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Criteria and Indicators for Individual and Group Certification of Sustainable Management of Polycyclic Plantations

PEFC
ITALIA
STANDARD

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

Summary

DEFINITIONS AND FRAMING

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.

SFM Criteria and Guidelines and their use for certification standard for the sustainable management of tree plantations

The common frame of reference for verifying the sustainability of sustainable forest management (but also of plantations, as indicated in the spirit of their implementation by the promoters) are the Pan-European Operational Guidelines adopted at the fifth preparatory meeting at expert level of the Lisbon Conference on the Protection of Forests in Europe, 27-29 April 1998 in Geneva, Switzerland.
The Pan-European Operational Guidelines form a common framework of recommendations that can be used on a voluntary basis and as a complement to national and/or regional instruments to further promote sustainable forest management on natural (forests) and artificial (plantations) forest areas in Europe.

Brief Description of the Pan-European Criteria and Guidelines
At the Second Ministerial Conference, held in Helsinki in 1993, the ministers responsible for the forestry sector in Europe signed the internationally accepted UNCED Forest Principles, taking the concept of sustainable forest management a step further by adopting, inter alia, Resolution H1 'General Guidelines for the Sustainable Management of European Forests' and Resolution H2 'General Guidelines for the Conservation of Biodiversity of European Forests'. These general guidelines represent the political commitment of the signatory countries of the Helsinki resolution and provide a general policy direction and a long-term goal to meet European demands for the multifunctionality of forests (i.e. their ability to provide various goods and services) and plantations, in a manner consistent with their sustainable management and the conservation and enhancement of their biodiversity.
A new, common definition of 'sustainable forest management' was formulated in Resolution H1:
"the proper management and use of forests and forest land in such a form and at such a rate as to maintain their biodiversity, productivity, regeneration capacity, vitality and potential to ensure, now and in the future, relevant ecological, economic and social functions at local, national and global levels and such that they do not lead to damage to other ecosystems".

Pan-European Criteria and Indicators were adopted for the implementation of the General Guidelines at the national level, developed by the Expert Group as part of the Follow-Up Process at the Helsinki Ministerial Conference in 1994. They are a policy tool for assessing and reporting progress towards sustainable forest management, as described in Resolution H1, in individual European countries and Europe as a whole.

The Pan-European Operational Guidelines were developed to further promote sustainable forest and plantation management in Europe by translating internationally agreed principles of forest planning and management practices. They represent a common framework of recommendations at the operational level that can be used on a voluntary basis. These guidelines are based directly on Resolutions H1 and H2 and follow the structure of the six Pan-European Criteria that have been identified as the core elements of sustainable forest management. For the sake of clarity, these guidelines have been divided into "Guidelines for Management Planning" and "Guidelines for Management Activities" and, within each Criterion, consider the basic ecological, economic and social requirements for sustainable forest and plantation management.

In the event that the tree plantation is associated with herbaceous crops managed with agronomic techniques, only products directly deriving from the presence of the trees are certifiable (e.g. veneer, poles, firewood, faggots, truffles, silkworms, etc.).
The management of associated herbaceous agricultural crops within the certified area is excluded from meeting the requirements of this standard.

The standard is composed of indicators related to planning and practice. The guideline consists of a number, statement of the guideline, measurement parameter and Criticality threshold. Where a guideline has not stated one or more measurement parameters and/or Criticality thresholds, compliance with the guideline remains a mandatory element.
The guidelines 1.pi.a, 2.pi.a, 2.pr.a, 4.pi.a, 6.pi.a cannot be applied at the level of individual plantations and must be considered at a larger scale (group certification), identifying appropriate buffer zones and uncultivated areas with a main environmental, ecological, cultural and social function. In order to improve the value of the ecosystem services produced by planting, the size and distribution of such buffer zones and uncultivated areas must be identified at the planting stage, based on social, environmental and ecological assessments, and reassessed during subsequent replanting stages.
Measures shall be implemented to address protection of the forest plantations from unauthorised activities such as illegal logging, illegal land use, illegally initiated fires, and other illegal activities. The use of fire shall be limited to regions where fire is an essential tool in tree plantations management for regeneration, wildfire protection and habitat management or a recognized practice of indigenous peoples. In these cases adequate management and control measures shall be taken.

Attachments
PEFC technical standard for the sustainable management of polycyclic plantations

CRITERION 1

MAINTENANCE OR APPROPRIATE ENHANCEMENT OF PLANTATION RESOURCES AND THEIR CONTRIBUTION TO THE GLOBAL CARBON CYCLE

Management planning			
n	Guideline	Measurement parameter	Criticality threshold
1.pi.a	Management planning must aim to maintain or improve plantation and related ecosystem services and maintain or improve the quality of the economic, ecological, cultural and social value of plantation resources, including soil and water. This must be achieved by making full use of related services, such as land use planning and conservation of the natural environment. Note: if this requirement cannot be applied at individual certification level, it must be taken into account at group certification level.	The owner/manager must: demonstrate that they take into account the requirements of EU, national and regional legislative and administrative provisions regarding sustainability, paying particular attention to the management of soil, water and the natural environment reports on subsidies/contributions requested from the public administration for planting/managing the plantation and set their own targets on the above-mentioned issues.	Recall of documents and/or records in the planning document (see section 3.2 of ITA 1000).
1.pi.b	The inventory and mapping of plantation resources must be defined and maintained in a manner appropriate to local and national conditions and in line with what is described in these guidelines.	The owner/manager must have an inventory and mapping of their tree plantings.	Presence of an up-to-date and complete inventory system with cadastral information and records.
1.pi.c	Management plans, or their equivalent, appropriate to the size and use of the area must be drawn up and periodically updated. They must be based on current legislation as well as on existing land use plans for the area	The owner/operator shall define, file, maintain, and update a document as provided for in paragraph 3.2 of ITA 1000 with reference also to GL a).	Presence, completeness and continuous updating of the planning document (see section 3.2 of ITA 1000).

	and appropriately include plantation resources.	Note: the inventory must be updated annually, recording any changes in cultivation.	
1.pi.d	Periodically, monitoring of the plantation's resources and an evaluation of their management must be carried out, the results of which must contribute (as a retroactive action) to the planning process.	The owner/manager must keep the following under control: - deadlines appropriate to the size of the company - indicators, and keep,-for planning purposes, records of the results of data processing from monitoring activities.	Presence of a register with notification of precise chronological information of all interventions carried out and their evaluation.
1.pi.e	The conversion of ecologically important non-forest ecosystems and forests by planting new plantations is not permitted unless justified circumstances. In any case, the change of use: must be in accordance with national and regional policy and legislation applicable at all levels for land use and forest management and must be the result of spatial planning, as defined by current regulations; must be established through a transparent decision-making process based on the active participation of the relevant stakeholders; must not have a negative impact on threatened or protected forests and non-forest ecosystems as well as culturally and socially significant areas, important habitats of threatened species or other protected areas; must not affect a minority portion (not greater than 5%) of forests and ecologically important non-forest ecosystem managed by an organisation; must not affect areas with significantly high carbon stocks;		

	must contribute to the long-term conservation, economic, and social benefits. Note: Reforestation and afforestation with plantation forests established in ecologically important non-forest ecosystems or forest areas after 31 December 2010 are not eligible for certification.		

Management practice			
n	Guideline	Measurement parameter	Criticality threshold
1.pr.a	Management practices must safeguard the quantity and quality of the plantation's resources in the medium to long term and its capacity to store and sequester carbon, balancing the rate of harvest and increment, using appropriate measures and techniques, and giving preference to techniques that minimise direct or indirect damage to the plantation's resources, eg soil and water. Note: if this requirement cannot be applied at the individual certification level, it must be taken into account at the group certification level.	The owner/manager must adopt cultivation techniques consistent with what is planned (see GL for planning for Criterion 1). Note: When distributing plant protection products, all possible precautions must be taken to reduce damage to the operator and the environment: comply with active ingredient dosages and water volume indications, carry out spraying in the absence of wind and during the coolest hours of the day, choose commercial products with the lowest toxicity considering their efficacy, carry out periodic maintenance work on equipment, use personal protective clothing.	Presence of a registration system for pesticide treatments.
1.pr.b	Appropriate management measures must be taken to ensure the provision of available resources increases, or to bring them to a level that is economically, ecologically and socially desirable.	The owner/manager, in order to maintain the increasing quality and economic level of the plantation, must adopt: adequate pruning, as indicated in the 'PEFC Technical Standards' documents processing of the soil in accordance with the 'PEFC Technical Standards' documents an intervention plan for poplar forest pest	Compliance with the pruning schemes set out in the PEFC Technical Standards documents and presence of relevant records. Presence of records of soil tillage (see Documents "PEFC Technical Standards" Section 1.1, Section 2.1, Section 4, Section 5, Section 6, Section 7.1. For poplar: Presence of an improvement plan for weed management,

		management according to the 'PEFC Technical Standards' documents.	containing proposals for the experimentation of suitable clones (see Documents "PEFC Technical Standards" Par. 2.1)
1.pr.c	Consideration should be given to converting abandoned farmland and unforested areas into forest, whenever this can increase their economic, ecological, social and/or cultural value. Note: An appropriate meaning for evidence could be a scientific evaluation by technical experts considering crop rotation periods that take into account whether the area has been a) restored; b) restored or processed: c) still degraded.	In the case of conversion of abandoned farmland and unwooded areas to plantations, the owner/manager must provide planning of the related activities and analysis of any economic, ecological, social and/or cultural impacts.	Presence of an Improvement Plan or Integrated Investment Plan with consideration of any economic, ecological, social and/or cultural impacts.
1.pr.d	Positive climate practices, such as maintaining or improving carbon absorption, reducing climate-altering gas emissions and efficient use of resources, should be implemented	Identification of climate-positive practices implemented by the organisation in its management operations, such as cultivation practices for increasing carbon uptake, reducing the emission of climate-altering gases, efficient use of resources, and evaluation of by-products resulting from management (such as bark and brushwood), where these are removed.	None

CRITERION 2

MAINTAINING THE HEALTH AND VITALITY OF TREE ECOSYSTEMS

Management planning			
n	Guideline	Measurement parameter	Criticality threshold
2.pi.a	Management planning must aim to maintain and increase the health and vitality of ecosystems and to restore degraded tree ecosystems wherever possible Note: if this requirement cannot be applied at the individual certification level, it must be taken into account at the group certification level.	Not applicable	Not applicable
2.pi.b	The health and vitality of plantations must be maintained and periodically monitored, especially in relation to biotic and abiotic factors that have the potential to damage the health and vitality of forest ecosystems, such as pests, diseases, overgrazing or harvest of timber, fire and damage caused by climatic factors, air pollutants and management operations.	The owner/manager must keep under control: damage from biotic and abiotic factors, and management activities, and at intervals commensurate with the size of the company; results from such control shall be recorded.	Presence of records of biotic (from animals and human activities related to management) and abiotic damage.
2.pi.c	Management plans or their equivalents must specify ways and means to minimise the risks of damage to ecosystems. Plantation management planning must make use of policy instruments designed to support these activities.	The owner/manager must: indicate in the document - referred to in paragraph. 3.2 of ITA 1000 - the management objectives, measures and actions to minimise damage with reference to what is also indicated by GL 2.pi.b), adopting a system suitable for planning consistent with the policy and the PEFC Technical Standards documents.	Presence of planning document (see par. 3.2 of ITA 1000). See "PEFC Technical Standards" Par. 1.1, Par. 2.1, Par.3.1,Ch. 4, Ch. 5, Ch. 6, Par. 7.1.

Management practice			
n	Guideline	Measurement parameter	Criticality threshold
2.pr.a	Management practices must make best use of natural structures and processes and take preventive biological measures, where and when economically feasible, to maintain and improve forest health and vitality. Adequate genetic diversity, both species and structural, must also be encouraged (and/or maintained) to improve the stability, viability and resilience of plantations against adverse environmental factors and to strengthen natural self-regulating mechanisms. Note: If this requirement cannot be applied at the individual certification level, it must be taken into account at the group certification level.	The owner/manager must: adopt integrated pest management techniques; PEFC Technical Standards documents contain mineral fertiliser inputs under favourable site conditions; PEFC Technical Standards documents limit the establishment of monoclonal plantations, PEFC Technical Standards documents.	Compliance with PEFC Technical Standards Documents for: choice of poplar in plantations: the adoption of certified clones with adoption criteria dictated by Table 1 appendix to the PEFC Technical Standard for Sustainable Poplar Plantation Management; limits to monoclonal planting: Chapters 2 and 3 of the document "PEFC Technical Standards for the sustainable management of poplar plantations"; for integrated pest management: Chapter 10 of the 'PEFC Technical Standards' documents; for fertilisers: Chapter 5 of the "PEFC Technical Standards" documents
2.pr.b	Appropriate management practices must be applied with species and provenances suited to the conditions or the use of cultivation, harvest and transport techniques that minimise damage to trees and/or soil. Spillage during management operations and indiscriminate accumulation of waste must be strictly avoided. Setting emergency procedures for the minimisation of risk of environmental	Compatible with the site characteristics, the owner/manager must: adopt cultivation measures and techniques (e.g. planting layout, pruning, soil tillage); use of vehicles for hauling and transport suited to the soil conditions	Availability of records see: Ch. 4, Ch. 6 and Ch. 7 of the "PEFC Technical Standards" document use of logging and transport vehicles suited to the soil conditions

	harm arising from the accidental spillage and the need of avoiding indiscriminate disposal of waste on forest land.	use biodegradable lubricants, avoid waste (scrap) of non-wood origin. If the harvest work is contracted out to third parties, the contract of tender or sale contract, the owner/manager must state the obligation to use biodegradable disposable oil, the use of means appropriate to the soil conditions and the prohibition of leaving non-wood waste.	presence of records on product characteristics no waste.
2.pr.c	The use of herbicides and pesticides must be minimised by considering appropriate silvicultural alternatives and other biological measures. In any case, those 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 banned by international agreements should be excluded. GMO trees shall not be used.	The owner/manager must: Indicate the active ingredients used, the date (period) and purpose of their use, the quantity used; "PEFC Technical Standards" documents; archive and store the purchase records of the commercial products used. If treatments are contracted out to subcontractors, the contract must contain the intervention indications provided in the planning and 'PEFC Technical Standards' Documents.	Chapters 8 and 10 of the 'PEFC Technical Standards' documents Presence of recordings
2.pr.d	If fertilisers are to be used, they must be applied in a controlled manner and with appropriate care for their environmental impact. Fertilizer use shall not be an alternative to appropriate soil nutrient management.	MEASUREMENT PARAMETER The owner/manager must: specify the fertilisers used, the date (period) and purpose of their use, the quantity used -	Ch. 5 of the "PEFC Technical Standards" documents; Presence of recordings.

		"PEFC Technical Standards" documents archive and retain purchase records of commercial products used. If fertilisation is contracted out to a third party, the contract must contain the intervention indications provided in the planning and 'PEFC Technical Standards' documents.	

CRITERION 3

MAINTENANCE AND DEVELOPMENT OF PRODUCTIVE FUNCTIONS IN TREE MANAGEMENT (WOOD AND NON-WOOD PRODUCTS)

Management planning			
n	Guideline	Measurement parameter	Criticality threshold
3.pi.a	Management planning shall aim to maintain the capacity of plantations to produce a range of wood and non-wood products and/or ecosystem services on a sustainable basis.	The owner/operator must identify in the planning stage the products that can be withdrawn;	Presence of planning document (see section 3.2 of ITA 1000).
3.pi.b	Management planning must achieve sound economic performance, taking into consideration the possibility of new markets and economic activities related to all goods and services that can be derived from plantations.	The owner/operator must identify potential outlet markets for the retractable products at the planning stage.	Presence of planning document (see section 3.2 of ITA 1000).
3.pi.c	Management plans or their equivalents must consider the different uses or functions of the area concerned. Management planning must make use of policy instruments developed to support the production of marketable and non-marketable goods and services.	The owner/manager must identify at the planning stage the potential sources - regional, national and EU - of subsidies for the activities and products that can be derived from the plantations.	Presence of planning document (see section 3.2 of ITA 1000).

Management practice			
n	Guideline	Measurement parameter	Criticality threshold
3.pr.a	The quality of management activities must be ensured in order to maintain and improve plantation resources and encourage diversified production of goods and services in the long term.	At the time of use, the owner/manager must identify the products obtained. In the case of a standing sale (most frequent type of sale) indicate only the quantities obtained without distinction in products.	Presence registration of wood and non-wood products obtained (type and quantity).
3.pr.b	Cultivation, regeneration, harvest and transport operations must be carried out on time and in such a way as not to reduce the productive capacity of the site, avoid damage to the residual stand, both in terms of trees and soil, using appropriate working systems and techniques.	The owner/operator shall adopt planting arrangements consistent with the PEFC Technical Standards Documents and Criterion 2 GL practice letter b).	See Criterion 2.pr.b GL practice letter b) + paragraph 4.3 of the "PEFC Technical Standards".
3.pr.c	Harvest levels of both wood and non-wood products shall not exceed the rate that can be sustained over the long term and the best possible use shall be made of harvested products, with due consideration for nutrient removal.	Not applicable	Not applicable
3.pr.d	Adequate infrastructure, such as roads, logging tracks or bridges, must be planned, implemented and maintained to ensure efficient distribution of goods and services while minimising negative impacts on the environment.	Not applicable	Not applicable

CRITERION 4

MAINTENANCE, CONSERVATION AND APPROPRIATE ENHANCEMENT OF BIOLOGICAL DIVERSITY IN TREE ECOSYSTEMS

Management planning			
n	Guideline	Measurement parameter	Criticality threshold
4.pi.a	Management planning must aim to conserve and enhance the biodiversity of the ecosystem, both in terms of species and at the genetic level, and where appropriate, also at the spatial level. Note: if this requirement cannot be applied at individual certification level, it must be taken into account at group certification level.	The owner/manager identifies suitable clones for planting conditions.	Presence of planning document (see section 3.2 of ITA 1000).
4.pi.b	Plantation management planning, field inventory and resource mapping must identify, protect or conserve ecologically important biotopes, taking into account the presence of any protected, rare, sensitive or representative ecosystems such as riparian areas and wetland biotopes, areas hosting endemic species and habitats of threatened species (as defined in recognised reference lists), as well as protected or endangered in situ genetic resources. Note This guideline must be taken into account with particular consideration during the planting phase of the poplar grove and, if necessary, by identifying appropriate buffer zones and uncultivated areas with a primary environmental, ecological, cultural and social function.	The owner/manager must supplement GL 1.pi.b with indications of protected areas bordering poplar groves and insisting in the municipalities in which they are located.	Presence, completeness and continuous updating of documentation and/or records.

Management practice			
n	Guideline	Measurement parameter	Criticality threshold
4.pr.a	Natural regeneration should be preferred, provided that conditions are suitable to ensure the quantity	Not applicable	Not applicable

	and quality of the resources and that the origin of the propagation material is qualitatively suitable for the site		
4.pr.b	Species of local origin and provenance that are well adapted to the conditions of the station shall be preferred. Only those introduced species, provenances and varieties whose impacts on the ecosystem, genetic integrity of native species and local provenances have been assessed and whose possible negative impacts can be avoided or minimised shall be used.Plantation forests, reforestation and other tree planting activities that contribute to the improvement and restoration of ecological connectivity shall be implemented.	The owner/manager should prefer species of local origin that are well adapted to the conditions of the site. The owner/manager must use poplar plants and clones that are suitable for the site conditions for all types of poplar plantations;	Use of species of local origin and provenance. Ch. 2 and Sec. 3.1 of "PEFC Technical Standards" documents GL 2.pr.a
4.pr.c	Management practices, when possible, shall promote structural diversification both vertically and horizontally, as in uneven-aged stands, and species mixing, as in mixed stands. When possible, these practices shall also aim to maintain or restore landscape diversity.	This guideline is fulfilled through the identification of appropriate buffer zones and uncultivated areas with main environmental, ecological, cultural and social functions.	Recall of documents and/or records in the planning document (see section 3.2 of ITA 1000).
4.pr.d	Traditional digestive systems that have resulted in the presence of appreciable ecosystems at suitable stations shall be supported when economically feasible.	This guideline is fulfilled through the identification of appropriate buffer zones and uncultivated areas with main environmental, ecological, cultural and social functions.	Recall of documents and/or records in the planning document (see section 3.2 of ITA 1000).
4.pr.e	Crop care and harvest operations must be conducted in such a way that they do not cause permanent damage to ecosystems. Wherever possible, practical measures must be taken to improve or maintain biological diversity.	Fertilisation, pruning, soil management, weed control and the use and choice of plant protection products. See also GL 2.pr.b, 2.pr.c, 2.pr.d	Chapters 5, 6, 7, 8, 9, 10 of "PEFC Technical Standards" Documents
4.pr.f	Infrastructures must be planned and constructed in such a way as to minimise damage to ecosystems, especially rare, sensitive,	Not applicable	Not applicable

	representative ecosystems and genetic reserves, so as to take into account threatened or other species of special importance (and in particular their migratory pathways)		
4.pr.g	With reference to the management objectives, measures must be taken to balance the pressure of animal populations and grazing on regeneration, growth and biodiversity.	Not applicable	Not applicable
4.pr.h	Standing dead and stunted trees, hollow trees, over 100-year-old trees and those of particularly rare species must be released and conserved in the quantity and distribution necessary to safeguard biological diversity, taking into consideration the potential effects on the health and stability of forests and surrounding ecosystems.	Not applicable	Not applicable
4.pr.i	Particularly significant biotopes such as water sources, wetlands, rocky outcrops and gorges in the forest must be protected or, where necessary, restored if damaged by management interventions.	See also GL 2.pr.b, 2.pr.c, 2.pr.d	See also GL 2.pr.b, 2.pr.c, 2.pr.d

CRITERION 5

MAINTENANCE AND APPROPRIATE IMPROVEMENT OF THE PROTECTIVE FUNCTIONS OF TREE MANAGEMENT (WITH SPECIFIC ATTENTION TO SOIL PROTECTION AND WATER REGULATION)

Management planning			
n	Guideline	Measurement parameter	Criticality threshold
5.pi.a	Management planning must aim to maintain and increase the protective functions of plantations vis-à-vis the community, such as infrastructure protection, protection against soil erosion and protection of water resources, and must safeguard against other adverse hydrogeological phenomena such as floods or avalanches.	With regard to areas historically affected by flooding with damage to persons and property, the owner/manager must identify measures and actions that allow plantation management to contain soil erosion phenomena and limit damage to other crops and infrastructure.	Presence of planning document (see section 3.2 of ITA 1000).
5.pi.b	Areas that fulfil specific and recognised protective functions for the community must be recorded and surveyed on maps, and management plans, or their equivalent, must take these sites into adequate consideration.	Presence of planning document (see section 3.2 of ITA 1000).	Presence, completeness and continuous updating of documentation and/or records.

Management practice			
n	Guideline	Measurement parameter	Criticality threshold
5.pr.a	Particular attention must be paid to operations on sensitive soils and erosion-prone areas as well as areas where operations could result in excessive soil erosion into watercourses. Inappropriate techniques such as deep soil working and the use of unsuitable machinery should be avoided in such areas. Special measures must also be taken to minimise the pressure of animal populations on forests.	The owner/manager must, in relation to the rotation cycle: define the frequency of cultivation operations related to soil tillage, and/or identify the characteristics of the machines used for cultivation operations Note: Tillage methods must be consistent with the PEFC Technical Standards Documents.	See Chapter 7 + presence, completeness and continuous updating of documentation and/or records of work performed.
5.pr.b	Particular attention must be paid to management activities on areas with a water protection function in order to avoid negative effects on water quality and quantity. The inappropriate use of chemicals and other harmful substances or incorrect silvicultural practices that could have a detrimental effect on water quality must also be avoided.	The owner/manager must, in relation to the rotation cycle, define the frequency of cultivation operations concerning soil tillage, and use of chemicals. Note: Par. 10.1 of the document "PEFC Technical Standards for the Sustainable Management of Poplar Groves" and Table 8 annexed thereto must be complied with.	See Chapter 7 + presence, completeness and continuous updating of documentation and/or records of work carried out and chemicals used; see also GL 2.pr.b, 2.pr.c, 2.pr.d
5.pr.c	The construction of roads, bridges and other infrastructures must be carried out in such a way as to minimise the exposure of bare soil to weathering, to avoid soil input into watercourses, and to preserve the natural level and function of watercourses and riverbeds. Roads must be provided with appropriate drainage systems, subject to adequate maintenance.	Not applicable	Not applicable

CRITERION 6

MAINTENANCE OF OTHER FUNCTIONS AND SOCIO-ECONOMIC CONDITIONS

Management planning			
n	Guideline	Measurement parameter	Criticality threshold
6.pi.a	Plantation management planning must aim to respect the socio-economic functions of plantations towards the community, considering the sector's role in rural development and the local economy, with particular reference to new training and employment opportunities related to socio-economic functions and the creation of sustainable supply chains. Note: If this requirement cannot be applied at the individual certification level, it must be taken into account at the group certification level.		
6.pi.b	Property rights and land tenure agreements must be clearly defined, documented and established for the relevant areas. Similarly, legal, customary and traditional rights must be clarified, recognised and respected.	The owner/manager has to prove the ownership/possession status of the plantation and any insistent constraints.	Presence, completeness and continuous updating of documentation and/or records.
6.pi.c	Adequate public access to forests for recreational purposes must be ensured, respecting property rights and those of others, the effects on resources and ecosystems and the compatibility with the other functions of the forest.	Not applicable	Not applicable
6.pi.d	Sites of recognised and special historical, cultural or spiritual significance must be protected and managed in a manner that takes due account of the importance of the site.	Not applicable	Not applicable
6.pi.e	Plantation managers, contractors, operators and owners must be sufficiently informed and encouraged to keep up-to-date through continuous training courses on sustainable plantation management issues.	The owner/manager and farm operators must demonstrate that they are informed and up-to-date on developments in Sustainable Plantation Management.	Presence, completeness and continuous updating of documentation and/or records.

Management practice

n	Guideline	Measurement parameter	Criticality threshold
6.pr.a	Plantation management practices must make the best use of local experience and knowledge in relation to the area, such as that of local communities, landowners, non-governmental organisations and locals.	The owner/manager must 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.	Presence of information sources and/or documentary references
6.pr.b	Working conditions must be safe and provision must be made for the provision of guides and appropriate training on the subject of safety at work.	Compatible with the size of the business, the owner/operator must demonstrate: the safety measures and actions taken with regard to management activities in the plantation; participation in safety courses for refresher purposes.	Presence of safety-compliant equipment, machinery, ancillary materials Presence of sources of information and/or documentary references.
6.pr.c	Management operations must take into account all socio-economic functions, and especially the recreational function and aesthetic values of forests, e.g. maintaining diversified structures, favouring the most attractive trees, collectives and other characteristic aspects such as colours, flowers and fruits. This must, however, be pursued in a manner and to an extent that does not lead to negative effects on forest resources and land.	Not applicable	Not applicable
6.pr.d	Local experience and knowledge shall be assessed, as well as innovations and good practices promoted by owners and managers, civil society organisations and local communities. The benefits of applying this knowledge shall be fairly distributed.		

Annex 1 PEFC Technical Standards for the Sustainable Management of Polycyclic Plantations

The technical standards of Sustainable Management of Polycyclic Plantations are aimed both at obtaining wood products for the wood, veneer, or other wood product industries (e.g. wood for packaging, shredding wood, biomass), and at the production of other goods and services (e.g. honey, truffles, carbon credits).

A distinctive feature of this type of wood plantation is that it adopts design and management strategies

suitable for activating natural dynamics useful for containing, to varying degrees:
the development of weeds;
plant adversities, particularly of the main plants;
the evaporation of water;
the need for nitrogen fertilisation during the production cycle.
From this characteristic derives the adjective "naturalistic" or "nature-type" referring to this type of Arboricultural Plantations. In the following, even if not systematically specified, reference is made in this document only to Naturalistic Type Plantations.
A distinction is made between Naturalistic Polycyclic Plantations (PT Plantations), where, with the use of the main plants, the entire plantation is cut down to start from scratch, and Naturalistic Polycyclic Potentially Permanent Plantations (3P Plantations), where the plantation is never used 100%.
The indications given are compatible with current legislation and are aimed at identifying indicators for the sustainable management of polycyclic plantations.

Suitability

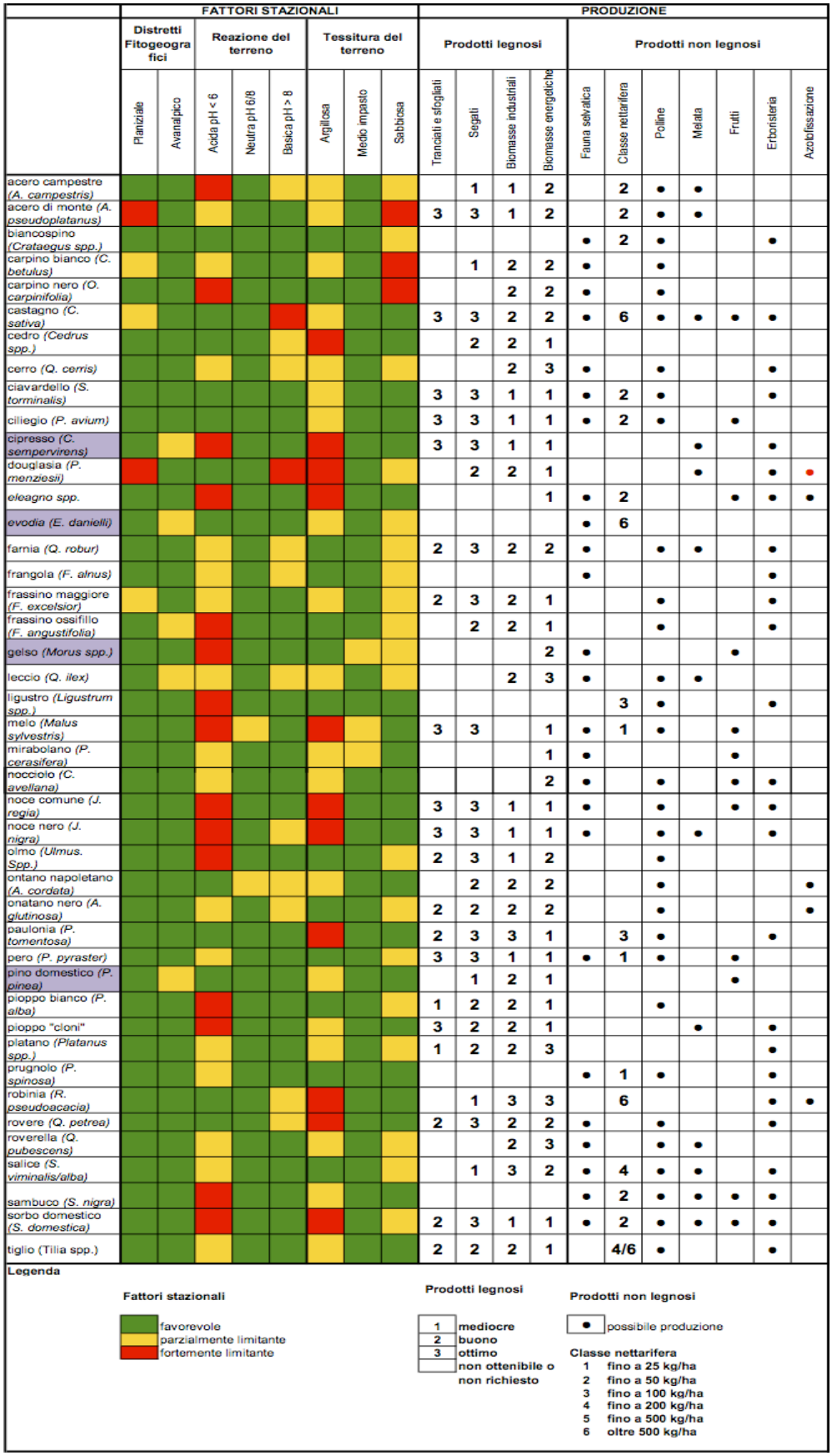
The land

Polycyclic Plantations must be established on soils suitable to the needs of the species used for planting. Where present, reference must be made to Suitability Maps drawn up by Authorities and territorial subjects for the suitability of species for Polycyclic Plantations in order to guarantee high productivity for the plantations. Areas with known and/or ascertained limitations in the planning stage must therefore be excluded. In the absence of specific suitability maps, for Italy, reference will be made to Table 1.

Species-environment relationship

Compatibility of plantations with the environment
The species used must be suitable for the characteristics of the site chosen for cultivation). Table 1 below gives an indication of the site characteristics and production factors for the most frequently used species in Italy.
When planting and managing plantations with robinia and other potentially invasive species, all precautions must be taken to prevent these species from spreading to the land surrounding the plantation.

Table 1 - Design of wood plantations examples (Source: Arboriculture for wood: Model for the design and management of plantations - Friuli Venezia Giulia Region - 2012)


FATTORI STAZIONALI
PRODUZIONE
Distretti Fitogeografici
Reazione del terreno
Tessitura del terreno
Prodotti legnosi
Prodotti non legnosi
Planiziale
Avanalpico
Acida pH < 6
Neutra pH 6/8
Basica pH > 8
Argillosa
Medio impasto
Sabbiosa
Tranciati e sfogliati
Segati
Biomasse industriali
Biomasse energetiche
Fauna selvatica
Classe nettarifera
Polline
Melata
Frutti
Erbo-risteria
Azotofissazione
acero campestre (A. campestris)
acero di monte (A. pseudoplatanus)
biancospino (Crataegus spp.)
carpino bianco (C. betulus)
carpino nero (O. carpinifolia)
castagno (C. sativa)
cedro (Cedrus spp.)
cerro (Q. cerris)
ciavardello (S. torminalis)
ciliegio (P. avium)
cipresso (C. sempervirens)
douglasia (P. menziesii)
eleagno spp.
evodia (E. daniellii)
farnia (Q. robur)
frangola (F. alnus)
frassino maggiore (F. excelsior)
frassino ossifillo (F. angustifolia)
gelso (Morus spp.)
leccio (Q. ilex)
ligustro (Ligustrum spp.)
melo (Malus sylvestris)
mirabolano (P. cerasifera)
nocciolo (C. avellana)
noce comune (J. regia)
noce nero (J. nigra)
olmo (Ulmus. Spp.)
ontano napoletano (A. cordata)
onatano nero (A. glutinosa)
paulonia (P. tomentosa)
pero (P. pyraster)
pino domestico (P. pinea)
pioppo bianco (P. alba)
pioppo "cloni"
platano (Platanus spp.)
prugnolo (P. spinosa)
robinia (R. pseudoacacia)
rovere (Q. petrea)
roverella (Q. pubescens)
salice (S. viminalis/alba)
sambuco (S. nigra)
sorbo domestico (S. domestica)
tiglio (Tilia spp.)
Legenda
Fattori stazionali
favorevole
parzialmente limitante
fortemente limitante
Prodotti legnosi
1 mediocre
2 buono
3 ottimo
non ottenibile o non richiesto
Prodotti non legnosi
possibile produzione
Classe nettarifera
1 fino a 25 kg/ha
2 fino a 50 kg/ha
3 fino a 100 kg/ha
4 fino a 200 kg/ha
5 fino a 500 kg/ha
6 oltre 500 kg/ha

Nursery materials

Quality requirements for nursery material

Nursery material must be produced and marketed in compliance with national and, where applicable, regional regulations.

For the creation of Naturalistic Polycyclic Plantations it is necessary that nitrogen-fixing plants represent at least 10% of the subjects, whether trees or shrubs. Exceptions to this rule are plantations established in areas subject to the Nitrate Directive, where the presence of nitrogen is considered excessive, and those near permanent watercourses.

Planting methods and density

Both full-field and linear polycyclic plantations are permitted.

Spacing and sixths

Linear plantations

They may consist of 1 to 3 rows of trees, or trees and shrubs, and to be considered linear they must be 10% or less in width. The width, in young plants, is to be considered by conventionally assigning the projection of the crown to the ground of the adult plant 6 m in diameter. This implies that 1667 linear m of a single-row plant corresponds to the area of incidence that would occur in 1 ha in open field. This value drops to 833 m and 556 m in double-row or triple-row systems, respectively.

The choice of spacing must be made taking into consideration:
the surface area that will be required for the canopy of the longer-cycle main plants to reach the target with strong and constant growth throughout the production cycle;
the different speed with which the foliage of the species used will occupy the productive surface;
the natural dynamics favourable to the intended production.

At planting in Linear PT Plantations there must be at least 400 plants/stumps per hectare, either trees or shrubs. In Linear PT Plantations there may be a gradual decrease until there are at least 100 plants/stumps per hectare (maximum distance of 16 m between plants). In linear 3P plantations there must remain at least 200 plants/stumps per hectare.

Open field planting

At planting, a minimum number of 500 plants, either trees or shrubs, per hectare, is required in all full-field polycyclic plantations.

In the case of open-field PT plantations with successive harvest or thinnings, this can be progressively reduced to 70 main plants per hectare.

In the case of open-field 3P plantations, at least 20 per cent of the blocks (see Figure 1 and paragraph 4.1.3.1) must remain with main plants and, in total, at least 70 plants/shrubs per hectare, and within 1 or 2 years the minimum number must again be at least 500 plants/shrubs per hectare.

Even in open field plantations, the choice of spacing must be made with consideration:
the surface area that will be required for the canopy of the longer-cycle main plants to reach the target with strong and constant growth throughout the production cycle;
the different speed with which the foliage of the species used will occupy the productive surface;
the natural dynamics favourable to the intended production.

Attribution of hierarchy to plants
A hierarchy is established in the following order in Polycyclic Plantations:
Main Plant.
Plant with Double Role.
Accessory Plant.

The way in which plants are assigned their role and the productive area to be made available to them in order to achieve the expected results is described in the following 3 paragraphs.

Main floor plan (Figure 1)
A plant is attributed the role of main when at least one of the products for which the plantation was designed can be obtained from it.
In the case of the production of high-value products (e.g. logs for veneers, produced by slicing or peeling, or for first-grade sawn timber), in order for the plants of a given species to be considered main, it is necessary that there is enough production area available that they should never be felled before reaching the expected commercial diameter;
they are given, within the unit of area assigned to one or more Main Plants, called "Block", the highest level of hierarchy with respect to any other tree or shrub present;
are subjected to individual cultivation treatments aimed at obtaining, in the shortest time permitted by the species and the environment in which it is inserted, a commercial log with the expected characteristics.

Plant with Dual Role
Plants that not only influence the architectural structure of the Main Plants and provide the typical services of the Accessory Plants, but are also able to produce valuable products and/or woody biomass required by the market, are defined as 'dual role' plants.
In order for plants of a given species to be considered Dual Role Plants, it is necessary that:
they have a production cycle significantly shorter than that of the Main Plants in the Block in which they are inserted (valuable) or are able to withstand shading (biomass).
There is an adequate production area available to achieve the target for a sufficient time so that they never have to be felled before they have reached the expected commercial diameter at least once (in the case of biomass);
they are assigned, within the surface unit assigned to one or more Main Plants, the second level of hierarchy, subordinate only to the Main Plant(s) present in the Block;
they are subjected to individual cultivation treatments aimed at obtaining, in the shortest time permitted by the species and the environment in which it is inserted, a commercial log with the expected

characteristics.
For example, main poplar trees, placed at a suitable distance, can simultaneously produce leafy trunks and, like the accessory plants, induce a slender structure in the walnut tree, facilitating pruning and shading the ground by reducing the need for tilling.

Accessory Plant (Figure 1)
A plant is given the role of an accessory when it is included in a plantation to facilitate the arboriculturist's management of the plantation and/or to positively influence the development of the main plants.
Accessory plants are so called because their presence is not indispensable for obtaining the desired production from the main plants. Accessory plants can be included to obtain 'services', single or combined, such as:
reduce tillage;
give a suitable shape to the main plants, facilitating pruning;
improve soil fertility;
determine micro-environmental conditions favourable to the development of Main Plants and, if present, Dual Role Plants.

Accessory Plants offer an advantage to the arboriculturist, but they are also a cost that affects the financial budget of the plantation. This is why it is important when deciding to include them:
choose species suitable for obtaining at least one of the 'services' expected from plants with an accessory role;
assign them the last level in the hierarchy with respect to Main Plants and Dual Role Plants;
place them at appropriate distances to achieve the desired effect and for a sufficient time, before their presence can possibly turn into negative competition with the Main Plants or Dual Role Plants.

Accessory Plants must NOT be pruned, both because this represents a cultivation operation (and therefore a cost) that is useless for the expected production, and because pruning could reduce or nullify the benefits for which the Accessory Plant has been included.
If competition for light between Accessory Plants and Main Plants or Dual Role Plants is too strong, the former, being at the bottom of the hierarchy, must be thinned out or eliminated altogether.

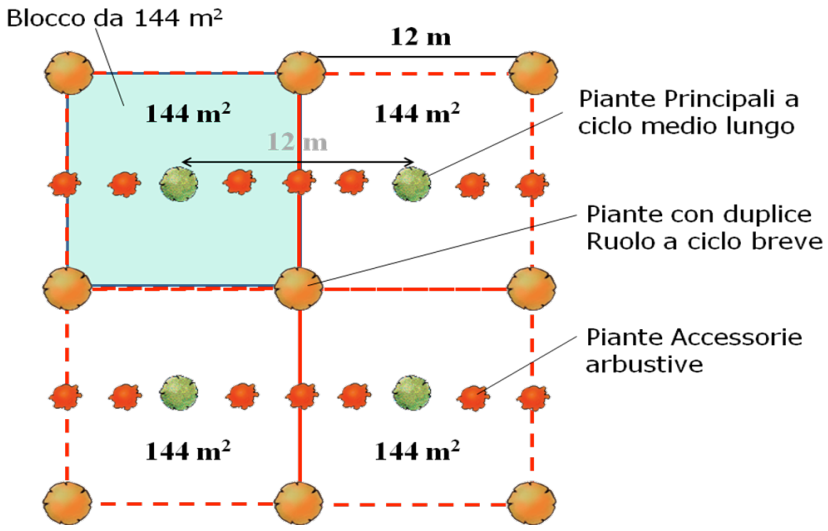


Figure 1 - Example of a Polycyclic Term Plantation (PT Plantation) with Medium-Long-Cycle Main Plants, Short-Cycle Dual Role Plants and Shrub Accessory Plants.

Planting periods in relation to nursery material characteristics

New plantings should be established with planting stock in a dormant condition (November-March), avoiding the most intense frost periods that may hinder the opening and proper closing of the holes. The age of the planting stock should be between 1 and 3 years at the most.

Modes of planting in relation to site characteristics

For planting, careful preparation of the soil is indispensable; ploughing up to 30-50 cm is permissible, combined, in loamy-clayey soils or soils with poor drainage, with subsoiling up to 70-120 cm aimed at breaking up the tillage slab. Subsoiling is also desirable in deep soils and in situations where the transport of soil layers with unfavourable chemical or physical characteristics to the surface must be avoided.
For loamy-clayey soils, it is mandatory that the soil be prepared in a temperate state preferably by the end of October prior to planting.
Planting will be carried out using techniques suited to the characteristics of the planting material. If there is a risk of damage caused by wildlife, suitable protection must be employed.

Fertilisation

In areas with good water availability, characterised by loose, deep, cool soils, good wood production can be achieved by limiting the input of mineral fertilisers.
Background fertilisation, where envisaged, should not include nitrogen, except for organic fertilisers (manure, compost or green manure of leguminous plants is recommended). Only the administration of phosphorous (P O_{25}) and potassium (K_2 O) is allowed, which may not exceed 125 and 175 kg/ha respectively (higher doses are allowed in the case of special requirements supported by chemical analyses issued by accredited laboratories). Nitrogen fertilisation is not permitted during the production cycle, with the exception of the first year (when the nitrogen-fixing plants are busy overcoming transplant stress). In the years following the first year, nitrogen fertilisation will be supplemented naturally by plants of nitrogen-fixing species, which must be present in a minimum number of 10% of plants per hectare.

Pruning

Pruning must be adapted to the vigour and species of each individual plant, both in technique and intensity, and must be carried out at appropriate times of the year.

The qualification phase, which is characteristic of premium productions, is completed when a stem without branches (called 'real stem') of sufficient length is obtained from each main plant.

Cutting mode When removing an entire branch, the cut must be made close to the stem, but respecting the branch's collar

No branch stumps should be left behind because these will turn into passing (or dead) knots that will greatly depreciate the timber of future semi-finished products.

Size of branches to be pruned

Pruning must be carried out before the unwanted branches exceed a diameter of 3-4 cm at the point of insertion into the stem.

In certain cases, especially in very fertile soils and in optimal stationary conditions for medium (e.g. walnut or cherry) or fast (e.g. poplar) growing species, in order to limit the diameter of the branches at the point of insertion into the stem, it may be necessary to carry out 'control pruning' on the most vigorous branches.

Production pruning (or limbing)

The purpose of limbing (or production pruning) is to contain the knots and resulting scars, resulting from the removal of branches, in as small a central cylinder as possible.

After each pruning, the foliage should be 2/3 to 1/2 of the total plant height.

At the end of the pruning period, limbing should not push the length of the actual stem (i.e. the one without branches) beyond 25-33% of the tree's final height.

Soil management

Intervention plans for working the soil

During the first 4-5 growing seasons, in order to improve the structure and permeability of the active layer of soil and to control weeds, working the soil with disc harrows is of fundamental importance. Ploughing is only permitted during the soil preparation phase.

After the first 2-3 growing seasons, the number of annual tillage operations must gradually decrease until they are completely eliminated by the 5th[a] growing season. If some tillage is still necessary, this must be adequately justified in the tillage logbook.

Pest control

Containment of spontaneous vegetation must be carried out mechanically (by mowing, disc harrowing or chopping within the first five years) or by using mulching materials.

The use of chemical herbicides is not permitted, except for derogations authorised by the regional phytosanitary services.

Irrigation

Emergency irrigation may be carried out in the first two years of planting to overcome transplant stress in the event of particularly adverse seasons. All irrigation activities must be recorded in a special register.

Use and choice of plant protection products

For polycyclic plantations no phytosanitary calendar treatments are carried out. In the case of the emergence of adversities, only the targeted use of the active ingredients indicated for diseases, defoliators and woodworms is allowed on the affected plants, using the products allowed by Italian legislation only on specific derogations issued by the Regional Phytosanitary Service.
All regulations and possible limitations of use must be observed.
When distributing phytosanitary products, it is necessary to take all possible precautions to reduce damage to the operator and to the environment: respect the dosages of the active ingredients and the indications regarding the volumes of water, carry out spraying in the absence of wind and during the coolest hours of the day, choose the commercial products with the lowest toxicity, taking into account their effectiveness, carry out periodic maintenance work on equipment, and use personal protective clothing. For any treatments aimed at poplar plants, refer to the active ingredients indicated in the PEFC technical standards for sustainable management of poplar groves (Par. 10.1).

Harvesting

The harvest of the material is to be carried out by felling by specialised harvesting companies that are obliged to operate in accordance with the legal regulations in force.
Different post-harvest management procedures must be followed depending on the type of polycyclic plantation.

In the case of PT Plantations:
after the use of dual-purpose plants, the soil shall be cleared of brushwood and shall be levelled out again in those places where the surface has been greatly altered by the activities of the machinery used for the use. In the presence of dual-purpose plants intended to produce woody biomass, the stumps must not be damaged. In the presence of plants with a dual role NOT intended to produce woody biomass the stumps must also be treated by chopping or removing the root system;
after the final use of Main Plants, with medium-long or short cycle, intended for the production of valuable timber, the soil must be restored for agricultural use also by shredding or removal of the root system.

In the case of 3P Plantations:
after the use of plants with a dual role see the case of PT Plantations;
after the final use of Main Plants, with a medium-long or short cycle, intended to produce valuable timber, the soil must be restored, also by chopping or removing the root system of the plants used, so that it is possible to proceed with the planting of Main Plants for a new production cycle.
After the use of very short-cycle Main Plants intended for woody biomass production that can be raised for further production cycles, there is no obligation to restore the soil. When the viability of the stumps is exhausted, the root systems must be removed and the soil must be restored for planting trees and shrubs for a new production cycle or for agricultural use.

Cuts for the use of plants with a double role in PT Plantations and any cuts in 3P Plantations must be carried out with traditional mechanised yards (low use of mechanisation, e.g. chainsaws and traditional, non-specialised agricultural tractors) so as not to damage the plants that must remain in the Polycyclic Plantation or the soil, which must not be compacted since in the case of 3P Plantations it must accommodate the root systems of the plants of the production cycles that will follow one another in the same plot of land.
The end-use cutting of the main plants in PT Plantations can also be carried out with advanced mechanisation (with high mechanisation, with equipment suitable for complex operations, e.g. with special felling heads) and/or pushing (with the use of combined machines, e.g. harvesters).

The use of biodegradable oil is required for the lubrication of the cutting parts of chainsaws to be used in the harvest of Polycyclic Plantations. The purchase of this product must be recorded in a special register. In the event that felling and/or setting up is outsourced to third parties, the use of biodegradable oil for lubricating the cutting parts must be formally requested.