Unit 7 - Liviu Gheorghe

PRESENTATION ABSTRACT

MODERN SOLUTIONS FOR MANAGING VINE DISEASES
APPLICATION OF INTERNET OF THINGS (IoT) AND CLOUD COMPUTING

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Presentation Abstract

Introduction

The purpose of this paper is to show the high level of applied technologies in the field of precision viticulture and the advantages of applying these innovative technologies.
The results of using such technologies translates into either an increase in income generated by vineyards or a cost saving related to its management, by improving the quality of crops and yields, traceability of processes and protecting the environment through the rational use of treatments.
In practice, there is still significant reluctance in the widespread adoption of these technologies, which refers not only to the need to further explore the potential of these instruments but also to the ability of farms to train technicians able to understand and use this type of applications.

Method

After describing different technologies applied in precision viticulture, we focused on wireless sensor network technology that is constituted from the components of a weather station for viticulture, by describing the software applications that are associated with it and which warns the viticulturist of the risk of vines' disease, helping him to take the best decisions.
Three world-class manufacturers of such weather stations were evaluated from the point of view of the quality of the delivered equipment, the number of similar systems implemented worldwide, the technical support/operation offered, and not least price and aftersales costs.

Results

A case study was made to a Romanian winery, who implemented such a system in 2015, and I tried to show which were the benefits from the owner's perspective by acquiring this solution (applications) taking for example the 2018 viticultural year.

Further on, a sensitivity analysis was made taking into consideration 3 variables (vineyard area, average yield/ha, percentage of saved crop from total crop) and calculate the time needed for ROI (Return on Investment).

Conclusions

The resulting Graphs show that such applications fit very well also for small/medium size wineries specialized in low volumes, premium quality wines and time needed for ROI is reasonable.

The objective was to show that such technologies really bring value added to the vineyards, have reasonable periods to recover the investment and are not to tools to cut jobs in the winery.