birds.

1 Published by the European Commission on 20 May 2020 and available here.
2 A conversion of the number-of-trees target into hectares of land, or into kilometers of linear features will in any case be needed in rural areas for implementation and monitoring purposes.
3 Providing land managers with technical recommendations and advice, tailored to the local conditions and based on ecological and agronomic knowledge, should be a requirement to prevent the planting of trees doing more harm than good.
4 Myriad examples and scientific evidence is available on the Agforward project website.

© Barna Bartis. Smooth transition between forest and grassland Romania

In order to avoid undesirable effects and maximise benefits, there are multiple factors and conditions that need to be assessed when planning to grow trees and shrubs. Some choices, like opting for a resilient and ecologically appropriate species, could seem relatively straightforward, but expert advice may be needed to factor in the long-term changes expected in the climatic conditions. Indeed, given the lifespan of trees, the standard local provenance seedlings may need to be diversified with more heat and drought resistant provenances.

Identifying the best design and locations for planting requires expertise, as well as foreseeing the maintenance and protection the seedlings will need. Additionally, long-term interdisciplinary research and further exchange and demonstration projects[5] will be needed to overcome the fear around the complexity of agroforestry systems and to assess their agronomic and financial performance. All in all, good technical guidance, ideally provided by experienced and/or well trained agroforestry advisors, has a key role to play in making tree planting a long-term success.

Planting trees in the wrong places, or using the wrong species, are well-documented errors we have made in the past, and must not be repeated. This is particularly the case for some EU-protected habitats[5], such as many wetlands (e.g., bogs, moors, etc.)[6] and certain biodiversity-rich grasslands, which are best preserved when kept free of trees. Any conversion of these habitats should be avoided, so they are no-go areas for tree planting. When available, specific recommendations on tree planting found in guidance documents for habitat conservation or in management plans for protected areas should be followed.

Additionally, it can also be counterproductive to plant trees or shrubs on land where natural regeneration is already taking place, particularly if it involves substantial preparatory work disturbing soils and existing woody vegetation. Tree planting is frequently inappropriate also in rural areas which already host a high proportion of forests and natural vegetation, especially where maintaining open areas with pastures or cropland helps preserve biodiversity-rich mosaic landscapes.

5 For a full list and description of protected habitats, see the Interpretation Manual of EU habitats.

6 It goes without saying that it would be completely outdated (and in some cases illegal) to drain such lands and/or convert them into other land uses.

© Víctor Casas, Dense network of trees and shrubs on pastures in León, Spain

Smart choices to plant trees and shrubs

In many cases, trees and shrubs can be grown on farms without this implying a conversion of farmland into forest. Therefore, we would discourage the generic use of the term afforestation, restricting it to cases where relatively large tracts of land are indeed planted with trees and farming abandoned in them.

Agroforestation -i.e., the creation and regeneration of a wide array of agroforestry systems- could be a much better term to use when referring to planting trees on farmland, without this entailing a land use change.

Interest in agroforestry systems has grown in the EU over the last decades, and it is actually mentioned by the Biodiversity Strategy as a particularly beneficial option for planting trees in rural areas. Agroforestry can be defined as the practice of deliberately integrating woody vegetation (trees or shrubs) with crop and/or animal farming systems, seeking win-wins for agricultural production and nature protection.

Some of these options, like hedges or wood pastures, have long been part of our most ecologically and culturally valued rural landscapes. Others are more innovative approaches, like alley cropping or high-value tree agroforestry. To illustrate some of the best alternatives available today, below we describe five ways of smartly planting trees on farmland.

© Víctor Casas, Cows grazing and browsing on trees in Salamanca, Spain.

Introducing more landscape features in rural areas

The Biodiversity Strategy has set a target of at least 10% of agricultural area under high-diversity landscape features by 2030. These include typical elements of rural green infrastructure[7], like ponds, stone walls, hedges and buffer strips, and their reintroduction would deliver many co-benefits in intensively farmed areas devoid of them.

Many of these landscape features are more functional and host more biodiversity when they are large and include varied shrubs and trees in them. This is, for instance, the case of buffer strips along water courses. By planting trees in them, uncultivated strips of land can be transformed into a multilayered riparian forest that effectively protects the river banks, maximises nutrient filtering, prevents soil erosion and lowers water temperature in the summer, making it a more suitable habitat for many wildlife species . [8]

7 According to DG Environment, green infrastructure can be defined as a strategically planned network of natural and semi-natural areas with other environmental features designed and managed to deliver a wide range of ecosystem services.

8 For more details, see for instance the USDA website on Riparian Forest Buffers

© Yulian Alexeyev. Trees along a water creek in Pontruet, France.

Cultivating trees within arable land

Alley cropping is an innovative agroforestry system in which arable crops are grown between rows of trees. The spacing between the rows of trees should be wide enough to accommodate the use of modern farming machinery in the alleyways, which are cultivated with standard crops. The space between trees in a row generally remains uncultivated, and can therefore be used to establish other woody vegetation or flower strips.

The crops and trees used in these systems are generally chosen to minimise competition for water and sunlight between the two layers: for instance, a winter cereal combines well with a late-leafing tree species. Planting trees that yield high-value timber, such as walnut or cherry trees, is a frequent choice to maximise the return on the investment[9] .

9 For a detailed example of this type, see this case study by the European Environmental Agency.

©Jabier Ruiz. Alley cropping combining walnut trees with cereal production in Occitanie, France.

©Jabier Ruiz. Wood pasture with cork oak trees in Extremadura, Spain.

Regenerating wood pastures

Wood pastures and meadows are a type of farmland that typically combines scattered large trees and shrubs with livestock grazing or mowing of the grass. Present in all biogeographical regions in Europe, but nowadays more abundant in Mediterranean and Eastern European countries, they usually feature outstanding natural and socio-cultural value.

Wood pastures have declined over the last decades, mainly due to processes of agricultural intensification and abandonment, and suffer from inadapted farming and conservation policies[10]. One major challenge for the conservation of existing wood pasture is that there are very few young trees that can replace the old large ones as they die. Wood pastures can be regenerated, or new ones created, by planting or seeding trees on suitable grasslands and protecting them during their early development.

10 For a detailed assessment, see this Wood pastures EP booklet by the EFNCP.

©Michael Sayer. Protection for a young chestnut tree in a wood pasture in Norfolk, UK.

Restoring traditional fruit orchards

In contrast with modern intensive fruit production systems, traditional orchards typically feature large high-stemmed trees, and an herbaceous cover that is grazed or mowed underneath them. Such extensively managed orchards offer a series of excellent habitats for wildlife, including the decaying wood or a very diverse nutrient-poor grassland.

Planting trees to restore (or create new) orchards is an excellent way to increase the presence of this valuable habitat in rural areas, and this is best done by using vigorous rootstock to ensure resistant long-lived trees that can be grafted with different varieties of fruit, including old ones. A mixture of early and late flowering trees will make the orchard a more valuable source of nectar and pollen for bees and other pollinators[11] .

©Markus Spiske. A traditional fruit orchard in blossom in Bavaria, Germany.

11 For a good guide on traditional orchards, see this guide to wildlife and management by the PTES.

Creating new copses or small woods

Planting clumps of trees or even small woods can be the best management option in less productive or accessible areas of the farm. This is particularly the case when the land manager is interested in producing timber, in capturing substantial amounts of carbon, or in a small-scale restoration of a valuable forest habitat. These interventions may also be useful to connect adjacent patches of forest and create ecological corridors.

The active afforestation of plots of land is especially necessary in oversimplified landscapes where the natural establishment of trees and shrubs would be very slow.

Where agricultural activity has been abandoned and natural regeneration is already occurring, the planting of trees may be unnecessary or should be done through punctual careful interventions, aiming to diversify the composition and structure of the vegetation.

A supportive policy framework

Growing trees and shrubs is not a one-off operation of planting but a long-term commitment for land owners and managers. The first years after the plantation or seeding are critical as the seedlings and young trees will need some protection from unfavourable weather conditions (such as frost, or drought) and to prevent damages made by wild animals like roe deer, or by domestic livestock. Replanting may be necessary if something went wrong and, in later stages, pruning or thinning could be needed to ensure a good shape and growth of trees.

While these systems increase the resilience of the farming activity, often leading to a decreased use of inputs and allow for a degree of diversification, the reduction in yields can still be a limiting factor. Additionally, planting trees can in some cases entail a loss in the value of farmland, or may be difficult to do when tenant farmers and landowners do not agree. Sequestering carbon has become almost a duty for land managers, but the economic incentives are rarely there. And when there is more limited experience and evidence available, as with innovative agroforestry systems, land managers may be reluctant to plant trees, unless they receive qualified reliable advice.

All in all, encouraging farmers and other land managers to plant trees and shrubs requires more than just covering the initial costs. A more comprehensive and favourable policy environment will be needed to achieve the ambitious target pursued by the Biodiversity Strategy. Below we underline five key elements that could be improved in the near future and be very relevant in this regard.

1. **Common Agricultural Policy - Eligibility of farmland for CAP direct payments.** A complex set of definitions and rules makes it more difficult -in many Member States- to claim CAP direct payments on land with abundant trees and shrubs, even if the land is actively farmed. Such restrictions operate as a perverse incentive against the presence of shrubs and trees, and must be changed to ensure that all the aforementioned types of agroforestry, including recently established copses and woods, are not excluded from the basic CAP support.

2. **Common Agricultural Policy - Investment and advice.** Sufficient Rural Development funds should be made readily available by Member States to support the advice and the investments required for tree and shrub planting, and for their maintenance in the first few years. Additionally, all types of agroforestation should benefit from the increased support rates already foreseen for afforestation and non-productive investments. Public authorities should ensure the availability of farm advisors with the adequate expertise, foster farmer-to-farmer exchanges and provide innovation support.

3. **Common Agricultural Policy - Green architecture.** The CAP's green architecture must be conducive to a higher presence of trees on farmland. As a baseline, a fair proportion of landscape features and a minimum width for buffer strips should be set for all CAP beneficiaries. Incentive payments should be made available by Member States through the innovative eco-schemes, or the well-established Rural Development schemes, to reward farms that go beyond the baseline. Such payments should be multi-annual and proportional to the environmental benefits expected from higher amounts of landscape features, or from the enhanced management of trees and natural vegetation.

4. The recently announced **EU Carbon farming initiative and Regulatory framework for certifying carbon removals** should cover the activity of growing trees on farms in full detail, as it is one of the major tools available for land managers to sequester carbon. The potential access to additional income from carbon markets, or from a public or private carbon farming scheme could help develop new business models for farms, and further incentivise land managers to grow trees.

5. **National or Regional regulations.** Legal definitions of agricultural vs. forest land in official registers (which may be affected by the size of the parcel or the tree cover) should be revised where having more trees on farmland creates a loss of land value or disproportionate restrictions to management. Additionally, the laws governing farmland leases between owners and tenants should include a fair framework delimiting the roles and responsibilities of each actor as regards growing trees on leased land. Innovative governance approaches like land stewardship, as well as the scaling up of payments for ecosystem services can also be instrumental in facilitating the uptake of tree planting initiatives.

Looking into the future, and taking into account the increasing and competing demands placed on land use, a more holistic and territorial approach to policy making seems to be desirable for our rural areas. One option that would facilitate the growing of more trees in Europe would be to broaden the scope and governance of the CAP, so it becomes the principal policy for EU rural land management, embracing forestry

© Víctor Casas, A traditionally managed dehesa wood pasture in Salamanca, Spain.

The European Landowners' Organization (ELO)

The European Landowners' Organization (ELO), created in 1972, is a unique federation of national associations from the 28 EU Member States and beyond, which represents the interests of landowners, land managers and rural entrepreneurs at the European political level. Independent and non-profit making, the ELO is the only organization able to stand for all rural entrepreneurs with over 50 member organizations. The ELO promotes a prosperous countryside through private property dynamism. Its Secretariat is based in Brussels.

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The World Wide Fund for Nature (WWF)

The World Wide Fund for Nature (WWF) is one of the world's largest and most experienced independent conservation organisations, with over 30 million followers and a global network active in nearly 100 countries.

WWF's mission is to stop the degradation of the planet's natural environment and to build a future in which humans live in harmony with nature.

The WWF European Policy Office contributes to the achievement of WWF's global mission by leading the WWF network to shape EU policies impacting on the European and global environment.

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