

20% reduction of crop protection products in the five main grapes of Sardinia (Cannonau, Carignano, Cagnulari, Nuragus, Vermentino)

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Summary

The European directive (127/2009 /CE) sets the standards for the sustainable use of pesticides, reducing risks to human health and the environment. It promotes integrated pest management and the use of different techniques related to the use of phytosanitary products, whose consequences converge directly in a reduction of costs in general, thanks to an increase in the efficiency and effectiveness of the processes.

In Sardinia, during the activities related to the functional control of spray machines, we noted that comparing what was declared by the agricultural operator, most companies used different quantities, often in excess, compared to what the spraying machine actually dispersed.

After a careful evaluation of the collected data, it was necessary to assess what action and how to intervene to improve the use of pesticides through the volumes and its relative doses adopted by the companies.

Therefore it was decided to prepare a project capable of achieving the objective to reduce the use of phytosanitary products of 20% in Sardinia's agriculture starting with one of the most important sectors of production, viticulture.

Introduction

The project involves the viticultural companies of the region, and by consulting the register of treatments in use on the farm, it will be possible to know the situation of the cultivated areas, the typologies of phytosanitary products used and the quantities used in phytosanitary defense.

The subsequent adjustment of the sprayer machines, based on the characteristics of the crop, with the help of the apps, the new parameters will be provided for the phytosanitary interventions with the calculation of the appropriate volume and dosage.

The agricultural company will be able to examine and compare all the reference values, such as the declared volume, the volume actually used, and finally, the recommended volume and dose.

By comparing the data we can define the percentages of reduction and savings through the innovative agricultural practice for crop protection.

This is a fundamental issue for appropriate use and rational use of pesticides in three-dimensional crops, as in the case of the vineyard. The progress achieved within the European group "Dose Expression" in the proposal of new models for the expression of the dose of plant protection product (and volume of water) in this type of crops have led to the conclusion of alternatives such as the LWA (Leaf Wall Area) or the TRV (Tree Row Volume). This topic should be dealt with in depth, in both, theoretical and practical sessions, with technicians and consultants directly in contact with farmers. We propose to carry out specific training, in which all the aspects related to the above-mentioned methods will be examined, the criteria for the quantification of vegetation, in comparison with the current recommendations on the labels of phytosanitary products. In this section we will also examine the new technologies applied to this concept (sensors, variable application based on maps, app ...). It is a topic of absolute importance in Europe that will lead to changes in product label instructions.

Through the support of the WebGis system, as a cartographic platform, it will be possible to view, read and examine information on the management of the farm and in particular to observe the volumes adopted in the grape-growing areas involved in the project.

Materials and Methods

The correct use of equipment for phytosanitary applications is a key element and has an enormous influence on the final result. The initial actions of the project will be.

1. Information campaign on the mandatory inspection program: it is proposed to launch an information campaign on the benefits of equipment inspections, with particular attention to the economic benefits for the farmer. This is critical to ensure a good reception of the program by the farmers, preventing the process from becoming a mere administrative obstacle.
2. Information campaign (conventional drift and anti drift) nozzles: the choice of nozzles and proper maintenance of the same for successful applications in phytosanitary defense. Training campaigns on the use of nozzles and the selection procedure will be promoted. Information campaigns will also be conducted on the interest and benefits of using anti-drift nozzles. In these campaigns will be distributed leaflets to explain the operation of the nozzles and economic and environmental benefits, in particular resulting from the significant reduction of drift.
3. Promotion and adoption on the use of new apps: training activities and dissemination of different tools to adjust the nozzle selection, application and determination of the phytosanitary mixture. A personalized print of the atomizer calibration disk and the new DOSAVIÑA application will be published to determine the volume of the dose and of the plant protection product, both realized by the Polytechnic University of Catalonia.
4. New technologies for drift reduction and promotion campaigns will be implemented: training on appropriate use of available technologies for drift reduction. Aspects relating to the adaptation of the aerial assistance will be studied. Advantages and disadvantages of various equipment, demonstration of the effect of air on the deposition and drift.
5. Launch of "demonstration farms" or pilot farms.

"Seeing is believing."The experience of similar programs for the improvement of the application of phytosanitary products demonstrates the interest of having pilot exploits or "demonstration farms" in which to carry out all the recommendations. It is proposed to identify and select some farms in which the cooperating farmers will work with all the recommendations established for the reduction of the use of phytosanitary products, so that other farmers in the area can verify the correct functioning of the measures implemented and the economic results of these. These farms must meet the recommended requirements for compliance with BMP (Best Management Practices).

Results

With the monitoring of the areas and the management of phytosanitary defense interventions in viticultural areas, the evolution of the project regarding the concrete reduction of volumes and doses can be visualized, allowing the interested companies know the progress of the project, so that they feel fully involved in actions that confirm the success of the initiative, with a real economic and environmental advantage.

Conclusion

Sardinia focuses on environmental sustainability and wants to provide companies with the best development opportunities in harmony with current legislation.

The Regional Agency Laore plays a strategic role in supporting local companies and in this sense intends to transfer the methodological innovations of the phytosanitary defense in order to contain the consumption of phytosanitary products, improving the quality of production and reducing the environmental impact in favor of the company and of the society in general.