



SMARTVINEYARD™ IMPROVES CENTURIES OLD WINE TRADITION

CUSTOMER PROFILE

Name: Tokaj Hétszőlő
Location: Tokaj
Size of vineyard: 55 hectares
Number of stations: 1



AIMS OF THE PROJECT

To provide our customer such a solution that provides reliable information on botrytis so that high quality tokaji wine can be produced.

RESULTS

SmartVineyard™ system was implemented on the vineyard. With the accurate botrytis prediction our customer could further improve the quality of his wine.

THE CUSTOMER

The Tokaj Hétszőlő estate, known for its unique wines and rich history, is situated in the heart of Tokaj-Hegyalja, on the southern slopes of Mount Tokaj.

There is a jewel in every crown. To the South side of Mount Tokaj, the Royal Imperial Estate of Tokaj-Hétszolo owns the most fertile land and the best vines, and since 1502 Nature has given more generously of its fruits here than anywhere else. No surprise, then, that it has attracted the attention of the greats of the wine world for over 5 centuries!

In 2009, Michel Reybier became the new owner of this historic winery, which joins the list of exceptional estates in the Michel Reybier collection.

THE PROBLEM

In order to produce the world famous, high quality tokaji wine grapes need to get infected by botrytis. However, the quality of this wine depends on when and in what amount it is affected with the fungus. Therefore the effect of Botrytis can be both positive and negative as well. To produce top quality of tokaji wine, our customer needed such a solution that predicts the intensity of the disease

THE IMPORTANCE OF BOTRYTIS FOR MAKING TOKAJI WINE

Tokaji is the Hungarian form for the name of the wines from the Tokaj wine region in Hungary. This region is noted for its sweet wines made from grapes affected by noble rot, Botrytis. This style of wine has a long history in this region and is worldwide known for its quality.

Botrytis cinerea is a microscopic fungus that in the autumn causes noble rot on grapes, naturally increasing their sugar content. These overripe grapes lose the water they contain and become dry, or aszu in Hungarian. Becoming increasingly rare due to global warming, Botrytis cinerea's dependable and changeless presence in this area more than in others has contributed to the reputation of the Tokaj-Hétszolo Estate for 500 years. If only one terroir graced by Botrytis cinerea were to remain, it would have to be here.

Botrytis cinerea depends on the terroir to flourish, of course, but also on the weather conditions. Years with no Aszú grapes are not infrequent in the region. In order for the fungus to appear on the grapes, a good year will begin with a very hot summer, followed by a rainy period to make the grapes swell and burst, enabling the Botrytis cinerea to penetrate the entire bunch of grapes. Finally, another hot period is required to dry out the grapes and achieve the maximum sugar concentration.

Grapes infected with Botrytis cinerea and intended for use as Aszu used to be harvested in wooden baskets called puttony, each of which held 25 kg of grapes. This measure is still used today to indicate the quantity of aszu grapes added per barrel during winemaking. The higher the number of puttonyos, the sweeter and closer to a dessert wine the final product. Aszús are classified as 3, 4, 5 or 6 puttonyos.

Adding more than 6 puttonyos produces Eszencia, a very sweet elixir with a scarcely noticeable alcohol taste, made exclusively from botrytised grapes.

The finest flavours demand infinite patience and great humility. After extensively watching over the little miracle that is Botrytis cinerea, Aszú wines must be allowed a long period of rest and maturation to allow the splendour of their divine aromas to flourish.

At the Tokaj-Hétszolo Estate, each year's vintage spends almost 10 years in the darkness of the cellars before being ready to be drunk.

There is, however, no hurry. Tokaj dessert wines keep exceptionally well thanks to their high sugar content, and their good ageing qualities have also contributed to their distinguished reputation. Aszús can be conserved for 20 to 30 years, even longer for 5 puttonyos, and some even say that the best vintages will last for two centuries.

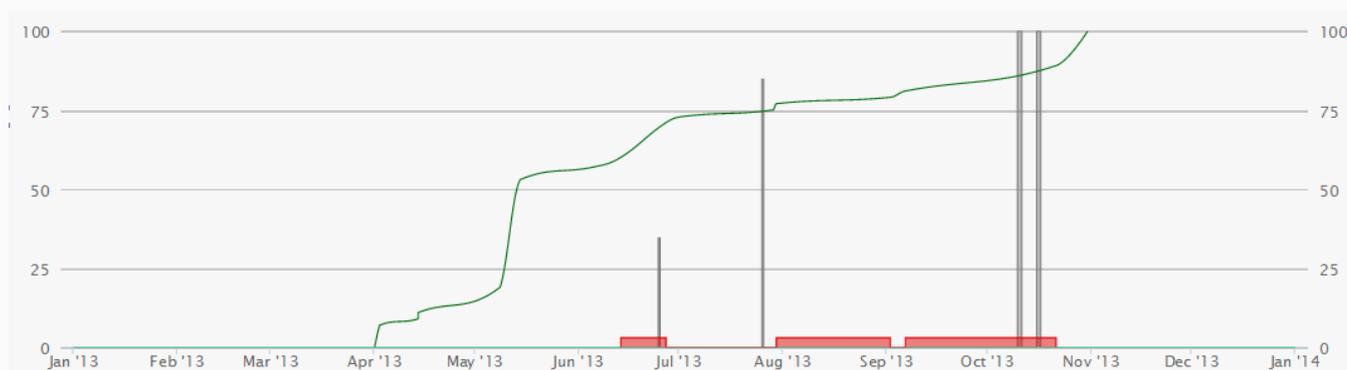
(Adapted from the winery's website at: http://tokajhetszolo.com/en/the_secrets_of_botrytis_cinerea/)

THE SOLUTION

We implemented a SmartVineyard™ at our customers. Due to the precision sensors, we acquired the most accurate available. The SmartVineyard™ user interface gave our customer the opportunity of monitoring those weather parameters that play a key role in the development of botrytis. Moreover, due to the algorithms implemented in the system, our customer gets accurate predictions on the disease. The sensors capture data every minute, however botrytis forecasts are displayed / refreshed in ten-minute intervals on the user's web-based interface. Of course, apart from botrytis, our customer receives information on other major grape diseases, weather forecasts as well.

With the accurate botrytis prediction our customer could further improve the quality of his wine.

WHAT OUR CUSTOMER SEES



What the graph displays

Grey mold / botrytis prediction graph displays the probability of infection in a given interval. The risk depends on temperature and wetness: the risk is calculated if a wetness period lasts long enough.

What it represents

The graph visualizes if conditions were suitable for a possible infection during the selected interval. The mechanism is similar to the black rot diagram: a value around 100% means that all circumstances have been ideal for a long enough to allow development and spreading.

Infection efficiency	Risk	Recommendations
0-50	Low	Occasional disease control is enough
50-95	Medium	Treatment should be started
95-100	High	Treatment should be started