



Agrobosbouw NL

Nieuwsbrief 30

Europese Commissie

De Europese Commissie bracht enkele maanden geleden het werkdocument van de staf van de Commissie uit getiteld 'Guidelines on Biodiversity-Friendly Afforestation, Reforestation and Tree Planting (richtlijnen voor biodiversiteit-bevorderende bebossing, herbebossing en boomaanplant).'

Deel 1 van dat document richt zich op bos-ecosystemen, deel 2 op de aanplant van bomen in stedelijke ecosystemen en deel 3 op de aanplant van bomen op landbouwgrond, ofwel agroforestry. Dat laatste deel volgt hierna integraal.



Brussels, 17.3.2023
SWD(2023) 61 final

COMMISSION STAFF WORKING DOCUMENT

Guidelines on Biodiversity-Friendly Afforestation, Reforestation and Tree Planting

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PART III – TREE PLANTING IN AGRICULTURAL LAND

INTRODUCTION

Agriculture is an important European land use, occupying more than 162 million ha, slightly more than 38% of the EU's total land area. Unsustainable agriculture is the most important driver of loss of biodiversity and ecosystem services worldwide⁹⁹. Biodiversity losses may also reduce yield significantly. This highlights the importance of promoting management alternatives that have synergistic benefits for agricultural production, biodiversity and ecosystem services in agricultural landscapes.

The EU Biodiversity Strategy for 2030¹⁰⁰ sets the objective of covering at least 10% of the EU's agricultural area with high diversity landscape features by 2030¹⁰¹, which include hedges and trees. There are different approaches about how to integrate biodiversity and agriculture¹⁰². The proposed regulation on Nature Restoration also includes specific targets and objectives for agricultural ecosystems.

Land sharing, often called wildlife-friendly farming, advocates conserving and improving the levels of biodiversity and ecosystem services of agricultural land¹⁰³.

In the EU, agroforestry has a simple and flexible definition: “*a land use system in which trees are grown in combination with agriculture on the same land*”¹⁰⁴. EURAF¹⁰⁵ defines it as: “*the integration of woody vegetation, crops and/or livestock on the same area of land.*”

Agroforestry, compared to simple crops, is considered a useful strategy for the following objectives related to ecosystem services and biodiversity:

- Improving overall biodiversity.
- Creating buffer zones (e.g. riparian buffers).

⁹⁹<https://ec.europa.eu/eurostat/databrowser/view/tag00025/default/table?lang=en>⁹⁹ Paula Barral, José María Rey Benayas, Paula Meli, Nestor Oscar Maceira, Quantifying the impacts of ecological restoration on biodiversity and ecosystem services in agroecosystems: A global meta-analysis, *Agriculture, Ecosystems & Environment*, Volume 202, 2015, Pages 223-231, ISSN 0167-8809, <https://doi.org/10.1016/j.agee.2015.01.009>.

¹⁰⁰ EUR-Lex - 52020DC0380 - EN - EUR-Lex (europa.eu)

¹⁰¹ Actions Tracker | Knowledge for policy (europa.eu)

¹⁰² Phalan, Ben & Green, Rhys & Dicks, Lynn & Dotta, Graziela & Feniuk, Claire & Lamb, Anthony & Strassburg, Bernardo & Williams, David & zu Ermgassen, Erasmus & Balmford, Andrew. (2016). How can higher-yield farming help to spare nature?. *Science*. 351. 450-451. 10.1126/science.aad0055. Fischer, Joern & Batary, Peter & Bawa, Kamaljit & Brussaard, Lijbert & Chappell, M. Jahi & Clough, Yann & Daily, Gretchen & Dorrough, Josh & Hartel, Tibor & Jackson, Louise & Klein, Alexandra & Kremen, Claire & Kuemmerle, Tobias & Lindenmayer, David & Mooney, Harold & Perfecto, Ivette & Philpott, Stacy & Tscharntke, Teja & Vandermeer, John & von Wehrden, Henrik. (2011). Conservation: Limits of Land Sparing. *Science* (New York, N.Y.). 334. 593; author reply 594-5. 10.1126/science.334.6056.593-a. Rey Benayas, J.M., Bullock, J.M. Restoration of Biodiversity and Ecosystem Services on Agricultural Land. *Ecosystems* **15**, 883–899 (2012). <https://doi.org/10.1007/s10021-012-9552-0>

¹⁰³ Rey Benayas, J.M., Bullock, J.M. Restoration of Biodiversity and Ecosystem Services on Agricultural Land. *Ecosystems* **15**, 883–899 (2012). <https://doi.org/10.1007/s10021-012-9552-0>

¹⁰⁴Reg 1305/2013 Article 23. The European Federation of Agroforestry EURAF complements this definition as follows: “*Agroforestry practices include all forms of association of trees and crops (silvoarable systems) and/or animals (silvopastoral systems) on a parcel of agricultural land, whether in the interior of the parcel or on its edges (hedges)*”.

¹⁰⁵ European Agroforestry Federation (EURAF) <https://euraf.isa.utl.pt/welcome>

- Establishing biological corridors to enhance landscape connectivity and landscape-level biodiversity. Promoting natural regeneration along riparian ecosystems, and hedgerows between plots is particularly worthwhile for this objective.
- Transformation from conventional to organic agriculture, leading to a decreased need for pesticides and fertilisers¹⁰⁶. This is especially useful if woodland favourable to pollinators and including sources of natural enemies of pests are used.
- Reclamation and rehabilitation of degraded or abandoned agricultural land.
- Improving support for ecosystem services and regulating aspects such as nutrient cycling, soil formation, water regulation, flood control and, erosion control, etc., and prevention of damage from agriculture to adjacent environments.
- Mitigating climate change through increased carbon sequestration.
- Adapting to climate change, in particular by creating micro-climates which regulate extreme temperatures for both animals and crops.
- Increasing the use of short supply chains by forest farming and home gardens.
- Improving overall yield.

1. BENEFITS AND EXAMPLES OF AGROFORESTRY

Field research has shown that integrating trees within agricultural land provides the synergistic benefits of increased land use efficiency and income diversification. It also enables improved animal welfare, enhanced biodiversity, soil conservation and carbon sequestration.

Some examples¹⁰⁷:

- ✓ *Food and animal health*: Given their deep roots and recycling of the mineral elements from the soil, trees offer much more nitrogen and nutrient feed (e.g. calcium and magnesium) than meadow grass. Because of its high lignin content and astringence, this fodder is often less digestible than grass. Yet it is a good supplement for livestock¹⁰⁸, particularly in times of fodder shortage.
- ✓ *Trees and poultry*: The presence of trees in poultry farms improves the comfort and reduces stress for the animals, resulting in an increase in the average weight of chickens for the same feed intake and the same development time. This results in healthier, higher quality and homogeneous poultry throughout the year.

¹⁰⁶ Rosati A, Borek R, Canali S. Agroforestry and organic agriculture. *Agrofor Syst.* 2021;95: 805–821. https://multifunctionalagroforestry.net/wp-content/uploads/2021/05/Rosati2020_Article_AgroforestryAndOrganicAgricuilt.pdf

¹⁰⁷ https://ap32.fr/wp-content/uploads/2019/10/livretAP32_agrof_armagnac.pdf.

¹⁰⁸ Ash, elm, mulberry and poplar are the trees most used for their leaves. The most appreciated are ash and poplar, whose energy values are comparable to those of dry hay (0.4 to 0.6 Fourrager Unit) for much higher protein contents (90-120 g/kg dry matter compared to 30-40 g for hay). The leaves of trees also have therapeutic properties.

- ✓ *Crops*: when planted at the heart of cultivated plots, trees grow faster than in forests and are more resistant to wind. With regular lower-branch pruning, they can produce knotless wood which can be used for timber. Agroforestry cereals can have a higher protein content than monoculture cereals. They are more protected from climatic hazards and benefit from soils with enhanced fertility.
- ✓ *Soil*: due to falling leaves and the continuous renewal of fine roots, trees inject organic matter into the soil, feeding the flora and fauna there and increasing biological activity to make it a living and fertile soil. In addition, their root system improves the soil structure. Porosity increases, allowing better infiltration, the storage of water and further promotion of biological activity. Finally, trees create a temperate microclimate favourable to the development of microbial populations, microfungi and microfauna (e.g. lumbrics, etc.). In addition, grazing in orchards compared to intensive orchards/fruit trees is beneficial, since livestock can reduce or even remove the need to use pesticides.
- ✓ *Carbon*: Studies have suggested that agroforestry on 10% of the EU land under "high environmental pressure" could absorb up to the equivalent of 235 million tonnes CO₂ equivalent in year 1¹⁰⁹.
- ✓ *Fauna*: Hedges and woody strips, made up of trees, shrubs and grasses, are all elements of the environment necessary for the presence, development and renewal of wild fauna and game. They are particularly rich environments that can generate complete food chains. Natural pressure on crop pests often results in reduced pesticide use.
- ✓ *Yield*: In comparison with monoculture, agroforestry allows for an overall increase in the yield of a parcel. With 50 trees per hectare, agronomists have measured that the productivity of one hectare in agroforestry can be equivalent to the productivity of one and a half hectares of cereals and wood on separate parcels¹¹⁰. These calculations do not take the contributions made by trees to agricultural production into account (reduction of inputs and protection of crops against climatic hazards). Nor do they include the recovery of wood from tree maintenance.

2. KEY ELEMENTS OF AGROFORESTRY

2.1. Create heterogeneous agricultural landscapes

Agricultural intensification has resulted in simple agricultural landscapes characterised by monocultures, large areas of agricultural land, large field size and the absence of non-crop habitats. This leads to a loss of biodiversity. A strategy for improving biodiversity and ecosystem services, and in particular pest control, consists of transforming simplified

¹⁰⁹ Kay S, Rega C, Moreno G, den Herder M, Palma JHN, Borek R, et al. Agroforestry creates carbon sinks whilst enhancing the environment in agricultural landscapes in Europe. *Land use policy*. 2019;83: 581–593.

¹¹⁰ Dupraz C, Lawson GJ, Lamersdorf N, Papanastasis VP, Rosati A, Riuz-Mirazo J. Temperate agroforestry: the European way. In: Gordon AM, Newman SM, Coleman BRW, editors. *Temperate Agroforestry Systems*. Wallingford: CAB International; 2018. pp. 98–162.

agricultural landscapes into more diverse landscapes. Mosaics of well-connected and diversified habitats in different ecological conditions (crop, herbaceous, forests, shrub patches, etc.) sustain biodiversity. They also contribute providing crucial ecosystem services for agriculture¹¹¹. Tree planting and afforestation, through natural and artificial regeneration of tree and woody vegetation, can be useful for implementing these strategies.

The creation of heterogeneous landscapes can be used as a tool for building a coherent network of green infrastructure. Before tree planting or afforestation, it is necessary to consider the landscape matrix with a view to designing corridors that permit the movement of wildlife (e.g. key species) along different habitats. This will enhance the provision of ecosystem services (e.g. the re-establishment of flood alluvial forests along riparian systems).

2.2. Agroforestry systems and practices

There are several agroforestry systems and practices:

Tree location	Agroforestry system	Agroforestry practice	
		Agricultural land	Forest land
<i>Trees inside parcels</i>	Silvopastoral agroforestry	1. Wood pasture	9. Forest grazing
	Silvoarable agroforestry	2. Tree alley cropping 3. Coppice alley cropping 4. Multi-layer tree-gardens	10. Multi-layer tree gardens
	Permanent crop agroforestry	5. Orchard intercropping 6. Orchard grazing	
	Agro-silvo-pasture	7. Alternating cropping and grazing	
<i>Trees between parcels</i>	Tree landscape features (addressed by CAP conditionality rules)	8. Tree landscape features: protected hedges, scattered individual trees, trees in line, small groups of trees	
<i>Trees in settlements</i>	Urban agroforestry	Home gardens, allotments, etc.	

¹¹¹ Bianchi F.J.J.A, Booij C.J.H and Tscharntke T., 2006 Sustainable pest regulation in agricultural landscapes: a review on landscape composition, biodiversity and natural pest control Proc. R. Soc. B.2731715–1727 <http://doi.org/10.1098/rspb.2006.3530>

*Table 1: Agroforestry typologies*¹¹².

Agroforestry must be implemented in a way that does not lead to ecological degradation, but instead to ecological restoration. This applies to both biodiversity and ecosystem services. There are many sources of information and advice available to assist farmers with agroforestry planning and development¹¹³. In particular:

- Trees inside parcels

Trees and woody vegetation inside parcels should be planted for promoting community assemblages that influence synergistic benefits and enhance ecosystem services. These include:

- pest control;
- increased yield production;
- nutrient cycling and retention;
- carbon sequestration;
- animal welfare.

It is important that tree planting inside parcels is designed to restore the ecology of the areas where they are settled. For example, reforested areas can turn into multi-layered tree gardens and simple crops in simplified land can turn into intercropped tree alley systems.

- Trees between parcels

Linear and scattered trees along with woody vegetation features can be mostly found between fields or at the borders of streams and rivers. For developing new landscape features, a similar approach to the one for trees inside parcels should be considered.

For promoting biodiversity, special attention should be given to scattered trees. They are considered keystone structures, because their effect on ecosystem functioning is relatively disproportionate for the small area occupied by any individual tree. Introducing just 3-5 trees per hectare in treeless sites can double species richness, triple the richness of bat species and increase bat activity one hundred times¹¹⁴.

It is also important to conserve and adequately promote the presence and development of veteran trees (see section 2.3 of Part II).

Hedgerows can be multi-strata and incorporate herbaceous, woody vegetation and trees. They also create an opportunity to provide ecosystem services¹¹⁵. Compared to arable land without hedgerows, these linear landscape features contribute to soil carbon stock (both in the hedgerow and adjacent field), intercept nitrogen and phosphorus from the surface and subsurface flow, and function as soil sediment traps. It has also been shown that, if wisely

¹¹² Dupraz, C & Lawson, G & Lamersdorf, N. & Papanastasis, V. & Rosati, A. & Ruiz-Mirazo, J. (2018). Temperate agroforestry: the European way.. 10.1079/9781780644851.0098.

¹¹³ For example the EU research programmes funded under FP4 (SAFE); FP7 (AGFORWARD and AFINET (REF)); Horizon Europe (Agromix ref and Mixed - ref) and EIP-AGRI (Agroforestry Focus Group)

¹¹⁴ Fischer J, Stott J, Law BS. 2010. The disproportionate value of scattered trees. *Biol Conserv* 143:1564–7.

¹¹⁵ Van Vooren, Laura, et al. "Ecosystem Service Delivery of Agri-Environment Measures: A Synthesis for Hedgerows and Grass Strips on Arable Land." *AGRICULTURE ECOSYSTEMS & ENVIRONMENT*, vol. 244, 2017, pp. 32–51, doi:10.1016/j.agee.2017.04.015.

designed and managed, providing ecosystem services such as pollination can lead to an increase in overall crop production. Additionally, hedgerows can generate important quantities of timber if managed correctly.

A specific type of linear landscape feature is riparian vegetation. This should be restored to avoid surface water pollution and so support compliance with the EU Water Framework Directive¹¹⁶. Riparian vegetation refers to vegetation directly adjacent to rivers and streams. Riparian forest extends laterally from the active channel to the uplands, thereby including active floodplains and the immediately adjacent terraces. These help control sediment, reduce the damaging effects of flooding and help stabilise stream banks¹¹⁷.

Riparian forests can deliver a number of benefits, including:

- filtering capacities;
- providing shade, shelter and food for fish and other aquatic organisms;
- providing wildlife habitats and corridors for terrestrial organisms;
- protecting cropland and downstream communities from flood damage¹¹⁸.

Even though it is not a widely-used or popular management tool, periodic riparian vegetation removal – traditionally called ‘clean up’ – should be avoided. It does not have any function in flood mitigation, and can have a negative ecological, hydrological and hydrogeological impact in the river or stream.

- Trees in settlements

Home gardens¹¹⁹ are combinations of trees/shrubs with vegetable production that is associated with peri-urban or urban areas¹²⁰. Home gardens are currently considered within the circular economy and bioeconomy to be a key tool for mitigating climate change. Activities linked to the increase in fruit trees and horticultural crop production in the surrounding areas of cities reduces transport fuel expenditure, thereby improving the balance of greenhouse gas emissions. These phenomena are mainly associated with urban or peri-urban areas, but also with rural areas. Home gardens provide an excellent way of promoting local food and create a link between cities and the countryside.

¹¹⁶ EUR-Lex - 32000L0060 - EN - EUR-Lex (europa.eu)

¹¹⁷ Scholz et al. 2012, Ökosystemfunktionen von Flussauen - Analyse und Bewertung von Hochwasserretention, Nährstoffrückhalt, Kohlenstoffvorrat, Treibhausgasemissionen und Habitatfunktion. (Ecosystem services in floodplains - analysis of flood water retention, nutrient retention, carbon storage and habitat provision)

¹¹⁸ Barth and Döll, Assessing the ecosystem service flood protection of a riparian forest by applying a cascade approach, *Ecosystem services*, 2015

¹¹⁹ ‘Home gardens’ is a term which is most often used for multi-strata tropical forests. It is not the same as “kitchen gardens”, which are defined by EUROSTAT as ‘*areas of an agricultural holding devoted to the cultivation of agricultural products (vegetables, root crops and permanent crops, among others) – not intended for selling but for self-consumption by the farm holder and his household*’.

¹²⁰ Mosquera-Losada, María Rosa & Santiago-Freijanes, José & Rois, Mercedes & Moreno, Gerardo & Herder, Michael & Vazquez, Jose Antonio & Ferreiro-Domínguez, Nuria & Pantera, Anastasia & Pisanelli, Andrea & Rigueiro-Rodríguez, Antonio. (2018). Agroforestry in Europe: a land management policy tool to combat climate change.

Related activities linked to permaculture, agroecology and agroforestry (when the woody component is present), should be enhanced to deliver more healthy food and provide benefits to biodiversity.

Notwithstanding the above, some particular open agricultural ecosystems, including crop and grasslands, may be valuable for biodiversity conservation and carbon storage¹²¹. Tree planting or afforestation may actually damage their value. For example, the management guidelines for some areas of Natura 2000 recommend limiting afforestation to promote the conservation of given species¹²².

When restoring connectivity in agricultural landscapes, it is also important to avoid creating ecological traps. In other words, habitats that although selected by a species, help to reduce its fitness¹²³. For example, hedgerows along roads¹²⁴ may attract particular species for their presence of food, but may negatively affect its population.

In conclusion, it is always advisable to complement agroforestry with monitoring and adaptive management, to minimise the loss of biodiversity and ecosystem services.

Recommendations for designing and managing agroforestry systems

- Assess the interdependency and relationship between trees/forest and agriculture/pasture, namely to meet their specific requirements.
- As of the planning phase, consider future management interventions, with the objective of guaranteeing long-term system sustainability and the provision of goods and ecosystem services.
- Take into account the scale of the plot for choosing the type of agroforestry. For example, when dealing with small farms/plots, it is recommended to consider the agroforestry approach that mixes trees, crops and pastures on the same piece of land in a spatial or temporal sequence.
- Take into account temporal variability. When trees grow, shade will impact the understory crops by reducing the energy available for photosynthesis. It will also lengthen the life of leaves and reduce their surface temperature and local evaporation. Also, plan the replacement of trees in windbreaks and shelterbelts or hedgerows in advance when this becomes necessary.

¹²¹ Bond, William. (2016). Ancient grasslands at risk. *Science*. 351. 120-122. 10.1126/science.aad5132. O'Connor, Timothy. (2019). *Open Ecosystems: Ecology and Evolution Beyond the Forest Edge*: By William J Bond 2019, Oxford University Press, Great Clarendon Street, Oxford, OX2 6DP, UK192 pages, hardcover and Ebook DOI 10.1093/oso/9780198812456.001.0001 ISBN 9780198812456 (hardcover), ISBN: 9780191850318 (Ebook). Price £55.00. *African Journal of Range & Forage Science*. 36. 203-204. 10.2989/10220119.2019.1695663.

¹²² This is the case, for example, with ZEPA Tierra de campiñas (Spain), a cereal-crop steppe, for which it is recommended to promote sustainable management of unirrigated arable crops and limit the creation of new forested patches.

¹²³ Hale, R. and Swearer, S.E. (2017), When good animals love bad restored habitats: how maladaptive habitat selection can constrain restoration. *J Appl Ecol*, 54: 1478-1486. <https://doi.org/10.1111/1365-2664.12829>

¹²⁴ Fahrig, L., & Rytwinski, T. (2009). Effects of roads on animal abundance: An empirical review and synthesis. *Ecology and Society*, 14(1), 21

- It is important to select vegetation that creates synergistic benefits between trees and crops and improves yield. When planted in rows, the tree understorey could be planned to be part of the production system itself. This can be achieved by cultivating short-rotation coppice, berries or hazelnut shrubs. Alternative crops include herbs or flowers, or perennial crops like artichoke, rhubarb and mushrooms. Appropriate legume and grass species, varieties and cultivars should be selected for sowing in shade under given conditions. It is highly recommended to maintain herbaceous strips under linear trees.
- Young trees may require their seedlings to be protected from animals. This requires the use of temporary fences or individual protectors, or limiting/controlling livestock. In areas with a combination of trees and crops, using low-tillage systems and avoiding ploughing near trees would also prevent damage to their root systems.

WNF en Agroforestry

Agroforestry. Het klinkt als iets waarvan we de mogelijkheden recent aan het ontdekken zijn. Toch is het een vorm van landbouw met een eeuwenoude geschiedenis en in tropische landschappen is dit voor een aantal gewassen al de norm. In gematigde ecosystemen, zoals in noordwest Europa, hebben we echter nog geen goed model voor Agroforestry. Dit landbouwsysteem, waarbij bomen en meerjarige houtige gewassen een functionele rol spelen, is hier door intensivering van de landbouw in de loop van de jaren op de achtergrond geraakt. Met de grote opgaven waar Nederland nu voor staat, zoals landbouwtransitie, klimaatadaptatie en verbetering van de biodiversiteit, is het waardevol te onderzoeken of agroforestry hier een bijdrage aan kan leveren. Het Wereld Natuur Fonds (WNF) zet zich in voor 'natuurpositieve' landbouw, en vroeg Strootman Landschapsarchitecten om via ontwerpend onderzoek te kijken naar de bijdrage die agroforestry kan leveren aan herstel van landschap en biodiversiteit, verbetering van water-, bodem- en luchtkwaliteit, klimaatmitigatie en -adaptatie, en dierenwelzijn.

Dat resulteerde een paar maanden geleden in de publicatie van het rapport 'Agroforestry + 1 = 3.

Agroforestry + 1 = 3

De potentie van agroforestry om bij te dragen aan grote ruimtelijke opgaven in Nederland

Gemaakt door Strootman Landschapsarchitecten

STROOTMAN
LANDSCHAPSARCHITECTEN

In opdracht van het Wereld Natuur Fonds



Met de volgende toelichting op de website van Strootman Landschapsarchitecten: *“In het landbouwsysteem agroforestry hebben bomen en struiken een breder doel dan voedselvoorziening alleen. Bomen en meerjarige houtige gewassen worden gecombineerd met landbouw- gewassen (bijvoorbeeld in rijenteelt), veeteelt – denk aan bosweides – of versterken elkaars (voedsel)functie*

(bijvoorbeeld een voedselbos). In het ontwerpend onderzoek dat wij uitvoerden hebben we de potentie van verschillende landschappelijke typen agroforestry (in rijen, langs oevers, op perceelsgrens, in bosvorm, solitair en verspreid) gekoppeld aan ruimtelijke opgaven. Elke vorm van agroforestry heeft een andere impact op het landschap. Zo heeft rijenteelt door- zichten en een gecultiveerde uitstraling, en is een voedselbos gesloten met een natuurlijke uitstraling. Daarnaast kan een voedselbos weer op andere manieren bijdragen aan het oplossen van opgaven dan rijenteelt.

De verschillende typen hebben we in samenwerking met Stichting Voedselbosbouw, Wageningen Universiteit en het Louis Bolk Instituut beoordeeld op hun bijdrage aan grote opgaven: klimaat- adaptatie, klimaatmitigatie, bodemkwaliteit, waterkwaliteit, luchtkwaliteit, biodiversiteitsherstel, landschapsherstel en dierenwelzijn.

Zo draagt agroforestry in rijen bij aan:

- 1. Klimaatmitigatie: Bomen en struiken leggen koolstof vast in hout, bladeren, wortels en de bodem.*
- 2. Waterkwaliteit: Verdamping vermindert door de schaduwwerking en de beschutting die de rijen creëren.*
- 3. Biodiversiteitsherstel: Verbeteren van bodemkwaliteit, en een voedingsbron voor vogels en kleine zoogdieren.*
- 4. Bodemkwaliteit: Bomen en struiken zorgen voor een toename van het organische stofgehalte in de bodem en halen nutriënten uit diepere bodemlagen en maken deze via het blad beschikbaar voor het agro-ecosysteem.*

Uit het ontwerpend onderzoek blijkt dat agroforestry een bijdrage kan leveren aan de oplossing van meerdere opgaven tegelijkertijd. De vragen zijn dan wel: op welke plekken doe je dat en vanuit welke gedachte? Het landschap van Nederland is heel divers, de opgaven verschillen per plek en dat geldt ook voor beleid en wetgeving. Het is daarom belangrijk om vanuit verschillende perspectieven te bepalen hoe en waar agroforestry het best kan worden toegepast. Voor twaalf verschillende geografische typen hebben we globale schattingen gedaan van de mogelijke hoeveelheid agroforestry die voor verschillende doelen kan worden ingezet. Daarbij ligt de focus op landschap, klimaat- en biodiversiteitsopgaven. Vervolgens hebben we gekeken waar agroforestry in Nederland het beste kan worden toegepast, rekening houdend met ruimtelijke opgaven en beleidsdoelen.”

De publicatie is terug te vinden op de website van Strootman Landschapsarchitecten (<https://strootman.net/projecten/agroforestry/>) en op onze website bij 'publicaties'.



Stapelkaart die laat zien in welke gebieden 1 of meerdere opgaven spelen waar agroforestry aan kan bijdragen. Hoe donkerder de kleur, hoe meer opgaven er spelen. Alle kaarten op de pagina hiernaast zijn samengevoegd met een gelijke transparantie. De potentie van agroforestry verschilt per opgave. Dat verschil is niet meegenomen bij het bepalen van de transparanties. Interessant zou zijn om de relatieve potentie van agroforestry per opgave te bepalen, om tot een nog concretere potentiekaart te komen (geen onderdeel van dit onderzoek).

AGRARISCHE GEBIEDEN MET OPGAVEN WAAR AGROFORESTRY AAN KAN BIJDRAGEN

■ Gebied met opgave
■ Agrarisch areaal



Gebieden met een laag
vochtleverend vermogen



Gebieden waar
wateraanvoer uit rivieren
en kanalen niet mogelijk is



Gebieden met sterk risico
op droogtestress



Gebieden met hoog risico
op wind- en watererosie



Gebieden met kans op
verziltting



Gebieden met lage
soortendiversiteit



Gebieden met weinig
bestuivende soorten



Gebieden met een hoog
risico op stikstofuitspoeling
naar het oppervlaktewater



Gebieden met een hoog
nitraatgehalte in het
uitspoelingswater



Gebieden met een lage
koolstofdynamiek



KRW-watertopen met een
buffer van 250 m



Gebieden die sterk
bijdragen aan stikstoflast
in Natura 2000-gebieden