



## Restoring optimal soil fertility in degraded areas within organic vineyards



### Aim of the project:

To identify management measures which can significantly improve organic vineyard production in terms of:

1. Physical, chemical and biological soil quality
2. Plant health, growth and performance
3. Grape yield and quality

## Introduction

Several agronomic techniques, which follow organic farming rules, have been used for years to increase soil fertility. How can we use these techniques to restore soil fertility in degraded areas of vineyards? Which are the effects on grapevines, soil features and biodiversity?

The project wants to test the effects of three typologies of organic agro-techniques, such as compost addition, green manure and dry mulching with cover crops. They will be tested in viticultural areas that have lost their fertility in Italy, France, Spain, Turkey, Slovenia and Sweden.

## Background

Land transformation to adapt fields to mechanisation is a common practice in perennial crops, and it includes land leveling, deep ploughing, stone-breakage, etc.

Since soil variability is usually high, soil manipulation frequently results into reduced soil fertility, water retention capacity and soil biodiversity. Land transformation, soil erosion and compaction are likely to cause problems in terms of reduced vine growth, reduced disease resistance, grape yield and quality.

- ▶ Testing the effects of the soil treatments on:
  - grapevine health and grape yield
  - carbon stock and soil fertility
  - soil ecosystem (micro- and meso-fauna)
  - vine roots microbiology
- ▶ Increasing the awareness of the loss of soil quality in the vineyards, both organic and conventional
- ▶ Providing protocols and information to the European farmers about best practices to restore soil functionality in vineyards



Compost adding in Turkey

## Expected societal benefits of the project

The project is expected to increase the general awareness on the degradation of soil functionality and its effects on vineyards and other perennial crops. The outcome and conclusions in terms of new methods are not only relevant to organic vine growers, but also to conventional producers who are interested in recovering soil functionality in degraded areas of their vineyards. It might also increase the interest in organic methods if the project succeeds to demonstrate how techniques developed in organic viticulture can be just as beneficial for the conventional vine growers.

The study of the effects of soil restoring techniques and their dissemination to the farmers will contribute to add value in terms of landscape conservation and agricultural heritage systems.



**Cover crops**

## Expected results and impacts

The ReSolVe project will provide guidelines for restoring optimal soil functionality in vineyard and, in other perennial crops, through organic soil management strategies. The restoration techniques and the monitoring methodologies developed and tested during the project will be described in specific final guidelines.

The second outcomes of the project is setting a comprehensive protocol of analyses and measurements for vineyard ecosystemic functioning assessment, adapted to European vineyard conditions.

## Expected long-term impacts

The awareness of the soil functionality loss in vineyards coupled with the dissemination of best-practices for restoring optimal soil functionality for grapevine, will contribute to make European organic vineyards more homogeneous in terms of efficiency, grapevine health and soil ecosystem services.



**Soil Erosion and grapevine roots exposed**

## Coordinator

Edoardo A.C. Costantini, Consiglio per la ricerca in agricoltura e l'analisi dell'economia agraria, CREA-ABP, Research center for Agrobiology and Pedology, Italy

## Partners

Maarten van Helden,  
Bordeaux Sciences Agro, France  
Emma Fulchin, Vitinnov, France  
Javier Tardaguila,  
University of la Rioja, Spain  
Semih Tangolar,  
University of Cukurova, Turkey  
Mehmet Erdem Kiraz,  
Alata-Bkai Horticultural Research station,  
Turkey  
Anna Martensson,  
SLU-Swedish University of Agricultural  
Sciences, Sweden  
Hans-Josef Schroers, KIS-Agricultural  
Institute of Slovenia, Slovenia

## Cover crops

## How to reach target groups

A series of training workshops will be carried out, involving operational groups, grape-growers, confederations, agronomists and specialists. At the end of the project, guidelines for soil restoring techniques will be published in all the project partner languages and also in English.



## Further information

This project is funded via the ERA-net CORE Organic Plus, which is a network of 20 countries on initiating transnational research projects in the area of organic food and farming systems. In 2014, CORE Organic Plus selected ReSolVe and 10 other projects.

Read more at the CORE Organic website:

<http://www.coreorganic.org/>

and find publications from the project at:

<http://coreorganicplus.org/research-projects/resolve/>

and at: <http://orgprints.org/view/projects/resolve.html>