PEFC ITA 1001-5 2025

# Criteria and Indicators for the Certification of the Sustainable Management of Agroforestry Systems

**PEFC**

**ITALY**

**STANDARD**

Document name: Description of the PEFC Italy scheme for the certification of the Sustainable Management of an Agroforestry System

Document title:                          PEFC ITA 1001-5: 2023

Approved by:                            PEFC Italy

Date of approval:                       19.06.2025

Date of publication:                    05.08.2025

Transition period:                      04.08.2026

Date of next periodic review:           28.03.2028

Contact information:                    PEFC Italy Secretariat - info@pefc.it

Official language of document:          English

In the event of inconsistencies between the English and Italian versions, the English version of the standard approved by the PEFC Council shall refer.

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# Summary

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# Framing

**The scope of** this standard is <u>the tree component of an agroforestry system and its related elements</u>. This standard defines elements of sustainable management of the tree component of the agroforestry system and the technical preparation, health and safety of the operators in charge of managing the areas subject to certification.

Rules for reading the document

Each criterion is numbered from 1 to 6 and can encapsulate guidelines for agroforestry management planning and practice.

Guidelines are mandatory requirements when they are present and must be complied with, even beyond the scope of the indicators indicated under them. Indicators may be mandatory or informative.

Informative indicators are reported with the aim of improving information and communication between the various stakeholders in sustainable agroforestry management.

The 'compulsory' indicators, on the other hand, are relevant to the forest system and forest management and form the basis for verifying the certification criteria.

For each indicator, there are

MEASUREMENT PARAMETERS: measurable quantities or elements to be evidenced

CRITICALITY THRESHOLD (for mandatory indicators): requirement

SCOPE OF IMPROVEMENT: proposed thematic line for performance improvement

SOURCE OF INFORMATION AND RECORDING: examples of tools to be used to collect information

In any case, the management of agricultural and animal components shall comply with recognised good management practices and relevant regulations.

Measures shall be implemented to address protection of the forest from unauthorised activities such as illegal logging, illegal land use, illegally initiated fires, and other illegal activities.

This document has been drawn up on the basis of PEFC Standard ST 1003:2024.

## Definitions

All definitions necessary for the understanding and application of this standard are provided in the PEFC ITA 1000 Description of the PEFC Italy Sustainable Forest and Trees outside Forests Management Certification Schemes.

The cells at the top of the indicator with a grey background make the indicator applicable to the related system.

Cells with a white background make the indicator not applicable for the related system.

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# CRITERION 1 MAINTENANCE OR APPROPRIATE ENHANCEMENT OF AGROFORESTRY SYSTEMS AND THEIR CONTRIBUTION TO THE GLOBAL CARBON CYCLE

GL 1.1 Management shall aim to maintain or increase the cover, value and/or diversity of trees in the landscape and their related ecosystem services, so as to enhance their economic, ecological, cultural and social value and be in line with existing land use regimes.

**Note:** If this is not feasible at the individual level in extensive agroforestry areas, this objective shall be considered at the group certification level.

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| Indicator 1.1 a | Trees in an agroforestry system |
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| Type of indicator | Mandatory |
| Measurement Parameters | Quantification of the tree component in the agroforestry system (e.g. metres of tree rows for silvoarable systems, hectares for silvopastoral systems etc.) _____.<br><br>Change _%_____over the period of no._____years. |
| Criticality threshold | Positive change in percentage terms during the period of validity of the certificate. |
| Scope for improvement | Enhancement of valuable, sporadic or high ecological value tree species |
| Example of detection and information source | Field record notebooks, business management plan or its equivalent, business development plan or equivalent instruments. Any company monitoring data recognised by the Certification Body (CB). |
| Applicable for Extensive Systems<br><br>(Extensive definition Table 2 of the Standard) | Applicable |

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| Indicator 1.1 b | Mapping of tree plantings |
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| Type of indicator | Mandatory |
| Measurement Parameters | The owner/manager shall have a mapping and inventory of his tree stock. |
| Criticality threshold | Presence of an up-to-date and comprehensive inventory system of information and records. |
| Scope for improvement | The positive climate practices implemented by the organisation shall be ameliorative to those typical of a '*business as usual*' condition. These positive practices shall tend not to diminish over time in terms of type, quality and impact. |
| Example of detection and information source | Management Plans or equivalent instruments, crop and livestock plans where tree components are considered.<br><br>Field record notebooks, business management plan or its equivalent, business development plan or equivalent instruments. Any company monitoring data recognised by the Certification Body (CB). Any maps showing the location of interventions carried out under RDP measures related to agroforestry systems. |
| Applicable for Extensive Systems | Applicable |

GL 1.2 Agroforestry management shall maintain or increase tree resources and their capacity to store and sequester carbon in the medium and long term by using appropriate management measures and preferring techniques that minimise direct or indirect negative impacts on ecosystem resources.

**Note 1:** If this is not feasible on an individual level in extensive agroforestry areas, this objective shall be considered through group certification.

**Note 2:** in contexts in which the tree component follows the cultivation objectives specific such as quality timber in silvoarable system at the end-of-crop-cycle cut, replanting of the tree components must be carried out in the organisations to ensure long-term carbon sequestration.

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| Indicator 1.2 a | Carbon sequestration |
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| Type of indicator | Mandatory |
| Measurement Parameters | Maintaining and/or increasing the amount of carbon in the tree biomass in the medium and long term. |
| Criticality threshold | Reduction of carbon quantity is not allowed (except in documented cases dependent on management and planning policies or in cases where there is offsetting according to current legal regulations). |
| Scope for improvement | Increase the amount of carbon sequestered in the soil through carbon farming practices.<br><br>Favour greater crop diversification and mixed plantations to improve carbon sequestration by the agroforestry system. |
| Example of detection and information source | Field record notebooks, business management plan or its equivalent, business development plan or equivalent instruments. Any company monitoring data recognised by the Certification Body (CB). |
| Applicable for Extensive Systems | Applicable |

GL 1.3 Climate-positive practices, such as the reduction of climate-altering gas emissions and the efficient use of resources, shall be implemented in management operations.

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| Indicator 1.3 a | Implementation of positive climate practices |
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| Type of indicator | Mandatory |
| Measurement Parameters | Identification of positive climate practices implemented by the organisation in the management operations, such as agroforestry practices to increase carbon uptake, and the efficient use of resources and evaluation of by-products resulting from management (such as bark and brushwood), where these are removed. |
| Criticality threshold | Compliance with the measurement parameter |
| Example of detection and information source | Campaign notebooks, business management plan or its equivalent, business development plan or equivalent instruments. Any company monitoring data recognised by the Certification Body (CB). |
| Applicable for Extensive Systems | Applicable |

GL 1.4 Conversion from forest to agricultural area with the presence of trees (ToF) shall not take place except in justified circumstances where conversion:

a) shall comply with sector legislation and national and regional policies applicable at all levels for land use and shall be the result of spatial planning and established through a transparent decision-making process based on the active participation of relevant stakeholders;
b) affects a small portion (no larger than 5%) of the forest category within the certified area;
c) shall not have a negative impact on ecologically important forest areas, such as culturally and socially significant areas, or other protected areas; and
d) shall not destroy areas with significantly high carbon stocks;
e) contribute to long-term conservation, economic and social benefits.

**Note: Agroforestry area established by forest conversion to agricultural use after 31 December 2010 are not eligible for certification.**

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| Applicable for Extensive Systems | | Applicable |
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GL 1.5 Conversion of ecologically important non-forest ecosystems to agroforestry (ToF) areas shall not take place, except in justified circumstances where conversion:

a) complies with sector legislation and national and regional policies applicable at all levels for land use and shall be the result of spatial planning and established through a transparent decision-making process
b) is established on the basis of a decision taken with the input of the relevant stakeholders through a transparent and participatory decision-making process;
c) does not have a negative impact on threatened (including vulnerable, rare or damaged) non-forest ecosystems, culturally and socially significant areas, important habitats or endangered species, or other protected areas;
d) involves a small proportion of ecologically important non-forest ecosystems managed by an organisation
e) does not destroy areas with significantly high carbon stocks;
f) contributes to conservation, economic and social benefits in the long term.

**Note**: Agroforestry areas developed as a result of forest conversion after 31 December 2010 do not meet the requirements and are not certifiable under conditions that are not justified.

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| Applicable for Extensive Systems | | Applicable |
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# CRITERION 2 MAINTAINING THE HEALTH AND VITALITY OF AGROFORESTRY SYSTEMS

GL 2.1 The health and vitality of agroforestry areas shall be maintained or improved, and degraded land shall be restored whenever and for as long as feasible, making the best use of the land's characteristics, natural processes and using biological preventive control measures.

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| Indicator 2.1 a | Biotic and abiotic damage |
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| Type of indicator | Mandatory |
| Measurement parameter | Presence/absence of an up-to-date registration system and/or catalogue of biotic, abiotic, man-made or unknown adversities. |
| Criticality threshold | Presence of a registration system and/or up-to-date catalogue of biotic, abiotic, man-made or unknown agent adversities. |
| Scope for improvement | Integration of the registration system with planning and monitoring tools. |
| Example of detection and information source | Field record notebooks, business management plan or its equivalent, business development plan or equivalent instruments. Any company monitoring data recognised by the Certification Body (CB). |
| Applicable for Extensive Systems | Not applicable |

GL 2.2 Adequate genetic, species and structural diversity shall be increased or maintained in order to improve the stability, viability and resilience of the agroforestry area.

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| Indicator 2.2 a | Increased health, vitality and resilience of the tree component |
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| Type of indicator | Mandatory |
| Measurement parameter | The owner/manager shall:<br><br>● Use tree species suitable for the characteristics of the site chosen for cultivation and in line with EU directives;<br>● use of propagation material of certified or known provenance (for forest propagation material the national reference regulation is Legislative Decree 386/2003 implementing Directive 1999/105/EC on the marketing of forest reproductive material) with the exclusion of GMO material;<br>● adopt integrated pest management techniques;<br>● consider cultivation practices or field activities aimed at achieving the indicator's purpose (e.g. creation of clearings, underplanting of recognised high nature value species, etc.)<br>● limit the establishment of monoculture plantations (with the exception of poplar), up to a maximum of 5 hectares and this area does not exceed 30% of the farm's arboreal area. |
| Criticality threshold | Presence of parameters and documentation |
| Scope for improvement | Use of species with resistance to the diseases and physiopathologies present with preference given to varieties and cultivars at risk of genetic erosion or included in regional lists for the protection of indigenous genetic resources, if present. |
| Example of detection and information source | EU Reg. 1143/2014, Regional Registers (if any), EU Reg. 1143/2014 |
| Applicable for Extensive Systems | Applicable |

GL 2.3 The use of fire shall be limited to regions where fire is an essential tool in the management of agroforestry systems for regeneration, fire protection and habitat management or a practice of local populations recognised by the competent authorities. In these cases, appropriate management and control measures shall be adopted.

GL 2.4 Appropriate management practices in agroforestry systems shall use trees, crops, animal species and provenances that are suitable for the site conditions, and management, cutting and transport techniques that minimise soil and/or plant damage shall be applied.

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| Indicator 2.4 a | Interventions and impacts on the agricultural component of the agroforestry system |
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| Type of indicator | Mandatory |
| Measurement parameter | Programming interventions to minimise negative impacts.<br><br>Compatibly with the site characteristics, the owner/operator shall:<br><br>● adopt measures, cultivation and breeding techniques, tools and vehicles suited to the soil conditions;<br>● adopt guidelines for the limited use of synthetic chemicals;<br>● adopt non-preventive products with a low environmental impact, or biodegradable and low environmental impact. |
| Criticality threshold | Presence of parameters and availability of records for:<br><br>● use of vehicles suited to the soil conditions;<br>● presence of records on product characteristics used. |
| Scope for improvement | Favouring biological control methods and measures to protect biodiversity |
| Example of detection and information source | Field record notebooks, business management plan or its equivalent, business development plan or equivalent documents. Any company monitoring data recognised by the Certification Body (CB). |
| Applicable for Extensive Systems | Applicable |

GL 2.5 The abandonment of waste in agroforestry systems shall be strictly prohibited. Both organic and inorganic waste shall be collected and removed in an environmentally responsible manner. Spills of mineral oil or fuel during management operations shall be strictly avoided.

Emergency procedures shall be in place to minimise the risk of environmental damage from the accidental spill.

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| Indicator 2.5 a | Waste and oils |
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| Type of indicator | Mandatory |
| Measurement parameter | Use of biodegradable chainsaw oils.<br><br>Waste management system and minimisation of oil spillage incidents during handling. |
| Criticality threshold | Compliance with the parameter. |
| Scope for improvement | Preference for battery-powered vehicles or other technology that reduces pollutant emissions or energy consumption and alkylate petrol.<br><br>Use of mechanical fluids and biodegradable fuels. |
| Example of detection and information source | Field notebooks, business management plan or its equivalent, business development plan or equivalent documents. Waste register, where applicable. Documents certifying the delivery of waste to the entity in charge. Any company monitoring data recognised by the Certification Body (CB). |
| Applicable for Extensive Systems | Applicable |

GL 2.6 Any use of pesticides is documented. Integrated pest management shall be based on appropriate silvicultural alternatives and other biological measures to minimise the use of plant protection products, also by practising technological measures related to precision agriculture.  Plant protection products listed in Tables 1A and 1B of the WHO, and those whose derivatives remain biologically active and accumulate in the food chain, and any pesticides prohibited by international agreements are excluded in all cases. . In any case, the application of plant protection products shall be based on the manufacturer's instructions and shall be carried out with appropriate equipment , by qualified personnel and this be defined in the system documentation. Where fertilisers are used, they shall be applied in a controlled manner and with due consideration for the environment. The use of fertilisers shall not be an alternative to appropriate soil nutrient management. Precision agriculture is suggested/recommended in order to reduce the quantities and dispersion of the products used.

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| Indicator 2.6 a | Use of plant protection products for the tree component |
| Type of indicator | Mandatory |
| Measurement parameter | Absence of scheduled phytosanitary treatments, except as permitted in organic farming, with documented justification for their use.<br><br>Exclusion of the products listed in Tables 1A and 1B of the WHO available here. |
| Criticality threshold | Presence of registrations. In the case of the tree component with products intended for human and animal consumption, special attention shall also be paid to the treatment of the agricultural component.<br><br>Compliance with the parameter on calendar phytosanitary treatments, except for the possibility of sporadic treatment in the presence or in certain forecasts of attacks of high incidence. In this case, the active ingredients shall be distributed according to the minimum recommended dose, with the obligation to document every means employed to limit distribution drift and toxicity for the environment and operators.<br><br>The owner/manager shall:<br><br>● Indicate the active ingredients used, the date (period) and purpose of their use, the quantity used;<br>● archive and store the purchase records of the commercial products used.<br><br>If the treatments are contracted out to third parties, the contract shall contain the intervention instructions provided by the client. |
| Scope for improvement | |
| Example of detection and information source | Field record notebooks, business management plan or its equivalent, business development plan or equivalent instruments. Any company monitoring data recognised by the Certification Body (CB). |
| Applicable for Extensive Systems | Applicable |

# CRITERION 3 MAINTENANCE AND DEVELOPMENT OF PRODUCTIVE FUNCTIONS IN AGROFORESTRY MANAGEMENT (WOOD AND NON-WOOD PRODUCTS)

GL 3.1 The capacity of agroforestry areas to provide wood, non-wood products derived from the tree component or closely related as well as ecosystem services on a sustainable basis shall be maintained.

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| Indicator 3.1 a | Production of wood products |
|---|---|
| Type of indicator | Mandatory |
| Measurement parameter | The owner/operator shall identify potentially retractable wood products and their markets at the planning stage. |
| Criticality threshold | Presence of parameter evaluation in the planning document. |
| Scope for improvement | Preparation of market surveys/field monitoring for the products considered in the plan. |
| Example of detection and information source | Field record notebooks, business management plan or its equivalent, business development plan or equivalent instruments. Any company monitoring data recognised by the Certification Body (CB). |
| Applicable for Extensive Systems | Applicable |

GL 3.2 Strong economic performance shall be pursued, taking into account the possibilities of new markets and economic activities in relation to all relevant products and services of agroforestry systems.

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| Indicator 3.2 a | Production of ecosystem services |
|---|---|
| Type of indicator | Informative |
| Measurement parameter | The owner/manager shall identify the ecosystem services provided and their markets at the planning stage. |
| Example of detection and information source | Field record notebooks, business management plan or its equivalent, business development plan or equivalent instruments. Any company monitoring data recognised by the Certification Body (CB). |
| Applicable for Extensive Systems | Applicable |

GL 3.3 Management, cutting and regeneration operations of the components of agroforestry systems shall be carried out at times and with techniques that do not reduce the production capacity of the productive functions and ecosystem services of the area, e.g. by avoiding damage to the soil and the remaining standing trees.

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| Indicator 3.3 a | Responsibility for managing the tree component |
|---|---|
| Type of indicator | Mandatory |
| Measurement parameter | Presence of a management system and an organisational chart.<br><br>Training and updating of operators (supplementing indicator 6.5b of this Standard).<br><br>In the case of contracting out to third parties, a requirement in the notice that a management system and/or an organisational chart identifying responsibilities and tasks in the management of the tree component. |
| Criticality threshold | Presence of measurement parameter requirements |
| Scope for improvement | |
| Example of detection and information source | Field record notebooks, business management plan or its equivalent, business development plan or equivalent instruments. Any company monitoring data recognised by the Certification Body (CB). |
| Applicable for Extensive Systems | Applicable |

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| Indicator 3.3 b | Interdisciplinarity of interventions in the company |
|---|---|
| Type of indicator | Informative |
| Measurement parameter | Presence of a document stating:<br><br>● Time of cutting the tree component or individual trees<br>● Time of grazing in areas subject to tree felling<br>● Sowing periods, harvesting periods, processing periods and any processing treatments<br>● Grazing period and location |
| Example of detection and information source | Field record notebooks, business management plan or its equivalent, business development plan or equivalent instruments. Any company monitoring data recognised by the Certification Body (CB). |
| Applicable for Extensive Systems | Applicable |

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| Indicator 3.3 c | Maintaining the products and services provided by the tree component |
|---|---|
| Type of indicator | Mandatory |
| Measurement parameter | The production of wood and non-wood products and services shall tend not to decrease over time, compatible with local socio-economic conditions and environmental protection.<br><br>The uprooting of root systems is permitted, unless justified refusals are made for specific requirements in the management plan, with their possible uprooting on site. |
| Criticality threshold | Compliance with the measurement parameter |
| Scope for improvement | The collection of information on the products and services produced by the tree component in forestry planning and administration documents at company or group level shall be enhanced |
| Example of detection and information source | Specific studies and local case studies; interviews; company administrative documents; equivalent sources. Field notebooks, business management plan or its equivalent, business development plan or equivalent instruments. Any company monitoring data recognised by the Certification Body (CB). |
| Applicable for Extensive Systems | Applicable |

GL 3.4 The tree balance shall always be positive. Harvesting levels of both wood and non-wood products from TOF areas shall not exceed a rate that can be sustained in the long term, and optimum use shall be made of the harvested products.

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| Indicator 3.4 a | Amount of products supplied by the tree component of the agroforestry system |
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| Type of indicator | Mandatory |
| Measurement Parameters | Average annual quantity of products (such as timber, game, chestnuts, truffles, undergrowth fruits, honey, medicinal plants, cork, charcoal, mushrooms for food/phytotherapeutic/medical/tinctorial use, etc.....) with reference to the last n __ years. |
| Criticality threshold | Compliance with the measurement parameter |
| Scope for improvement | The production of wood and non-wood products shall tend not to decrease over time, compatible with local socio-economic and environmental conditions. The collection of information on the products produced by the agroforestry system in planning and administration documents at company or group level shall be enhanced. |
| Example of detection and information source | Local tree inventories; forest management plan or its equivalent at company, intercompany or higher planning level; certificates from regional forestry services; specific studies and local case studies; interviews; company administrative documents; equivalent sources. Field notebooks, farm management plan or its equivalent, farm development plan or equivalent instruments. Any company monitoring data recognised by the Certification Body (CB). |
| Applicable for Extensive Systems | Applicable |

GL 3.5 Infrastructure, such as roads, bridges and tracks, shall be planned, constructed and maintained in such a way as to ensure the efficient distribution of products and services, while minimising negative impacts on the environment, in a manner that minimises bare soil exposure, avoids the introduction of soil into watercourses and preserves the natural level and function of water courses and river beds. Proper road drainage facilities shall be installed and maintained.

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| Indicator 3.5 a | Corporate road management |
|---|---|
| Type of indicator | Informative |
| Measurement Parameters | Description of the tools used to maintain the company's viability. |
| Example of detection and information source | Field notebooks, farm management plan or its equivalent, farm development plan or equivalent instruments. Any company monitoring data recognised by the Certification Body (CB). technical and thematic maps. |
| Applicable for Extensive Systems | Not applicable |

# CRITERION 4 MAINTENANCE, CONSERVATION AND APPROPRIATE ENHANCEMENT OF BIOLOGICAL DIVERSITY

GL 4.1 The business development plan (or its equivalent) shall aim to maintain, conserve or enhance territorial biodiversity at the genetic, species and ecosystem levels.

**Note**: In the event that this is not achievable on an individual level in extensive areas, this objective shall be considered through group certification.

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| Indicator 4.1 a | Activities aimed at biodiversity |
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| Type of indicator | Mandatory |
| Measurement parameter | The landowner/manager shall identify the species/varieties/cultivars/clones, animal populations, that are suitable for the agroforestry system's site conditions.<br><br>Use of material of certified origin for forest plants (listed in Annex 1 of Legislative Decree 386/2003) or otherwise only with a green certificate (phytosanitary passport) to guarantee origin. |
| Criticality threshold | Presence and compliance with the measurement parameter<br><br>Exclusive use of material of certified or known origin (if not included in Annex 1 of Legislative Decree 386/2003) with exclusion of GMO material. |
| Scope for improvement | |
| Example of a source of detection and information | Field record notebooks, business management plan or its equivalent, business development plan or equivalent instruments. Any company monitoring data recognised by the Certification Body (CB). Purchase invoices for certified seed and propagation material. |
| Applicable for Extensive Systems | Applicable |

GL 4.2 Inventory, mapping and planning of agroforestry resources shall identify, protect, conserve or *set aside* ecologically important areas.

**Note:** this does not prohibit management activities that do not harm the important ecological values of these biotopes.

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| Indicator 4.2 a | Preservation of ecologically important areas |
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| Type of indicator | Mandatory |
| Measurement parameter | Inventories and mapping of ecologically important areas.<br><br>Presence of prescriptions or intervention methods for the plant component, such as to identify, safeguard and protect rare/endangered species and their habitats of high ecological value. |
| Criticality threshold | Prescription presence and compliance |
| Scope for improvement | |
| Example of detection and information source | Field record notebooks, business management plan or its equivalent, business development plan or equivalent instruments. Any company monitoring data recognised by the Certification Body (CB). |
| Applicable for Extensive Systems | Not applicable |

GL 4.3 Protected, threatened and endangered animal and plant species shall not be exploited for commercial purposes. If necessary, specific measures shall be identified for their protection and, where appropriate, to increase their population.

**Note:** the requirements do not preclude trade in accordance with CITES requirements.

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| Indicator 4.3 a | Safeguarding endangered habitats and animal and plant species |
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| Type of indicator | Mandatory |
| Measurement parameter | Presence of rare, threatened or endangered species |
| Criticality threshold | Identification of areas where endangered habitats and species are found within the agroforestry system |
| Scope for improvement | |
| Example of detection and information source | Cutting plan, cultivation plan, Possible thematic mapping of inclusion in Natura 2000 Network areas, Specific biodiversity studies. Any monitoring data accepted by the Certification Body (CB).<br><br>IUCN Red List of Italian Flora and Fauna:<br><br>http://www.iucn.it/liste-rosse-italiane.php |
| Applicable for Extensive Systems | Applicable |

GL 4.4 Renewal shall be ensured through natural regeneration or planting that is adequate to guarantee the quantity and quality of tree resources.

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| Indicator 4.4 a | Quality of propagation material for planting |
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| Type of indicator | Mandatory |
| Measurement parameter | The nursery material purchased shall be of certified or known origin, produced and marketed in compliance with national and, where present, regional regulations.<br><br>If the material is self-produced, its origin shall be traced and documented.<br><br>For forest reproductive material, the national reference regulation is Legislative Decree 386/2003 implementing Directive 1999/105/EC on the marketing of forest reproductive material, excluding GMO material. |
| Criticality threshold | Exclusive use of material of certified or known origin. |
| Scope for improvement | |
| Example of a source of detection and information | Transport document, purchase invoices. Field record notebooks, company management plan or its equivalent, company development plan or equivalent documents. Any company monitoring data recognised by the Certification Body (CB). |
| Applicable for Extensive Systems | Applicable |

GL 4.5a For plantation forests or reforestation, preference shall be given to native species that are well-adapted to the site conditions. In any case, only those introduced species, varieties and cultivars whose impacts on the ecosystem and genetic integrity of native species have been scientifically assessed and whose negative impacts have been avoided or minimised shall be considered. Forestation and other tree planting activities that contribute to the improvement and restoration of ecological connectivity shall be promoted.

GL 4.5b Genetically modified plants (GMOs) shall not be used.

**Note 1:** The restriction on the use of genetically modified plants was adopted by the PEFC General Assembly based on the Precautionary Principle. Until scientific data on the genetic modification of plants indicate that the impacts on human and animal health and the environment are equivalent to, or more positive than, conventional methods, no genetically modified (GM) plants will be used.

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| Indicator 4.5 a | Maintaining and/or improving appropriate biological diversity in plantation forests and agroforestry systems |
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| Type of indicator | Mandatory |
| Measurement parameter | Preservation of any pre-existing trees, groups of trees or strips of shrub vegetation and the adoption of appropriate measures to encourage their growth and development.  In the case of new planting/planting, biological diversity shall be taken into account in the choice of plants. |
| Criticality threshold | Presence of parameters |
| Scope for improvement | |
| Example of detection and information source | Field record notebooks, business management plan or its equivalent, business development plan or equivalent plans. Any company monitoring data recognised by the Certification Body (CB). Aerial photographs if available. |
| Applicable for Extensive Systems | Applicable |

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| Indicator 4.5 b | Differentiation between native and introduced species |
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| Type of indicator | Informative |
| Measurement parameter | Quantification of introduced species and their percentage in relation to the natural composition of the tree component. |
| Example of detection and information source | Field record notebooks, business management plan or its equivalent, business development plan or equivalent plans. Any company monitoring data recognised by the Certification Body (CB). |
| Applicable for Extensive Systems | Applicable |

GL 4.6 Both horizontal and vertical structural diversity and also species diversity as mixed stands shall be promoted where appropriate. Practices shall also aim to maintain or restore diversity at the spatial level.

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| Indicator 4.6 a | Design of vegetation types and structures |
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| Type of indicator | Mandatory |
| Measurement parameter | Both horizontal and vertical structural variability shall be considered when designing a new planting with perennials (trees or shrubs). |
| Criticality threshold | Presence of measurement parameter |
| Scope for improvement | Preference is given to native varieties and/or ecotypes that have demonstrated better adaptation to climatic conditions and soil fertility. |
| Example of detection and information source | Field record notebooks, business management plan or its equivalent, business development plan or equivalent plans. |
| Applicable for Extensive Systems | Not applicable |

GL 4.7 Traditional management practices that create valuable ecosystems on suitable sites shall be supported where appropriate. Management operations shall be conducted so as not to cause permanent damage to ecosystems. Where possible, practical measures shall be taken to maintain or enhance biological diversity. Infrastructures and management activities shall be planned and conducted so as to minimise damage to ecosystems, especially rare, sensitive or representative ecosystems and genetic reserves, in a way that takes into account threatened or other significant species - and in particular migratory fauna pathways.

| Silvoarable | Silvopastoral | Agrosilvopastoral |
| --- | --- | --- |

| Indicator 4.7 a | Guidelines or prescriptions for infrastructure management and construction activities in rare, sensitive or representative ecosystems |
| --- | --- |
| Type of indicator | Mandatory |
| Measurement parameter | Presence of directives or requirements for infrastructure management and construction activities in rare, sensitive or representative ecosystems, where such ecosystems are present, |
| Criticality threshold | Compliance with measurement parameters. |
| Scope for improvement | Direct verifications, specific projects or equivalent sources |
| Example of detection and information source | Management plan of the protected area or equivalent measures. Field notebooks, farm management plan or its equivalent, farm development plan or equivalent instruments. Any company and territorial monitoring data recognised by the Certification Body (CB). |
| Applicable for Extensive Systems | Applicable |

GL 4.8 With due consideration to management objectives, measures shall be taken to balance the effects of pressure from domestic and wild animal populations on regeneration, plant growth, biodiversity and fire control.

| Silvoarable | Silvopastoral | Agrosilvopastoral |
|---|---|---|

| Indicator 4.8 a | Damage from domestic and wild animal populations |
|---|---|
| Type of indicator | Mandatory |
| Measurement parameter | Monitoring and control of damage to the tree component and its regeneration.<br><br>Damage reduction activities.<br><br>Presence of a grazing plan that provides for possible rest periods.<br><br>Animal load calculated according to forage availability and areas under renewal. |
| Criticality threshold | Presence of measurement parameters through the creation of traceable and documentable evidence. |
| Scope for improvement | Refining and improving the effectiveness of monitoring tools |
| Example of detection and information source | Field notebooks, farm management plan or its equivalent, farm development plan or equivalent instruments. Any company monitoring data recognised by the Certification Body (CB). direct surveys or equivalent sources. |
| Applicable for Extensive Systems | Applicable |

| Silvoarable | Silvopastoral | Agrosilvopastoral |
|---|---|---|

| Indicator 4.8 b | Fire Prevention |
|---|---|
| Type of indicator | Mandatory |
| Measurement parameter | Monitoring the different components of the vegetation susceptible to fire by formalising a plan of the frequency, monitoring methods, conditions observed and any actions taken.<br><br>Control of herbaceous and shrub vegetation susceptible to fire. |
| Criticality threshold | Presence of measurement parameters through the creation of traceable and documentable evidence. |
| Scope for improvement | Enhancement of management activities for the different vegetation components related to fire risk. Increase in outward communication activities. |
| Example of detection and information source | Field notebooks, farm management plan or its equivalent, farm development plan or equivalent instruments. Any company and territorial monitoring data recognised by the Certification Body (CB). Thematic maps, direct surveys or equivalent sources. |
| Applicable for Extensive Systems | Applicable |

GL 4.9 Standing and fallen dead trees, habitat trees, monumental trees or trees belonging to rare species shall be released in quantities and spatial distribution necessary to safeguard biological diversity, taking into consideration the potential effect on the health and stability of the agroforestry system and surrounding ecosystems.

| Silvoarable | Silvopastoral | Agrosilvopastoral |
|---|---|---|

| Indicator 4.9 a | Standing and fallen dead, monumental, historical, valuable and rare native species trees |
|---|---|
| Type of indicator | Mandatory |
| Measurement parameter | Monumental trees or trees belonging to rare and sporadic native species, indication of species and estimate in no. or per unit area surveyed and/or protected under Article 7 Law 10/2013<br><br>Presence of dead trees, presence of dead wood on the ground. |
| Criticality threshold | Presence of preventive measures for the protection and management of monumental, historic and rare and valuable trees.<br><br>Release of part of the trees of rare species if present.<br><br>Release of dead trees or parts of them on the ground. |
| Scope for improvement | |
| Example of detection and information source | Forest management plans at company, intercompany or upper district level, park environmental plans or forest management plans, forest inventories<br><br>Natural monument databases, Direct verification or equivalent sources, Field notebooks, Farm management plan or its equivalent, Farm development plan or equivalent instruments. Any company monitoring data recognised by the Certification Body (CB).<br><br>Circulars on the Protection and Preservation of Monumental Trees published on the Mipaaf website at the following link: https://www.politicheagricole.it/flex/cm/pages/ServeBLOB.php/L/IT/IDPagina/11268 |
| Applicable for Extensive Systems | Applicable |

# CRITERION 5 MAINTENANCE OR APPROPRIATE IMPROVEMENT OF THE PROTECTIVE FUNCTIONS OF MANAGEMENT (WITH SPECIFIC ATTENTION TO SOIL PROTECTION AND WATER REGULATION)

GL 5.1 The protective functions of trees in agroforestry systems shall be maintained or improved.

| Silvoarable | Silvopastoral | Agrosilvopastoral |
|---|---|---|
|  |  |  |

| | |
|---|---|
| Indicator 5.1 a | Tree cover for protective purposes |
| Type of indicator | Mandatory |
| Measurement parameter | Mapping at an appropriate scale with indications of the location, protective functions and shading of trees. |
| Criticality threshold | Presence of maps and descriptions of the protective functions performed. |
| Scope for improvement | Prediction of an increase in tree cover for protection purposes. Erosion measurement and decrease % during the validity of the certificate, e.g. using prediction models such as the RUSLE model. |
| Example of detection and information source | Field record notebooks, business management plan or its equivalent, business development plan or equivalent documents. Any farm monitoring data recognised by the Certification Body (CB). Thematic soil maps, hydrogeological instability maps, basin plans, etc. Any other source equivalent to those mentioned above. |
| Applicable for Extensive Systems | Applicable |

GL 5.2 Areas that perform a recognised specific and protective function for society shall be mapped, and agroforestry management plans and operations shall ensure that these functions are maintained or improved.

| Silvoarable | Silvopastoral | Agrosilvopastoral |
|---|---|---|

| Indicator 5.2 a | Extent of surface area managed for protection purposes and its variations over time |
|---|---|
| Type of indicator | Mandatory |
| Measurement parameter | Area subject to protective constraints ha __, its % of the total area ___ % |
| Criticality threshold | Presence of hydrogeological constraint mapping or other representation of the protective function of the agroforestry system or part thereof. |
| Scope for improvement | Surveys and interviews on the perception of the role of the agroforestry system in the eyes of local communities and civil society as a whole . |
| Example of detection and information source | Cartographies of management plans or equivalent corporate and inter-company instruments, thematic soil maps, hydrogeological instability maps, basin plans, etc. Any other source equivalent to those mentioned above. Any data from company and territorial surveys accepted by the Certification Body (CB). |
| Applicable for Extensive Systems | Applicable |

GL 5.3 Particular attention shall be paid to management operations on sensitive soils and erosion-prone areas, and in areas where operations could lead to excessive soil erosion in watercourses. The techniques applied and machines used shall be suitable for such areas. Special measures shall be taken to minimise the pressure of animal populations on these areas.

| Silvoarable | Silvopastoral | Agrosilvopastoral |
|---|---|---|

| Indicator 5.3 a | Inventory, mapping and planning of sensitive soils and erosion-prone areas |
|---|---|
| Type of indicator | Mandatory |
| Measurement parameter | Presence and description of areas in the management plan. Presence of prescriptions or intervention methods. |
| Criticality threshold | Presence of parameters and their compliance |
| Scope for improvement | Drawing up a plan for the rotation of animals in wooded areas. |
| Example of a source of detection and information | Company management plan or its equivalent, company development plan or equivalent instruments. Any company monitoring data recognised by the Certification Body (CB). Cutting plan. Livestock management plan, Land use map. Hydrogeological constraint map or equivalent sources. |
| Applicable for Extensive Systems | Applicable |

| Silvoarable | Silvopastoral | Agrosilvopastoral |
|---|---|---|

| Indicator 5.3 b | Cultivation operations in sensitive soils and erosion-prone areas |
|---|---|
| Type of indicator | Mandatory |
| Measurement parameter | Cultivation techniques and mechanisation adapted to soil types and growing environments.<br><br>Animal load calculated according to forage availability and soil fragility. |
| Criticality threshold | Presence of parameters and their application |
| Scope for improvement | |
| Example of detection and information source | Campaign notebooks, business management plan or its equivalent, business development plan or equivalent instruments. Any company monitoring data recognised by the Certification Body (CB). |
| Applicable for Extensive Systems | Applicable |

GL 5.4 Particular attention shall be paid to cultivation operations in agroforestry areas with water protection functions in order to avoid negative effects on water quality and quantity. The inappropriate use of chemicals or other harmful substances or inappropriate silvicultural management practices that affect water quality in a detrimental way shall be avoided. Downstream water balance and water quality shall not be significantly affected by operations.

| Silvoarable | Silvopastoral | Agrosilvopastoral |
|---|---|---|

| Indicator 5.4 a | Cultivation operations in agroforestry areas for water protection |
|---|---|
| Type of indicator | Mandatory |
| Measurement parameter | Evaluation of the soil work carried out, the chemicals and harmful substances used, and the operations carried out on the soil, plant litter or turf.<br><br>Cultivation operations shall not significantly affect the water balance and water quality (Mandatory for intensive type systems).<br><br>Further guidance can be found in GL 2.5 of this Standard and related indicators. |
| Criticality threshold | Presence of parameters and compliance with them. |
| Scope for improvement | Use of conservation agriculture techniques |
| Example of detection and information source | Field record notebooks, business management plan or its equivalent, business development plan or equivalent documents. Any company and territorial monitoring data recognised by the Certification Body (CB). |
| Applicable for Extensive Systems | Applicable |

# CRITERION 6 MAINTENANCE OF OTHER FUNCTIONS AND SOCIO-ECONOMIC CONDITIONS

GL 6.1 The business development plan (or its equivalent) shall aim to respect all the socio-economic functions of the agroforestry system.

| Silvoarable | Silvopastoral | Agrosilvopastoral |
| --- | --- | --- |

| Indicator 6.1 a | Efficiency in agroforestry system management |
| --- | --- |
| Type of indicator | Mandatory |
| Measurement parameter | Presence of management indications on waste reduction (with particular reference to water resources) reduction of waste and maximisation of its 'closed-loop' reuse. |
| Criticality threshold | Application of the measurement parameter |
| Scope for improvement | Reduction of external and non-renewable energy inputs. Reduction of chemical fertilisers in favour of those of organic/mineral origin. |
| Example of detection and information source | Field record notebooks, business management plan or its equivalent, business development plan or equivalent documents. Any company monitoring data recognised by the Certification Body (CB). |
| Applicable for Extensive Systems | Applicable |

GL 6.2 Public access to agroforestry areas for recreational purposes shall be granted, taking into consideration the rights of the owner, the safety and rights of others, the effects on agroforestry and ecosystem resources, as well as compatibility with other agro-ecosystem functions.

| Silvoarable | Silvopastoral | Agrosilvopastoral |
| --- | --- | --- |

| Indicator 6.2 a | Accessibility for recreational purposes |
| --- | --- |
| Type of indicator | Mandatory |
| Measurement parameter | The owner shall make his property accessible (in the part identified for this purpose) for organised recreational activities, or at the request of bodies/associations/organisations, also in conjunction with planned events (indicator 6.5c). |
| Scope for improvement | Presence of accessibility improvement projects. Mapping of sites. |
| Example of detection and information source | Field record notebooks, business management plan or its equivalent, business development plan or equivalent documents. Interviews, public consultation, direct control. |
| Applicable for Extensive Systems | Applicable |

GL 6.3 Areas with recognised historical, cultural or spiritual value and areas fundamental to meeting the needs of the local community (e.g. health, subsistence) shall be protected or managed in a manner that gives due consideration to the significance of the site itself.

| Silvoarable | Silvopastoral | Agrosilvopastoral |
|---|---|---|

| Indicator 6.3 a | Areas of historical, cultural and spiritual significance |
|---|---|
| Type of indicator | Mandatory |
| Measurement parameter | List or evidence of sites with historical cultural or spiritual value and their protection. |
| Criticality threshold | Presence of the parameter.<br><br>Planned Protection Interventions. |
| Scope for improvement | Study and information projects on knowledge of the historical, cultural and spiritual characteristics of the area; Mapping of sites. |
| Example of detection and information source | Farm monitoring data, field notebooks, farm management plan or its equivalent, farm development plan, thematic maps. Interviews, public consultation, direct control. Specific lists or registers. Any company and territorial survey data recognised by the Certification Body (CB) |
| Applicable for Extensive Systems | Applicable |

GL 6.4 Management shall promote the long-term health and well-being of communities in or near the managed agroforestry area, where appropriate with the support of joint community and community engagement.

| Silvoarable | Silvopastoral | Agrosilvopastoral |
|---|---|---|

| Indicator 6.4 a | Management of livestock waste, pesticides and potentially polluting substances |
|---|---|
| Type of indicator | Mandatory |
| Measurement parameter | The organisation shall define a written and public process for the management of livestock waste (in the case of confined livestock farming), pesticides and potentially polluting substances used with reference to the relevant national regulations.<br><br>The documentation shall contain at least the following elements:<br><br>● Risk assessment, evaluation and management procedure;<br>● definition of the scope;<br>● identification of risks;<br>● choice of risk mitigation measures. |
| Criticality threshold | Presence and compliance with the measurement parameter |
| Scope for improvement | |
| Example of detection and information source | Field record notebooks, business management plan or its equivalent, business development plan or equivalent documentsAny company monitoring data recognised by the Certification Body (CB). Legislative Decree 152/2006 and subsequent updates, DM 07.04.2006, Presidential Decree no. 59 of 13 March 2013 and relevant municipal regulations. DM no. 5046 of 25/02/2016. Grazing plan. |
| Applicable for Extensive Systems | Applicable |

GL 6.5 Traditional experience and knowledge, as well as recognised good practices for agroforestry and off-forest tree management, shall be evaluated.

The benefits of applying this knowledge shall be equally distributed.

| Silvoarable | Silvopastoral | Agrosilvopastoral |
|---|---|---|

| Indicator 6.5 a | Use of traditional and/or 'good' cultivation practices |
|---|---|
| Type of indicator | Mandatory |
| Measurement parameter | The owner/manager shall demonstrate that the cultivation practices employed have been validated both by operational experience in the area where the plantation is located and by research activities, when this is possible for traditional practices. |
| Criticality threshold | Presence of reliable and verifiable sources of information and/or documentary references |
| Scope for improvement | |
| Example of detection and information source | Good practices deriving from production specifications (PDO, PGI, IGT ....), tradition deriving from the register of historic Italian landscapes, organic farming, agronomic utilisation plan, other agri-environmental certification protocols, etc. |
| Applicable for Extensive Systems | Applicable |

| Silvoarable | Silvopastoral | Agrosilvopastoral |
|---|---|---|

| Indicator 6.5 b | Staff specialisation |
|---|---|
| Type of indicator | Mandatory |
| Measurement parameter | Training and further education, decent work (ILO) of agroforestry managers and staff employed in its management, for agroforestry or at least one of its components in the absence of agroforestry-related training opportunities. Land managers, contractors, employees and land owners shall be required to keep up-to-date with the latest developments through continuous training in relation to agroforestry, good agriculture practices and forestry techniques. |
| Criticality threshold | Evidence and documentation of the measurement parameter. Evidence of the qualification, training and experience of the personnel of the structure responsible for management. |
| Scope for improvement | Implementation of staff training activities and continuous updating and enhancement of skills. Increase in the number of people attending courses; focus on training, further training, information and other social services for employees and the local community. Continuous training planned over time. |
| Example of detection and information source | Certificates/certificates of participation in courses, conferences or seminars, specialist journals or other. |
| Applicable for Extensive Systems | Applicable |

| Silvoarable | Silvopastoral | Agrosilvopastoral |
|---|---|---|

| Indicator 6.5 c | Management with socio-cultural value |
|---|---|
| Type of indicator | Mandatory |
| Measurement parameter | Presence of management interventions and/or participation in events or visibility activities with socio-cultural value and attention to different stakeholders related to agroforestry management. |
| Criticality threshold | Recording attendance of interventions/events/activities. |
| Scope for improvement | |
| Example of detection and information source | Interviews, direct verification, public consultation or equivalent sources. |
| Applicable for Extensive Systems | Applicable |

| Silvoarable | Silvopastoral | Agrosilvopastoral |
|---|---|---|

| Indicator 6.5 d | Investment in vocational training |
|---|---|
| Type of indicator | Informative |
| Measurement parameter | Average annual investment in vocational training in the agroforestry, agronomy and forestry sector. |
| Example of detection and information source | Rural Development Plan (EC Reg. 1257/99 and EC Reg. 1698/2005). Specific farm investments or equivalent sources. EU Reg. 1305/2013 and EU Reg. 2115/2021. |
| Applicable for Extensive Systems | Applicable |

GL 6.6 Management shall consider the role of the tree in the local economy. Special consideration shall be given to new opportunities for the training and employment of the local population.

| Silvoarable | Silvopastoral | Agrosilvopastoral |
|---|---|---|

| Indicator 6.6 a | Ability to raise financial resources |
|---|---|
| Type of indicator | Informative |
| Measurement parameter | The organisation shall commit itself to finding additional sources of funding.<br><br>Finding alternative sources of funding, including private involvement and through  sponsorship (technical or financial). |
| Example of detection and information source | Public-private agreements and conventions |
| Applicable for Extensive Systems | Not applicable |

GL 6.7 Agroforestry management shall contribute to research activities and the collection of data necessary for the sustainable management of agroforestry or support, where appropriate, the conduct of research activities by other organisations.

| Silvoarable | Silvopastoral | Agrosilvopastoral |
|---|---|---|

| Indicator 6.7° | Innovation and evaluation of research activities |
|---|---|
| Type of indicator | Informative |
| Measurement parameter | Participation in publicly funded projects and programmes (n projects and programmes corresponding financial value).<br> Realisation of new interventions through participation in public tenders (n interventions and corresponding financial value). |
| Example of detection and information source | Documents proving participation in projects. |
| Applicable for Extensive Systems | Applicable |

| System type | Features | Traditional system | Innovative system | Production and additional note |
|---|---|---|---|---|
| Silvoarable | Widely distributed tree vegetation associated with annual or perennial crops. Trees/shrubs may be distributed following a design according to arboreal rows, isolated/spread trees, hedges or boundary strips. (Mosquera-Losada et al. 2018). *Widely spaced woody vegetation inter-cropped with annual or perennial crops. Also known as alley cropping. Trees/shrubs can be distributed following an alley cropping, isolated/scattered trees, hedges and line belts design.*<br><br>Silvoarable practices are represented by those annual crops intercropped among permanent crops (e.g. fruit trees), shrublands with and without sparse tree cover and woodlands (Mosquera-Losada et al. 2018). Silvoarable practices were also estimated by those annual crops intercropped among permanent crops (fruit trees), shrublands with and without sparse tree cover and woodlands.<br><br>Linear systems are characterised by the presence of hedges, windbreaks or buffer strips at the edges of fields, which not only serve a protective function for agro-ecosystems, but also help farmers. (Perali 2012) (unitus.it) | Trees + Agricultural Crops (e.g.: Cultivated Forests or Intercrops). Source: agroforestry.co.uk)<br><br>Olive groves + cereal cultivation (olive groves) | Hybrid poplars in rows with cereal crops | Silvoarable systems also include linear systems.<br><br>Alley cropping - intercropping between rows of trees and herbaceous crops grown in the inter-row, with periodic pruning of the rows to provide biomass and reduce shading |
| Agrosilvopastoral | Association of herbaceous and tree crops, often grazed by herds and flocks (Pardini 2011) http://www.agroforestry.it/integrazione/.<br><br>Traditional agro-sylvo-pastoral systems are characterised by arboreal grasslands derived from human-induced transformations from forest management and clearing (Sala et al. 2021) | Trees + agricultural crops + animals (e.g. olive trees with bird species and wild asparagus). Source agroforestry.co.uk<br><br>Arboreal pasture with forage | | |

| Silvopastoral (Alpine, Apennine, Mediterranean) | Combination of wooded areas with forage areas or animal production. Includes pasture in forest or woodland and grazed areas with hedges, isolated or scattered trees or trees in rows or bands (Mosquera-Losada et al. 2018).

Silvopastoral systems include both the integration of trees and domestic livestock as well as the use of livestock in forests (e.g. forest grazing) and orchards, especially olive groves. (Paris, Camilli et al. 2019).

Production systems that combine an 'open' tree cover (and associated forest products), with pastures and shrubs undergrowth, used for grazing different types of livestock in livestock and, in some specific cases, (agro-sylvo-pastoral systems) (Dettori et al. 2018) | Trees + animals (e.g.: Grazed forests, Grazed orchards). Source agroforestry.co.uk

Grazing in forests predominantly of Beech, Larch, Chestnut, Oak spp., use of scattered trees in natural pastures (Paris, Camilli et al. 2019). | Grazed olive grove | |

## Table 2: Definition Extensive/intensive thresholds for agroforestry in Italy according to PEFC Italy