D3.1 Current policies and market tools affecting farmers' adoption and management of LF 31/12/2025

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1 Summary

The LAFERIA is identifying the key factors that can promote the reintroduction of landscape features in intensive agricultural areas and develop strategies to overcome key barriers to achieving the objective set in the EU Biodiversity Strategy 2030 of restoring a cover of 10% high diversity landscape features on agricultural land and of planting 3 billion trees.

This report reviews EU policies and associated national and regional policy implementation tools in the areas of agriculture, water, nitrate pollution, soil protection, and landscape and biodiversity protection, to illustrate how or whether they protect and incentivise the maintenance, restoration and reintroduction of landscape features on intensively used agricultural areas.

The EU Common Agricultural Policy provides most support for both creation and maintenance and management of landscape features on farmland, and has helped slow the decline (though historically, incentives for intensification have driven declines). Current CAP plans provide targeted support options, mainly for management but also for creation, but the overall ambition level is low, and complicated by recent changes in conditionality rules.

EU water and nitrates policies and national soil policies emphasise the importance of landscape features for water quality and soil protection in general, but in practice, implementation is mainly through the CAP.

The EU nature restoration regulation introduces new obligations to measure, plan and restore high diversity landscape features, and to contribute to the 3 billion trees target on farmland. Restoration measures should synergise with wider environmental objectives, notably climate, water and soil policies.

Barriers include economic constraints and costs (investment and maintenance), legal restrictions imposed by biodiversity and landscape laws (implemented through CAP conditionality rules), land ownership issues, administrative obstacles, and perceptions of losses and benefits. Nevertheless, some national programmes are available, as are many local initiatives driven by farmers, hunting groups, public or private infrastructure managers, and local governments.

New private funding sources for farmers and landowners, notably carbon farming certificates and nature credits, have potential to develop rapidly in the next few years but are also facing scepticism, particularly if public funding is then reduced.

Policies to scale up action need to raise awareness, provide training and capacity building, demonstrate success (highlighting economic and social value), and provide long-term support and funding. Success factors include a co-design approach involving farmers, support and training throughout the project, a landscape scale approach to planning, and adequate and positively incentivising payments.

2 List of abbreviations

BE	Belgium (Fl – Flanders, Wa – Wallonia)
BG	Bulgaria
CAP	Common Agricultural Policy
CIS	Common Implementation Strategy (of EU water policy)
CSP	CAP Strategic Plan
DE	Germany (Deutschland)
EEA	European Environment Agency
ENVCLIM	Agri-environment-climate scheme (in CSPs for 2023-2027)
EU	European Union
FD	Floods Directive
FI	Finland
FRMP	Flood Risk Management Plan
GAEC	Good Agricultural and Environmental Condition
HDLF	High diversity landscape features
IACS	Integrated Administration and Control System
JRC	Joint Research Centre of the European Commission
LF	Landscape Feature
LPIS	Land Parcel Identification System
LUCAS	Land Use Cover Area frame Survey
NbS	Nature-based Solutions
ND	Nitrates Directive
NL	the Netherlands
NVZ	Nitrate Vulnerable Zone
NWRM	Natural Water Retention Measure
PoM	Programme of Measures (for RBMP)
PT	Portugal
RBMP	River Basin Management Plan
RDP	Rural Development Programme
SE	Sweden
SMR	Statutory Management Requirement
UAA	Utilized Agricultural Area
WFD	Water Framework Directive

3 Aim and scope of this report

The overall goal of LAFERIA is to **identify the key factors that can promote the reintroduction of landscape features in intensive agricultural areas** and **develop strategies to overcome key barriers to achieving the objective set in the EU Biodiversity Strategy 2030 of restoring a cover of 10% high diversity landscape features on agricultural land and of planting 3 billion trees**. This report reviews the current policies and economic drivers affecting farmers' restoration and management of landscape features. The longer-term aim of this task of the project is to develop an inventory of instruments and mechanisms that could support farmers' adoption and management of landscape features.

Landscape features are small fragments of natural or semi natural vegetation in the agricultural landscape which provide ecosystem services and support for biodiversity (EUROSTAT, 2022) (see Box 1).

Box 1. Types of landscape features

According to EUROSTAT, landscape features include:

- **woody elements** in narrow strips (trees in line, hedgerows, riparian woody vegetation, less than 20m wide) or small patches (e.g. isolated trees, field copses, less than 0.5 ha)
- grassy elements covered by permanent herbaceous vegetation (e.g. field margins, buffer strips, small fragments of abandoned land)
- **watery elements** – ditches, streams, ponds, springs and the adjacent marsh vegetation (width less than 5m) or small wetlands (but not concrete or plastic lined channels or ponds)
- **stony elements** - piles of rock or stone (e.g. stone walls, clearance cairns), terraced agricultural landscapes (including the vertical "steps" and the flat "land block" parts), rocky outcrops
- **cultural heritage elements** and combinations of elements – historical mounds, hedge and stone wall combinations (e.g. knicks), etc.; and
- small orchards or areas of agroforestry with semi-natural vegetation

Source: (EUROSTAT, 2022)

Note that the definition of high diversity landscape features in the EU Nature Restoration Regulation introduces some additional criteria – see Box 2.

This report reviews EU policies and associated national and regional policy implementation tools in the areas of agriculture, water, nitrate pollution, soil protection, and landscape and biodiversity protection, with the purpose of illustrating how or whether they protect and incentivise the maintenance, restoration and reintroduction of landscape features, with a focus on intensively used agricultural areas.

4 Biodiversity and landscape policy

4.1 EU policy objectives and role of landscape features in the policy

The EU nature directives protect the role of landscape features as habitat for species. The **Birds Directive** protects all wild native birds in Europe from deliberate disturbance particularly during the period of breeding and rearing and from deliberate destruction of, or damage to, their nests and eggs or removal of their nests.[1] The **Habitats Directive** protects a subset of European wild native non-bird animal species (invertebrates, fish, amphibians, reptiles, mammals), including protection from deterioration or destruction of breeding sites or resting places, deliberate disturbance, particularly during the period of breeding, rearing, hibernation and migration, and deliberate destruction or taking of eggs from the wild.[2] It also protects certain wild plant species from destruction or disturbance. Landscape features can be important species habitats on and around farmland, for foraging, shelter, nesting or breeding, and/or overwintering. In addition, some of the protected habitats listed in Annex I of the Directive can include landscape features as a defining characteristic (e.g. habitat 3170 temporary ponds), though these habitats are not often found as part of intensively used agricultural areas[3].

The Habitats Directive identifies the role of landscape features for ecological connectivity, stating that: "*Member States shall endeavour, where they consider it necessary, in their land-use planning and development policies and, in particular, with a view to improving the ecological coherence of the Natura 2000 network, to* ***encourage the management of features of the landscape which are of major importance for wild fauna and flora***. *Such features are those which, by virtue of their linear and continuous structure (such as rivers with their banks or the traditional systems for marking field boundaries) or their function as stepping stones (such as ponds or small woods), are essential for the migration, dispersal and genetic exchange of wild species.*" Article 10 in the Habitats Directive implements the Council of Europe Landscape Convention (ETS No. 176), which promotes the protection, management and planning of landscapes as "*an area, as perceived by people, whose character is the result of the action and interaction of natural and/or human factors*". The European Commission issued a guidance document on Article 10 of the Habitats Directive and Article 3 of the Birds Directive in 2007 (Kettunen et al, 2007). However, the fitness check of the Habitats Directive concluded in 2016 that Article 10 has not been an effective incentive for the

[1] Directive 2009/147/EC of the European Parliament and of the Council of 30 November 2009 on the conservation of wild birds. Article 5.

[2] Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora. Article 12 system of strict protection for species listed in Annex IV.

[3] In general, Annex I habitat areas do not overlap with landscape features as defined by EUROSTAT and agricultural regulations, because most member states or regions apply a minimum size threshold for Annex I habitat identification (e.g. 0.5 ha) that lies above the maximum size threshold for landscape features. Annex I habitats that form part of the agricultural area (e.g. grasslands) do often have defining features that could be considered landscape features, e.g. juniper trees on habitat 5130), but they are very extensively used habitats and not generally part of intensively farmed agricultural areas.

creation or reintroduction of landscape features where they have been lost, due to the lack of operational rules (Milieu, IEEP and ICF, 2016).

The **EU Green Infrastructure Strategy** published in 2013 (European Commission, 2013) was intended to address this gap. It defines Green Infrastructure 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, while also enhancing biodiversity*.' The environmental features in this definition include landscape features on agricultural land. The strategy was intended to create an enabling framework for green infrastructure using existing EU legal, policy and financial instruments, supporting the EU biodiversity targets to 2020 (including better implementation of the EU nature directives). The Commission guidance published in 2019 (European Commission, 2019) specifies that EU funded Green Infrastructure projects must contribute to the goals of the Birds and Habitats Directives, including via implementing Article 10 of the Habitats Directive and connecting Natura 2000 with buffer zones to defragment the landscape. The Commission urged the Member States to include Green Infrastructure for Natura 2000 in their national Prioritized Action Framework (PAF) for EU funding for the period 2021 to 2027 (European Commission, 2023b).

The **EU Biodiversity Strategy to 2030** published in 2020 sets the aspirational target for 2030 of bringing back at least 10% of agricultural area under high-diversity landscape features, through better implementation of the Habitats Directive and use of CAP support. The strategy states that: "*To provide space for wild animals, plants, pollinators and natural pest regulators, there is an urgent need to bring back at least 10% of agricultural area under high-diversity landscape features. These include, inter alia, buffer strips, rotational or non-rotational fallow land, hedges, non-productive trees, terrace walls, and ponds*". The strategy also sets a goal to plant an additional 3 billion trees by 2030, stating that the planting should increase the EU's forested areas, increase forest resilience, reverse biodiversity loss, and mitigate climate change as well as adapt to its effects. The Commission roadmap on the 3 billion trees target emphasises the planting trees in agricultural land as part of sustainable agro-forestry (as well as tree planting in forest and urban areas)[4]. The strategy also set out the case for a new EU regulation for nature restoration, which led to the adoption of this new regulation in 2024.

The **EU nature restoration regulation**[5] adopted in June 2024 requires member states to track indicators for agricultural ecosystems and adopt measures that aim to achieve an increasing trend in two chosen indicators at the national level. One of the three indicators listed in Article 11 (restoration on agricultural land) is the share of agricultural land with high-diversity landscape features. Member states must identify and adopt measures to create and reintroduce high-diversity landscape features in their national

[4] https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52021SC0651

[5] Regulation (EU) 2024/1991 on nature restoration and amending Regulation (EU) 2022/869

nature restoration plans by mid-2026[6]. The regulation defines high-diversity landscape features as elements (including land lying fallow, sustainable agroforestry systems and old orchards) which provide ecosystem services and support for biodiversity, and which therefore must not be under productive agricultural use or receive fertiliser or pesticide treatments (see Box 2).

Box 2. High-diversity landscape features indicator in the EU nature restoration regulation

High-diversity landscape features, such as buffer strips, hedgerows, individual or groups of trees, tree rows, field margins, patches, ditches, streams, small wetlands, terraces, cairns, stonewalls, small ponds and cultural features, are elements of permanent natural or semi-natural vegetation present in an agricultural context which provide ecosystem services and support biodiversity.

In order to do so, landscape features need to be subject to as little negative external disturbance as possible to provide safe habitats for various taxa, and therefore need to comply with the following conditions:

(a) they cannot be under productive agricultural use (including grazing or fodder production), unless such use is necessary for the preservation of biodiversity; and

(b) they should not receive fertilizer or pesticide treatment, except for low input treatment with solid manure.

Land lying fallow, including temporarily, can be considered as high diversity landscape features if it complies with criteria set out under (a) and (b) of the second paragraph. Productive trees part of sustainable agroforestry systems or trees in extensive old orchards on permanent grassland and productive elements in hedges can also be considered as high diversity landscape features, if they comply with criterion set out under (b) of the second paragraph, and if harvests take place only at moments when it would not compromise high biodiversity levels.

Source: Regulation (EU) 2024/1991 Annex IV

4.2 Implementation of the EU biodiversity and landscape policies

The legal protection provided by the EU Birds and Habitats Directives should be transposed at the national level into rules about what can and cannot be done to landscape features and when, in order to protect their role as species habitats, as many landscape features are important for wild birds and other protected animals or plants as foraging, nesting or breeding or resting places in farmed landscapes. However, most member states do not seem to have adopted a complete framework of specific and preventive measures for a systematic implementation of species protection rules on farmland, apart from the rules in the CAP (European Commission et al, 2022).

[6] This applies if member states choose to use the high diversity landscape features indicator – they must choose two of the three available indicators, and as the other two indicators (soil organic carbon and the grassland butterflies index) tend to have more data gaps, it is likely that a majority will choose to use the landscape features indicator.

The Common Agricultural Policy (CAP) has required the implementation of rules applying the legal protection of the Birds and Habitats Directives to CAP payments since the year 2000. These CAP conditionality rules should assure some basic protection of species habitats in landscape features on farmland from destruction or major disturbances (for example by restricting hedge and tree cutting during the bird breeding season) (see the section on agriculture policy below for more details).

The EU Green Infrastructure Strategy was assessed in 2020 as having led to the incorporation of green infrastructure into national, regional and local strategies and plans, particularly in urban policy, though it is not possible to pinpoint the role of landscape features on farmland in these policy instruments or quantify the impact (Trinomics et al, 2021).

4.3 National nature or landscape conservation legislation in LAFERIA member states

National legislation must transpose the requirements of the EU nature directives but may also go further and provide specific legal protection for certain landscape features. Table 1 lists some examples of such national or regional legal protection in the LAFERIA case study countries. In some countries, spatial planning tools and permitting rules are used to enforce protection on agricultural land. For example, the region of Flanders in Belgium applies a legal protection to small landscape elements that prevents their removal without a permit in certain areas of the landscape, as defined in the spatial planning framework. German law specifies that protected landscape elements should be included in regional spatial plans. In practice, many countries and regions rely on implementation through the CAP conditionality rules alone, as is the case in Bulgaria.

Table 1: National biodiversity and landscape policies requiring maintenance or reintroduction of landscape features in the LAFERIA case study countries

MS / REGION	Biodiversity or landscape policy or legislation	Mentions / provisions on landscape features 1
BE (Flanders)	legal protection of small landscape elements (Kleine landschapselementen KLE) in the Decree on nature conservation and the natural environment[7]	An integrated environmental permit is required to make changes in KLE in agricultural areas of ecological importance or special value, Natura 2000 areas and nature development areas, agricultural areas of landscape importance within the Integrated Interrelation and Support Network (IVON). The following landscape elements must not be changed due to their heritage value: sunken lanes; grafts; wells.
BG	Biological Diversity Act	Stipulates the need for measures and activities for protection of the elements of the landscape, which because of their linear and continuous structure or connecting function are significant for the migration, geographical distribution and genetic exchange in the plant and animal populations and species. The landscape elements on agricultural land include riverbanks and floodplains with riparian vegetation, wetlands and wet meadows, field borders, field protection strips, meadows and pastures. However, implementation of the protection in agricultural areas is limited to the CAP conditionality rules.
DE	Bundesnaturschutzgesetz (BNatSchG) And related federal state laws	Protects certain habitat types (§ 30 Gesetzlich geschützte Biotope) from any intervention that would cause significant damage. These include (larger) areas of natural and semi-natural habitats (including Habitats Directive Annex I habitats) such as rivers and their banks and floodplain vegetation, grasslands, rocky habitats, coastal dunes, wetlands and mires. Federal states must maintain a publicly accessible register of protected habitats. Surface waters, including their margins, riparian zones and

[7] Flemish Decree on nature conservation and the natural environment. Date of publication 10/01/1998. Last update or amendment 17/5/2024. https://codex.vlaanderen.be/Zoeken/Document.aspx?DID=1005915&param=informatie

MS / REGION	Biodiversity or landscape policy or legislation	Mentions / provisions on landscape features 1
		floodplains, must be preserved as habitats and biotopes for naturally occurring animal and plant species (§ 21). Federal states can apply the national legal protections to additional habitat types and/or landscape elements (§ 29 geschützte Landschaftsbestandteile) (e.g. knicks in Schleswig-Holstein and Hamburg). Landscape elements should be included in regional spatial plans. The law transposes the species habitat protection of the EU Habitats and Birds Directives (§§ 39 und 44). Interventions in nature and the landscape that impact environmental and biodiversity values are generally subject to compensation requirements (§ 15). Agricultural use does not constitute an encroachment if it is carried out within the framework of good professional practice (Section 14 (2) BNatSchG). This is assumed to be the case if the objectives of nature conservation are at least considered in (commercial) land use. Criteria for the assessment of good professional practice include site adapted cultivation, a balanced relationship between animal husbandry and plant cultivation as well as compliance with fertilizer and plant protection legislation.
FI	Nature Conservation Act[8] transposes the EU Nature Directives and defines the planning, establishment and protection of habitats, landscapes and species including aspects of	Areas can be designated as landscape management areas to protect natural and cultural landscapes and the historical features particular to the region. Protected areas can also be designated to protect traditional rural biotopes. These areas are generally managed under the HELMI programme run jointly by the Ministry of Agriculture and Forestry and Ministry of the Environment. The programme establishes and funds voluntary conservation agreements with private landowners.

[8] Luonnonsuojelulaki - renewed 1 June 2023 on the 1996 version, repealing the 1923 version. https://www.castren.fi/blogandnews/blog-2022/nature-conservation-act-approved-after-heated-debate/

MS / REGION	Biodiversity or landscape policy or legislation	Mentions / provisions on landscape features 1
	connectivity (e.g. via small water courses).	The issuance of permits for drainage must take water protection, fishery and landscape needs into account.
NL	No national legal protection exists. The competence for nature protection legislation lies partly with the provinces in the Netherlands.	Some regions like the province of Utrecht have legislation which indicates which landscape features are protected and should not be removed.
PT	Decree-law 169/2001 for the protection of cork oaks and holm oaks[9] and 2004 amendment[10]	Conversion cutting or uprooting is not allowed (in stands or small nuclei of high ecological value of cork oaks and/or holm oaks) except the justification for the intended cutting or uprooting is: projects of essential public utility, as declared by the ministers responsible for forests and for the project, and without alternative locations; or agricultural projects of significant and sustainable interest to the local economy, as declared by the ministers of forests and the project (agriculture), without alternative locations and that cumulatively meet the conditions defined in current legislation. The removed trees must be replaced with compensation measures.[11]
SE	Environmental Code (consolidation of environmental acts) (Ds 2000: 61)	The code (Chapter 12 section 8) gives the Government or the authority appointed by the Government the power to issue rules to protect natural and cultural assets on agricultural land and with other agricultural land use, such as protection of the agricultural and cultural landscape and of flora and fauna. The environmental quality objectives describe the quality of the environment that Sweden wishes to achieve, described by specifications.

[9] Decreto-Lei n.º 169/2001, de 25 de maio. https://files.diariodarepublica.pt/1s/2001/05/121a00/30533059.pdf
[10] Decreto-Lei n.º 155/2004, de 30 de junho: Altera o Dec-Lei n.º 169/2001, de 25 de maio, que estabelece as medidas de proteção ao sobreiro e à azinheira.
[11] ICNF (undated) Sobreiro e Azinheira. https://www.icnf.pt/florestas/protecaodearvoredo/sobreiroeazinheira

MS / REGION	Biodiversity or landscape policy or legislation	Mentions / provisions on landscape features 1
	National Environmental Quality Objectives (established in 1999)[12]	Government agencies have specific responsibilities for certain objectives. Environmental Quality Objective 'A Varied Agricultural Landscape' mentions landscape features as small-scale habitats and green infrastructure in its aim to ensure that 'the agricultural landscape is open and richly varied with significant elements of managed semi-natural pastures, and hay meadows, small-scale habitats and water environments, including a green infrastructure that offers habitats and dispersal pathways for wild plant and animal species'

[12] Naturvardsverket. Swedish Environmental Objectives. https://www.naturvardsverket.se/en/om-miljoarbetet/swedish-environmental-objectives/

4.4 Measuring the high diversity landscape features target

The Commission is obliged to assess the high-diversity landscape features indicator trend in the EU nature restoration regulation over the period from 18 August 2024 until 31 December 2030, and every six years thereafter. The Commission method will use the CAP impact indicator I.21 method (see below) with the addition of data on land lying fallow as measured by the Farm Structure Surveys (now called 'Integrated Farm Statistics Survey')[13]. In addition, member states can choose their own method to assess trees in sustainable agroforestry systems, trees in extensive old orchards on permanent grassland, and productive elements in hedges. This means that the data that will be used depends on the member states' choice of methodology.

Several datasets are available at the EU level:

- The **EU LUCAS survey** (Land Use/Cover Area frame Survey) landscape features module is designed to provide a consistent quantification of the area of different types of landscape features at member state level, and possibly at regional level (NUTS2). It provides data on landscape features on over 92 000 LUCAS sample points (1 ha plots) for the years 2022 and 2025 (D'Andrimont et al, 2024). Each point is first photo-interpreted on a very-high resolution aerial ortho-photo, then in-situ visited, with confirmation or correction of presence of landscape features classified into seven types (only counting features that or on or next to agricultural land).
- The **EMBAL survey** provides detailed data on landscape features on 3000 plots of 25 ha aligned with the LUCAS sample grid for the years 2022 and 2023 (Sutcliffe et al, 2025). The EMBAL survey gives information on the biodiversity value of landscape features as it provides a measure of plant species richness in the neighbouring parcel(s). It is however currently uncertain whether the survey will be repeated in future, and only two years of data are available.
- The **Copernicus high resolution layer for Small Woody Features** (SWF HRL) has been calculated for the years 2015 and 2018 with a spatial resolution of 5m/100m. It measures woody linear structures such as hedgerows, scrubs, or tree rows and patches of trees and scrub (but not grassy, wet, or stony elements like grass margins, ditches, channels, ponds, roads, or stonewalls). This product has a three-year update cycle covering the years 2015 and 2018.
- The **Integrated Farm Statistics Survey** collects data at the farm level by integrating information about the core structure (e.g. areas per crop, number of animals), production methods, farm labour, rural

[13] Commission Notice 14.2.2025 – Guidance on a framework for developing methodologies to monitor high-diversity landscape features pursuant to Article 14(7) of the Nature Restoration Regulation (Regulation (EU) 2024/1991)

development measures and agri-environmental aspects[14]. The data are collected from a stratified sample survey of farms across the EU. The farm area data include fallow arable land, unutilised agricultural land (i.e. land lying fallow for more than 5 years except for ecological focus areas), short rotation coppice, other wooded areas. Notably, however, mapping is required only for areas eligible for support under the CAP. Thus, while quite detailed, the mapping is not fully comprehensive.

Two indicator approaches have been developed at the EU level:

- The EEA used the Copernicus data for 2018 to publish the indicator 'share of woody landscape features in agricultural area'.[15] This will be updated every three years. However, there are still issues with the quality of remote-sensing data to characterise woody landscape features (Kleeschulte et al, 2023),
- The Joint Research Centre is currently finalising a method to measure the CAP I.21 indicator (see below) using the LUCAS sample data[16]. The JRC notes, however, that the current method is not directly relevant to monitoring progress towards the EU biodiversity target, as it measures the share of landscape features, and not of high-diversity landscape features, as it is not possible to assess whether pesticides or fertilizers were used on the landscape features (Robuchon et al, 2025).

The mid-term assessment of the EU Biodiversity Strategy to 2030 (Robuchon et al, 2025) concludes that *'in the absence of other data points and a common methodology to monitor high-diversity landscape features, it is currently impossible to estimate how much we have progressed and whether we are on track to reach the target by 2030.'* Recent research proposes other approaches (see discussion section on developments in measurement and monitoring).

5 Agricultural Policy

5.1 EU policy objectives and role of landscape features in the policy

[14] EUROSTAT (2020) Integrated farm statistics manual — 2020 edition. https://ec.europa.eu/eurostat/web/products-manuals-and-guidelines/-/ks-gq-20-009

[15] EEA Indicator: Woody landscape features on agricultural land in Europe. Created 09 Feb 2024. Published 12 Feb 2024. Modified 29 Jul 2025. https://www.eea.europa.eu/en/analysis/indicators/woody-landscape-features-on-agricultural-land

[16] Commission Notice 14.2.2025 – Guidance on a framework for developing methodologies to monitor high-diversity landscape features pursuant to Article 14(7) of the Nature Restoration Regulation (Regulation (EU) 2024/1991)

D3.1 Current policies and market tools affecting farmers' adoption and management of LF

The Common Agricultural Policy (CAP), launched in 1962, is one of the oldest policies of the EU, whose objectives are laid out in the Treaty on the Functioning of the European Union. In short, these are to: increase productivity, ensure a fair standard of living for the agricultural community, stabilise markets, ensure availability of supplies and affordability for consumers. Article 11 of the Treaty states that "Environmental protection requirements must be integrated into the definition and implementation of the Union's policies and activities, in particular with a view to promoting sustainable development", which applies to the CAP as well as to all other policies. The Treaty also sets out that the EU should promote economic and social cohesion in disadvantaged regions, particularly rural areas, and protect natural resources. Over time, the CAP has evolved significantly, from market intervention and price support to decoupled support and voluntary schemes (OECD, 2023b). Additional objectives have been added arising from amendments to the Treaties, particularly regarding social and environmental issues.

The CAP is programmed under two main funds - the European Agricultural Guarantee Fund (EAGF) and European Agricultural Fund for Rural Development (EAFRD). In the current programming period (2023-2027), these funds pursue nine specific policy objectives (three economic, three social, three environmental). The CAP objective to "***contribute to halting and reversing biodiversity loss, enhance ecosystem services and preserve habitats and landscapes***" (Regulation (EU) 2021/2115) is most relevant in the framework of the LAFERIA project, but landscape features are also relevant to the other two environmental objectives for climate action and recycling of nutrients and water. Landscape features should also contribute to economic objectives by supporting more resilient farming systems.

The CAP has supported landscape features for over three decades through a set of measures.

- Through conditionality, formerly referred to as cross-compliance, farmers receiving CAP payments are required to comply with the Statutory Management Requirements (SMRs) and the Good Agricultural and Environmental Conditions (GAECs). Landscape features are part of these obligations under GAEC 8 (previously GAEC 7), which obliges farmers to retain existing landscape features.
- Farmers can seek specific support for the maintenance or creation of landscape features through several measures co-funded under the European Agriculture Fund for Rural Development (EAFRD), mostly through agri-environment schemes and non-productive investment interventions, and in the eco-schemes funded by the European Agriculture Guarantee Fund (EAGF).
- On the other hand, the CAP definition of land eligible for payments for income support has changed over the years, and this has had an impact on the presence of trees and shrubs on farmland, mostly affecting extensively used land.

These are all explained in further detail below.

5.1.1 CAP area eligibility rules related to landscape features

The CAP area eligibility rules affect what land can receive CAP payments and what types of features are allowed, with the aim of reserving payments only for farmland that is in a good condition for agricultural production. Land uses such as paludiculture and agroforestry may not be recognised. Agroforestry, i.e. trees on arable land (silvo-arable) or grassland (silvo-pastoral) has been excluded from receiving CAP direct payments due to the classification as forestry land instead of arable or grassland.

Since the introduction of area-based payments in 2004, the CAP rules for what land is eligible did not include trees and shrubs as part of permanent grassland, and the GAEC standards included a requirement to keep farmland free from encroaching scrub and weeds. This incentivised the removal of trees and shrubs from grazing land to avoid penalties. The Commission recommended that a parcel with more than 50 trees per hectare should be considered ineligible "as a general rule". The rules were applied inconsistently by member states, but in some cases, they completely excluded wooded pastures, heathlands and Mediterranean grazing with their dominant cover of dwarf-shrub communities from receiving CAP support for management (Beaufoy et al, 2011; European Court of Auditors, 2011).

In the 2014-2020 CAP rules, the definition of permanent grassland was changed to include trees and shrubs within the definition as long as grasses and herbaceous forage remain predominant (over 50%) and the trees and shrubs are used for grazing, with a raised limit for tree density. Member states could also decide to include as permanent grassland 'land which can be grazed and which forms part of established local practices' even if grasses do not predominate (Alliance Environnement, 2019). From 2018[17], a regulation added options to include land on which animal feed is produced, even though it cannot be directly grazed.

Member states can apply a pro-rata method for calculating the eligibility of parcels where permanent grassland is interspersed with scattered features regarded as ineligible for CAP support – for example rock outcrops and woody or wet features unsuitable for livestock to graze or browse. Member states can apply a coefficient for the percentage of a permanent grassland parcel occupied by ineligible features, usually in incremental steps between a lower and upper threshold. Each 'step' is linked to a corresponding reduction in the proportion of the parcel deemed to be eligible hectares.

5.1.1.1 Eligible area rules for landscape features in Member States CAP strategic plans (2023-2027)

[17] Regulation (EU) 2017/2393

D3.1 Current policies and market tools affecting farmers' adoption and management of LF

The CAP strategic plans regulation for 2023-2027 sets out a broad framework definition of agricultural area, consisting of arable land, permanent crops and permanent grassland, including agroforestry systems on those areas[18]. Agroforestry should be included in the framework definition of agricultural area. Each CAP plan must specify these definitions in more detail, within the framework. Permanent grassland is land that is used to grow grasses or other herbaceous forage naturally (self-seeded) or through cultivation (sown) and that has not been included in the crop rotation of the holding for five years or more and, where member states so decide, that has not been ploughed up, tilled, or reseeded with different types of grass or other herbaceous forage, for five years or more. It may include other species, such as shrubs or trees, which can be grazed and, where member states so decide, other species such as shrubs or trees which produce animal feed, provided that the grasses and other herbaceous forage remain predominant. If member states decide so, eligible hectares may contain other landscape features, provided they are not predominant and do not significantly hamper the performance of the agricultural activity due to the area they occupy on the agricultural parcel. In implementing that principle, member states may set a maximum share of the agricultural parcel covered by those other landscape features. Alternatively, member states can apply a simplified methodology that calculates the eligible area of permanent grassland while deducting the areas occupied by ineligible features.

The Commission expects that more agricultural areas with landscape features and/or trees are likely to benefit from direct payments because of these rule changes, compared to the previous period (DG AGRI, 2023). in principle, the rule changes take away the incentive for farmers to remove features such as scrub or scattered bushes to make land eligible for payments and allow the planting of trees on farmland. For example, the Netherlands CSP explains that the expanded definition of the eligible area will allow more landscape features and more agroforestry on farmland (Chartier et al, 2023). Notwithstanding, some member states have not used the flexibility granted by the CAP with regards to grasslands and still apply definitions that exclude areas from CAP support (see Box 3).

The level of detail in CSP definitions varies, and many simply reiterate a theoretical definition of agroforestry (Chartier et al, 2023). However, 6 CSPs include details of arrangements of agroforestry elements within the parcel e.g. scattered trees, strips or blocks, distance apart, the density of trees per hectare and the species to be used in new agroforestry planting. The changes that have an impact on landscape features are:

- *Landscape features*: 17 of the CAP plans include landscape features in the eligible area that are not protected under the national definition of the GAEC 8 standard. These may include hedgerows, trees, field

[18] From the Regulation (EU) 2021/2115 Article 4

margins, patches, buffer strips, ditches, streams, small ponds, reservoirs or wetlands, stonewalls, terrace walls or banks, rocks, bare land, access tracks for machinery and livestock. 8 have allowed more and/or bigger landscape features in the eligible hectare compared to the rules in 2014 to 2020 (see Box 3).

- *Grassland and silvo-pastoral agroforestry*: Most CAP plans have loosened the restrictions on numbers of trees on agricultural land (see Box 3). 17 of the 28 CAP plans for 2023 to 2027 elaborate the definition of permanent grassland by including details on permanent grassland with non-herbaceous forage (e.g. Mediterranean pastures where shrubs and trees provide the forage instead of grass); and/or established local practices; and/or permitted or restricted activities (e.g. allowing productive trees and shrubs that are used as forage, such as chestnuts and oaks) (Chartier et al, 2023).
- *Agroforestry on arable land (silvo-arable)*: Some changes help avoid excluding agroforestry on arable land and ensure that the land remains classified as arable land even when it is under agroforestry. 9 CSPs have removed the requirement for a maximum number of trees, and 8 have raised it (see Box 3). Croatia and Lithuania have specified that in new planting on arable land, native tree species must predominate, whilst in Ireland, non-native conifers can be considered on a site-by-site basis.

Box 3. Definition of CAP eligible agricultural land with regard to landscape features

A report from (DG AGRI, 2023) shows the choices made in the CAP strategic plans in 2023 with regard to the definition of what agricultural land is eligible for CAP payments ('agricultural area' and 'eligible hectare'):

Requirements related to agroforestry systems on agricultural area	Include a maximum limit of 100 trees per ha (continuation of previous EU level requirement in terms of maximum threshold, but no longer limited to scattered trees)	BE-Wa, BG, CZ, ES, LT, LV, NL, SI (up to 50)
	Set a maximum limit in different ranges above 100 trees	BE-Fl, DE, EL, HU, IE, IT, PL, SK
	Do not include a maximum limit on number of trees	AT, CY, EE, FI, FR, HR, LU, RO, SE
	Require a minimum number of trees but no maximum limits	DK, MT, PT
Requirements related to other landscape features	Do not include other landscape features in the eligible hectare	AT, BE-Fl, EL, HR, IT, LT, LU, LV, MT, RO
	Continue with the limits applicable under the old rules	BE-Wa, BG, CY, CZ, EE, FI, FR, PL, SE, SI
	Allow more and/or bigger landscape features in the eligible hectare compared to the old rules	DE, DK, ES, HU, IE, NL, PT, SK

5.1.2 Landscape features in the CAP conditionality rules

The Common Agricultural Policy (CAP) has required the retention of landscape features and the implementation of rules applying the legal protection of the Birds and Habitats Directives since 2005[19]. The CAP regulation specifies a statutory management requirement that farmers in Natura 2000 areas follow the restrictions and management practices defined for the site (which may include rules about landscape features on certain habitats) since 2007. On all farmland receiving CAP payments, these conditionality rules should ensure some basic protection of species habitats in landscape features from destruction or major disturbances (for example by restricting hedge and tree cutting during the bird breeding season). Several GAEC standards are relevant to landscape features, as described below.

5.1.2.1 GAEC 8 Retention of landscape features (2023-2027)

GAEC 8 sets requirements on all agricultural land eligible for CAP payments in 2023 to 2027[20]. Its current requirements are:

a) Retention of landscape features.
b) Ban on cutting hedges and trees during the bird breeding and rearing season.
c) As an option, measures for avoiding invasive plant species[21].

5.1.2.1.1 Exemptions and revision of GAEC 8 (2022 to 2024)

The revision of GAEC8 which came into force in May 2024 removed the requirement for a minimum non-productive area[22] not treated with fertilisers or pesticides that was set in the legislation in 2021. It introduced a new obligation on member states to offer farmers an eco-scheme for maintenance of non-productive areas and establishment of landscape features[23]. The revision of the standard followed several temporary derogations from this element of GAEC8 that were made available to member states in 2022, 2023 and 2024[24]. These had been driven by calls for

[19] The 2003 CAP reform, which took effect in January 2005, introduced cross-compliance rules in statutory management requirements (SMRs) and standards of good agricultural and environmental condition (GAEC) which farmers must meet or risk having a penalty applied to their CAP payments. The CAP framework has provided the option for member states to financially support the maintenance of the countryside and landscape features through agri-environment schemes since 1992.

[20] i.e. eligible hectares as defined by Article 4 of the CAP strategic plans regulation (REGULATION (EU) 2021/2115). On permanent grassland with scattered ineligible features, Member States may decide to apply fixed reduction coefficients to determine the area considered eligible.

[21] This is not relevant for the LAFERIA project objectives and so is not analysed in this report.

[22] The removed requirement was for a) minimum share of agricultural area is devoted to non-productive areas or features (with exemptions allowed for farms dominated by permanent grassland or areas dominated by forest); and b) minimum share of arable land at farm level devoted to non-productive areas and features, including land lying fallow – with three options for MS to choose from.

[23] Simplification Regulation (EU) 2024/1468 which came into force in May 2024.

[24] The derogation in 2022 was only for land lying fallow and declared as Ecological Focus Area, not for other non-productive features (Commission Implementing Regulation (EU) 2022/484). The derogation in 2023 applied to all non-productive areas declared to meet GAEC 8 but specified that the land brought back into cultivation should not be used to grow maize, soya beans, or short rotation coppice (COMMISSION

increased flexibility from member states in implementing environmental requirements, and the farmer protests in Brussels and around the EU, that were related to concerns about keeping as much land as possible in production, to cope with impacts from extreme weather events and the Russian invasion of Ukraine, and the Commission justification was food security concerns[25].

An exemption for farms with fewer than 10 ha of arable land and farms with predominantly grassland or forage and/or fallow from the minimum area obligations (but not the retention obligation) was written into the regulation since 2021. This was changed in 2024 to an exemption from all conditionality controls and penalties for small farmers with less than 10 hectares of agricultural areas26.

Most member states have adopted the GAEC 8 change in their national plan from 2025 onwards, but not all. Denmark, for example, decided to maintain the requirement to have a minimal share of non-productive land as a basic condition. Keeping this requirement resulted from the fact that the Danish strategic plan (including the GAECs) was part of a broad National Political Agreement on Agriculture concluded in 2021 (Zwaan, 2025). France decided to keep the entry requirement in its existing eco-scheme for at least 4% of land to remain non-productive land to be able to participate in the scheme. Some member states have retained the ban on fertiliser, manure or pesticide application on non-productive areas created under ecoschemes or agri-environment schemes.

GAEC 8 now includes the following requirements:

a) Retention of landscape features

Member states set up their own list of features which are protected and must be retained under GAEC 8. An indicative list of landscape features are provided in a CAP implementing regulation[27]: hedgerows, individual or groups of trees, tree rows, ditches, streams, small ponds, small wetlands, stonewalls, cairns, terraces, cultural features, field margins, patches, buffer strips, land lying fallow, and other. Member states can choose to set further specifications on minimum and/or maximum size, structure, and management of landscape features.

IMPLEMENTING REGULATION (EU) 2022/1317 of 27 July 2022). The non-productive areas in 2023 could include land lying fallow, sown strips or margins, cover crops, legumes, agroforestry, and other features (depending on the choices made by Member States),

[25] The expressed concerns and the evidence for them are explained in further detail in this article: https://capreform.eu/what-can-we-learn-from-the-dismantling-of-gaec-8/https://capreform.eu/what-can-we-learn-from-the-dismantling-of-gaec-8/

[26] Around two thirds of farms in the EU are below 10 ha in size. The exempted area in 2023 was estimated at around 13% of the arable area.

[27] Commission Implementing Regulation (EU) 2021/2289 of 21 December 2021 laying down rules for the application of Regulation (EU) 2021/2115 of the European Parliament and of the Council on the presentation of the content of the CAP Strategic Plans and on the electronic system for the secure exchange of information

b) Ban on cutting hedges and trees during the bird breeding and rearing season

The ban on cutting hedges and trees during the bird breeding and rearing season is part of the implementation of the EU Birds Directive on farmland. Productive trees are generally excluded from the ban, such as fruit trees and short rotation coppices.

The bird breeding and rearing season is defined by different start and end dates in each plan (Chartier et al, 2023). Generally, the expected pattern is for the ban to start earlier in southern countries, e.g. Malta on 1 February, and later in the northern regions, e.g. Sweden on 1 April and Finland on 1 May, with the central countries fixing either the beginning or mid-March. However, some exceptions do not fit this expected pattern, with Southern Greece setting the start date very late on 1 May, whilst Austria sets the start date on 20 February. Belgium's two regions have set start dates 15 days apart. Latvia applies an earlier start date to the ban for hedges and trees inside Natura 2000 sites (15 March), compared to 1 April for farmland outside these designations.

Most plans (20) have specified that the ban applies also to habitat areas alongside hedges or tree lines or trees (which could include a ditch, field margin, shrubby vegetation, or other undergrowth), although without naming these specifically. The Latvian GAEC requiring ditch maintenance specifies that this must be done without prejudice to the ban on disturbance to birds during the breeding season and the measures for avoiding invasive alien plant species.

5.1.2.2 GAEC 4 Buffer strips along water courses (2023-2027)

The GAEC 4 standard requires the establishment of buffer strips along water courses where fertilisers (including organic and chemical forms) and chemical plant protection products cannot be applied, to protect watercourses against pollution and improve water quality in accordance with the Water Framework Directive. The regulation states that the buffer strips shall respect a minimum width of 3 meters, with adjustments allowed in areas with significant dewatering and irrigation ditches, if duly justified for those areas in accordance with specific local circumstances. Statutory Management Requirements take precedence; hence, if a Nitrate Action Plan establishes wider widths, that rule applies in the Nitrate Vulnerable Zones (see section on nitrates policy).

Table 2 shows that in 2023, 15 CSPs set the 3m minimum required by the legislation (with some requiring wider buffer strips in some circumstances) whilst 13 CSPs set a larger width (Chartier et al, 2023). Most CSPs require the same width of buffer strip for the restrictions on fertiliser and pesticide use. However, two member states apply different widths for the fertiliser and the pesticide use restrictions. Cyprus has a narrower buffer strip for pesticide restrictions than the width with no fertiliser (3m instead of 10m) while

Sweden requires a wider buffer strip for pesticide restrictions than for fertiliser (6m instead of 3m).

This is an enhanced buffer strip requirement compared to the previous CAP, so farmers who previously had a 1m buffer strip needed to expand it to at least 3m width in 2023. For example, the German CSP specifies an expectation that the widened buffer strips required under GAEC 4 will significantly contribute to meeting the EU Green Deal target of 10% high diversity landscape features in Germany (Chartier et al, 2023). It is however important to note that the CAP simplification package adopted in October 2025 allows member states to align the definition of watercourses under GAEC4 with national legislation[28]. National legislation may use definitions that do not include smaller watercourses such as streams and ditches, as these are excluded from the scope of the EU Water Framework Directive. This would remove the buffer strip requirement from many smaller watercourses.

[28] An amendment by the Renew group to qualify the extent to which Member States could define the watercourses affected and to require Commission approval for the definition was rejected. https://capreform.eu/european-parliament-votes-on-cap-simplification-and-strengthening-farmers-position-in-the-food-supply-chain/

Table 2: Member state choices regarding GAEC 4 buffer strips (from (Chartier et al, 2023). Bold = LAFERIA case study CSPs

Implementation choice	CSPs
3m minimum width (as required by CAP regulation)	15 CSPs (AT, CZ, **DE**, DK, EL, **FI**, HR, IE, LT, **NL**, PL, **PT**, RO, **SE**, SK)
wider minimum width (5m, 6m or 10m)	13 CSPs 5m – **BE-Flanders**, **BG**, ES, FR, HU, IT, MT, SI 6m - BE-Wallonia 10m - CY, EE, LU, LV
require wider buffer strips in some circumstances - slope, type of fertiliser, manure management, crop type, water body and features (e.g. borehole, spring) to be protected, socio-economic factors and time of the year	10 CSPs (**BE-Flanders**, **BG**, CY, CZ, EL, IE, MT, **NL**, **PT**, RO)
allow narrower buffer strips in some circumstances based on the size of the catchment or agricultural parcel, or as an exemption along drainage and irrigation ditches	13 CSPs (CY, CZ, **DE**, EE, ES, FR, HU, IE, LV, **NL**, **PT**, **SE**, SI) Of which 5 CSPs allow narrower buffer strips for ditches (EE, FR, LV, **NL**, SI)
no rules that restrict tillage and/or no restrictions regarding cultivation and vegetative cover in buffer strips	18 CSPs
Additional restrictions on buffer strips –	14 CSPs
• ban tillage	5 CSPs (AT, BE-Fl, DK, EE, LU)
• ban ploughing but not tillage	2 CSPs (FR, IE)
• restrict non grassland crop cultivation	4 CSPs (DK, EE, IE, LT)
• require permanent vegetative cover, either sown or spontaneous	3 CSPs (EE, ES, FR)
same width restrictions for not ploughing and maintaining permanent cover in the buffer strip as for fertilisation	7 CSPs
wider or narrower width restricting ploughing or requiring permanent cover than for fertiliser	3 CSPs

5.1.2.3 Landscape features in other GAECs (2023-2027)

Landscape features play a role in two other GAECs as follows:

- GAEC 2 Protection of wetland and peatland: Member States should map small wetlands and peatlands and set rules to protect their carbon stocks.

- GAEC 5 for soil protection: The soil GAECS applying in 2023 to 2027 do not refer explicitly to landscape features, but previous GAECs mentioned maintenance of terraces[29]. Member States may decide to set minimum standards for retention of terraces, installation or maintenance of soil erosion prevention strips, or the protection or installation of other landscape features that protect against soil erosion. In 2023 to 2027, 9 CSPs[30] require the installation and maintenance of grass or vegetative strips or contour bands (slope barriers) on slopes (including the Netherlands and Flanders), whilst 5 CSPs[31] require the maintenance of terraces (including Bulgaria) (Chartier et al, 2023).

5.1.3 Rules for landscape features in the proposal for CAP 2028-2034

The proposal published by the European Commission for the next CAP period includes the objective of retaining landscape features within the new 'farm stewardship'. Member states will therefore continue to set minimum standards to protect landscape features that must be met by farmers receiving CAP payments, but they will have more flexibility with the farm stewardship compared to the current GAEC system. In the Commission proposal, the GAEC standards will not apply to famers receiving the "small farmer" payments nor to "organic farmers". The final version of the CAP is yet to be negotiated in the coming two years.

5.1.4 Landscape features in the CAP performance and evaluation framework for 2023 to 2027

To track the CAP's impact on supporting landscape features, the performance and evaluation framework of the CAP for 2023 to 2027 establishes one result indicator (R.34) and one impact indicator (I.21) with its corresponding context indicator (C.21). These are explained in Boxes 4 to 6.

The EU level target value for R.34 aggregating all CSPs is 1.4% of utilised agricultural area under supported commitments for managing landscape features by 2027. The intention was that this target is additional to the non-productive area requirement set by GAEC8 for arable land (that varied between 3 and 7%), to achieve an overall value of around 10%. However, the GAEC8 requirement for non-productive areas has now been abolished (as described above). The aggregated target represents less than a sixth of the estimated EU wide density of landscape features of 5.6% of UAA (see below).

In its latest implementation report (European Commission DG AGRI, 2025), the Commission states that nearly 2 600 ha of new landscape features were created in 2024, and that an average aggregated value of 1.45% for R.34 has

[29] The GAEC for 2014 to 2020 specified minimum land management reflecting site specific conditions to limit erosion.
[30] NL, CZ, BG, BE-Wallonia, BE-Flanders, AT, DK, EE, LU
[31] BG, ES, HU, SI, LU

been reached. It should be noted, however, that the indicator measures the amount of agricultural land that received funding for the creation and/or management of landscape features under area-based payments, so it mostly reflects support for the management of existing features and does not reveal the targeted density of new landscape features, as many schemes can fund either activity, and the indicator does not measure investments in new landscape features (see Box 4).

Box 4. Results indicator 'Preserving landscape features' (R.34)
The contribution of CAP support to landscape features is tracked by the result indicator R.34 "preserving landscape features"[32]. This quantifies the "*Share of utilised agriculture area (UAA) under supported commitments for managing landscape features, including hedgerows and trees*". The result indicator feeds directly from data in the programmed interventions in the CAP Strategic Plans. Member States quantify the area in hectares receiving support for landscape features under agri-environment-climate schemes, eco-schemes, and sectoral types of interventions (such as preservation/restoration of stone walls or terraces as part of restructuring and conversion of vineyards, provided that these actions are not realised through investment support). The indicator does not count support from investment measures as these are not area based. The description of the result indicator mentions that investments related to landscape features are captured in two other result indicators (R.26 productive and non-productive investments in natural resources and/or R.32 investments in biodiversity).

Box 5. Impact indicator 'Agricultural land covered with landscape features' (I.21)
The impact of the CAP on landscape features is measured by impact indicator I.21 "Agricultural land covered with landscape features". This is an estimate of the share of agricultural land (UAA) covered with landscape features, split by agricultural land use (arable land, permanent grass, permanent crops) and by landscape feature (woody, grass, wet, stony), plus a separate measure of the share of woody landscape features inside the agricultural area. Data to track the evolution of this indicator is extracted from the Copernicus Land Monitoring Service and the LUCAS survey (land use cover area frame survey based on sample points across the EU). Notably, however, the indicator is not currently set up to measure density of landscape features on farmland receiving CAP support, i.e. the parcels for which farmers submit an application and which are entered within the IACS system (though JRC developed methods to exclude cases where it is not clear if the linear elements belong to the agricultural area or not). The impact indicator is therefore not directly equivalent to what the results indicator is measuring. There are also differences between Member States in how they interpret the "eligible area", particularly regarding extensive grazing such as scrublands, pastures with trees and mountain grasslands, which can lead to differences between UAA and the land area receiving CAP support.

Box 6. Context indicator 'Agricultural land covered with landscape features' (C.21)
The context indicator C.21 measures the baseline value of the indicator at the beginning of the CAP funding period. The Commission first published C.21 baseline values for each Member State in 2020, of share of UAA with landscape elements

[32] DG AGRI PMEF result indicators. https://agriculture.ec.europa.eu/system/files/2023-09/pmef-result-indicators_en.pdf

and with landscape elements plus fallow land, based on the results of the LUCAS survey 2015 (with analysis by JRC to exclude cases where it is not clear if the linear elements belong to the agricultural area or not)[33]. For most member states, these C.21 values fell between 0% and 0.5% of UAA; the Netherlands, Finland and Sweden had significantly higher values. In late 2023, the JRC published a revised list of values for C.21 based on more recent LUCAS data combined with COPERNICUS high resolution remote sensing data and LPIS/IACS data (D'Andrimont et al, 2023). This estimated the EU wide ratio at 5.6% of UAA in 2022. National shares range from 3% to 9%, but Malta and Cyprus have significantly higher values.

Table 3 shows the R.34 values set by Member States in their CAP Strategic Plans and the C.21 values from the latest JRC report (based on estimates on the total cover based on satellite observations) for the Member States that have LAFERIA case studies. The values are not directly comparable, as the R.34 value reflects the programming choices made to use CAP support both for restoring and managing existing landscape features (as measured by C.21), and for the creation of additional landscape features, potentially resulting in an increase in the C.21 value (as will be measured by the impact indicator I.21 in 2027). However, the comparison does reveal that most member states have shown a lack of ambition in their support for landscape features, choosing target values far lower than the estimated coverage of landscape features, indicating that only a small proportion of existing landscape features will be supported for maintenance and restoration, and there is little to no ambition to increase the overall area.

Table 3: Result and context indicators for landscape features in CAP plans for LAFERIA case study countries

% UAA	Belgium	Bulgaria	Germ-any	Nether-lands	Portugal	Sweden	EU27
R.34 target for 2027 (in MS CSPs)	0.1 (Flan-ders)	1.1	4.1	3.7	0.3	0.04	1.4
C.21 value (2022)	5.6 (Belg-ium)	6.2	5.4	7.2	8.9	8.1	5.6

Sources: CAP dashboard and (D'Andrimont et al, 2024)

The intention is that the JRC publish I.21 values in 2027 based on the areas covered by landscape features on agricultural land estimated from the LUCAS

[33] CAP proposal impact assessment at https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:52018SC0301. Annex 5.4 – Non-productive elements in the EU. Source: DG AGRI based on Eurostat and JRC based on LUCAS survey 2015. Linear elements considered were grass margins, shrub margins, single trees bushes, lines of trees, hedges and ditches. It was noted that this estimation is to be taken with caution because of methodological caveats.

Landscape Feature module data from 2025 (Robuchon et al, 2025). However, the JRC noted in May 2025 that *'in the absence of any other estimation, it is impossible to evaluate how the share of agricultural area under landscape features has progressed. A new estimation is foreseen in the next years and will allow to assess trends in the share of agricultural area under landscape features.'*

5.2 CAP interventions that support the creation, restoration and management of landscape features

There are four main types of interventions within the CAP that can directly support the creation, restoration and management of landscape features, three of which contribute to the result indicator R.34. These are:

- Schemes for the climate, the environment and animal welfare ('**eco-schemes**')
- Environmental, climate-related and other management commitments (also referred to as '**ENVCLIM**')
- **Sectoral interventions**
- **Investments** (not area-based and not contributing to R.34)

A small number of the 28 strategic plans also use other interventions - the cooperation measures and area-specific disadvantages resulting from certain mandatory requirements (e.g. Natura 2000 payments) – to support landscape features (Chartier et al, 2023).

Eco-schemes: Almost all CSPs[34] offer eco-schemes including options for funding landscape features; 19 CSPs provide specific support for landscape features in their eco-scheme options, and 11 support other unproductive areas and strips. The eco-schemes in Cyprus, Finland, France, Greece and Latvia do not appear to specifically fund landscape features but may nevertheless support for various reasons: for example, the French eco-schemes, which have a large budget and target area, fund landscape features amongst more general funding options; Greece offers a targeted eco-scheme that applies to protected areas and aligns with these area priorities. Some Member States are using bonus payments and other instrument design elements to steer the support to creating an ecological network of connected landscape features that have a high value for biodiversity.

ENVCLIM schemes that include explicit support for landscape features are found in 17 CSPs, with a wide range of scope and support options for maintenance, restoration and creation of landscape features. CAP support measures for the creation or maintenance of landscape features or non-productive areas often implement a ban on fertiliser, manure or pesticide application on the non-productive areas created under such schemes, to ensure compatibility with GAEC8.

[34] AT, BE-Flanders, BE-Wallonia, BG, CZ, DE, DK, EE, ES, HR, HU, IE, IT, LT, LU, MT, NL, PL, PT, RO, SE, SI, SK

On-farm non-productive investments support farm practices such as the creation and restoration of landscape features and on-farm habitats such as hedges, tree groups, ponds, small wetlands, stone walls or terraces. Most member states support the creation of new features through non-productive investment measures. The 42 planned interventions in the CAP CSPs supporting landscape features vary widely in their scope, design, the level of the required commitments and the type of landscape features they support (Chartier et al, 2023). In relation to the type of supported features, this includes a wide range of farm practices such as the planting of hedges, trees, and small woodlands; the creation and restoration of other landscape features, such as ponds, small wetlands or buffer strips; or the repair and creation of terraces and stone walls. Some have made an obligatory link between investment in creation and management for maintenance, such as Croatia, where landscape features created with the support of an Investment measure must then be maintained using an ENVCLIM commitment (Chartier et al, 2023).

Denmark, Ireland and the Netherlands have allocated a significant proportion of their overall investment budget in on-farm non-productive investments as follows:

- Denmark has allocated a large proportion of investment support for creation of wetlands and other water and climate projects, with smaller financial allocations for afforestation, and restoration of land in Natura 2000 sites to reinstate grazing.
- Ireland has targeted over 180 000 operations or units for on-farm non-productive investments linked to agri-environment contracts, mainly for grazed habitats under the results-based agri-environment programme ACRES[35].
- The Netherlands dedicates a large portion of its EAFRD budget to 110 projects focused on managing unproductive areas and landscape features, and improving water efficiency, with a particular emphasis on floodplain restoration.

CAP support directed at improving soil and water quality often includes the creation and enhancement of landscape features. For example, the Slovakian 'building common facilities and measures – elements of green and blue infrastructure' investment which aims to protect soil from erosion, improve water management, and boost biodiversity. It supports anti-erosion measures like afforestation, windbreaks, and terraces, as well as water management structures such as reservoirs and flood control systems. It explicitly prioritises projects that involve natural landscape features that help reduce flood risks and create habitat (Rouillard et al 2025).

To better understand the type of support provided through CAP interventions, we carried out an assessment of the eco-scheme, ENVCLIM and sectoral support interventions that have been programmed to contribute to the results indicator for landscape features support (R.34). Contributing

[35] According to output indicator O.21

to R.34 are 20 eco-schemes in 19 strategic plans; 29 ENVCLIM interventions in 17 strategic plans; and one sectoral intervention (for the wine sector in Cyprus). Other types of interventions can support landscape features in the strategic plans but are not counted to R.34. They are generally broader in scope and the way in which they are used to support landscape features is not always possible to assess. For example, it is not possible to assess what investment support member states are providing to landscape features as it is provided alongside many other priorities and there is often no separate defined budget or scheme.

Looking at the supported practices linked to the results indicator for landscape features support (R.34), support for the maintenance of landscape features seems to prevail over the creation of new landscape features. However, the information in the CAP catalogue does not distinguish between support for the creation of landscape features or the maintenance of existing ones when both are allowed under the same intervention. The type of practices supported seek different objectives depending on the needs of each member state or region. For instance, in Portugal, support is directed to the maintenance of stone walls, cultural features and terraces, with the overall purpose of reducing soil erosion; while the Netherlands supports field margins, buffer strips and ditches to increase biodiversity and improve water management in this intensively farmed country.

To better understand the types of practices that these interventions support, Table 3 shows the interventions programmed by the LAFERIA Member States to contribute to R.34, as extracted from the European Commission's Catalogue of CAP interventions[36]. The LAFERIA member states have programmed eco-schemes and/or ENVCLIM measures for R.34 as follows:

- Bulgaria and Sweden have programmed an eco-scheme,
- Belgium (Flanders) and the Netherlands have programmed a series of ENVCLIM measures,
- Germany and Portugal programme both types of measures.
- Finland has not set a target for R.34 and therefore has not linked any interventions to the indicator.

Some observations on the LAFERIA member states level of ambition and CAP programming for landscape features:

- **Belgium – Flanders**: Flanders has set a low R.34 target (0.1% of UAA). The target is expected to be reached with the contribution of two agri-environment schemes supporting the maintenance and conservation of hedges/wooded strips and agroforestry respectively. Flanders has two more ENVCLIM interventions that do not count towards R.34, which support the creation and maintenance of field margins (codes 1.10, 3.8) and one investment measure that supports hedgerows and trees (code 3.30).

[36] European Commission DG AGRI Catalogue of CAP interventions. Consulted in August 2025. https://agridata.ec.europa.eu/extensions/DashboardCapPlan/catalogue_interventions.html

- **Bulgaria**: Bulgaria has set a target for R.34 of 1.1% of UAA. The cover of landscape features in the country is estimated at 6.2% of UAA (C.21). There is one single intervention contributing to the result indicator, which is an eco-scheme that aims to maintain and improve biodiversity and ecological infrastructure (I.B.2). The information in the Catalogue does not clarify whether the creation of features is also supported beyond the maintenance of existing ones. The uptake of the eco-scheme I.B.2 has been poor, with only 12.6% of the planned area reached in the first year; according to an NGO assessment the grazing requirements were unclear and the scheme was poorly promoted (Birdlife International and NABU, 2024). Bulgaria also offers two interventions that support farm practices for landscape features but that are not linked to R.34. These are an eco-scheme with support for the maintenance and creation of field margins (I.B.5) and a non-productive investment measure supporting hedgerows, trees, field margins and unproductive buffer strips along water courses.
- **Finland**: Finland has not set a target for R.34, and therefore no interventions contribute towards this goal. The Finnish CSP provides the explanation that the country has large quantities of landscape features in agricultural habitats outside the eligible area, which are nevertheless supported by the CAP. The CSP has programmed a large number of ENVCLIM (9) and Investment (4) measures that can support the maintenance and creation of landscape features[37]. Several of these are very localised and small in terms of the covered hectares and the budget. The most significant of these in terms of budget and target area is the ENVCLIM intervention Ympäristö 01, targeting 1.8M hectares (maximum of annual planned output). This is a five-year environmental commitment that includes the creation of field margins as an option, among many other measures.
- **Germany**: Germany has one of the highest R.34 targets (4.1% of UAA) in the EU-27. The coverage of landscape features is estimated at 5.4% of UAA (C.21), indicating that Germany is aiming to provide funding for the maintenance of most of the existing landscape features on agricultural land. At the federal level, R.34 is to be achieved by eco-scheme (DZ-0401) with four variants relevant for landscape features plus an ENVCLIM intervention (EL-0105), also broad in scope. Both the eco-scheme and the ENVCLIM intervention can fund the maintenance and the creation of landscape features, but the two supports can also be complementary. However, in some federal states the options in the eco-scheme have not been taken up and offered to farmers (Scheid and Ittner, 2023), limiting its benefits[38]. The uptake of the eco-scheme for provision of areas for the improvement of biodiversity (including landscape features) has been poor, with only 16.5% of the planned area supported in the first year; however, payment rates have been raised and uptake has increased in 2024 (Birdlife International and NABU,

[37] These are interventions that contribute mostly to R.31 (Preserving Habitats and Species) and R.33 (Improving Natura 2000 management)

[38] Maintenance of existing or newly established rows of trees and hedges is only funded in Lower Saxony and North Rhine-Westphalia (Scheid et al. 2023)

2024). Other measures supporting landscape features, not linked to R.34, are three ENVCLIM: management commitments to improve climate change mitigation (focus on peatland, paludiculture and bog-friendly stowage) (EL-0101), management commitments to improve water quality (supporting biodiversity strips and water protection strips) (EL-0102), and management commitments to improve soil protection (supporting erosion-control strips) (EL-0103). There are also two non-productive investment measures with support for landscape features: non-productive water investments (EL-0401) and non-productive investments to protect natural resources (EL-408). Germany is introducing a new eco-scheme for connectivity of non-productive areas in 2026.

- **Netherlands**: The Netherlands has set an R.34 target of 3.7% and has an impact indicator (I.21) of 7.2% of agricultural land covered with landscape features. The country intends to reach the R.34 target using an eco-scheme (I.31) and an ENVCLIM intervention (I.70.1) that supports field margins, patches, buffer strips and ditches. The beneficiaries of the ENVCLIM intervention are certified agricultural collectives, as part of the Dutch approach to implementation of agri-environmental support. The Netherlands' strategic plan has also programmed an investment measure (I.76.2 non-productive investments) supporting landscape elements such as hedgerows, trees, field margins and unproductive buffer strips. The Dutch CSP also expects to meet the EU high diversity landscape features target through the expanded definition of eligible area including more landscape features and agroforestry, the cooperation support for coordination between land-based schemes and the construction of non-productive elements, and support for innovative pilots (Chartier et al, 2023).
- **Portugal**: Portugal's R.34 target is 0.3% whilst the estimate of agricultural land covered with landscape features (C.21) is 8.9%, meaning that most of the existing landscape features will not receive CAP support for maintenance. Contributing to the R.34 target are: one eco-scheme which includes a very broad range of biodiversity enhancing practices and six ENVCLIM interventions, focused on the maintenance of stone walls, terraces and on flower strips and flowering fields, but also of wetlands (with three of them specific to the Atlantic islands). Portugal has also programmed 10 interventions supporting landscape features but not contributing to R.34 (3 ENVCLIM and 7 Invest). These include, for the most part, additional support for stone walls and terraces, hedges and wooded strips, ditches, patches and unproductive buffer strips.
- **Sweden**: Sweden has an R.34 target of 0.04% of UAA receiving CAP support for landscape features. The context indicator for agricultural land covered with landscape features is 8.1%. The eco-scheme BLOM is the only intervention contributing to R.34; it pays farmers for flowering fields and field edges. Sweden has also programmed a number of interventions that fund landscape features but that are not linked to R.34 - one eco-scheme, three ENVCLIM measures and one

Investment measure, which include an option to support the maintenance or reintroduction of landscape features focusing on stone walls and cairns (BETE), buffer strips (PRECISION, ZON) and ponds and small wetlands (VATMARK, INVBEVATTN).

Table 3: Eco-scheme and ENVCLIM interventions counted towards R.34 in the LAFERIA member states CSPs and types of practices supported, as defined in the "farm practices" database in the CAP Catalogue.
Note that for some of the interventions, the level of detail provided for the supporting practices is more generic than in others, not allowing for a full comparison. Finland did not programme interventions to R.34.

Member state / region	Intervention type contributing to R.34	Name of intervention contributing to R.34	Practices supported[39]	R.34 target for 2027 (in MS CSPs)
BE-Flanders	ENVCLIM	Maintenance of agroforestry systems (3.7)	Landscape features (Agroforestry)	0.1 % UAA (Flanders)
BE-Flanders	ENVCLIM	Management agreements for the maintenance of woody small landscape features (3.9)	Maintenance and conservation of hedges/wooded strips	
BG	Eco-scheme	Eco-scheme to maintain and improve biodiversity and ecological infrastructure (agricultural land: arable land, grasslands and orchards) (I.B.2)	Hedgerows/individual or groups of trees Field margins, patches and unproductive buffer strips along water courses Small wetlands Terraces Other unproductive areas and strips (excluding fallows)	1.1 % UAA
DE	Eco-scheme	Provision of land to improve biodiversity and conservation of habitats (DZ-0401) variant 1	Field margins, patches and unproductive buffer strips along water courses Other unproductive areas and strips (excluding fallows)	4.1 % UAA

[39] Based on the Farm Practices classification in the CAP Catalogue unless otherwise noted. DG AGRI at https://agridata.ec.europa.eu/extensions/DashboardCapPlan/catalogue_interventions.html

Member state / region	Intervention type contributing to R.34	Name of intervention contributing to R.34	Practices supported[39]	R.34 target for 2027 (in MS CSPs)
DE	Eco-scheme	Provision of land to improve biodiversity and conservation of habitats (DZ-0401) variants 2&3	Seeded flower areas/strips	
DE	Eco-scheme	Provision of land to improve biodiversity and conservation of habitats (DZ-0401) variant 4	Creation of unproductive buffer strips along water courses Maintenance and conservation of unproductive buffer strips along water courses	
DE	ENVCLIM	Management commitments to improve biodiversity (EL-0105)[40]	Creation or maintenance and conservation of isolated trees Creation or maintenance and conservation of group of trees/field copses Creation or maintenance and conservation of trees in line Creation of field margins Creation of patches Creation of new ponds Maintenance and conservation of ponds Creation of small wetlands Maintenance and conservation of ditches Buffer strips and farm practices for fire prevention Creation of new hedges/wooded strips	

[40] NB the practices funded vary in the different German federal states – in their 2023 plans most federal states offered only measures refer to the maintenance of orchards. Maintenance of existing or newly established rows of trees and hedges is only funded in Lower Saxony and North Rhine-Westphalia.

Member state / region	Intervention type contributing to R.34	Name of intervention contributing to R.34	Practices supported[39]	R.34 target for 2027 (in MS CSPs)
FI	None to R.34			No target
NL	Eco-scheme	Eco-scheme for climate and living environment (I.31)	Does not specify	3.7 % UAA
NL	ENVCLIM	Agricultural Nature and Landscape Management (ANLb) (I.70.1)	Field margins, patches and unproductive buffer strips along water courses Ditches	
NL	cooperation	Cooperation for Integrated Area Development		
PT	Eco-scheme	Biodiversity-enhancing practices (A.3.6)	Maintenance and conservation of hedges/wooded strips Maintenance and conservation of isolated trees Field margins, patches and unproductive buffer strips along water courses Ponds Ditches Stone walls Seeded areas/strips	0.3 % UAA
PT	ENVCLIM	Permanent crops and traditional landscapes (C.1.1.2.2)	Maintenance of traditional orchards and vineyards	
PT	ENVCLIM	Integrated Management of Critical Areas (D.2.3)	Maintenance of terraces and ditches	
PT	ENVCLIM	Protection of species with agricultural area status (D.2.4)	Maintenance of wetlands	

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Member state / region	Intervention type contributing to R.34	Name of intervention contributing to R.34	Practices supported[39]	R.34 target for 2027 (in MS CSPs)
PT	ENVCLIM (Azores only)	Maintenance of traditional vineyard structures – curraletas and lajidos (E.10.2)	Maintenance and conservation of traditional stone structures	
PT	ENVCLIM (Madeira only)	Maintenance of land support walls of terraces (F.8.2)	Maintenance and conservation of stone walls Maintenance and conservation of terraces Seeded flower areas/strips	
PT	ENVCLIM (island of Porto Santo in Madeira only)	Maintenance of stone walls in Porto Santo (F.8.6)	Maintenance and conservation of stone walls Seeded flower areas/strips	
SE	Eco-scheme	Support for flowering fields and field edge (BLOM)	Creation of new landscape elements within the support for flowering fields and field edges[41]	0.04 % UAA

[41] As described in Swedish CAP strategic plan

5.3 CAP support for agroforestry

The CAP strategic plans for 2023 to 2027 include more targeted support for agroforestry than has been available in the past. Two CSPs (Greece, Germany) support agroforestry systems with eco-schemes and nine CSPs support agroforestry systems through ENVCLIM schemes[42]. In other CSPs, agroforestry is supported through investments and can be supported in more general payments for biodiversity commitments. For example, Poland offers investments for planting in-field trees and investments in machinery or equipment for maintaining these trees or agroforestry systems or reducing pesticide or fertiliser use. Spain, Portugal and Hungary have allocated significant investment budgets in afforestation and agroforestry (Chartier et al, 2023). Spain has targeted nearly 26 000 units for non-productive off-farm investments for environmentally focused investments in afforestation and agroforestry systems, which includes the dehesa.

Of the LAFERIA case study countries or regions:

- the German eco-scheme '*maintaining agroforestry practices on arable land and permanent grassland*' supports woody strips of trees and shrubs in agricultural landscapes, which aim to reduce water runoff and erosion, and improve water retention.
- Flanders in Belgium offers an agri-environment scheme for maintenance of agroforestry systems created using non-productive investment funding.
- Portugal provides an eco-scheme that can support wooded strips, and an agri-environment scheme for traditional orchards and vineyards, and on the Atlantic islands support targeted at maintaining traditional landscape features typical of vineyards and other permanent crops.

5.4 CAP support for land consolidation

The CAP has provided funding for land consolidation (or reparcelling) activities since 2000 with the introduction of rural development programmes and the SAPARD funding programme for accession countries. The support includes funding for the costs of preparing and managing the transfer of land, construction of new tracks or roads, and for other land use changes. The CAP legislation does not impose environmental conditions on land consolidation support beyond adherence to the EU law on environmental impact assessments[43]. Consolidation projects are usually linked to the objective to improve farm profitability or linked to funding for village renewal or infrastructure, e.g. for water or energy, with a wider objective for the rural economy and rural quality of life. However, land consolidation is also an instrument for the implementation of publicly initiated nature and environment projects, for example to create new protected areas, and such projects could include the creation and restoration of landscape features.

[42] SI, HU, PT, ES, FR, BE-Flanders, CZ, SK, PL. (Chartier et al, 2023).

[43] There is a distinction between productive and non-productive investment projects.

Without looking at the individual supported projects, it is not possible to say generally how much of the loss of landscape features was due to CAP support for land consolidation, or whether this support mitigated losses in land consolidation projects that would have gone ahead even without support. There have been major land consolidation drivers independent of the CAP, notably the land collectivization in Eastern Europe that took place before the countries entered the EU, land reform movements before the CAP was created, and ongoing economic pressures to mechanise, reduce labour on unproductive parts of the farm including landscape features, and to separate animal and arable husbandry, which removes the main reason for maintaining hedges and other field boundaries.

There is an argument that CAP income support payments are an indirect driver of farm expansion and therefore also land consolidation and the removal of landscape features. The current system of direct payments favours larger farms with more productive land. Several analyses have pointed to a greater pressure to increase farm sizes in more productive areas in the absence of CAP payments (Clough, Kirchweger and Kantelhardt, 2020), whilst a different scenario of what might happen if CAP direct payments were removed highlighted that this would strongly reduce farmer's intentions to increase the amount of farmed area (Bartolini and Viaggi, 2013).

5.5 Limitations of the analysis

The main sources used for this analysis were the Catalogue of CAP interventions and the Mapping and Analysis of CAP Strategic Plans (Chartier et al, 2023). Information on the supported practices was directly taken from the Farm Practices section of the CAP Catalogue, and not from the strategic plans themselves. It is therefore possible that the terminology or detail provided and used in this analysis does not reflect exactly what is written in the plans and offered to farmers.

6 Water Policy – Water Framework Directive and Floods Directive

6.1 EU policy objectives and the role of landscape features

The Water Framework Directive (WFD)[44], adopted in 2000, introduced a holistic and integrated approach to water management across Europe. Its overarching aim is not only to protect but also to restore the ecological

[44] Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy. https://eur-lex.europa.eu/eli/dir/2000/60/oj

health of Europe's water bodies, i.e. inland surface waters, transitional waters, coastal waters, and groundwater[45].

According to Article 1 of the Directive, its purpose is to establish a framework to:

- prevent the further deterioration, protect and enhance the status of aquatic ecosystems, including wetlands and terrestrial ecosystems depending on the aquatic ecosystems;
- promote sustainable water use;
- reduce pollution from hazardous substances[46];
- progressively reduce and prevent further pollution of groundwater;
- contribute to mitigating the effects of floods and droughts.

Since it entered into force in 2000, there have been various "daughter Directives" which aim to ensure this goal is met. The Floods Directive[47], the Groundwater Directive[48], and the Environmental Quality Standards Directive (EQSD)[49] were all established to achieve specific objectives set out by the WFD. In addition, the Soil Monitoring Directive adopted in 2025 may also support water quality. While all three "daughter directives" contribute to the overarching goals of the WFD, this section only looks at the Floods Directive in more detail as it directly sets out measures to maintain and restore floodplains which may include actions to reintroduce landscape features.

The Floods Directive (FD), adopted in 2007, complements the WFD by addressing the increasing risks posed by flooding across Europe. Its primary aim is to reduce the adverse consequences of floods for human health, the environment, cultural heritage, and economic activity.

Landscape features such as buffer strips, vegetated drainage ditches, and wetland ponds play a vital role in supporting the overarching objectives of both the WFD and the Floods Directive. Hedgerows impede water flow and help improve water infiltration capacity. With the growing emphasis on nature-based solutions (NbS), these features are valued not only for their ecological functions but also for their wide-ranging benefits for climate resilience, biodiversity, and sustainable land use.

[45] The overall ambition of the WFD of achieving good ecological statues for all EU waters by 2015 was missed and the deadline subsequently extended to 2027.

[46] Annex X of the WFD identifies surface water pollutants of EU-wide concern as "priority substances," including a subset of priority hazardous substances. Environmental standards are set for them in the EQSD. In October 2022, the Commission proposed to revise this list, adding 25 substances due to documented risks to nature and human health. It also proposed stricter standards for existing substances and reclassified eight "other pollutants" as priority substances (see).

[47] Directive 2007/60/EC of the European Parliament and of the Council of 23 October 2007 on the assessment and management of flood risks (Text with EEA relevance). https://eur-lex.europa.eu/eli/dir/2007/60/oj/eng

[48] Directive 2006/118/EC of the European Parliament and of the Council of 12 December 2006 on the protection of groundwater against pollution and deterioration. https://eur-lex.europa.eu/eli/dir/2006/118/oj/eng

[49] Directive 2008/105/EC of the European Parliament and of the Council of 16 December 2008 on environmental quality standards in the field of water policy. Consolidated text. https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A02008L0105-20130913

In the context of the WFD, these features help control diffuse pollution from agricultural runoff, including excess nutrients, pesticides, and suspended sediments. By intercepting runoff before it reaches water bodies, they improve water quality and support the ecological health of aquatic ecosystems. Wetlands and vegetated ditches facilitate nutrient removal through sedimentation, plant uptake, and microbial denitrification, while buffer strips trap sediments and absorb nutrients through root systems and soil processes (Pistocchi, 2022).

For the Floods Directive, landscape features enhance natural water retention, slow runoff, and reduce peak flows during flood events. By restoring or maintaining natural hydromorphology, they provide resilience against extreme weather events, mitigating both flood and drought risks (European Commission, 2024; European Commission DG ENV, 2021).

6.2 EU policy measures and instruments relevant to landscape features

6.2.1 Water Framework Directive

The WFD is implemented primarily through two key instruments:

1. River Basin Management Plans (RBMPs): Developed every six years, these plans outline the status of water bodies and set environmental objectives.
2. Programmes of Measures (PoMs): These are action plans that include both basic and supplementary measures to achieve the objectives set in the RBMPs.

Basic measures are mandatory and must include:

- Implementation of existing EU water and environmental laws[50].
- Measures to ensure cost recovery for water services (Article 9).
- Actions to promote efficient and sustainable water use.
- Protection of drinking water quality and reducing treatment needs.
- Control of abstraction and groundwater recharge.
- Regulation of point-source discharges and diffuse pollution.
- Measures addressing significant impacts on water status, including hydromorphology.
- Prohibition of direct discharges to groundwater.
- Reduction of pollution from priority substances.
- Prevention of accidental pollution.

[50] The legislation mentioned in Article 10 and in Part A of Annex V includes the Bathing Water Directive (76/160/EEC), Birds Directive (79/409/EEC), Drinking Water Directive (80/778/EEC), Major Accidents (Seveso) Directive (96/82/EC), Environmental Impact Assessment Directive (85/337/EEC), Sewage Sludge Directive (86/278/EEC), Urban Waste Water Treatment Directive (91/271/EEC), Plant Protection Products Directive (91/414/EEC), Nitrates Directive (91/676/EEC), Habitats Directive (92/43/EEC), Integrated Pollution Prevention Control Directive (96/61/EC).

Supplementary measures may be adopted by Member States to address specific challenges. Annex VI, Part B sets out the following non-exclusive list of supplementary measures:

- Legislative, administrative, and fiscal instruments
- Environmental agreements and emission controls
- Codes of good practice
- Recreation and restoration of wetlands
- Abstraction controls
- Demand management (e.g. promoting low-water crops)
- Water efficiency and reuse technologies
- Desalination and aquifer recharge
- Rehabilitation projects
- Educational and research projects

Although only the supplementary measures explicitly refer to landscape features by identifying the recreation and restoration of wetlands as a way to meet WFD objectives, other types of measures could also be used by Member States to reintroduce them into agricultural landscapes. For example, measures to control diffuse pollution could involve buffer strips, riparian vegetation, hedgerows, and grassed waterways that intercept runoff and reduce nutrient and pesticide loads. Similarly, actions to protect drinking water quality and hydromorphological conditions may include the restoration of wetlands and riparian zones, or measures to reduce soil erosion, such as hedge planting or contour strips, which improve water retention and habitat connectivity.

Supplementary measures could provide even greater flexibility for Member States to actively restore multifunctional features. These might include wetland recreation and rehabilitation projects, environmental agreements, and fiscal incentives that reward farmers for maintaining hedgerows, riparian buffers, or agroforestry systems. Codes of good practice could integrate these features into farm advisory services, while educational and research projects may demonstrate their benefits for water quality, biodiversity, and climate resilience.

6.2.2 Floods Directive

Similarly to the WFD, the FD requires Member States to develop Flood Risk Management Plans (FRMPs) for all watercourses and coastlines identified as having significant flood risk (Art.7(1)). These plans are updated every six years. FRMPs are designed to address all aspects of flood risk management, with a focus on prevention, protection, and preparedness. This includes measures such as flood forecasting and early warning systems, as well as spatial planning and infrastructure adaptation tailored to the characteristics of each river basin or sub-basin (Art.7(3)).

In contrast to the WFD, the provisions set out for the FRMPs are much less detailed. Art.7(3) only states that they "*shall take into account relevant aspects such [...] areas which have the potential to retain flood water, such as*

natural floodplains, the environmental objectives of Article 4 of Directive 2000/60/EC, soil and water management, spatial planning, land use, nature conservation [...]. Flood risk management plans may also include the promotion of sustainable land use practices, improvement of water retention [...]". In addition, the preamble (point 14) encourages the *"maintenance and/or restoration of floodplains."*

6.2.3 Common Implementation Strategy (CIS) for EU water policy

The implementation of the WFD and the FD is supported by the Common Implementation Strategy (CIS), a collaborative framework established in 2001 and coordinated by the Water Directors of EU Member States, the European Commission, and representatives from EEA/EFTA countries and other stakeholders. The CIS functions as an informal network that facilitates joint work on technical and policy issues related to the two Directives. To date, the CIS has successfully produced 38 guidance documents that provide practical support for the implementation of the WFD and FD. These documents cover a wide range of topics, including ecological and chemical status, groundwater protection, climate adaptation, and nature-based solutions[51].

While the legislative texts of the WFD and the FD make only limited and indirect reference to landscape features, several CIS guidance documents highlight the ecological and hydrological benefits of restoring and maintaining landscape features. Guidance Document No. 12 on Natural Water Retention Measures (NWRM) encourages water managers to integrate NWRM into River Basin Management Plans (RBMPs) and to coordinate their implementation with other sectors (European Commission Directorate-General for Environment, 2014). It identifies hydromorphological alterations and diffuse pollution as key pressures preventing good water status. NWRMs such as afforestation, wetland restoration, floodplain restoration, green cover, and land-use changes are presented as environmentally preferable options to address water scarcity, drought, and flood risk in agricultural areas. Agricultural NWRMs including buffer strips, shelter belts, soil conservation practices, and agroforestry, are identified as contributing to water retention, infiltration, and improved water quality.

Building on these principles, Guidance Document No. 37 and its accompanying Mitigation Measures Library offer a detailed framework for identifying and implementing mitigation measures that support both the WFD and FD (European Commission, 2023a). Although the guidance does not explicitly reference agriculture, it addresses many physical modifications that are typical of agricultural landscapes, such as drainage, irrigation, flood protection, and channelisation, and provides ecologically effective responses.

The library categorises measures by water body type (rivers, lakes/reservoirs, transitional/coastal waters) and includes practical actions that restore or

[51] All documents produced under the CIS are made public on CIRCABC.

enhance natural landscape features. In agricultural areas, the most relevant measures include:

- Reconnecting floodplains and wetlands to restore lateral connectivity and water retention.
- Enhancing riparian habitats through vegetation planting and removal of hard bank protections.
- Re-meandering straightened channels to improve flow diversity and habitat complexity.
- Designating protected zones within lakes and reservoirs to safeguard sensitive habitats.
- Ecologically optimised maintenance practices, such as seasonal constraints on dredging or vegetation cutting, to reduce disturbance.

6.2.4 Progress and funding

The most recent WFD and FD implementation report (European Commission, 2025) highlights that while progress has been made in water monitoring and knowledge of water body status, significant challenges remain in achieving the WFD's environmental objectives. The report concludes that, as in previous implementation cycles, Member States rely predominantly on basic measures (e.g. legal obligations under EU law), with limited use of supplementary measures at a scale sufficient to meet WFD and FD objectives.

EU funding instruments play a central role. The CAP provides support via agri-environment-climate measures and eco-schemes that reduce diffuse pollution from agriculture. Structural and Cohesion Policy funds, such as the European Regional Development Fund (ERDF) and the Cohesion Fund, finance water infrastructure, wastewater treatment, and nature-based solutions. The LIFE Programme provides strategic integrated projects (SIPs) for large-scale implementation of RBMPs, often mobilising additional national and private co-financing.

At the national and regional level, Member States allocate public funds through water authorities and environmental agencies. These budgets often co-finance EU-supported projects and cover operational costs for implementing PoMs. Economic principles embedded in the WFD, such as the polluter-pays principle and water pricing, are intended to ensure cost recovery for water services and incentivise sustainable practices, although implementation varies across countries (OECD, 2023a).

6.3 LAFERIA member states references to landscape features in their implementation of the WFD and FD

Table 4 shows the measures that refer to landscape features programmed in the river basin management plans that apply in the LAFERIA case study regions.

Table 4: what / how RBMPs in LAFERIA case study regions are currently requiring reintroduction of landscape features

Country / River Basin District	Types of landscape / field-feature measures included in RBMP/PoM/FRMP	Incentives / funding routes referenced in plans
Belgium — Flemish Scheldt[52] (Flemish Brabant covered in sub-basins)	River/wetland restoration, riparian buffers, targeted sub-basin projects, and explicit coordination with agricultural policy and area-based restoration (sub-basin volumes include buffer strip / riparian measures).	Funding/delivery: regional subsidies and programmes (Flemish environment programmes, area projects under "De Grote STROOMversnelling" initiative), plus CAP / RDP / agri-environment channels are indicated as the delivery route for on-farm measures.
Bulgaria (national RBMPs / PoMs)[53]	Measures to control agricultural pressures (nitrate action), buffer zones, wetland/floodplain function restoration and coordination with flood risk measures are listed.	RBMPs indicate implementation via national programmes and CAP rural development (EAFRD) measures.
Germany — Elbe (FGG Elbe)[54]	Floodplain (Auen) restoration, reconnection of side-arms/old oxbows, habitat improvements at/near watercourses, riparian buffer strips and measures with a land-area footprint.	Implementation relies on regional/national programmes, conservation projects and agri-environment schemes; RBMP points to Länder and federal funding / LAWA-BLANO measure catalogue for delivery.
Finland	Riparian protection, constructed wetlands, buffer strips, restoration of small water bodies and protection of small biotopes in agricultural	Implementation is coordinated through national agri-environmental supports (Ympäristötuki) and RDP measures; PoMs assign actions to ELY Centres (regional environmental coordination

[52] Stroomgebiedbeheerplannen 2022-2027 at https://sgbp.integraalwaterbeleid.be/beheerplan/nts-engels-rbmp3-web.pdf

[53] Updated river basin management plans for the Danube, Black Sea, East Aegean and West Aegean river basin regions were adopted in December 2024. Decisions Nos. 921, 920, 919 and 917 of 31.12.2024 of the Council of Ministers

[54] Zweite Aktualisierung des Maßnahmenprogramms nach § 82 WHG bzw. Artikel 11 der Richtlinie 2000/60/EG für den deutschen Teil der Flussgebietseinheit Elbe für den Zeitraum von 2022 bis 2027. At https://mluk.brandenburg.de/w/WRRL2022-27/Massnahmenprogramm/FGG-Elbe-Massnahmenprogramm-2022-2027.pdf

Country / River Basin District	Types of landscape / field-feature measures included in RBMP/PoM/FRMP	Incentives / funding routes referenced in plans
	landscapes — many PoM entries target agriculture-related pressures.	centres) and point to agri-environmental funding. The Roadmap for Catchment-based Planning to 2030 published in 2025[55] defines a framework for water catchment area based multi-objective planning (water, climate, nature, pollution) and actions to mainstream this planning by 2030. It gives a central role to the regional ELY Centres for Economic Development, Transport and the Environment. The catchment plan should set priorities for the catchment, gather and scale up local, landowner-driven initiatives into broader cooperation projects, and establish advice and cooperation networks.
Netherlands — Scheldt[56]	Re-connection of floodplains, re-meandering, buffer strips and riparian margin improvements; national RBMP includes measures that affect agricultural land and landscape elements.	
Portugal - national RBMP (PGRH)[57]	Riparian zone restoration, creation/rehabilitation of wetlands and buffer strips, measures to reduce diffuse agricultural pollution (programme of	The Portuguese RBMPs explicitly reference CAP / EAFRD / national rural development and environment programmes as the main implementation channels.

[55] Valuma-aluesuunnittelun tiekartta vuoteen 2030. https://julkaisut.valtioneuvosto.fi/items/ac18d66d-c22d-4c24-9eee-b2cece143c90
[56] Stroomgebiedbeheerplan (SGBP) Rijn/Maas/Schelde/Eems at https://www.waterkwaliteitsportaal.nl/sgbp-achtergronddocumenten-2022-2027
[57] At https://apambiente.pt/sites/default/files/_SNIAMB_Agua/DRH/PlaneamentoOrdenamento/PGRH/2022-2027/PTRH2/PGRH_3_RH2_Parte6.pdf?utm_source=chatgpt.com

Country / River Basin District	Types of landscape / field-feature measures included in RBMP/PoM/FRMP	Incentives / funding routes referenced in plans
	measures documents show these actions as priorities).	
Sweden	Swedish River Basin Management Plans[58] include measures for riparian and wetland restoration, creation of buffer strips along watercourses, and projects restoring small waterbodies and agricultural landscape elements. These measures appear in the Åtgärdsprogram (Programme of Measures) under "Vatten och jordbruk" (Water and Agriculture). The national PoM summary highlights restoration of wetlands, protection zones and riparian margins.	Implementation occurs through Swedish Board of Agriculture (Jordbruksverket) and the Rural Development Programme (RDP), especially agri-environment payments and eco-schemes that pay for maintaining and creating landscape elements, riparian margins and small wetlands. Sweden also pilots result-based payments for landscape elements in arable areas — e.g. "Resultatbaserade ersättningar för landskapselement" (Naturvårdsverket & Jordbruksverket 2021–2024 pilots).

[58] Vattenmyndigheterna 2022–2027 at https://www.vattenmyndigheterna.se/atgarder/atgarder-2022-2027.html

7 Water pollution – Nitrates

7.1 EU policy objectives and the role of landscape features

The Nitrates Directive (91/676/EEC) is the key piece of EU water legislation addressing agricultural practices that contribute to nitrate pollution. Its main objective is to (i) reduce water pollution caused or induced by nitrates from agricultural sources, and to (ii) prevent further pollution by nitrates. The Nitrates Directive interacts with the EU Water Framework Directive, the EU National Emission Ceiling Directive and the UNECE Gothenburg Protocol, which all set requirements related to nitrogen management and to targets for nitrogen emissions.

7.2 EU policy measures and instruments relevant to landscape features

To achieve its objectives, the Directive requires Member States to implement a set of measures:

- Member States must identify waters that are or could be affected by nitrate pollution (based on criteria in Annex I[59]) and designate the land draining into these waters as Nitrate Vulnerable Zones (NVZs).
- Member States must establish one or more Codes of Good Agricultural Practice for farmers to apply on a voluntary basis outside NVZs. Within NVZs, these codes are mandatory. According to Annex II, they should cover at least:
    - Periods when fertilizer application is inappropriate.
    - Restrictions on applying fertilizer to steep slopes, water-saturated, frozen, or snow-covered ground.
    - Conditions for applying fertilizer near watercourses.
    - Requirements for manure storage to prevent runoff and seepage.
    - Procedures for uniform and appropriate application of fertilizers and manure to minimize nutrient losses.

  The following additional elements may also be included:
    - Land use management (e.g., crop rotation, maintaining vegetation cover during rainy periods).
    - Fertilizer planning and record-keeping.
    - Measures to prevent water pollution from irrigation runoff.
- Within designated NVZs, farmers must comply with compulsory action programmes. These programmes include specific measures to reduce nitrate pollution, such as limits on fertilizer application and requirements for manure storage.

[59] This includes (i) surface waters used for drinking water abstraction that contain or could contain nitrate limits set under Directive 75/440/EEC; (ii) groundwater bodies that contain or could contain more than 50 mg/l of nitrates; and (iii) freshwater bodies, estuaries, or coastal waters that are or may become eutrophic without preventive action.

While the Directive sets out detailed requirements for identifying vulnerable waters and establishing Codes of Good Agricultural Practice, it does not explicitly refer to landscape features. Annex II mentions land use management and measures to prevent water pollution from irrigation runoff, but Annex III focuses on fertilizer and manure application and storage.

7.3 LAFERIA member states references to landscape features in their implementation of the Nitrates Directive

Table 6 provides an overview of how the Member States covered by the LAFERIA project implement the Nitrates Directive, with a particular focus on the rules and incentives for protecting, maintaining and establishing landscape features in nutrient management. It shows that most countries have introduced mandatory buffer zones along surface waters as part of their Action Programmes, but these are generally narrow, technically defined "no-spread strips" rather than genuine ecological features. Measures are primarily intended to function as nutrient-control tools and rarely include obligations on vegetation type, maintenance, or integration with wider landscape structures such as hedgerows or tree rows.

Across the LAFERIA case study regions, grass or vegetated buffer strips are by far the most common landscape element linked to nitrates implementation, followed by cover crops and vegetative soil cover on slopes. Hedgerows, tree belts and wider habitat corridors appear mainly in optional or supported via regionally funded schemes.

Table 6: Implementation of the Nitrates Directive (ND) in the LAFERIA countries and description of how landscape features are mandated / incentivised

Member state / region	How the Nitrates Directive is implemented	How landscape features are mandated or incentivised
BE (Flanders)	The Nitrates Directive is implemented in Flanders through successive Manure Action Programmes (MAP) and subsequently codified in the Manure Decree. In December 2024, the Flemish Parliament approved the draft 7th Manure Action Programme, and a public consultation was held from March to May 2025. Final approval of the plan is pending, after which the existing Manure decree will need to be revised and adopted. The entire region of Flanders has been designated an NVZ. The Flemish region is divided into four area types based on nitrate pollution levels in surface and groundwater: • Type 1: Areas with good water quality (low nitrate levels).	The draft 7th MAP (2025) includes several provisions that refer to landscape features: Article 8.2.5 introduces a new system of buffer strips along water courses to prevent nutrient runoff and protect water quality: "*Buffer strips will be introduced progressively through an amendment to the Water Code. A 5-meter-wide buffer strip will be introduced in 2025 on plots with nitrate-sensitive crops in zone types 2 and 3 along VHA watercourses. The buffer strips from the current eco-scheme may be deployed in 2025.*" [60] From 2026, the following requirements apply[61]: • 5 meters for protective strips for nitrate-sensitive main crops in area types 2 and 3 • 3 meters for protection strips for other plots along VHA • 5 meters for protective strips in nature, forests and Special Protection Zone of the Habitats Directive • 5 meters for all other waterways (not VHA) • 10 meters for plots in the Flemish Ecological Network • 10 meters for plots along a slope

[60] VHA watercourses are water bodies mapped in the Vlaamse Hydrografische Atlas (VHA), which is the official hydrographic reference for Flanders. It includes navigable and non-navigable classified watercourses, unclassified watercourses that are still relevant for water management, VHA zones, which are sub-hydrographic units representing the capture zones of watercourses. The VHA can be accessed at https://www.waterinfo.vlaanderen.be/Maps?path=Public/Kaarten/P08_VHA

[61] Vlaamse Landmaatschappij (2025) Nieuwe mestmaatregelen vanaf 2025, https://www.vlm.be/nl/themas/waterkwaliteit/MAP7/Paginas/default.aspx#7, and Afstandsregels tot waterlopen, https://www.vlm.be/nl/themas/waterkwaliteit/Mestbank/bemesting/aanwenden-van-mest/afstandsregels-tot-waterlopen/Paginas/default.aspx#1, both accessed 31 October 2025

Member state / region	How the Nitrates Directive is implemented	How landscape features are mandated or incentivised
	• Type 2: Areas with moderate nitrate pollution. • Type 3: Areas with high nitrate pollution, where stricter measures are needed. • Type 4: Areas with persistent pollution or where previous measures failed. The measures are increasingly exacting from type 2 to type 4.	The current 1-meter cultivation-free strip along waterways will remain everywhere and is part of the wider protective strips. These buffer strips are mandatory and are not included in the fertilisable area of the parcel. They must consist of spontaneous vegetation or perennial buffer crops such as grass, legumes, or woody species. Fertilisation and pesticide application are prohibited within these strips, except for direct excretion by grazing animals in grassland areas. Article 8.4.2 addresses riparian zones as landscape features for nutrient retention and biodiversity enhancement. The article states: "*All existing instruments related to **riparian zones** (spatial evaluation framework for riparian zones) will be used to develop measures to improve water quality and biodiversity aspects (e.g., construction of helophyte filters and measures around nitrate-rich sources)*". Article 8.4.4 introduces **local coalitions** as a participatory landscape governance mechanism: "*By 2025, local coalitions will be established in priority areas, such as water catchment zones or zones with the greatest target distance (zone types 2 and 3). A zone coalition is a local partnership in which intensive cooperation is initiated with all stakeholders in the area, to explore new measures and agree on the coordination of actions that could improve the achievement of water quality targets.*"
BG	The Nitrates Directive is implemented through national legislation (Ordinance № 2/2007) last updated in	The nitrates ordinance refers to the role of landscape features (e.g., protecting watercourses, preventing runoff, maintaining vegetation cover). However, it does not include

Member state / region	How the Nitrates Directive is implemented	How landscape features are mandated or incentivised
	2007, an Action programme for limiting and preventing pollution in Nitrate vulnerable zones revised in 2020, and a Code of Good Agricultural Practice updated in 2024. In 2024, NVZs cover 60.73% of the country's territory and 68.49% of the agricultural lands.	detailed, mandatory provisions allocating specific widths for buffer zones, or making hedgerow/tree-row strips explicitly mandatory. The action programme for NVZs specifies a requirement for 5-10m buffer zones on the lowlands and 50m on slopes more than 6^0. The Code for Good Agricultural Practice 2024-2027 does not appear to contain a specific prescription of buffer strip widths. Buffer strips appear in the context of "recommendations" or in the context of CAP conditionalities rather than as a mandatory nitrates specific measure within the Action Programme or Rules for Good Agricultural Practice.
DE	The implementation is governed centrally through national legislation. The cornerstone of this framework is the Federal Fertiliser Ordinance (Düngeverordnung – DüV), which was last amended in 2024. This ordinance sets out uniform and binding rules for good agricultural practice in fertiliser use across all federal states, ensuring consistency in the application of nutrient management standards nationwide. Complementing the DüV is the Ordinance on Installations for Handling Substances Hazardous to Water (AwSV). Specific provisions are	The **DüV** includes mandatory **buffer zones** and restrictions on fertiliser use near water bodies (Art. 5 and 13a). Specific requirements for the establishment or maintenance of vegetative cover, trees and shrubs in these zones are set out by the federal Water Act: Art.38(4) of the **federal Water Act** stipulates that "[...] The following activities are prohibited within riparian buffer strips: • **Conversion of grassland** into arable land, • **Removal of site-appropriate trees and shrubs**, except for removal as part of proper forestry practices, and planting of non-site-appropriate trees and shrubs [...] Art.38(a) states that "For agricultural land adjacent to water bodies with an average slope of at least 5%, a **mandatory vegetative cover** (e.g., grass or other vegetation) is required within five meters of the shoreline. Owners and users of agricultural land that borders water bodies and has an

Member state / region	How the Nitrates Directive is implemented	How landscape features are mandated or incentivised
	further detailed in other legislation, notably the Federal Water Act. Since 2017, the Fertiliser Act has obliged the federal government to first design a dedicated Action Programme for nutrient management, which should then be incorporated into subsequent amendments to the Fertiliser Ordinance. No such Action Programme has been created up to the present time. The entire territory of Germany has been designated as a Nitrate Vulnerable Zone (NVZ).	average slope of at least 5 percent towards the water within a distance of 20 meters from the top of the bank must **establish or maintain a closed, year-round vegetative cover** within a 5-meter strip on the landward side of the bank. [...] Soil cultivation to renew the plant cover may be carried out once every five years." According to Art. 13a of the DüV, in particularly nitrate-polluted areas, Länder are required to implement two additional measures beyond the mandatory measures set out by the article. These may be selected from a federal catalogue or developed independently, provided they contribute to reducing nutrient inputs into water bodies. Several of these measures may directly support the protection and introduction of landscape elements. For example, **Länder may increase buffer strip widths along watercourses, require permanent vegetative cover on sloped land, or promote erosion control**. In addition, voluntary and mandatory regional rules, such as those tied to water protection zones or CAP agri-environmental schemes, may set out requirements for ecological features like hedgerows, riparian vegetation, and cover crops (see CAP section above) (BMEL and BMUV, 2024).
FI	Finland transposes the EU Nitrates Directive into national law through environmental legislation and a dedicated government decree (commonly referred to as the Nitrates Decree — Nitraattiasetus 1250/2014),	The Nitrates Decree authorises the setting up of **protective zones** and bans spreading in them, but it does not establish further provisions on the width of the zone or its vegetative cover. Most **landscape features (hedges, field margins, nature-friendly banks, rewetting, herb-rich grasslands)** are **primarily**

Member state / region	How the Nitrates Directive is implemented	How landscape features are mandated or incentivised
	supported by other statutes and administrative guidance. Finland has designated the entire country an NVZ.	**promoted through voluntary, funded measures** (eco-schemes and agri-environment payments) under Finland's CAP Strategic Plan and rural development programmes.
NL	The Netherlands implements the Directive through Action Programmes, updated every four years. The latest is the 7th Action Programme (2021–2025) which is codified via the Manure and Fertilisers Act and its implementing regulations. There are further rules for manure policy in the Environment and Planning Act and related secondary legislation, such as the Living Environment Activities Degree which sets out requirements for the maintenance of buffer strips. The Netherlands has designated the entire country an NVZ.	The 7th MAP mentions a range of voluntary and mandatory measures to establish and maintain landscape features. A range of landscape elements are incentivised through CAP eco-schemes and agri-environment measures, the Agricultural Water Management Delta Plan, and provincial and regional co-financing: • **Woody landscape elements** • **Field margins** • **Ecological ditch management** • **Herb-rich grassland** • **Green fallow** • **Stream valley restoration** • **Peat meadow rewetting** • **Strip cropping and mixed cropping systems** **Farm and field-scale landscape measures** In addition, **collective contracts** with farmers to manage and preserve hedgerows, field edges, and ditches may be financed. Mandatory measures implemented via the Manure and Fertilisers Act and the Activities Decree under Environmental Management Act include: • **Buffer strips / crop-free zones** • **Nature-friendly banks**, i.e. gentle-sloped, vegetated watercourse banks required along designated Water

Member state / region	How the Nitrates Directive is implemented	How landscape features are mandated or incentivised
		Framework Directive (WFD) water bodies to improve ecological quality and reduce erosion.
PT	The Nitrates Directive is implemented via the Código de Boas Práticas Agrícolas (CBPA, 2018; Despacho n. 1230/2018) and through Action Programmes under the Decree-Law DL 235/97. Under these frameworks, the Annex to Order RD 09-565 / 16 July 2020 provides operational rules for good agricultural practice in NVZs. Action Programmes (Programas de Ação) must be approved for the designated NVZs. There are currently 17 NVZs designated in Portugal (9 mainland + 8 Azores)[62]. Together, they cover about ≈4.5% of the territory.	The rules for good agricultural practice in NVZs, including several provisions touching on **landscape features.** On **sloping lands**, one of the prescribed mitigation measures is the use of **grass buffer belts** (vegetated strips) and maintaining **vegetative cover in inter-rows (for perennial crops)** to reduce erosion and surface runoff. However, the Annex does **not** specify a fixed buffer-strip width. The regional NAPs may contain detailed requirements.
SE	The *Ordinance (1998:915) on environmental considerations in agriculture to protect waters against nitrates from agricultural sources* is the primary legal act transposing the Nitrates Directive into Swedish law. It sets out the general obligations for farmers and mandates the preparation and application of an Action	The nitrates action programme (SJVFS) rules and guidance recommend establishing or keeping **grass/vegetative buffer strips** or ground cover to reduce runoff and nutrient loss. Specifications regarding the width of the buffer strip do not seem to be provided. When runoff or erosion risk is present (e.g. steep slope, heavy rainfall, bare soil), the farmer is legally obliged to apply mitigating measures such as vegetative strips, grassed margins, cover crops, or contour tillage. The type and width

[62]Ministerio da Agricultura e Mar (2025) **Zonas vulneráveis**, Zonas Vulneráveis - Portal da Agricultura - Portal da Agricultura. Accessed 31 October 2025

Member state / region	How the Nitrates Directive is implemented	How landscape features are mandated or incentivised
	Programme in the designated Nitrate Vulnerable Zones (NVZs). The regulation SJVFS 2004:62 *Regulations and general advice of the Swedish Board of Agriculture on environmental concerns in agriculture (plant nutrients)* contains the detailed technical rules forming Sweden's Nitrates Action Programme (Åtgärdsprogram), and the Code of Good Agricultural Practice. Provisions in the Swedish Environmental Code (Miljöbalken 1998:808) provide the overarching environmental protection framework. Sweden has designated NVZs covering approximately 23% of the national territory[63].	are not fixed and must be adapted to local conditions (Art. 27 & 28).

[63] SWD/2021/1001 final: Report on the implementation of Council Directive 91/676/EEC concerning the protection of waters against pollution caused by nitrates from agricultural sources based on Member State reports for the period 2016–2019.

7.4 Limitations of the analysis

The main sources used for this analysis were the most recent EU Implementation Report on the Nitrates Directive, official information from national and ministerial websites, and data from the NAPINFO database. However, information on the NAPINFO database only includes information on Action Programmes, but not the Codes of Good Agricultural Practice or relevant (secondary) legislation.

In addition, the implementation of the Directive through regional Action Programmes and secondary legislation makes it difficult to fully capture existing rules, local adaptations, and incentive mechanisms, particularly those applied through water-management initiatives outside the core CAP framework which seems to be the main funding instrument for landscape features.

A further limitation arises from the fact that most legal and policy documents are published only in national languages. To ensure comparability, machine and AI-assisted translation was used for document screening and interpretation. While this allowed broader coverage, minor inaccuracies or loss of nuance in legal terminology cannot be ruled out. Overall, the findings should therefore be read as a synthesis of the most accessible and verifiable information rather than a comprehensive inventory of all national or regional measures.

8 Soil Protection Policy

8.1 EU policy objectives and the role of landscape features

Landscape features play a crucial role in preventing erosion, retaining moisture, and supporting biodiversity in soils. Europe has one of the most degraded lands globally, with 65% of the terrestrial area defined as in poor conditions – largely due to agricultural use. The combination of climate change and land-use intensification leads to a combined pressure where droughts and other extreme events are impacting soils and agricultural production, as well as human lives and infrastructure.

The UN Convention to Combat Desertification (UNCCD) remains the only international—and legally binding—policy instrument that directly addresses the issue of desertification, despite its wide-ranging environmental and socio-economic impacts. Three of the LAFERIA case study countries (Spain, Portugal and Bulgaria) have developed National Action Plans (NAPs) to implement the UNCCD (see Table 7). Yet these are either outdated or inaccessible: Portugal's plan dates to 1999, Spain's to 2008 (with no English version available), and Bulgaria's plan to 2014, also without an English version.

At the European level, while several strategies and policy frameworks—such as the Common Agricultural Policy (CAP), the EU Climate Adaptation Strategy, and the EU Biodiversity Strategy for 2030—contain elements relevant to soil protection and drought resilience, there is still no dedicated EU strategy that explicitly targets soil protection (European Court of Auditors, 2018). The EU Soil Strategy for 2030 cross-references the EU Biodiversity Strategy landscape features target.

In October 2025 the European Union enacted its first EU-wide legislation dedicated to soil health, the EU Soil Monitoring Directive[64]. The Directive requires Member States to monitor and report on key soil indicators, including erosion rates, organic carbon content, soil sealing and compaction, and biodiversity. It also provides, for the first time, a common EU definition of healthy soils and establishes a coherent monitoring framework across all Member States[65]. While this marks a major advance in soil governance, the Directive does not include any reference to landscape features, missing an opportunity to link soil monitoring to wider land management practices that protect soils.

8.2 LAFERIA member states references to landscape features in their soil policy documents

The LAFERIA case study member states have all adopted national soil legislation, and/or national soil management plans/legislation (see Table 8). The legislation and policies in Bulgaria, Germany, and Portugal refer to landscape features as important elements in combating soil erosion and risks, acknowledging their relevance for good soil management. However, much of the recognition and implementation of landscape features falls under the CAP and/or biodiversity or landscape law rather than under the soil policies themselves.

In the past, public laws and/or initiatives have created obligations for landowners to create and maintain landscape features for protection of soil against erosion, landslides, and other public hazards or degradation. For example, in eastern Europe under Soviet collective management, laws requiring the planting of tree rows as wind breaks were implemented. In Mediterranean countries, the protection and maintenance of terraces is or has been a legal obligation.

[64] The legislation was adopted by the European Parliament despite a last-minute attempt to reject it (341 votes against, 220 in favour)

[65]

Table 7: UNCCD National Action Programmes (NAPs) in LAFERIA case study countries and references to landscape features

Member state	UNCCD NAP / Strategy Status	Mentions Restoration of Landscape Features?	Examples (if any)	Notes / Implications
BE	No standalone NAP (national reports only)	No explicit mention	--	Landscape measures addressed regionally via agri/environmental policy.
BG	NAP (2014)	General mention of restoration of degraded land	No detailed list	Recognises restoration broadly; lacks specific reference to features.
DE	No standalone NAP; national reports submitted	No explicit mention	--	Focus on reporting and coordination; landscape features handled in agri-policy.
FI	Reporting only (no standalone NAP)	No explicit mention	—	—
NL	Reporting only (no standalone NAP)	No explicit mention	—	—
PT	NAP (1999, UNCCD-registered)	Yes – discusses erosion control & restoration	Terracing, vegetation strips, slope stabilisation	Terraces explicitly recognised in national desertification control framework.
SE	Reporting / DCP legacy documents	No explicit mention	—	—

Table 8: Soil policies or legislation in LAFERIA case study countries and provisions for landscape features

Member state / region	Soil Protection Policy /Legislation	Mentions / Provisions on Landscape Features	Examples of Landscape Features Mentioned	Notes / Implications
BE (Flanders)	Flanders Soil Decree	Mentioned indirectly in reference to agricultural /nature policies, not in soil law	Hedges, stone walls, tree rows (via CAP schemes)	Soil laws focus on contamination; landscape features appear in CAP and biodiversity measures.
BG	Soil Act, National Strategy for Sustainable Land Management	Mentioned generally as part of 'restoration of degraded land'	No specific list; implicit references to erosion control	Restoration goals stated, but without detailed mention of terraces or hedges.
DE	Federal Soil Protection Act (BBodSchG), regional laws	Explicitly mentioned in national/ regional agri-environment and landscape protection laws	Hedges, tree lines, dry-stone walls, terraces	Landscape elements are protected under certain regulations at the federal state level (see section on national landscape and nature protection policy)
FI	Environmental Protection Act, Land Use Act	Indirectly via forestry and agricultural buffer requirements	Riparian buffers, forest edges	Landscape features addressed under forestry and water protection, not soil policy.
NL	Soil Protection Act	No explicit mention. Soil policy focuses on contamination/ remediation	No mention	Landscape features addressed in spatial planning, CAP eco-schemes, and biodiversity measures, not soil law.

Member state / region	Soil Protection Policy /Legislation	Mentions / Provisions on Landscape Features	Examples of Landscape Features Mentioned	Notes / Implications
PT	National Programme for Combating Desertification National Soil Strategy	Mentioned in restoration/ erosion control guidance, not explicitly mandated in law	Terraces, vegetation buffers, agroforestry trees	Terracing recognised in practice (especially in erosion-prone regions), implemented regionally rather than nationally.
SE	Environmental Code	No explicit reference to landscape features in soil protection	Not mentioned	Landscape elements addressed in biodiversity/ agriculture policies; no link to soil law.

9 Climate Policy

9.1 EU policy objectives and the role of landscape features

EU climate policy does not mention landscape features directly, but they can play an important role in climate mitigation and adaptation on farmland, and so can be part of implementation solutions. The potential role of landscape features in the policies is briefly explained here, without going into details of how this plays out in implementation at national and regional levels.

9.1.1 EU Climate Adaptation Strategy and proposed Climate Resilience Action Plan

The EU Climate Adaptation Strategy adopted in 2021 calls for integrating climate resilience into agriculture policy and refers to nature-based solutions for adaptation as one of the main cross-cutting priorities for adaptation planning. Landscape features on farmland protect soil and crops against droughts and floods and have potential to reduce the risk of disasters such as landslides and wildfires. Trees and hedges provide shelter for livestock against heat, cold and wind.

The Commission is currently preparing a new integrated framework for European climate resilience and risk management that will be launched in 2026. It will provide more specific and detailed recommendations on implementation of climate adaptation measures.

9.1.2 LULUCF regulation

The LULUCF regulation aims at increasing natural carbon sinks. The regulation provides a legal incentive for Member States to develop nature-based solutions on farmland, to contribute to reaching the LULUCF target for 2030. Landscape features on farmland are part of a nature-based solutions approach for carbon removals through tree and hedgerow planting, agroforestry, restoration of soil carbon and peat formation. Landscape features on farmland contribute through increased carbon storage in woody biomass and soils.

9.1.3 Carbon removals and carbon farming framework regulation

The regulation creates the first EU-wide voluntary framework for certifying carbon removals, carbon farming and carbon storage. Eligible actions on farmland include agroforestry (integration of woody species into crops) and silvipasture (integration of woody species into grassland). Once the EU certification methodologies have been adopted and schemes established by Member States, farmers will be able to sell certificates to fund the creation of carbon-rich landscape features.

10 Discussion

10.1 Historical and ongoing degradation and loss of landscape features

Landscape features were traditionally part of most agricultural landscapes in Europe. Landscape features were maintained and created in the past due to their agricultural functions, such as acting as livestock barriers or as remnants of previously larger natural or semi-natural habitats on land unfavourable for agricultural production. Their presence today varies greatly, from landscapes where they have been almost completely removed (such as the arable plains of eastern Europe) to landscapes characterised by very small parcel sizes and high farming diversity which still have a high density of landscape features (such as on Malta and Cyprus).

The historical and ongoing loss of features is related to the pressure to consolidate fields and farms and intensify production, overcoming technical challenges to the use of larger machinery (e.g. damage to tractors from trees or lack of space for machinery to move). For example, it is estimated that Germany has lost around 50 % of its hedgerows during the last 70 years due to land consolidation processes (Poschlod and Braun-Reichert, 2017). The lack of incentives and financial means to maintain the existing landscape features also plays a role, which result in the slow degradation and loss of walls or banks, the loss of single trees due to sickness or death without replacement, and the gapping and growing out of hedges into tree lines.

The lack of action to create or reintroduce landscape features on agricultural land has many reasons; the CAP Network expert group on high diversity landscape features identified a series of barriers for farmers listed in Box 7. A major disincentive is the legal restriction that applies after the new landscape feature is established, preventing its removal and therefore potentially restricting future agricultural production and lowering the value of the land. Other reasons are land ownership issues (e.g., tenant farmers who do not have the power and/or interest to invest in landscape features), ecological concerns (e.g., the perception of landscape features as potential sources of pests, weeds or plant diseases), concerns about economic impacts (e.g., implementation and management costs, restriction on production, or need for adapted equipment) and lack of financial incentives, administrative obstacles (e.g., compliance control and cumbersome mapping and documentation requirements), and social factors (e.g., negative perceptions and lack of knowledge of benefits), all of which contribute to both the perceived and actual costs of landscape features (Schaan et al, 2025).

Most **productive or commercial uses** of landscape features have fallen away, including their importance as natural barriers to livestock, their use for firewood or fodder, and as a source of free food (fish, game, berries, etc). The legal restrictions on the commercial use of wild plants can be seen as a

barrier to the productive use of hedges and other landscape features for their berries, nuts, and other wild products, though the taking of small amounts for personal use is allowed. Commercial use can usually be allowed if the landowner applies for a permit. In some Member States the wood or biomass from hedge cuttings or tree pruning can be used without restrictions, for example as fuel for bioenergy production plants. In others, in Belgium for example, it is classified as waste and is not allowed to be sold as woodchip. Regarding wet landscape features, the changes in irrigation and drainage techniques and the greater availability of central water supplies have largely removed their economic functions or resulted in significant modifications in the structure and location of waterways and ponds. Field margins and other grassy landscape features are affected indirectly by the increase in use of fertilisers and pesticides which has significantly reduced their plant diversity (Clough, Kirchweger and Kantelhardt, 2020).

Box 7: Barriers to the adoption of good practices for implementation of high diversity landscape features (HDLF) identified by the CAP Network expert group on high diversity landscape features in 2023

Technical barriers

› For the flowering strips, the main barriers are the **unavailability of technical specific sowing equipment,** the **provenance of the species** (they should have a local provenance) and the flowering period (e.g. plants that are flowering in late autumn/winter with the aim to control aphids).

› For the hedges, identified barriers concern the **selection of production species** and genotypes of fruiting/flowering plants (trees and shrubs) and also the lack of indicators reliably depicting the quality of hedges for a chosen biodiversity group. Another important aspect deals with the material and the time needed to manage bushes and trees. It is a major barrier to the maintenance of hedgerows on farms.

Ecological barriers

› Even if HDLF aim at enhancing biodiversity, they might also foster pests, weeds and diseases, and compete for resources with the adjacent crops. This is often how farmers perceive hedgerows.

Economic barriers

› **Cost of the investments** (e.g. tree species) remains expensive, specifically for small farmers that cannot compete with big producers. In addition, the cost of maintenance can be a source
of demotivation.

› **Payment amounts for farmers are often low**, not sufficient for the maintenance and creation of biodiversity-enhancing structures and can demotivate farmers.

› It is not **easy to define** the **economic value** of HDLF.

Social barriers

› The principal social barrier concerns the increased **workload.** For example, bare soil areas need to be maintained twice a year. Farmers must check HDLF at least once a year; when replacing or planting new scattered trees, the presence of animals must be interrupted in pastures, by an appropriate rotation plan.

› The second barrier concerns the **communication** with the actors involved: communication can be difficult with local authorities, between farmers or with other land owners/managers and administration.

› The third one is related to the fact that the **ecological value of structures is not known** to many farmers. Farmers often do not know where small structures

should be created and which types make sense and also how they should look so that they are ecologically valuable.
› At least, when **rural areas are affected by emigration** and the rural population is ageing, it is very difficult to implement such projects or to avoid the loss of ecological and technical knowledge needed for HDLF regular maintenance.
Psychological barriers
› The principal psychological barrier is the **motivation** of farmers (mainly bigger farms) to get involved in biodiversity projects.
› Some farmers think that seed mixtures would be **detrimental to the field management** (due to weeds in seed bank) relative to the maintenance/creation of fallow land or flowering strip for example.
› **Image of the small structures** by many farmers: often the set-aside areas are allocated to marginal and poor soils and do not need to be managed as a cultivated field.
› Not all measures that are beneficial for biodiversity are widely accepted by the population and /or tourists as "beautiful". Also neighbouring farmers are not necessarily happy about biodiversity measures.
Administrative barriers
› **Status of certain areas**: the farmers that cultivate in protected areas in Germany, such as protected areas for flora-fauna-habitats (FFH) are very limited on what they can do.
› **Difficult to obtain legal permissions for maintenance** (and even more so for a new implementation): managing, even properly, water points seems impossible in Italy, or at least too difficult.
› The current context (e.g. in the current CAP) does not provide sufficiently **attractive measures** to encourage farmers to adopt this good agricultural practice. There is little interest from the industry and other actors in the value chain.
› Many of the HDLF elements in land are covered by the term 'agroforestry systems', which, despite several attempts, did not find its place in legislation and in the minds of the decision makers in Slovenia.
› Unclear land ownership prevents farmers from getting agri-environment payments.
› Too much administrative bureaucracy and control.
Source: CAP Network expert group on high diversity landscape features technical report (EU CAP Network, 2023b)

Landscape features are maintained by some landowners because of their value as small game habitats for **hunting**, either because the landowner also hunts or because they wish to contribute to the hunting community, and hunting organisations organise and finance initiatives to create additional landscape features (see Box 8 for an example).

Box 8: Example of hunting as the motivation for landscape feature creation or restoration
In January 2021, the hunting association of Limburg in Belgium distributed almost 24,000 hedges plants and trees amongst hunters to create around 12 hectares of forest or 16 kilometres of hedge. The hunters expect that partridges and pheasants but also many non-huntable small birds and mammals will benefit from the additional food and shelter. The hunting association of Limburg covered a big majority of the costs associated with this campaign.[66]

[66] FACE Biodiversity Manifesto example (January 2021): https://www.face.eu/2021/01/face-biodiversity-manifesto-project-of-the-month-hunters-of-limburg-plant-24000-hedges-plants-and-trees-for-biodiversity/

10.2 Who owns and/or manages landscape features on agricultural land?

Most landscape features in agricultural areas are on land owned and/or managed by farmers, but often other actors are involved in their creation and/or maintenance. The legal responsibility for maintenance may be shared between the landowner and a public authority, or the landscape feature may be a public good or be part of or next to a larger public good, such as a water body. These features may be excluded from the CAP eligible agricultural area because they cannot be used for agricultural production, or they may be included in the eligible area but mapped in the CAP system as landscape features.

Non-farmer actors may be local authorities, public authorities for roads, water, or energy, or private businesses owning infrastructure. Some of the typical arrangements are:

- Landscape features along public highways, i.e. roads and public tracks, are usually the shared responsibility of the landowner and the local government or road authority. For example, the landowner is often responsible for cutting and maintaining the field side of the hedge whilst the public authority is responsible for the roadside. Farmers may be contracted by the public authority to cut the roadside under payment or may be obliged to do it by the public authority under road safety legislation.
- Landscape features that are part of or along watercourses or waterbodies or irrigation systems may fall under the responsibility and management of public water authorities. The actual water surface of larger waterbodies and watercourses are generally under public ownership, but the riparian areas may be under very differing legal regimes. In some member states, the riparian strip is public land; in others, the land can still be privately owned right up to the water, but laws set restrictions on land use (e.g. Portugal). Irrigation systems may be privately owned and managed by a company, with the farmer paying for water services and management of the irrigation ditches and other features.
- Landscape features may be patches of land that cannot be used for agricultural production because they are under or next to public infrastructure, such as railway embankments or electricity pylon base squares. In most cases, the public or private managing authority must ensure management and maintenance, though they may contract out the management to the farmer or a contracting company.
- Notable trees (e.g. veteran trees), heritage sites (such as small archaeological mounds), and other features notable for their public value (for landscape, biodiversity, geology, etc) may be protected by national or regional legislation such as tree protection orders (see section on biodiversity and landscape policy). Their management may be the responsibility of the local or regional nature conservation

authority or the local government, which may contract the farmer to do it.

10.3 Policy drivers for the creation of landscape features

10.3.1 Do biodiversity and landscape regulations incentivise the creation of or reintroduction of landscape features?

The legal protection of landscape features in the EU nature directives and national biodiversity and nature law, and the enforcement of this through the CAP conditionality has helped to protect and slow the loss of existing landscape features with biodiversity or landscape value. However, the legal protection of landscape features can act as a disincentive to their creation on agricultural land, as the land manager is then obliged to keep them indefinitely, which prevents future parcel consolidations and generally significantly reduces the economic value of the land (Schütze, Tönshoff and Wegmann, 2024).

The EU Nature Restoration Regulation now introduces a new obligation for Member States to plan restoration measures on farmland in their national nature restoration plans by mid-2026, which could become an important incentive for the creation of landscape features. The farmland indicators must achieve an increasing trend by 2030. Member States who choose to use the share of agricultural land with high-diversity landscape features indicator will need to use the CAP and other incentives to scale up the creation of landscape features in areas where they have been lost. They must also describe how the planned measures will benefit climate adaptation and mitigation and other ecosystem services.

10.3.2 Does the CAP incentivise the creation or reintroduction of landscape features?

The CAP is a key EU policy when it comes to supporting landscape features on agricultural land. There is a general agreement in the literature on the important role of the CAP in the retention and maintenance of existing landscape features, through the conditionality requirements to retain the features (with the threat of cuts in payments and possibly fines for non-compliance), and the funding for maintenance, but when it comes to their creation or reintroduction, the effectiveness of the policy has been more limited (see Box 9) (Pardo et al, 2020).

Box 9: Study that quantified landscape features and the impacts of CAP support at the regional level

Pardo et al (2020) carried out habitat surveys in Spain, Germany and Bulgaria, in 115 Landscape Test Squares (LTS) of 500m × 500m in six case study areas, including arable land, pastures and mixed farming systems. The surveys mapped green & blue infrastructure (GBI) including small landscape elements, in-field elements (both semi-natural and productive) and connectivity features. Landscape and in-field GBI occurrence was higher in extensive than in intensive farming systems regardless of the region, whereas the opposite was found for

connectivity features (e.g. grassy strips). The analysis of habitat changes from 2012 to 2018 showed a small increase of certain biodiversity-fostering in-field GBI, but no substantial change in connectivity features or landscape elements. Moreover, a significant reduction of valuable GBI like grasslands was observed. The researchers conclude that the CAP has not substantially increased the availability of biodiversity-fostering GBI in these regions and that adopted features were mostly related to neutral or negative effects on biodiversity.

The 2024 CAP simplification package removed the non-productive areas requirement from GAEC 8 and obliged member states to offer farmers an eco-scheme for maintenance of non-productive areas and establishment of landscape features, thus implementing a shift from an obligatory- to incentive-based system. While the change to GAEC8 makes it easier for farmers to meet conditionality requirements, the benefits for production were likely marginal as the areas put into non-productive features were those that were less productive in the first place (NGO Coalition, 2023). Whilst it is unlikely that farmers have removed more permanent landscape features, the damages to biodiversity can be significant if farmers revert land lying fallow or sown field strips or margins back to arable production (Hertzog et al, 2023).

The European Court of Auditors pointed to a risk that Member States will meet the requirement to support non-productive areas and creation of landscape features through eco-schemes by removing budget from other green measures with higher overall biodiversity benefits (European Court of Auditors, 2024). In fact, it appears that Member States did not make many positive changes to their eco-schemes. The NGO Birdlife commented in October 2024[67] that the new eco-schemes introduced in Czechia, Italy, and Poland came with limited budgets and inadequate design, appearing more as a formality aimed at complying with legislation rather than a genuine attempt to provide farmers with an effective tool to promote biodiversity on their farms. The NGO assessed that the proposed amendments to existing eco-schemes supporting maintenance of non-productive areas and landscape features in Czechia, Italy, Lithuania, Slovakia, Belgium (Wallonia), and Spain are likely to weaken the original environmental ambitions of the scheme, either by lowering the required share of non-productive areas and landscape features or other changes to the eligibility rules.

The CAP plays a role in setting a level of ambition for landscape features. Some Members States explain in their Strategic Plans how they will meet the 10% high-diversity landscape features target set by the Green Deal (Germany, Netherlands, Portugal for LAFERIA), whilst other Member States, like Finland, with a high proportion of landscape elements, consider themselves to have already met the target based on their current baseline (Chartier et al, 2023). Note, however, that R.34 counts all landscape features while the 2030 Green Deal target refers to "high-diversity" landscape features.

[67] Birdlife Europe (October 2024) Letter to Mr. Wolfgang Burtscher Director-General DG AGRI. Brussels, 24 October 2024. https://www.birdlife.org/wp-content/uploads/2024/10/BirdLife-letter-on-CSP-amendments_Mr-Burtscher_23.10.2024.pdf

The Commission acknowledged that the ambitions in the Strategic Plans were limited when it came to protecting biodiversity and landscape features for biodiversity (Chartier et al, 2023). A recent review of 130 eco-schemes concluded that only a few explicitly support restoration or creation of landscape features for water quality, such as riparian buffer restoration or wetland creation (Pereira dos Santos, Birk and Ferreira, 2025). On the other hand, a review of 13 CSPs estimated the expected decrease in nitrogen leaching and runoff and of soil erosion by water due to CAP support for farming practices, mainly for landscape features (DG AGRI 2025). For Finland, it estimated a decrease of 33.7% in nitrogen leaching and runoff and a 33.4% decrease in soil erosion by water. For the Netherlands, it estimated a 20.4% decrease in nitrogen leaching and runoff and a 17.8% decrease in soil erosion by water. For Germany, it estimated a 11.0% decrease in nitrogen leaching and runoff and a 1.1% decrease in soil erosion by water. The study notes, however, that the estimates do not consider any possible negative impacts on the soil indicators from CAP support, e.g. by enabling intensification of production.

The voluntary CAP measures in the LAFERIA Member States seem to place a larger focus on funding the maintenance rather than the creation or reintroduction of landscape features (Chartier et al, 2023). Increased funding for creation would therefore be welcome. Linking a creation (investment) scheme to funding for management (ENVCLIM) - as has been done in Croatia – is a key step to incentivising the creation of landscape features and ensuring their permanence. There are indeed many challenges facing their reintroduction, not only economic but also technical (e.g. equipment), ecological (e.g. concerns about multiplication of pests) or even administrative (e.g. documentation needed) (Schaan et al, 2025). Looking into effective schemes in the CAP can provide insights into better designing CAP interventions (EU CAP Network, 2023a), as well as better targeting of areas for the creation of landscape features (Schaan et al, 2025).

Finally, the question remains on the overall low ambition of the R.34 targets, the quality of the landscape features that contribute to it, as well as the difficulty of translating the result indicator into actual policy impact. The aggregated target for the EU-27 for R.34 is 1.40% and the Commission says that 1.45% has already been achieved (European Commission DG AGRI, 2025). However, to improve these indicators and their monitoring, farm-scale mapping needs to be improved. For example, not all LPIS systems map all landscape features in a dedicated layer, despite substantial progress with this development under greening in the 2014-2020 CAP (Schingo et al, 2024). This could help farmers link landscape features to parcels and reduce administrative burden (EU CAP Network, 2023b).

The CAP conditionality rules plus support payments have played an important role in maintaining existing landscape features and stopping or slowing the decline, by discouraging removal and supporting management; but at the same time the ban on removal becomes prohibitive to restoration.

This needs to be put in the context of CAP support for land consolidation from the 1960s onwards, which indirectly incentivised the removal of landscape features.

When it comes to supporting their creation or reintroduction, the effectiveness of the CAP policy and funding has been more limited, primarily due to insufficient support level, and failing to address land-ownership issues. However, the current CAP strategic plans play a role in setting a level of ambition for landscape features, even if in many cases the level of ambition appears to be quite low.

Two eco-schemes have been successful for landscape features in the CAP 2023-2027:

- The **Slovakian eco-scheme** has been remarkably successful, producing 7 518 arable field margins covering 8 188 hectares in the first year of the scheme (2023), 32 times more than in the whole of the previous seven-year subsidy period[68]. The results of bird monitoring on the buffer strips recorded over 7,700 individuals of 78 bird species, showing that buffer strips are currently one of the most effective biodiversity measures in Slovakia's intensively farmed landscapes[69].
- The **Wallonia (Belgium) eco-scheme** for ecological networks uses a simple points-based system for the farm that reflects the total area of the farm under trees, hedges, ponds and fallow. The design of the scheme responded to farmers concerns and the poor uptake of 2014-20 agri-environment-climate support for hedges, trees and ponds by offering more biodiversity options, with higher payment rates and annual commitments (EU CAP Network, 2023b). It achieved an uptake of around 90% of the planned area in 2023, though its targets have been criticised as being too low.

These are local successes, but an NGO assessment of eco-schemes in 12 member states in 2023 concluded that many eco-schemes have not achieved the desired participation of farmers and therefore have not achieved the planned impact on landscape features (Birdlife International and NABU, 2024). The report concluded that the amended and newly introduced eco-schemes are unlikely to compensate for the loss of GAEC 8, due to delays in introducing new eco-schemes, poor design, and/or non-competitive payment rates, which makes the schemes unattractive to most farmers.

10.3.3 Do the Water and Nitrates Directives incentivise the creation or reintroduction of landscape features?

The Water Framework Directive and the Nitrates Directive planning measures both emphasise the role of landscape features for water quality and soil

[68] https://www.euractiv.com/news/first-year-of-eus-cap-reforms-created-unprecedented-space-for-nature-in-slovakia/

[69] Tatiana Nemkova BirdLife Slovakia (24 November 2025) Post on LinkedIn: Buffer strips deliver breakthrough results for farmland bird conservation in Slovakia.

protection, but in practice, support for landscape-related measures on agricultural land, such as buffer strips, wetlands, and sustainable land use practices, is largely limited to the CAP cross-compliance requirements and what is funded under eco-schemes. In the absence of a dedicated funding instrument, measures are financed through a combination of EU funds, national budgets, and complementary sources.

The most recent WFD and FD implementation report (European Commission, 2025) notes that landscape-related measures, such as buffer strips, wetlands, and sustainable land use practices, are largely limited to those required under cross-compliance and greening obligations in the 2014–2022 CAP period. This has constrained the scale and consistency of landscape feature deployment. However, the CAP requirements from 2023 onwards are increasing the width of buffer strips in many areas.

While the Nitrates Directive has helped normalise the idea that farmland should be spatially separated from water bodies, its implementation remains narrowly focused on nutrient management rather than stopping nutrient pollution through preventing physical leakage and establishing absorbing elements (European Commission, 2021). The landscape dimension, including connectivity, structure, and ecological continuity, has not been systematically embedded in the legal obligations.[70]

10.3.4 What other national and regional policies and funding incentivise the creation or reintroduction of landscape features?

Public **funding**, complemented by private finance and market-based instruments, are vital for incentivising the creation of new landscape features. The CAP remains the most significant funding instrument for the creation of landscape features on farmland, LIFE and other EU funds, but several additional funding sources are being developed for farmers and landowners, notably carbon farming certificates and nature credits could include finance for the planting of hedgerows and trees on farmland, and other landscape features if they meet the objectives of the scheme.

Carbon farming certificates (as described above) will be available soon as the overall legal framework is in place and guidance on the certification methodologies will be published in February 2026. Nature credit markets are being developed by several Member States, and the Commission has set up an EU expert working group to develop an EU framework that will set standards, definitions, and harmonized approaches to incentivise the market. However, stakeholders remain divided in their views of the challenges to upscaling finance to the level needed; for example, many farmers think the money will not be enough to make it worthwhile (Guillot, 2026).

[70] NB The European Commission is expected to publish a report on the implementation of the Nitrates Directive (data for 2020-2024) but it has not been published as of November 2025.

Some countries direct national or regional funds to the creation or restoration of landscape features. Examples of national policies and other funding programmes for landscape features are:

- In **France**, the government has committed to funding the planting 50 000 km of hedges to 2030 in the national scheme for hedges (Pacte on faveur de la Haie) (though the total funding has been reduced from the 110 million euros annual budget committed in 2023 to around 45 million euros annually from 2025[71]). The Label Haie is a national certification scheme ensuring good hedge management and a sustainable local wood production sector (i.e. both an educational and economic tool).
- In **Germany**, the national legal requirement for compensation areas for land with environmental values lost to development can be met by developers with the purchase of compensation credits (Ökopunkte). Various initiatives work with farmers to restore habitats and landscape features on their land to create credits. For example, the business ecodots[72] offers farmers a package to restore the locally typical hedge banks (knicks).
- In **Flanders, Belgium**, the wood edge plan (Houtkanten plan) defines 18 actions to protect existing wood edges (hedgerows attached to woodland), expand the wood edge network, manage wood edges properly and use biomass from management, and support knowledge exchange, communication, mapping and data, monitoring and assessment[73]. Regional wood edge coordinators are being appointed. There have been four annual funding calls for projects to construct new hedgerows, restore existing structures, or implement sustainable management. The target beneficiaries are municipalities, provinces, and intermunicipal partnerships, especially collaborations between municipalities, regional landscapes, nature conservation organizations, and local partners.

10.4 Developments in measurement and monitoring

The current indicators and methods of measurement at the EU level still have gaps and inconsistencies. However, research is developing rapidly with better methods and technologies for measuring and mapping landscape features, as shown by the recent studies described in Box 10. We can expect that within a few years it will be possible to set a much more precise baseline for the density, type and quality of existing landscape features and set targets to create new features in agricultural landscapes where they are lacking.

Box 10: Studies that map or extrapolate potential for creation of landscape features in intensive agricultural landscapes in Germany and the EU

[71] 20 octobre 2025 https://reporterre.net/Le-gouvernement-coupe-deja-court-a-la-relance-des-haies

[72] https://www.ecodots.de/

[73] VLM Houtkantenplan. https://www.vlm.be/nl/themas/platteland/landschapskwaliteit%20en%20onderhoud/Houtkantenplan/Paginas/default.aspx

(Schaan et al, 2025) mapped and categorised five agricultural landscape types ranging from simple to complex mosaics in the agricultural areas of Brandenburg, Germany. The researchers found that 94.4 % of the agricultural landscapes in Brandenburg fall short of the 10 % landscape features cover target. In ten intensive agricultural landscapes with high erosion risk and low productivity potential, the researchers identified and demonstrated how an additional 11 % of the agricultural area could be restored with landscape features.
(Muro et al, 2025) showed that remote sensing technologies can be used to map hedgerows across Germany. They estimate a total surface of 4081 (± 1425) km2 of hedgerows across the country, which represents 2.3 % of the agricultural land in Germany. They point out that the distribution and density vary greatly between municipalities, from a share of 14 % covered by hedgerows and other small woody features outside forests in Karlsruhe and Flensburg, to Heidenheim with as little as 1 %. The comparison with the Copernicus Small Woody Layer found substantial differences between the products, with the greater accuracy of this method demonstrated by comparison with independent datasets from ground mapping. Remaining limitations in the method include the difficulty to identify hedgerows close to the 20 m wide threshold, close to forests or forest patches, dense tree lines whose hedgerow layer cannot be confirmed, or hedgerows that were coppiced shortly before image acquisition.
(Marcantonio et al, 2024) analysed the potential benefits to the ecological connectivity of forest habitats and tree dependent species in intensive arable farming areas across the EU. The researchers concluded that a strategic expansion of small woody features to 11.6% of the EU's intensive arable farming areas could yield the maximum relative gain in ecological connectivity. This implies an average increase of 6.5% from current woody habitat cover in these landscapes. the connectivity of woody habitats would not benefit equally from the expansion of existing small woody features across all agricultural landscapes; some forest habitats and species would require the strategic conversion of strips of agricultural land to "woody features" to effectively enhance connectivity.

11 Conclusions and next steps

11.1 What does policy need to do to accelerate the creation of high diversity landscape features?

Several stakeholder and expert groups have identified policy needs for scaling up action for landscape features on farmland since the publication of the EU Biodiversity Strategy to 2030.

- The CAP Network expert group on high diversity landscape features identified the following needs in 2023: raising awareness, educating farmers, demonstrating success, providing training and capacity building, sharing farmers' stories, highlighting economic and social value, and providing support and funding (EU CAP Network, 2023b). Box 11 lists the CAP Network expert group's success factors for the adoption of good practices (see Box 11).
- The European Landowners Organisation (ELO) and the World Wildlife Fund (WWF) European office co-published a policy paper on growing trees on farmland in 2020 which points to some of the best choices available for doing so, seeking co-benefits and supporting the restoration of farmland biodiversity (ELO & WWF 2020) (see Box 12).

Box 11: Success factors for the adoption of good practices for implementation of high diversity landscape features (HDLF) identified by the CAP Network expert group on high diversity landscape features in 2023

Co-design scheme

- Co-design and implement an agri-environment scheme adapted to specific areas, which delivers favourable outcomes for the environment, farmers and local communities.
- Build support, capacity, and collaboration among local and national stakeholders.
- Involve local advisory services to monitor the project and ensure the achievement of expected outcomes.
- Ensure good co-operation between the actors involved.
- Cooperate with local governments and the local population.
- Build capacity and support in local communities for long-term nature conservation.

Involve farmers from the beginning of the project: the key to success

- Involve farmers and landowners in the co-design of the programme.
- Build an approach that puts farmers and their skills, expertise and knowledge of their land central to the development of the initiative as active participants.
- Make sure that farmers will adopt or choose the measures suitable for their farms.
- Keep close contact with the farmers and consider their needs and experiences but also constraints on-farm in terms of production, material, labour, farm characteristics.

Relying on convinced and motivated farmers

- Farmers already convinced, for a long time, by the results of their good practices in favour of biodiversity.
- Participants motivated to do something for biodiversity.
- Farmers that want to change their practices to adopt a new farming concept.

- Sense of pride of the local farmers to take action for biodiversity farmland.

Support and training throughout the project

- Offer personalised monitoring and consulting to help and support farmers in their chosen options for biodiversity on farmland.
- Importance of training, practical, technical and scientific approaches: which areas to restore, maintain or create value for biodiversity, where does it make sense, what management methods, what added value of the measures implemented.

Cultural and social environment

- Implement a project adapted to the environmental and social conditions of the concerned area.
- Ensure availability of quality materials and social activity for reclamation of disturbed areas. Give sense to a new agricultural concept: revival of traditional agriculture, sustainable development, maintenance of cultural and historical heritage, preservation of tradition, added value for tourism.
- Support the interest of many young farmers for the implementation of agricultural practices that are in favour of biodiversity for the local/regional development and/or will contribute to the preservation of beautiful natural landscapes.
- Development of similar actions that have already shown interests for biodiversity farmland.
- Presence of active NGOs.
- Presence of preserved landscape not suitable for agricultural production: steep slopes, along small streams etc.

Regulation

- The obligation for every farm to create at least 7% biodiversity promotion areas has resulted in a substantial increase of the surface area covered by Biodiversity Promotion Area (BPA) on Swiss farmland.
- Introduction of agri-environment payments that reward farmers for delivering high-quality habitats.

Source: CAP Network expert group on high diversity landscape features technical report (EU CAP Network, 2023b)

Box 12. ELO and WWF policy paper on growing trees on farmland

The European Landowners Organisation (ELO) and the World Wildlife Fund (WWF) European office co-published a policy paper on growing trees on farmland in 2020 which points to some of the best choices available for doing so, seeking co-benefits and supporting the restoration of farmland biodiversity (ELO & WWF 2020). The paper makes recommendations about the CAP (see CAP section earlier in this report), and more generally:

- 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.
- Research findings and guidance are needed to overcome the fear around the complexity of agroforestry systems and to assess their agronomic and financial performance.
- Call for multi-annual CAP payments proportional to the environmental benefits expected from higher amounts of landscape features, or from the enhanced management of trees and natural vegetation.
- Public authorities should ensure the availability of farm advisors with the adequate expertise, foster farmer-to-farmer exchanges and provide innovation support.

- 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.

Source: ELO & WWF 2020

The incorporation of new landscape features into farms needs to be carefully planned and researched, as well as adaptively managed, as it is easy to misplace features or to have hedge plants or tree saplings fail to develop because of unfavourable conditions or management. The choice of trees should also consider future climatic conditions, both the choice of species and the choice of genetic provenance. This requires **training and support**, both for a basic knowledge among farmers, but also the provision of experienced and trained advisors who can provide advice on the farm (Baudry et al, 2016). As an example, Austria has tackled this by using experienced farmers as a trusted source of advice for other farmers, and farmers who agreed to environment-climate commitments are obliged to attend at least three hours of training on biodiversity in agriculture (EU CAP Network, 2023a). Some member states have implemented initiatives to training specialist advisors on biodiversity. In France, a research project is developing an indicator of the ecosystem services provided by hedges on farms, to recognise and quantify their role in natural pest control and use this to reduce pesticide use[74].

There is a need for initiatives that enable the planning of landscape features at the **landscape scale** and to get enough cooperation between farms engaged in voluntary schemes to achieve a **'critical mass'** of biodiversity-friendly landscape features at scale. Most current support for landscape features creation lacks any requirement to integrate them into a landscape approach; for example, new field margins are placed where they are most convenient or next to arable fields treated intensively with pesticides and fertilisers, with no reference to their role supporting functional biodiversity (e.g. pollination and natural pest control) or their role for ecological connectivity. At the same time, it is important to make the right choices about which landscape features to place where and for what reason, and how their maintenance and permanence will be assured. As pointed out by ELO & WWF (2020), it can 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.

Landscape scale coordination for landscape features could include support and governance at the coordination level, to facilitate joint planning and

[74] https://www.arvalis.fr/recherche-innovation/nos-travaux-de-recherche/auxiferme

actions, and/or innovative payment systems. A systematic review of spatial coordination incentives for landscape-scale environmental management describes the use of agglomeration bonus, threshold bonus, and threshold payments (Nguyen et al 2022). Some existing regional initiatives demonstrate spatial targeting approaches. For example, the Flanders Houtkanten plan for new hedgerows connected to forest edges. The Irish agricultural innovation project BRIDE developed a scheme for intensive dairy farms that set farm level targets for at least 10% non-productive areas within farm clusters, using a results-based annual payment scheme, a habitat mapping app, and farm advisors to help farmers strategically place their new habitats for maximum environmental benefit.

Scaling up the creation and reintroduction of landscape features in intensively used agricultural areas is also critical to the achievement of EU objectives for climate resilience, water quality, and carbon sinks. For example, woody biomass outside forests contributes significantly to total carbon sinks in some countries (Liu et al, 2023). agroforestry areas have fewer wildfire incidents than forests, shrublands or grasslands (Damianidis et al, 2021). There is a need for better integration of landscape features into the implementation tools and measures under EU water, nitrates, and climate policy, without relying solely on the CAP.

11.2 What expected EU policy developments may affect landscape features on agricultural land?

There are several EU **policy developments** that may change the framework of policies incentivising or hindering the creation and restoration of landscape features on farmland in the EU over the next five years.

The proposal released by the European Commission for the CAP post-2027 imposes major changes to the policy's green architecture, including the removal of budget ring-fencing for environmental measures (both annual eco-schemes and multi-annual agri-environment agreements) and an obligation on Member States to co-fund both types of interventions; and reduced conditionality in the form of "farm stewardship" (see CAP section for details). The Commission proposes environmental minimum spending targets for all funds including CAP interventions, but with a proposed simplification of the monitoring that merges climate and biodiversity and other environmental objectives, so that it will not be possible to track the overall EU budget spending on biodiversity specifically. If adopted, this will give Member States greater flexibility to choose where to direct funding, with the option either to strengthen support for landscape feature creation, or to redirect funding away from environmental objectives.

There is little immediate prospect for an EU wide food policy which could potentially resolve some issues for participating farmers in terms of market access and financial returns on sustainable practices. The Commission's initiative to launch a sustainable food system framework for the EU was

withdrawn due to the lack of agreement in Council and Parliament and pushback from part of the farming community.

The Commission has announced a stress test of the EU nature directives in the recent environmental simplification "Omnibus" released on 10 December 2025[75]. The stress test is responding to positions and lobby letters submitted to the Commission in the public consultation referring to difficulties and bottlenecks with permitting and impact assessments (Strategic Environmental Assessments and Environmental Impact Assessments) and appropriate assessments under the EU nature directives, and water related impact assessments under the Water Framework Directive. The omnibus also includes a proposal for a regulation simplifying environmental assessments with an article on species protection, which is designed to harmonise and streamline assessments and permits that involve EU species protection rules in agriculture and forestry, including changes to landscape features[76]. In practice, this is likely to strengthen protection of existing features but will also enable Member States to adapt more efficient processes that will create more flexibility at farm level, which may result in the loss of some existing features but could also ease investment.

EU policies and regulations may be less important than **new funding and finance** mechanisms, and here the developments in carbon farming certification and nature credits may become significant, and the future of initiatives such as the French Label Haie.

11.3 Next steps in LAFERIA project work

As a next step, the LAFERIA project will carry out a deeper analysis of the implementation of EU policies and funding mechanisms at the local and regional level in the LAFERIA case studies (deliverable 4.1). This will complement the analysis of existing initiatives for landscape features (deliverable 3.2).

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[76] Proposal for a REGULATION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL on speeding-up environmental assessments Brussels, 10.12.2025 COM(2025) 984 final 2025/0391.

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14 Annex

14.1 Legislation / policy documents reviewed for the Nitrates Directive

Member State	Document / Title	Year / Reference	Link
Belgium – Flanders	Draft 7th Manure Action Programme (Ontwerp MAP 7)	18 March 2025	Vlaamse Landmaatschappij – Ontwerp MAP 7 (PDF)
	Manure Decree (Mestdecreet)	Consolidated version	Mestdecreet – Codex Vlaamse Overheid
Bulgaria	Ordinance No. 2 of 13 September 2007 on Protection of Waters from Pollution by Nitrates from Agricultural Sources	2007	lex.bg – Наредба № 2 от 13 септември 2007 г.
	Order № RD09-565 / 16 July 2020 – Rules for Good Agricultural Practice (Annex)	2020	Ministry of Agriculture – Order RD09-565 (Annex PDF)
Germany	Federal Fertiliser Ordinance (Düngeverordnung – DüV)	Last amended 2024	BGBl. I Nr. 411/2024 – DüV (gesetze-im-internet.de)
	Ordinance on Installations for Handling Substances Hazardous to Water (AwSV)	2017 (BGBl. I S. 905), in force 2017-08-01	AwSV (gesetze-im-internet.de)
	Federal Water Act (Wasserhaushaltsgesetz – WHG)	Last amended Aug 2025 (BGBl. I Nr. 189/2025)	WHG (gesetze-im-internet.de)
Finland	Government Decree on Nitrates (Nitraattiasetus 1250/2014)	2014	Finlex 1250/2014 – Valtioneuvoston asetus nitraateista
	Environmental Protection Act (Ympäristönsuojelulaki 527/2014)	Consolidated	Finlex 527/2014
Netherlands	7th Dutch Nitrates Action Programme (7e Actieprogramma Nitraatrichtlijn)	2022–2025	Official publication (Rijksoverheid)
	Manure and Fertiliser Act (Meststoffenwet)	Consolidated	Meststoffenwet (wetten.overheid.nl)
	Implementation Decree on the Fertiliser Act (Uitvoeringsbesluit meststoffenwet – Ubm)	—	Ubm (wetten.overheid.nl)
	Implementation Regulation on the Fertiliser Act (Uitvoeringsregeling meststoffenwet – Urm)	—	Urm (wetten.overheid.nl)
	Environment and Planning Act (Omgevingswet)	Entered into force 2024-01-01	Omgevingswet (wetten.overheid.nl)
	Living Environment Activities Decree (Besluit activiteiten leefomgeving – Bal)	—	Bal (wetten.overheid.nl)

Portugal	Código de Boas Práticas Agrícolas (CBPA)	Despacho n.º 1230/2018 (5 Feb)	Diário da República Despacho 1230/2018
	Decreto-Lei n.º 235/97 – Transposing the Nitrates Directive	3 Sept 1997	dre.pt/decreto-lei-235-97
	Order RD09 565 / 16 July 2020 – Annex on Good Agricultural Practice	2020	mzh.government.bg – Order RD09-565 (Annex)
	DGADR Portal – Nitrates Directive / Vulnerable Zones	Updated 2024	dgadr.gov.pt/diretiva-nitratos
Sweden	Förordning (1998:915) om miljöhänsyn i jordbruket	Consolidated 2020:637	lagen.nu/1998:915
	SJVFS 2004:62 – Environmental Considerations in Agriculture (Plant Nutrients)	Amended up to 2015	lagen.nu/sjvfs/2004:62
	Miljöbalken (1998:808) – Environmental Code	Consolidated	lagen.nu/1998:808