

Vineyard Management to Face Effects of Climate Change (CC): Evaluation of Agronomic Practices to Mitigate CC

Improved adaptation strategies at vineyard level (curative strategies) in order to mitigate the undesirable effects of Climatic Change (CC), while maintaining grape and wine quality standards.

As a result of global warming, more frequent and longer dry seasons are expected, as well as heavier occasional soil-eroding rain events. The environmental impact of viticultural practices as response to CC will be assessed by reducing vine water consumption and maintain soil fertility. This will supply winegrowers with short-term sustainable viticultural practices to cope with CC effects, according to product and environmental quality.



Fig. 1: Resilient new cultivars e.g. Calardis blanc

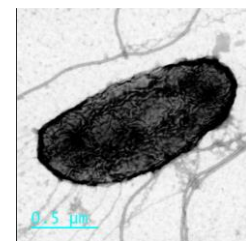


Fig. 2: Efficient Biological control agents



Fig. 3: Enhanced resilience toward abiotic and biotic stress (Fig. 1, 2 and 3: © JKI & URCA)

Cyprus University of Technology (CUT), Universitat de les ILLES BALEARS (UIB), Murcian Institute of Agricultural Research (IMIDA) and Applied Biology and Soil Sciences Institute (CEBAS-CSIC) are currently investigating the potential of cultural practices and/or resistant varieties against CC. A list of both international and local varieties currently used in a big part of Europe is available at VITISMART website. In 2016-2017, field experiments at Spain and Cyprus have been set up.

Upcoming Events:

Workshop in Cyprus –spring/summer 2018 (see page 3)

Locations of field experiments



Three pilot areas in Spain and one in Cyprus are selected for the studies.

Spain - Cyprus: Field experiments 2017

The increased vineyard agricultural system resilience to climatic variability and to preserve product yield and quality, the following practices are tested:

Cover crop experiments:

In Spain it is examined the cover crop versus bare soil for Tempranillo and Cabernet Sauvignon in irrigated and non-irrigated vineyards. Tempranillo was affected by water stress in terms of number of clusters and their biomass in cover crop management, but quality was not affected. In contrast, Grenache showed the highest value of number of clusters and biomass in cover crop management under irrigation conditions.



In Cyprus, cover crop versus tillage and semi-



tillage is tested for Chardonnay, Xynisteri and Maratheftiko in irrigated and non-irrigated vineyards. In Chardonnay, yield was increased (almost doubled) with irrigation for both semi- and full tillage, and this increase was mainly related to the increased fresh weight of each cluster rather than the number of the clusters produced.

Mulching experiments:

Two irrigation regimes of deficit Irrigation (72 mm) and non-irrigation with two soil management (bared soil and mulching) were studied in Spain for Bobal cultivar. Irrigation increased yield but reduced cluster weight, while mulching did not have important effects.



Canopy management experiments:

In Spain, training system modification tested on vineyard behaviour and water use efficiency (WUE) under different irrigation dosages (deficit irrigation). The canopy managements were 1) Control-Vertical shoot positioning (VSP) 2) Canopy leaned 30° east 3) Canopy leaned 30° west. No significant differences found for vines yield, number of clusters and clusters weight and grape quality.



Currently, tests are being done in the laboratory and field trials examining the soil nutrition, soil microbiota but also the effects on vines physiology and grape quality

Workshop spring-summer 2018

We are currently in the process of planning a workshop for Vitismart project and effects of CC on vineyards, at Cyprus University of Technology, Limassol, Cyprus. There will be ample opportunities for you to ask questions and provide feedback on the work. Further information will be sent out shortly. Should you have any questions in the meantime, please do not hesitate to contact us:



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VitiSmart is a three year interdisciplinary research project aiming to produce a resilient viticultural system able to speedily recover from biotic and abiotic stresses, by combining resilient cultivars with beneficial microorganisms to acquire a natural-cross-tolerance while maintaining yields.

Visit our website: <http://www.univ-reims.fr/site/vitismart/home,19580,33109.html?>



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