Nuestra Tierra

CALITERRA

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NEWSLETTER

Precision Winegrowing at Viña Caliterra: New Technologies for a Sustainable Viticulture.

Viña Caliterra continues firmly with the green crusade, innovating technologically in order to work every day in a more environmentally friendly manner. One of these new technologies is multispectral images, a distinctive technique that has brought great advantages to the viticultural process. Among them, we can mention the reduction of inputs used at the vineyard and an improvement in the quality of our wines.

To achieve good quality wines it is necessary to know not only the performance of the vines, but also the environment that surrounds them: climate, soil, irrigation, relationship with the flora and fauna, etc. In this last decade, the irruption of hi-tech tools has allowed us to obtain more and better information, reducing variability in a series of indicators; increasing certainty, richness and confidence in the information obtained, and therefore substantially improving predictions and results. The management of all these variables together is known as “Precision Winegrowing”, a practice used extensively at Viña Caliterra in order to know, study and plan all of the aspects of the viticultural work.

With this technology, consistent in the analysis of aerial photos taken by infrared cameras that measure the vines vigour levels in each planted sector, extensive fields can be worked as if they were a boutique winery, such as the 288 ha (711.1 acres) planted at the Caliterra Estate in the Colchagua Valley.

The precise moment to harvest is determined by the chief winemaker and viticulturist in coordination with the multispectral images. The images detect areas within each block with more or less vigour, and consequently the degree of maturity that the grapes should have thanks to the specially designed software that analyses the multispectral images taken by a satellite or airplane.

The difference with the traditional method is in the way how the grapes are picked, changing from a “row picking” system to a irregular “polygon harvesting” system drawn by the differences of vigour in the vines. Done in this manner, harvest is made with grapes at their optimum ripeness and in homogenous lots, resulting in a better quality wine. In fact, it is surprising how harvest in the same block can be done in totally different dates, with differences of over 50 days from the first to the last harvest, because of the faster ripening of the less vigorous in comparison to the highly vigorous vines. With this technology, Caliterra has eliminated working with random samples to obtain average ripeness of the blocks and the traditional block or row harvest.

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The different polygons are recognized by analyzing the multispectral image similarly as it is done with X-rays. By adjusting sensibilities in the software we are able to "observe" vineyard areas that have homogenous vigour and have the size to separate them from others. Once the screen prediction is proved in the field, the polygon is tagged as an independent productive unit with samplings, counting, monitoring and other analysis, concluding with a selective hand harvest. The results have been much better than expected: efficient inputs and a high increase in quality.

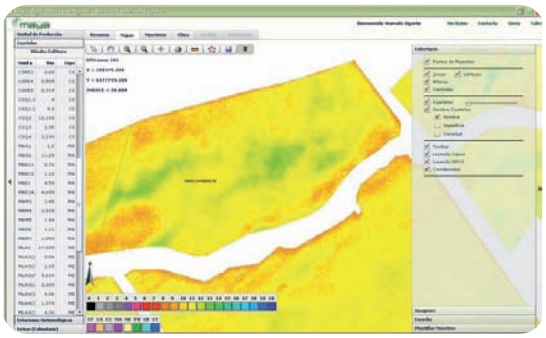
"The advantage of multispectral image technology is ability to detect and pick quality fruit that gestates inside the blocks in a very clear, detailed and effective way, waiting to harvest the grapes at their optimum stage", says Sergio Cuadra, chief winemaker of Caliterra. "With this technology, it is possible to harvest in the same area more than one lot of wine which turns out to be much better than the average obtained in previous productions. This system allows us to go to the fields to obtain all the richness that these heterogeneous soils can give us", adds Sergio.

The same technological platform is used to manage and store information of the vineyard and climate effects, starting with yolk counting in winter time, carrying on with incorporation of organic fertilizer in some specific sectors, measuring differentiated inputs of water along the estate and ending with the exact result of quality in the different lots of vinificated grapes.

The quality of Caliterra wines improved substantially with this detailed knowledge of each sector in the vineyard, the special natural nutritional treatment, specific sector irrigation used at low fertility polygons of the estate, reducing the use of inputs in sectors where they are not as effective throughout the vineyard and by identifying, dimensioning and selecting areas thanks to the precision viticulture.

"We have also incorporated the action of wild flora and fauna in our behalf in order to recover ecologic balances. For example, by extending the use of plague natural enemies to avoid the use of agrichemicals and reduce inputs at the vineyard, and by having over 50 wild horses to keep the hillside grass short and prevent forest fires. By implementing new technological advances and precision viticulture we continue working in an environmentally friendly manner seeking to take care of our ecological balances, our environment and maintain this natural setting for future generations" adds Sergio Cuadra.

Multispectral image of 4 ha. of Malbec

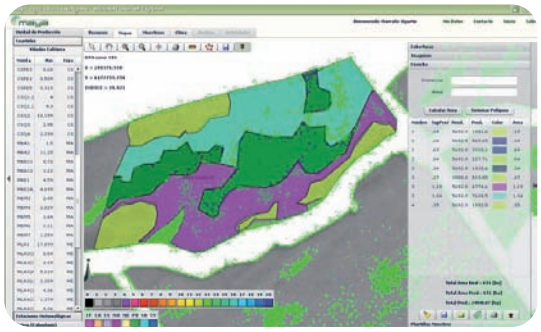


These images reflect vigor of the vines

Low vigor zones

Medium vigor zones

High vigor zones



Polygon definition to differ harvest dates. In this case, the first and last harvest differed in more than 50 days.

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