

VIRECLI - Viticulture Resilient to Climate Change

Short description of the OG

Increase wine farms' competitiveness through the implementation of precision farming techniques.

Test, in several wine production districts, new techniques to counteract the effects of climate change.

Introduce innovation management protocols suitable for the oenological objectives and respectful of the typicity of the territory.

Transmit economically sustainable soil management techniques able to promote productivity and hydrological slope stability.

Benefits

Less water used for irrigation; avoid soil erosion and less water use for irrigation; fewer inputs; fewer losses due to spring frosts.

Stage of implementation

Project completed.

Applicability box

Theme

Climate change mitigation - Digital technologies - Erosion control - Soil health - Water-use efficiency

Context

Mediterranean climate, tests in northern Italy (Lombardy)

Duration

3 years (2019-2022)

Partners involved.

3 independent winegrowers, 2 universities located in Northern Italy (Milan, Piacenza and Pavia)

Budget

800.000,00€

Main achieved or expected results

P1. Irrigation 4.0 guidelines: to explain steps to follow to design a precision irrigation system to maintain production and quality standards even in the most difficult years and to optimise water use. Uses variable rate technology that takes into consideration soil variability within the vineyard.

P2. Soil management practice guidelines: to increase vineyard resilience to extreme rain events or drought and to reduce the impact of superficial landslides and erosion phenomena to limit structural damage in vineyards and organic substance losses.

P3. Impact of new rootstocks to cope with water stress conditions.

P4. Guidelines on how to assess the effect of space variability in the vineyard on the fertility of the basal buds of a variety characterized by productive alternation and a low basal fertility such as Croatina.

P5. Guidelines on late winter pruning to postpone bud break to avoid damage due to spring frost and to obtain a better freshness of the grape if the initial phenological delay is maintained until ripening.

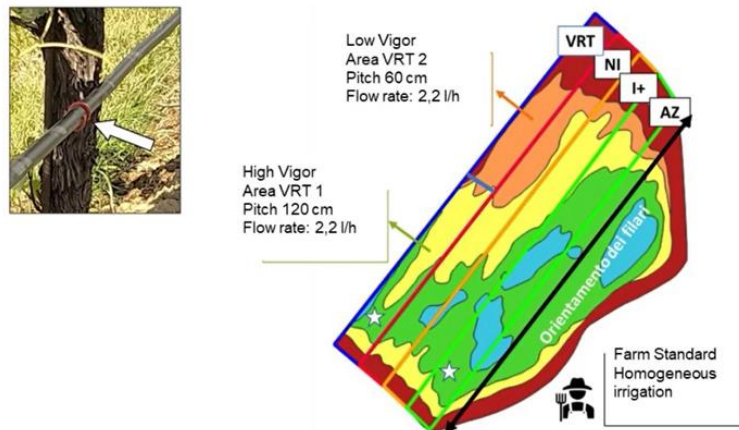


Fig 1. Example distribution of different irrigation theses and characteristics of a variable rate irrigation system

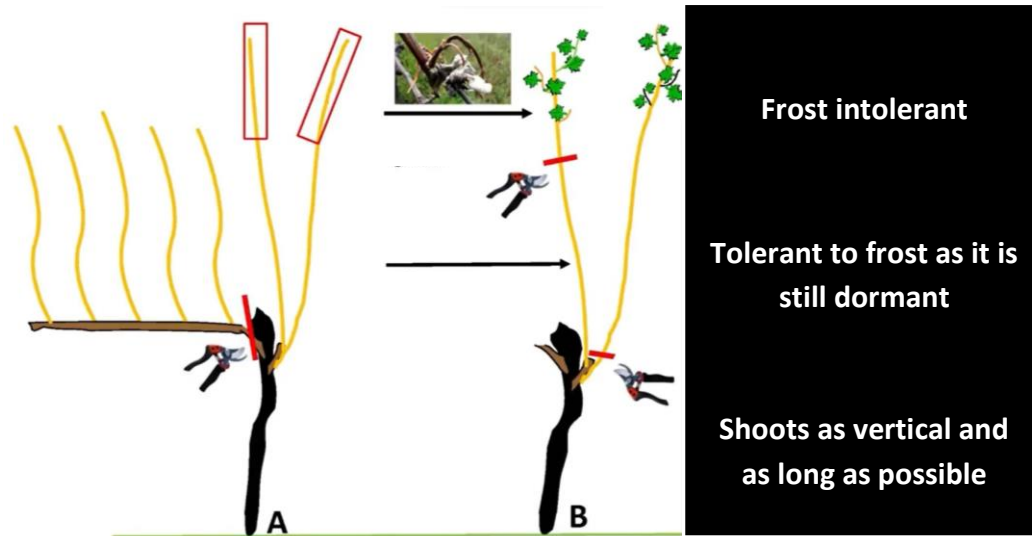


Fig. 2. Bud frost tolerance versus bud position on the shoots

Existing materials

Videos

P1. Irrigation 4.0 guidelines:

<https://youtu.be/9dRWHH6Gggw>

Short version: <https://youtu.be/zFtAw4XfHpU>

Detailed explanation: <https://www.youtube.com/watch?v=m7Cob6QmyoM>

P2. Soil management practice guidelines:

Short version: <https://youtu.be/u4rHy0o4k9A>

Detailed explanation: https://youtu.be/caQ2fXNJH_A

P3. Impact of new rootstocks to cope with water stress conditions:

<https://youtu.be/sJCvDoTLIWg>

P4. Guidelines on how to assess the effect of space variability:

Short version: <https://youtu.be/2Jzq4zk-vNg>

Detailed explanation: <https://youtu.be/5QVrj5TaDek>

P5. Guidelines on late winter pruning

<https://youtu.be/3DBISJ5o-jo>

Short version https://youtu.be/AXao_SlrISs

Detailed explanation: <https://youtu.be/9Yt4kt153wE>

Web links

P1. Irrigation 4.0 guidelines:



https://www.infowine.com/en/technical_articles/application_of_precision_irrigation_systems_sc_21182.htm

 https://www.infowine.com/it/video/irrigazione_di_precision_e_sc_21194.htm

P2. Soil management practice guidelines:



https://www.infowine.com/en/technical_articles/resilient_soil_management_techniques_sc_21195.htm

P3. Impact of new rootstocks to cope with water stress conditions:



https://www.infowine.com/en/technical_articles/rootstocks_compared_sc_21183.htm

P4. Guidelines on how to assess the effect of space variability:



https://www.infowine.com/en/technical_articles/intra_parcel_variability_sc_21193.htm

P5. Guidelines on late winter pruning:



https://www.infowine.com/en/technical_articles/late_winter_pruning_as_a_frost_damage_prevention_and_ripening_control_sc_21184



https://www.infowine.com/it/articoli_tecnici/potatura_ritardata_come_tecnica_di_prevenzione_dei_danni_da_gelate_e_di_controllo_della_maturazione_sc_21797.htm

Contact information

Publisher:

Vinidea srl, Piazza 1 Maggio 20, 29028 Ponte dell'Olivo (PC) Italy; www.inforwine.com

Author(s): factsheets made by Céline Caffot, Vinidea based on the work carried out under the VIRECLI Operational Group by:

- Davide Modina and Professor Lucio Brancadoro from the University of Milan (Italy).
- Professor Claudia Meisina, Massimiliano Bordoni and Valerio Vivaldi from the University of Pavia.
- Professor Alberto Vercesi, Professor Matteo Gatti and Alessandra Garavani from the Catholic University of Piacenza (Italy).
- Professor Stefano Poni from the Catholic University of Piacenza (Italy).

Contact : celine.caffot@vinidea.it – gianni.trioli@vinidea.it – davide.modina@unimi.it – lucio.brancadoro@unimi.it - claudia.meisina@unipv.it - matteo.gatti@unicatt.it - stefano.poni@unicatt.it

This practice abstract was elaborated in the CLIMED-FRUIT project.

Project website: www.climed-fruit.eu

© 2023

