

Efficacy of vineyard ecosystem as Carbon sink: the case study of the Piacenza area

Riferimenti

Tipo di progetto

Gruppo Operativo

Acronimo

VinCapTer

Tematica

Impronta carbonica

Information

Time frame

2017 - 2020

Durata

36 months

Partners (no.)

8

Regione

Emilia-Romagna

Comparto

Viticultura

Localizzazione

ITH51 - Piacenza

Costo totale

€199.017,58

Fonte di finanziamento principale

Programma di sviluppo rurale

Programma di sviluppo rurale

2014IT06RDRP003: Italy - Rural Development

Programme (Regional) - Emilia Romagna

Parole chiave

Climate and climate change

Soil management / functionality

Farming practice

Plant production and horticulture

Agricultural production system

Sito web

<https://www.pedologia.net/it/VINCAPTER/cms/Pagina.action?pageAction=&page=InfoS...>

Project status

completed



Objectives

VinCapTer project aims to assess vineyard's capacity to stock atmospheric Carbon in grapevine organs and soils in the Piacenza area. General aim is the evaluation of vineyard's net Carbon balance (tC ha-1year-1) as a function of soil environments, floor management and vigor. Guidelines for sustainable vineyard management in the study area will be the final output of the project. The project pursues an overall evaluation of vine and soil potential role as C-Stock elements in order to identify soil management practices increasing environmental and economical sustainability in vineyard.

Activities

1) monitoring of C-sequestration in representative vineyards and soils; 2) evaluation of vineyard C-stock depending on different floor management; 3) study of cover-crops and vigor effects on soil organic matter and vine performance; 4) LCA of grape production and definition of guidelines for developing a C-sequestering sustainable viticulture

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<https://www.innovarurale.it/pei-agri/gruppi-operativi/bancadati-go-pei/efficacia-dellecosistema-vigneto-come-sequestratore-di>

Partenariato

Role	Azienda	Address	Telephone	E-mail
Leader	Università Cattolica del Sacro Cuore - Dipartimento di Scienze delle produzioni vegetali sostenibili (DI.PRO.VE.S.) - Piacenza	Via Emilia Parmense 84 29122 Piacenza PC Italy	0523 599269	diproves-pc@unicatt.it
Partner	Azienda Agricola Tenuta Borri di Andrea Pradelli	Loc. Margherita Fraz. Pillori 29020 Travo PC Italy	338 4693571	pradelli_a@virgilio.it
Partner	I.TER Soc. Coop.	Via Zacconi 12 40127 Bologna BO Italy	051 523976	scotti@pedologia.net
Partner	Tenuta Pernice Società Agricola	Località Pernice 283 29011 Borgonuovo Val Tidone PC Italy	0523860050	info@tenutapernice.com
Partner	Cantina I Salici	Viale Trebbia 7 Perino 29020 Coli PC Italy	0523 964016	info@cantinaisalici.it
Partner	C.R.P.A. S.p.A.	V.le Timavo 42/2 42121 Reggio Emilia RE Italy	0522 436999	info@crpa.it
Partner	Azienda Agricola La Pagliara	Via Saragat 9 29020 Travo PC Italy	0523 950541	mazzocchi.mauro@libero.it
Partner	Azienda Agricola Malvicini	Viale dei Mille 37 29010 Ziano Piacentino PC Italy	0523 868227	paolo.malvicini@pec.agritel.it

Pratiche abstract

Description

The action aims to: 1) planning field trials and data collection; 2) produce an exhaustive literature review on net vineyard

ecosystem productivity and carbon stocked in the grapevine, in the soil as well as in the cover crops aiming to improve knowledge on project topics. 3) describing vineyard floor management at the beginning of the project in order to create a database that will be used as part of subsequent LCA. Data will be collected by specific questionnaires and outcomes will be used to delineate effective soil management practices for an improved carbon stock in vineyard.

Description

Based on the OG network, the action aims to produce a quali-quantitative analysis of soil Carbon content considering two different floor management strategies ("bare soil" and "cover crop"). Systematic sampling will be carried out for describing the main soil properties as well as for implementing the Soil Regional database. Chemical analysis are scheduled at the beginning and at the end of the project in order to assess the effects of different floor management on soil carbon content in surface and deep layers as well as the its C-stock capacity.

Description

In order to evaluate the effects of different floor management on vineyard Net Primary Production (NPP), carbon stored in biomass will be assessed in each representative site and farms associated to the OG. The evaluation will compare the two following treatments: "bare soil through continual cultivation" and "permanent cover crop". NPP will be assessed by summing the above and below ground biomass as divided in 4 principal categories 1. biomass resulting from periodic mowing in the cover cropped treatment. 2. biomass associated to leaves (at fall) and annual wood (at winter pruning). 3. biomass stored in perennial woody organs and roots. 4. biomass stored in bunches. Outcomes will allow to understand vineyard C-stock capacity and relationships existing between agronomical and enological performance.

Description

The task aims to assess: a. the effects of different vineyard floor management on Net Carbon Stock (NCS) as a function of the following treatments: bare soil through continual cultivation, permanent native cover crop, bare soil through continual cultivation every second row, permanent sown cover crop; temporary sown cover crop every second row; b. vigor class (high and low). The biomass produced during growing season will be measured.

Outcomes will allow assessing the vineyard C-Stock potential under different vineyard floor management strategies and vigor conditions.

Description

In this action the evaluation of inputs and environmental impacts of vineyard floor management will be carried out through LCA (Life Cycle Assessment ISO 14040) methodology. Database on vineyards' management and performance will be composed by:

1. information collected through the enquiry set up in "action 1"; 2. experimental data collected as part of field activities. LCA analysis will be carried out in each farm associated to the OG and based on both floor management strategies ("bare soil" and "cover crop").

Due to different pedological origin characterizing experimental plots, the study will also include some comparison among different sites. In case of farms involved in Action 4, the LCA analysis will be also applied to different floor management strategies and vigor classes in order to assess their carbon footprint. The main impacting elements on carbon balance will be identified in order to define improving scenarios aiming to maximize vineyard sustainability. In order to avoid any interference with previous soil management, analysis will be carried out during the 2nd season from the beginning of the project.

Description

The integration of the outcomes from previous actions and specific analyses of economic impacts of different floor management will result in guidelines for soil-specific C-stock management. The success of this output will be strongly related to the partners' ability to working together, testing, verifying and sharing the collected data. Guidelines should be validated

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by the participants to the OG and will be presented to local farmers at the end of the project. Field visits will be planned and suggestions to ongoing activities will be useful for improving the guidelines elaboration. A thematic cartography illustrating pedological macro-environments will be realized for the Colli Piacentini wine district. The OG will indicate the best floor management solutions enhancing the C-stock capacity in vineyard.

Link utili

Titolo/Descrizione	Url	Tipologia
Sito web del progetto	https://www.pedologia.net/it/VINCAPTER/cms/Pagina.action?pageAction=&page=InfoS...	Sito web
Video del progetto	https://youtu.be/5BkApq90JdU	Materiali utili
Poster VINCAPTER Rete EIP	https://www.pedologia.net/userfiles/FileAllegato/files/VinCapTer_Mestre_mg_1.pdf	Materiali utili
I risultati del progetto VinCapTer	https://www.pedologia.net/userfiles/FileAllegato/files/p198_vincapter_convegno...	Materiali utili
Articolo - L'efficacia del vigneto come sequestratore di Carbonio	https://www.pedologia.net/userfiles/FileAllegato/files/Articolo_II_Piacenza.pdf	Materiali utili
Rassegna Stampa VinCapTer	https://www.pedologia.net/userfiles/FileAllegato/files/vincapter_rassegna_stamp...	Materiali utili