

## Profitable applications for Precision viticulture

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Sustainable viticulture requires an objective and continuous monitoring of the vineyard, and that is possible only by applying new technologies. Recent advances in information technology, communications and electronics have enabled the development of new sensors to monitor the vineyard. The possibilities of these new technologies to monitor the vineyard and quantify parameters such as yield, leaf development, disease incidence and / or detection of different stress factors (water, nutrition, etc.) are enormous.

Importantly, the non-destructive nature of many of these technologies implies the absence of damage or modification of plant material analyzed. Among the main non-destructive ground sensors advanced detection used for monitoring the crop and / or composition of the fruit are as follows: RGB and thermal sensors, multi and hyperspectral cameras, based on chlorophyll fluorescence sensors and spectroscopy. All this information can be obtained so geo-referenced, which could be used to determine the spatial variability of the vineyard, in the context of precision viticulture.

In this paper some examples of important viticultural estimation parameters are presented by different non-destructive technologies in precision viticulture.