



**CLIMATE CHANGE MITIGATION THROUGH A SUSTAINABLE SUPPLY CHAIN
FOR THE OLIVE OIL SECTOR**



**STANDARD FOR *SUSTAINABILITY CREDITS* FROM SUSTAINABLE OLIVE
GROVE MANAGEMENT**

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Assumption

The LIFE OLIVE4CLIMATE (Climate change mitigation through a sustainable supply chain for the olive oil sector) project proposes the olive-oil production chain as an effective tool for mitigation/adaptation to climate change, through voluntary action implemented by the olive growers. The project's activities have developed the following standard for the quantification and certification of sustainability credits obtained through the implementation of a series of best practices. The proposed best practices will reduce climate-altering emissions or increase carbon storage. Then, produced credits will be traded in a Voluntary Sustainability Credits market where the sellers will be the olive growers and the buyers, those one who want to reduce their CO₂ footprint.

This standard was developed taking into account similar and broader experiences existing on the Italian territory, first of all the “Codice Forestale del Carbonio” in English “Carbon Forest Code”, created to “stimulate a low carbon economy”, as required by the EU 2020 Strategy. Carbon Forest Code proposes to forest owners and / or forest managers a scheme of good practices for the realization of projects useful for the generation of carbon credits in compliance with the international standards also recognized by the Italian state.

From this perspective, unlike in the Carbon Forest Code, this Standard for quantification and certification of sustainability credits deriving from the Sustainable Management of the Olive Groves also aims to stimulate voluntary activities to achieve the commitments entered into by our Country under the Kyoto Protocol and the future LULUCF national plans.

Unlike in the Carbon Forest Code, this standard foresees the *sustainability credits* generation instead of carbon credits, through the application of olive grove good practices, as well as the ability to contribute to climate change mitigation. The best practices proposed in the standard occur to the reduction of climate-altering emissions or to the increase in carbon sinks generating a series of ecosystem services also carried out in the fields of social and landscape welfare. Therefore, sustainability credits include larger quantified benefits through the unit of measurement of the tonnes of CO₂ equivalent. This also allows maximum transparency to prevent double counting of credits, ie their simultaneous use on the institutional and voluntary markets.

This standard for sustainability credits from olive grove management is therefore a document that aims to stimulate the main subjects involved in the olive oil sector to take part in a voluntary market considering the carbon sequestration carried out by projects developed at the level of olive groves and emission reductions achieved through good practices applied in them.

This standard was developed in an open, transparent, consultative and consensus-based process involving a broad representation of stakeholders

1 SCOPE

The standard aims are the quantification of sustainability credits, the identification of actions generating credits, the rules and controls necessary to make credible and transparent the credits calculation. The term “shall” is used to indicate the mandatory provisions. The term “should” is used to indicate not mandatory provisions which are expected to be adopted and implemented. The term “may” indicates permission expressed by this standard, and “can” refers to the ability of a user or to a possibility open to the user.

1.1 TERMS:

BAU	<i>business as usual</i>
CB	Certification body
CH ₄	methane
CO ₂	carbon dioxide
GHG	<i>Green house emission</i>
IPCC	<i>Intergovernmental Panel on Climate Change</i>
N ₂ O	nitrous oxide
NMC	Nucleo Monitoraggio Carbonio
O4C	Olive for Climate
PD	Project document
SOC	organic carbon in soils
tCO _{2eq}	tonne of equivalent carbon dioxide
tCO _{2eq}	tonne of equivalent carbon dioxide
UNFCCC	<i>United Nations Framework Convention on Climate Change</i>

1.2 DEFINITION

1.2.1 Additionality

The proposed actions foreseen additional measures at the management level of the olive grove compared to the "business as usual" scenario (BAU). Olive groves owners who implement the proposed reduction actions will create a number of additional sustainability credits, respect to the reference scenario or baseline, which can be verified and then sold.

1.2.2 Equivalent Carbon Dioxide (CO₂eq)

Unit of measurement used to compare greenhouse gases emission on the basis of their global warming potential (GWP). Carbon dioxide equivalents are commonly expressed in "millions of metric tons of carbon dioxide (MMTCDE)". The carbon dioxide equivalent of a given gas is derived by multiplying the tons of gas emitted by the corresponding GWP. (Source: EEA, source: IPCC Third estimate report, 2001).

1.2.3 Eligible activities

Additional activities respect to regular practices (BAU) or reference scenario able to increase carbon reserves or reduce emissions.

1.2.4 Sustainability credit

The sustainability credit is a removal recognition (reduction) of emissions into the atmosphere due to the implementation of CO₂ compensation / absorption actions by the olive growers. The ton of non-emitted or absorbed CO₂eq into the atmosphere is the numerical indicator of the project environmental benefit. It has been developed for the first time in 2015 by PEFC Italy and CMCC (Euro Mediterranean Center for Climate Change) for the project "Patto per il clima" created for Raiano (Aq) municipality in Italy.

1.2.5 Carbon sink

"Any process, activity or mechanism removing greenhouse gases, aerosols or a precursor of greenhouse gases from the atmosphere. Carbon sinks (carbon sinks) are therefore activities, processes, or mechanisms of removal (and sequestration) of carbon dioxide (CO₂) from the atmosphere " (by UNFCCC (United Nation Framework Convention on Climate Change)).

1.2.6 Carbon stock

Total amount of carbon contained in a pool at a specific time. The units of measurement are mass. Carbon can be stored / sequestered in natural ecosystems as plant biomass (above ground or underground) or carbon into the soil as a result of decomposition.

1.2.7 Carbon Forest Code

Scheme of best practices for owners and / or managers of forest resources, created by INEA in 2016 (now CREA). Carbon credits generated by the practices application are in compliance with the international standards also recognized by the Italian State.

1.2.8 Scientific Committee

The Committee consists of experts identified among the following figures:

- a) expert in system and / or product certifications;
- b) expert in accounting for sustainability credits;
- c) stakeholder representative with skills related to the project

The Committee's tasks are to:

- a) Evaluate the effective need to reconcile the used buffer value, taking into account the risk assessment of individual projects, in order to verify the effective validity of the selected percentage. The buffer recalibration will consider the amount of credits lost by disturbances due to natural or anthropic events during the project period.
- b) Update the calculation protocols, taking into account the new research updates;
- c) Evaluate the inclusion of new project activities to generate sustainability credits, if required;
- d) Verification and validation of the random checks method based on the results produced;
- e) Establish a "Monitoring Plan" for the sale of ex-ante credits;
- f) Meet annually in order to carry out the standard procedures provided in this manual; meet in extraordinary cases in case of urgent need for standard revision due to new production and trade rules of sustainability credits.

1.2.9 Project Document

The project document (PD) defines the general vision, objectives, scope, organization and execution plan. This standard is in line with the provisions of the Carbon Forest Code, requiring the provision of a Project Document containing the following minimum information for each activity put into practice to produce credits exchanged in the voluntary market:

- eligibility (dates, legal aspects, additionality);
- project area boundaries georeferencing;
- project governance and management (registration, management plan and monitoring);
- carbon sequestration (including permanence risks assessment);

The PD must include all information useful for identifying the area, the way in which the project is managed and the environmental and social characteristics. The PD and the related annexes must to be easily accessible and public will be made available on the network by the market manager. UNIPG the project lead partner will be the market manager until the end of the OLIVE4CLIMATE life project.

1.2.10 *Leakage: environmental Impact*

Credits can be lost as a result of indirect or direct carbon emissions occurred outside the project boundaries.

1.2.11 Permanence

Credits certification requires the permanency of carbon sequestration activity over the time. The applied protection is based on the principle of a "buffer". Buffer provides for the non-marketable provision of a portion of credits produced, in order to cover unexpected losses of carbon due to extraordinary events.

1.2.12 Sustainability credits quantification

Credit calculation methodologies refer to emission or absorption factors derived in the most conservative way possible from the scientific literature. Factors applied to the reference surface of the activities carried out will provided conservative mitigation potential of each identified action. That are conservative estimation producing a lower evaluation than the real potential for carbon emissions reduction or absorption.

1.2.13 Reference scenario

This standard offers the possibility to choose the starting level from which to calculate the reduction obtained applying good practices. That can be chosen by farmer entering in the "Olive4Climate Credit Market", filling the documentation at the bottom of this document. the reference scenario is set for the O4C standard as the most recent National Integrated Production manual available.

2 Minimum Requirements

Who intends to verify and receive a certification through this standard must put into practice all the actions necessary to satisfy the following requests and demonstrate their application by the documentation called Document of Project (DDP).

2.1 Additionality evidence:

Additionality can be demonstrated with the Legal test and one of the 3 of the following tests:

- I. Common Practical Tests (optional): the project does not represent an ordinary, widespread and widely practiced activity. It is necessary to demonstrate (through the campaign booklet or through the purchase invoices or equivalent documentation) the practice has not been implemented in the terms and quantities set out in this document in previous 5 years.
- II. Investment Test (optional): the project would not have been developed without the financial contribution of credits, with the exception of areas affected by natural disasters (eg floods or earthquakes). In cases where there are barriers hindering the project activities implementation, the Investment Test can be replaced by the Test Barriers.
- III. Test barriers (optional): To demonstrate how without the realization of the project activities it is not possible to overcome the barriers that hinder its realization (for example technical barriers).

Legal Test: project is not compulsory to current legislation or project must make reductions in emissions or increase in absorptions higher than those required by current legislation.

2.2 Buffer

The amount of saved credits total (see paragraph 1.2.11) is a pre-established credit percentage equal to 10% for the activities 2 and 3 and equal to 25% for the activities 4,5 and 6. These values take into account the incidence of risk related to what has occurred at national level in the olive groves in the last 5 years, a returning time corresponding to the duration of the stay of the credit.

2.3 Unfounded *leakage* risk

Must be demonstrated that the application of the activities proposed by this standard have no negative impact outside the project area (*leakage*)

2.4 Document and Inspection

The olive grove manager is obliged to send / prepare the necessary documentation (PD Project Document) to verify the credit generation. Full cooperation will be offered in case of an inspection visit by the Monitoring Body. The PD must report the following information:

- a)** the starting date, the credit period and the project duration (credit period for the activities 1 and 2 of the list of eligible activities is 9 years while the activities 3, 4 and 5 of 20 years)
- b)** the project activity (must be part of the eligible activities defined by the standard for certification of sustainability credits O4C)
- c)** If the manager is also the owner of the area
- d)** Geographical coordinates of the project area boundaries
- e)** Demonstrate the additionality of the project activities compared to the business as usual (BAU) or reference scenario, according to one of the three optional analysis (Common, Investment, Barriers)¹
- f)** Respect the permanence of credits using the sales buffer
- g)** Document immediately the occurrence of events that compromise or limit the permanence of the carbon stock, by means of the format communication attached to the Manual
- h)** Demonstrate the absence of the risk that some of the activities foreseen by the project could determine indirect or direct losses (leakage) of carbon, in terms of CO₂ emissions, also outside the area strictly affected by the project
- i)** Provide periodically evidence demonstrating the real and correct realization of the activity (Field Manual)
- j)** Transfer the obligations related to this contract to the new owner / manager, in the case of transfer of all or part of the property or management.

¹ The operations legality is verified through the Legal Test directly by the market manager during the documentation verification

3 How to estimate sustainability credits

The unit of measurement used is the tonne of equivalent carbon dioxide (tCO_{2eq}).

This manual for quantification and certification of sustainability credits (product) uses a methodological approach following the Intergovernmental Panel on Climate Change guidelines (IPCC 2006). IPCC is the reference body for the UN Climate Change Convention scientific climate change and methodological guide for the measurement, estimation and calculation of greenhouse gases for national inventories. As far as possible, the emission factors applied by Italy in its National Greenhouse Gas Inventory has been used.

If none of the approved methodologies can be applied, the participants will be able to propose a new method for approval and only once the methodologies have been approved, it will be possible to proceed with the following phases.

4 Proposed activities

- 1) Making new olive orchard
- 2) Reduction of chemical fertilizer
- 3) Pruning used as energy production;
- 4) Pruning used as soil improver;
- 5) Green Cover;
- 6) Minimum tillage.

4.1 Making a new olive orchard

The activity consists in the construction of a new olive grove on abandoned land, not used or previously used as arable land or pasture. This would allow an increase in carbon pools, with a consequent increasing in CO₂ absorption from the atmosphere, compared to the Business as Usual (BAU)

This transaction generates an increase in the absorption of CO₂ around 3.69 tons of CO₂ / ha / year if both above ground biomass and soil pools are considered. However, only an half of the credits generated annually can be used for the purpose of a conservative approach (last column table).

	Produced credits in 20 years (t CO ₂ /ha/anno)			Usable credits in 20 years (t CO ₂ /ha/anno)		
	Above ground biomass	Soil	Total	Above ground biomass	Soil	Total
Olive	2.59	1.1	3.69	1.29	0.57	1.84

Conditions of applicability. To access to this activity, in order to comply with the principle of additionality with respect to Business as Usual (BAU), it is necessary to demonstrate through orthophotos (or photos) or equivalent documentation that the new plant is built on abandoned, unused or previously used as arable land or pasture, for a period of at least 5 years. Sustainability credits deriving can be sold annually, starting from the end of the first year of activity after being actually generated. In order to verify the effective reduction, it is necessary to prepare a monitoring plan that provides annually for the collection of the documents, such as orthophotos (or photos) or equivalent documentation.

Minimum duration. The project duration for this activity corresponds to a minimum time of 20 years, when the maintenance of the plant must be guaranteed.

Applied methodology. IPCC, 2006 - Vol. 4 chapter 2 - Eq. 2.10 for biomass and 2.25 for soils

Data Sources Carbon data in soil from literature (CARBIUS Project Report, 2005; Facini et al., 2007, Sofo et al., 2005, Freibauer et al., 2004).

4.2 Chemical fertilizer reduction

According to the Italian Integrated Production Guidelines 2019, to containing water pollution due to the excess of fertilising elements, the maximum quantities of nitrogenous fertilizers that can be used for the olive cultivation are defined. In order to increase sustainability, a reduction compared to the values reported in the Italian Integrated Production Guidelines 2019 is proposed.

Type of production	Fertilizer reduction %	Generable Credits t CO ₂ /hectar/year
Low/medium yield 70 kg/ha	15-35	0,11
	36-50	0,19
	51-75	0,28
	76-100	0,39

Type of production	Fertilizer reduction %	Generable Credits t CO ₂ /hectar/year
High yield 120 kg/ha	15-35	0,2
	36-50	0,33
	51-75	0,48
	76-100	0,68

Conditions of applicability. In order to access this activity, in order to comply with the principle of additionality with respect to the Business as Usual (BAU)/reference scenario, it is necessary to demonstrate its effectiveness through the legal tests and one of the three tests proposed in the Demonstration of additionality (chapter 2.1).

Minimum duration. The minimum commitment duration of this activity is 9 years.

Applied Methodology IPCC, 2006 - Vol. 4 chapter 11 - Eq. 11.1; 11.9; 11:10

Data source National Integrated Production Guidelines 2018.

Emission factors IPCC (2006)

4.3 Management of pruning residues for energy

A change in the use of pruning residues annually generable compared to the Business as Usual (BAU)/reference scenario in favor of energy production is proposed.

Species	Annual Pruning (t d.m./ha)	Energy production from biomass (kW/ha/year)	Avoided emission (t CO ₂ /ha/year)
Olive tree	1.7	8,502	3.49

Conditions of applicability. To access this activity, in order to comply with the principle of additionality with respect to the Business as Usual (BAU)/reference scenario, it is necessary to demonstrate its effectiveness through the legal tests and one of the three tests proposed in the Demonstration of additionality (chapter 2.1).

Minimum duration. The minimum commitment duration of this activity is 9 years.

Applied methodology CO₂ avoided emissions thanks to the use of waste biomass for energy purposes has been calculated by applying the coefficient of the calorific index of olive biomass (ENEA 2008) and of the emission factor related to the national thermoelectric industry (ISPRA, 2011)

Data source Biomass data from literature

Emission factors ISPRA (2011) and ENEA (2008)

4.4 Use of pruning as soil improver

A change is proposed in the use of pruning residues annually generable with respect to the Business as Usual (BAU) / reference scenario in favor of their burial for the soil C increase.

Species	Annual pruning (d.m./ha)	SOC change t C/ha/year	Generable Credits t CO ₂ /ha/year
Olive	1.7	0.16-0.4	0.59 - 1.47

Conditions of applicability. To access this activity, in order to comply with the principle of additionality with respect to the Business as Usual (BAU)/ reference scenario, it is necessary to

demonstrate its effectiveness through the legal tests and one of the three tests proposed in the Demonstration of additionality (chapter 2.1).

Minimum duration. The project duration for this activity corresponds to a minimum time of 20 years. This time is in compliant with the average time required to achieve the carbon balance in soils (20 years) identified by default by the IPCC (2006).

Applied Methodology IPCC, 2006 - Vol. 4 chapter 2 - Eq. 2:25

Data source Land carbon data from literature (Freibauer et al., 2004; Triberti et al., 2008; Bos et al., 2017)

4.5 Green Cover

An extension of the practice of permanent embedding to all the land both flat and sloping is proposed. Permanent and natural grassing (to be preferred) provides a soil covering for the entire vegetative cycle.

Pratice	SOC Variation t C/ha/year	Generable Credits t CO ₂ /ha/year
Green covering	0.32 - 0.6	1.17 – 2.20

Conditions of applicability. To access this activity, in order to comply with the principle of additionality with respect to the Business as Usual (BAU) / reference scenario, it is necessary to demonstrate its effectiveness through one of the three analyses proposed in the Demonstration of additionality (chapter 2.1) and also that:

- permanent cultivation not find in soils with average gradients between 10% and 30% and with rainfall of more than 500 mm / year, for which soil already exists a requirement for grassing in the autumn-winter period;
- permanent cultivation not find on flat land or slopes of more than 30% for which already exists a requirement for grassing;

Minimum duration. The project duration for this activity corresponds to a minimum time of 20 years. This time horizon is in compliant with the average time required to achieve the carbon balance in soils (20 years) identified by default by the IPCC (2006).

Applied Methodology IPCC, 2006 - Vol. 4 chapter 2 - Eq. 2:25

Data source Land carbon data from literature (Freibauer et al., 2004; White Paper, 2012; Poeplau and Don, 2015).

4.6 Minimum tillage

A reduction of soil workings, or "minimum tillage" in which a substantial part (at least 30%) of the soil is not worked and remains covered by the residues of the previous crop is proposed.

In the context of sustainable agricultural practices, an extension of the application of the practice of reduction of work to all land both flat and sloping is proposed. The solutions proposed are:

- simple surface processing with disc harrow or 8-20 cm deep milling;
- milling or working with a disc harrow only on the row (strips from 5-10 to 20-30 cm) leaving the inter-row intact where the depth reached varies from 30 to 5 cm.

Pratice	SOC Variation t C/ha/year	Generable t CO ₂ /ha/year	Credits
Minimum tillage	0.15 - 0.3	0.55 - 1.10	

Conditions of applicability. To access this activity, in order to comply with the principle of additionality with respect to the Business as Usual (BAU)/ reference scenario, it is necessary to demonstrate its effectiveness through the legal tests and one of the three tests proposed in the Demonstration of additionality (chapter 2.1) and also that:

- the minimum tillage practices have not been applied in the previous 5 years;
- there is no minimum tillage requirement for that land.

Minimum duration. The project duration for this activity corresponds to a minimum time of 20 years. This time horizon is in compliant with the average time required to achieve the carbon balance in soils (20 years) identified by default by the IPCC (2006).

Applied Methodology IPCC, 2006 - Vol. 4 chapter 2 - Eq. 2:25

Data source Land carbon data from literature (Freibauer et al., 2004; White Paper, 2012)

5 Market implementing regulation

The OLIVE4CLIMATE sustainability credits market defines the minimum requirements obliged for the market sellers and buyers.

During the LIFE OLIVE4CLIMATE project, the project management is run by the market manager divided into two entities: The Administration Committee and the Technical-scientific Committee.

The Administration committee is responsible for the supervision of the market and the validation of unclear procedure. It is composed by three subjects involved in the project development (UniPG, PEFC Italia and Noesis). The Technical-scientific Committee is responsible for the technical evaluation of the market participation requests and it is composed by subjects vocated to project promotion and management and external subjects (UniPG, PEFC Italia, TREE, UNAPROL, ...).

The market manager can accept or deny the access to the market. The participation requests will be accepted only if the subject is in line with minimum requirement defined by the present standard.

The market manager will have to perform sample checks to verify the effective compliance with the requirements. The produced and sold credits must be entered in the O4C project official register so that the credits sold are collected and the credits sale are recorded.

5.1 Sellers

The "Market Access Form" (at the bottom of this document) has to be filled and submitted by the subject/entity who wants to participate to the market. The form has to contain the following information:

- Starting point and duration of the project (Actions 1, 4, 5 and 6 have to be performed for 20 years at least, actions 2 and 3 have to be performed for 9 years at least)
- Project activity/activities (the allowed activity has to be selected from those reported on this standards)
- Who managed the area: the owner or a manager (with document authorizing the exploitation of the land covered by the agreement)
- georeferencing of the project area boundaries
- quality: the activity has to produce positive impacts on the environmental and it has also increased the environmental awareness of the owner of the land

With the inscription form the organization makes a subscription to the rules and basic principles of the "O4C Market". Then the organization must follow the standardized procedures for the generation and calculation of sustainability credits.

A *buffer*, a quantity of the generated credits, is withheld before being placed on the market to avoid any losses due to natural and anthropogenic causes (eg fires or parasitic actions etc.).

The activity accounting officially begins at the time of implementation. Sustainability credits can be sold even if they have not yet been generated, but with the following limits based on the activities:

- A) Activities 2 and 3: the 90% of credits generated in the next 3 years can be sold *ex-ante*, using the methodology reported in the present standard. The remaining 10% is temporarily withdrawn from the market. This can be sold every 3 years starting from the project start date (if it has not suffered losses due to various risk factors). For example, if the activity begins on 1 January 2019, it will be possible to sell immediately 90% of the total credits that will be generated in the future, while starting from 1 January 2022 it will be possible to sell the remaining 10%.
- B) Activities 4, 5 and 6 the credits that generated for the next 20 years can be sold considering a 25% risk buffer (according to the calculation methods indicated in the activity sheets)

The registration application can accept or not by the O4C Market on the base of additionality, permanence, leakage and double counting.

Controls will be implemented to verify the real and correct realization of the activity. These can be carried out on a sample with a multi-site approach, with a minimum sample of 5% chosen randomly. Tangible evidence must be provided periodically by the seller to demonstrate the real and correct realization of the activity.

5.2 How seller can have access to the market

The market operating cycle for the sellers must comply with the following steps: participation request formulation, approval of the involved by the market manager, validation, registration, monitoring, verification and issuance of credits.

Formulation

Participants must submit a complete DDP. The methods for calculating the baseline and the monitoring contained in the DDP must be based on the methodologies proposed by this document. If it is not possible to apply any of the approved methodologies, the participants will be able to propose a new methodology for approval, if this will be approved by the technical committee, it will be possible to proceed with the subsequent phases.

Approval of the Subjects

The Parties involved in the "reduction project" must submit a letter confirming voluntary participation in the project manager. In particular, the owners of the areas or structures in which the project will be built must confirm their availability for the entire duration of the project.

Validation

The DDP will be reviewed by the project technical committee the project, which decides whether to validate it or not, justifying the choice.

Registration

If the project is validated the official registration will proceed.

Monitoring

Once the project is in progress, it is necessary to monitor its progress. The monitoring must follow the methodology established in the activity sheets, preparing a monitoring report on a schedule defined by the activity sheet to be sent to the body responsible for managing the O4C Market.

Verification

La procedura di verifica è una revisione quinquennale indipendente a posteriori dei crediti di sostenibilità misurata ad opera del comitato tecnico. il comitato a seguito della visita dovrà redigere un rapporto di verifica corredato di foto e con relativo riferimento geografico.

Issuance

If the DDP complies with the requests, the generated credits will be entered in the register.

5.3 Buyer

The purchase of sustainability credits does not represent a right to pollute more, but a tool to cancel or reduce your polluting impact as a result of a reduction plan. that plan firstly includes the emission estimation, then, the in-house reduction and finally the compensation of climate-altering emissions.

Table 4.1: Chronological phases to be respected by a company that wants to become carbon neutral.

Phase	Company reduction level
1	<i>carbon footprint</i> estimation
2	implement measures to avoid greenhouse gas emissions;
3	residual emissions offset, as the final moment of a commitment to protect climate stability.

The ability to purchase credits will be commensurate with the reduction commitment upstream of the company. Following the principle that those who provide environmental benefits are remunerated, and "polluters pay" adopted by the European Union in environmental policy.

Who wants to buy sustainability credits must submit "The buyer registration form". this specifies the actions performed by the Company according to chapter 4 and reports its request for the quantity of credits to be purchased.

The company that decides to reset or offset part of its emissions must demonstrate that it has already undertaken or started to undertake practices to reduce its emissions.

The quantity of credits that can be purchased can be summarized as follows:

- companies that only made the calculation or estimate of the carbon footprint will be able to purchase the amount of credits equivalent to 10% of their carbon footprint.
- companies that have already completed the first 2 steps indicated in table 4.1 can purchase credits equivalent to 20% of the emissions recorded by their carbon footprint.
- companies that have already completed the first 3 steps will be able to purchase credits in an amount equivalent to the avoided emissions.

NOTE: In the event of the presence of a trader, or a figure who purchases the credits and then resells them to a final buyer, the trader will not be interested in the checks mentioned above but the task of carrying out the checks will be delegated to him (following the specified methods from this standard) on the final purchaser in order to determine what is the overall share of credits to be transferred to the buyer.

5.4 Credit Register

The management of the credit register will be by the O4C Market management who will have to create a register e that will report the following information and tools:

- a georeferenced map of the company in which the boundaries of the areas in which sustainability credits are being generated will be specified.
- For each area it must be specified how many credits have been generated, of these how many have been sold and the subject or company that purchased them.
- In addition, each credit must have an identification code that allows it to not be subject to double counting / remuneration.
- The unit of measurement used is the ton of carbon dioxide equivalent (tCO₂eq) and a transaction exists if the credits generated by agro-forestry activities are, through the contractual form provided, transferred from the seller to the buyer.

6 Forms for the exchange of sustainability credit among the actors involved

Form A1: Farmers adherence to the O4C Project Market

SUBJECT: Subscription of the seller's commitments for joining the O4C Market.

The subscriber of the O4C Market Project Document undertakes to:

- Submit a Project Document (PDD) for the management committee approval;
- Additionality must be proved with one of the 3 of the following tests:
 - Common Practical Tests: the project does not represent an ordinary, widespread and widely practiced activity. It is necessary to demonstrate (through the campaign booklet or through the purchase invoices or equivalent documentation) the practice has not been implemented in the terms and quantities set out in this document in previous 5 years.
 - Investment Test: the project would not have been developed without the financial contribution of credits, with the exception of areas affected by natural disasters (eg floods or earthquakes). In cases where there are barriers hindering the project activities implementation, the Investment Test can be replaced by the Test Barriers.
 - Test barriers: To demonstrate how without the realization of the project activities it is not possible to overcome the barriers that hinder its realization (for example technical barriers).
- Credit permanence has to be respected using a sale buffer, consequently the sale of the credits will be carried out with the following limits basing on the activities:
 - Activity 3 (management of pruning residues for energy) and activity 2 (reduction of the use of chemical fertilizers): 75% of the credits, generated in the following 3 years, will be sell ex-ante according to the calculation methods indicated in activity sheets. The remaining 25% is temporarily withdrawn from the market but can be sold, subtracted from any losses due to various risk factors, every 3 years from the start date of the project.
 - Activity 1 (construction of a new plant), activity 4 (improvement of the management of crop residues as soil improvers), activity 5 (practice of grassing in permanent crops), activity 6 (reduction of work) Credits generated for the following 20 years, can be sell considering a risk buffer of 25%. according to the calculation methods indicated in the activity sheets of the document.
- demonstrate indirect or direct carbon losses (leakage), in terms of CO2 emissions, even outside the area strictly affected by the project;
- be subjected to the monitoring carried out by the O4C Market manager, with the purpose to verify the real and correct implementation of the activity;
- periodically provide material evidence to demonstrate the real and correct activities implementation;
- in the case of transfer of all or part of the property, transfer the obligations connected to this contract also to the new owner;
- entrust to the market manager the credits generated by the project so that he can proceed on behalf of the signatory to start the transaction towards buyers of the credits that have joined the O4C Market;
- provide the market manager with bank details to be used by the final buyer to conclude the economic transaction towards the signatory.

Project Document (PD) relating to the Voluntary Market of Sustainability Credits of the OLIVE4CLIMATE Project

In order to participate in the market instituted by the Olive4Climate Project, the farmer owner / administrator _____ based in _____ via _____, VAT number _____, here represented by Mr. _____, undertakes to:

- The undersigned _____ is the manager / owner of the area in which the best practices are carried out

- Geographic coordinates of the borders of the project area and overall hectares of the plot affected by good practices: _____

- the reduction activity (s) selected and implemented among those proposed by the "Standard for the quantification and certification of sustainability credits deriving from the sustainable management of olive groves" is / are (select the correct answer):

- ☐ 1. Construction of a new orchard
- ☐ 2. reduction in the use of chemical fertilizers;
- ☐ 3. management of pruning residues for energy;
- ☐ 4. Use of residues as soil improvers;
- ☐ 5. Green Cover;
- ☐ 6. Minimum tillage.

- The start date of the project _____ and best practices will be carried out for a period of _____ (for the eligible activities the duration must be of 20 years for activities 3, 4, 5 while 9 years for activities 1 and 2);

- The choice between the two reference systems for calculating credits (additionality):

- ☐ ordinary business (business as usual), management of its olive grove before entering the OLIVE4CLIMATE sustainability credit market

- ☐ Reference scenario;

- Additionality has to be demonstrated according to the following tests (insert a cross next to the analysis of the situation):

- ☐ I. Analysis of common practices
- ☐ II. Investment analysis
- ☐ III. Barrier analysis

➤ declare the approval for the method of counting the credits used and described in the "Methodology" chapter of the document "Standard for quantification and certification of sustainability credits deriving from Sustainable Olive Groves Management"

- I declare to have produced in the years _____ a number of credits equal to _____
- I declare to respect the permanence of the credits by using a sales buffer established by the market manager according to which the credits that can be sold today are equal to _____
- I declare that the activities do not result in indirect or direct carbon leakage, in terms of CO2 emissions, even outside the area strictly affected by the project

- I agree to be subjected to the monitoring carried out by the O4C Market manager, whose purpose is to verify the real and correct implementation of the activity
- I agree to periodically provide material evidence that demonstrates the real and correct implementation of the activity
- I agree to promptly notify the market manager of any changes in ownership of the areas involved in the project and to transfer the obligations related to this contract also to the new owner
- I agree to entrust to the market manager the credits generated by the project so that he can proceed on behalf of the signatory to start the transaction towards buyers of the credits that have joined the O4C Market
- I enter my bank details for the subsequent economic transfer of the result of the transaction:

Read, signed and approved

Place _____ Data _____

The seller

Mr/Mrs. _____

Form A2: Buyers adherence to the O4C Project Market

SUBJECT: Subscription of the buyer's commitments for joining the O4C Market.

In order to participate in the market instituted by the Olive4Climate Project, the owner / administrator of the company _____ based in _____ via _____, VAT number _____, here represented by Mr. _____, undertakes to:

- respect the hierarchy of policy orientation principles aimed at reducing emissions of climate-altering gases: measuring → avoiding → compensate

Phase	Action implemented
1	estimate your carbon footprint;
2	implement measures to avoid greenhouse gas emissions;
3	Buy sustainability credits only in order to compensate for the residual emissions

- to present a balance sheet of corporate sustainability (or similar) which must necessarily describe the actions carried out by the company in order to comply with the approach and specifically:
 - ☐ the amount of annual emissions referred to the previous year (for companies that carried out the first step of table 1).
 - ☐ the measures implemented by the company to avoid climate-changing gas emissions (eg use of LED lights or sustainable transport measures implemented by company employees) and the estimated quantity of the aforementioned emissions (for companies that have carried out the second step of table 1).
 - ☐ the measures implemented by the company to reduce climate-changing gas emissions (eg installation of photovoltaic panels) and the estimated quantity of the aforementioned emissions (for companies that have carried out the third step of table 1).
- Buy credits according to the following scheme:
 - ☐ Companies that have already completed the first 2 steps indicated in table 4.1 can purchase credits equivalent to 20% of the emissions detected by their own carbon footprint.
 - ☐ Companies that only made the calculation or estimate of the carbon footprint will be able to purchase the amount of credits equivalent to 10% of their carbon footprint.
 - ☐ Companies that have put into practice only measures to prevent greenhouse gas emissions will be able to purchase credits in amounts equivalent to the emissions avoided.
- be subjected to monitoring carried out by the Market Operator O4C, to verify the real and correct application of the reduction approach.

- periodically provide material demonstrating the real and correct application of the reduction approach nel caso di cessione di tutta o parte della proprietà, trasferire gli obblighi connessi al presente contratto anche al nuovo proprietario;
- In the case of transfer of all or part of the property, transfer the obligations related to this contract also to the new owner
- do not sell the purchased credits to another buyer.

Read, signed and approved

Place _____ Data _____

The buyer

Mr/Mrs. _____

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