

LIFE15 ENV/IT/000392 – LIFE VITISOM:

**VITiculture Innovative Soil Organic Matter
Management: variable-rate distribution system and
monitoring of impacts**

Project manager Isabella Ghiglieno – Università degli Studi di Milano

COORDINATION AND PARTNERSHIPS

Coordinator:

Università degli studi di Milano (DISAA)

Project Coordinator: Prof Leonardo Valenti

Project Manager: Isabella Ghiglieno

Prof. Fabrizio Adani,

Prof. Domenico Pessina,

Dott. Stefano Corsi

Partners:

Casella Macchine Agricole s.r.l.

Consorzio Italbiotec

Università degli studi di Padova (Prof A. Pitacco)

West Systems s.r.l

Winery partners: Azienda Agraria degli Azzoni Avogadro Carradori (MC)

Guido Berlucchi & C. SpA (BS)

Castello Bonomi Tenute in Franciacorta Societa Agricola a r.l.
together with Bosco del Merlo (VE) and Vescine (SI)



CONTI
DEGLI AZZONI



BERLUCCHI



BONOMI
FRANCIACORTA



OBJECTIVES

OB1

Development and demonstration of Variable-rate technology (VRT) for vineyard fertilization

Implementation of the VRT in order to improve the organic fertilization distribution systems. Construction and testing of five prototypes adapted to 5 different pilot contexts, representing UE vineyard variability

OB2

Increase sustainability improving the vineyard soil management

Improve the quality of vineyard soils in terms of soil structure, organic matter content and biodiversity, monitoring different environmental and socio-economic aspects.

DURATION:

Start 01/07/2016 - End: 31/12/2019

OBJECTIVE 1

OB1

Development and demonstration of Variable-rate technology (VRT) for vineyard fertilization

Implementation of the VRT in order to improve the organic fertilization distribution systems. Construction and testing of five prototypes adapted to 5 different pilot contexts, representing UE vineyard variability

Assumptions: GRAPEVINE VIGOR

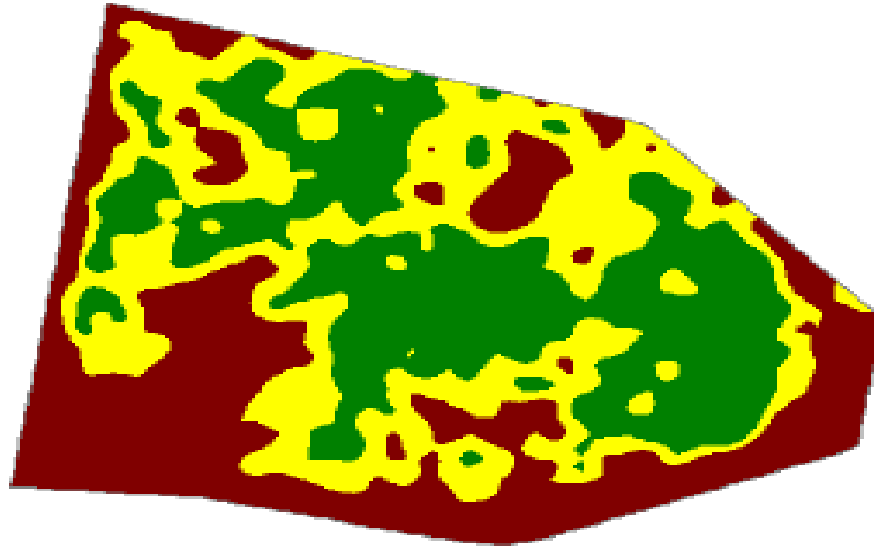


Assumptions: DISOMOGENEITY OF DISTRIBUTION



VARIABLE RATE

This innovative technology enables to manage distributions according to preexisting images of the vineyard vigor



Currently the Variable Rate Technology (VRT) has already been applied in vineyard but has not been considered yet for organic fertilization

VARIABLE RATE





Software developement to calculate vine vigour from annual wood ...
Real time distribution

LOCALIZATION

Flat Vineyards Worked with straddle machines

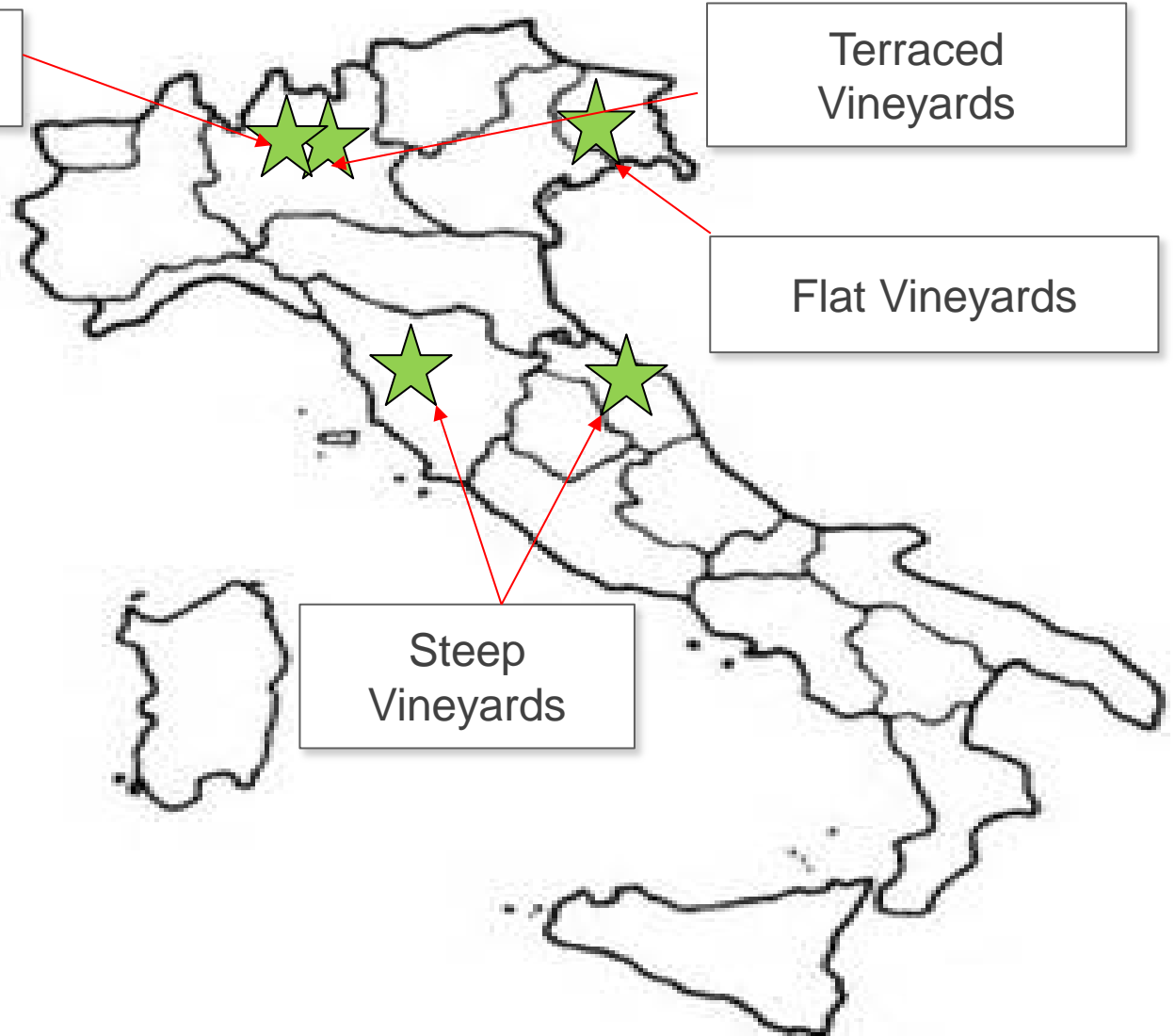
Terraced Vineyards

Flat Vineyards

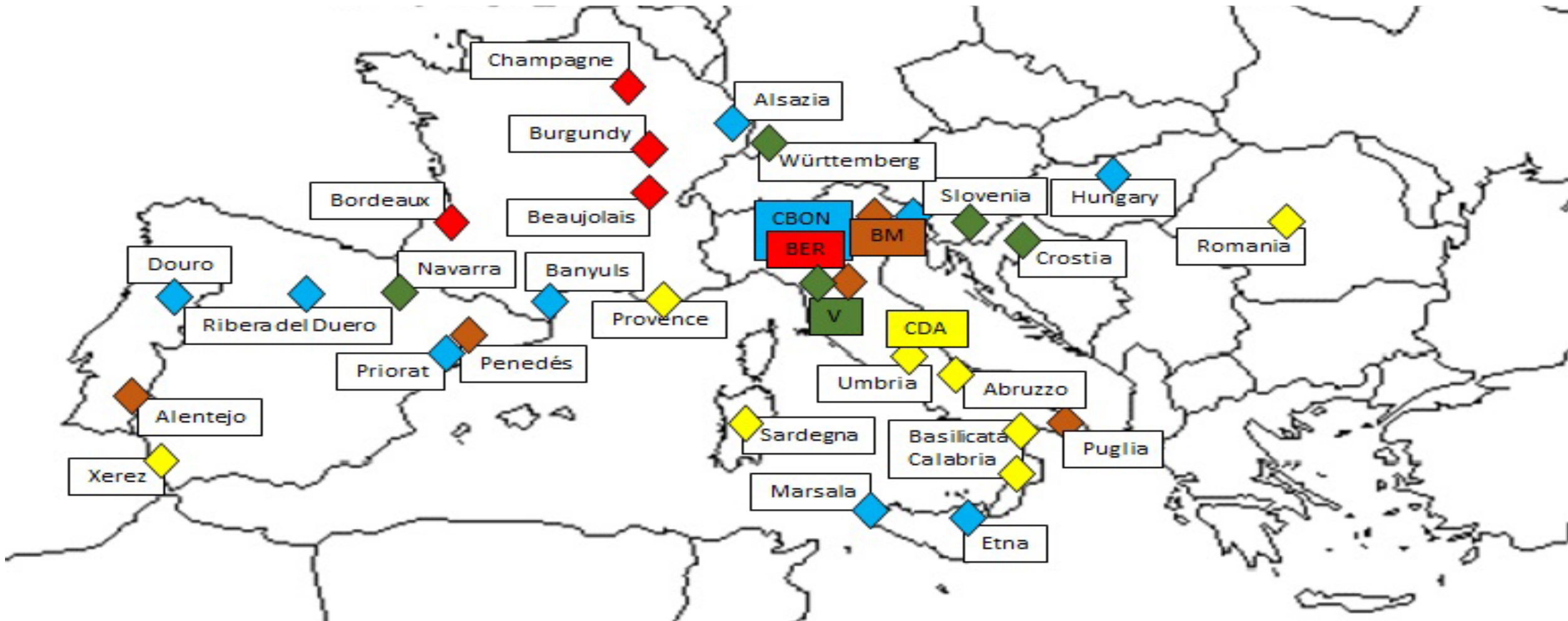
Steep Vineyards

WINERY PARTNERS

- Friuli and Veneto:
Bosco del Merlo 80 ha
- Lombardy:
Castello Bonomi Tenute in Franciacorta 20ha
and Guido Berlucchi & C. 80 ha
- Marche:
Conti degli Azzoni 60 ha
- Tuscany:
Castelvevchi 20 ha



REPLICABILITY IN EU



OBJECTIVE 2

OB2

Increase sustainability improving the vineyard soil management

Improve the quality of vineyard soils in terms of soil structure, organic matter content and biodiversity, monitoring different environmental and socio-economic aspects.

OBJECTIVE 2

Set up of comparison tests in 5 different viticultural realities and supervise the correct distribution
(UNIMI and WEST)

Check the quality of the applied organic matter (compost, manure or digestate)
(Prof Adani UNIMI)



OBJECTIVE 2

Analysis of the vineyard soil
(Prof Adani UNIMI)

Biodiversity Analysis Biological Quality of
Soil (QBS-Ar)
(Sata Studio Agronomico)

Collection of data regarding vine-
productive parameters, grape and wine
quality.
(Prof Valenti UNIMI)



Monitoring GHGs soil emissions both in absolute
value for the vineyard and for single parcels in order
to compare the matters applied, with the help of
IPNOA prototypes.
(West Systems srl)

Monitoring CO₂ emissions at eco-system
level with *Eddy Covariance*
(Prof Pitacco UNIPD)



OBJECTIVE 2

Odorimetric analysis will make available data about the quantification of odour produced from different organic matrices (compost, manure and digestate)

(Prof Adani UNIMI)

Life Cycle Assessment (LCA) analysis and evaluation of economic and social impact of the project.

(Consorzio ITALBIOTEC)

Carbon footprint analysis of the vineyards.

(Sata Studio Agronomico)

Evaluation of the socio-economic impact of the project.

(Prof Corsi UNIMI)

EXPECTED IMPACTS

Upgrade of economical and environmental efficiency of vineyard fertilisation:

- **Reduction** of chemical fertilizers, of organic matter distributed in organic vineyards;
- **Increase** the homogenization of vineyards vigor.

Validation of Soil protection system in 5 pilot contexts (representatives of EU vineyard variability):

- **Reduction** of emissions from vineyard soils (10%), of odour emission from the distribution of organic fertilizers (10%), of costs (20%);
- **Increase** of the organic matter of the soil (5%), of soil biodiversity (5%).

Increasing awareness about viticulture soil organic matter management:

Develop best practices about viticulture soil management, improve public awareness about the benefit of a sustainable approach to soil vineyard management.



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Thank you for your attention

