

VineSense: The perfect tool for sustainable viticulture

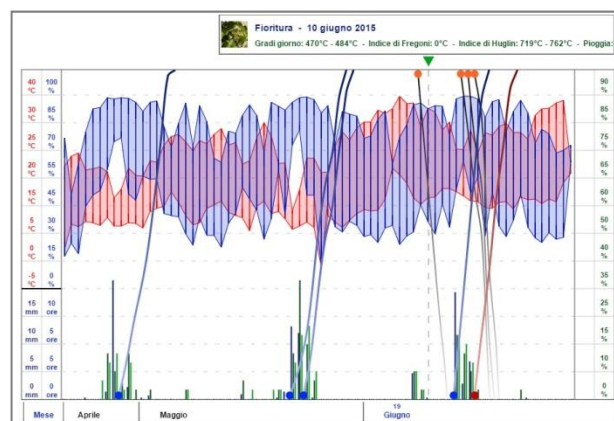
Netsens' VineSense® monitoring system consists of a **main station**, equipped with standard weather-climatic sensors (rain, wind, solar radiation, atmospheric pressure), and several **wireless units equipped with micro-climatic sensors** (air temperature and humidity, leaf wetness, soil moisture); the wireless units, positioned **inside the rows**, acquire the micro-climatic data and transmit them via radio to the main station; this, using a GSM-GPRS system and a SIM card, transmits all the data to our service center.

Our Customers can then view all data (both in real time and historical) and use the models that process this data and that are necessary to match various agronomic needs.



✓ Decision Support System for pest management

The VineSense systems, in addition to the analysis of the collected data, also include models for the analysis of the **development and / or risk of infection of the main phytosanitary adversities for the vine**. For each measurement point installed, the system evaluates the micro-climatic conditions in relation to the different cycles of the growth of fungal pathogens (downy mildew, powdery mildew and botrytis), with particular reference to the temperatures and the leaf wetness time (**providing separate output for the upper and lower page of the leaves**), an essential feature to obtain a greater reliability of agronomic models, and a unique feature of the systems we produce. With the aid of these models, agronomists can have **reliable and measurable data** to decide the best phytosanitary strategies and verify the effectiveness of the treatments carried out.

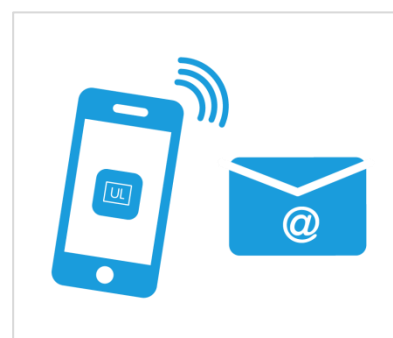


Advantages: possibility to reduce the number of treatments;
Possibility of documenting a sustainable phytosanitary management.

✓ Frost alert

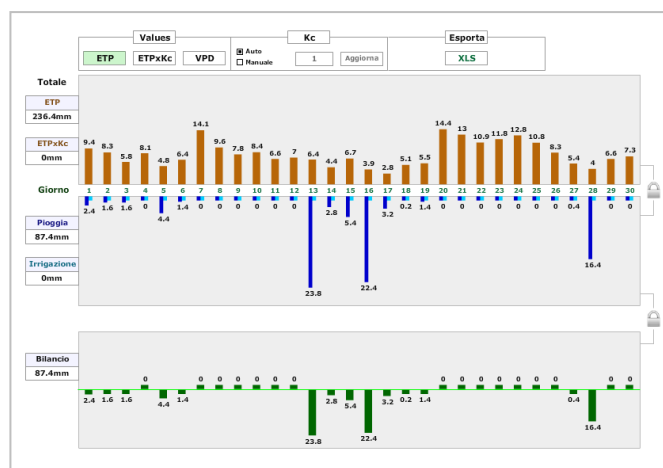
For each measurement point, a **prediction model for night frosts** is available, which estimates the probability of a freeze on the following night. It is therefore possible to set alarm thresholds (both on the risk of frost and on the temperatures), to set-up any emergency practices and reduce damage and loss of production.

Advantages: prevention of damage from late frosts;
Data record for insurance purposes.



✓ Evaluation of water resources available to plants

The VineSense systems provide a model for calculating the water needs of the plant, in relation to the weather-climatic conditions and the stage of development of the crop. Through these models, our system returns, day by day and at each measuring point, **the amount of water lost by evaporation from the soil and transpiration of the plant**, translating the quantities into liters per square meter. In addition, the volumetric soil moisture measurement sensors allow to accurately measure the percentage of water in the ground, at multiple depths. Even in the absence of an irrigation system, this information is very useful for deciding the working of the soil and the management of the foliar system.



Advantages: evaluation of water stress; correct management of irrigation shifts; more information for soil tillage, grassing and foliage management.

✓ Record of historical climatic data

All collected data is permanently stored in our service center. It is therefore possible to create and print **annual reports**, with an indication of the average and cumulative data of the various meteorological quantities, and to compare these data with the phases indicated **in the phenological agenda** available on the system, year by year.

Advantages: possibility to compare the climate of different seasons to face the increasing climatic variability, and towards the results of the final product.

✓ Our systems are designed and manufactured in Italy by Netsens

With **more than 1500 systems installed and active**, Netsens is the only Italian company that **designs and manufactures in Italy** all the components of the system: sensors, communication systems, software and agronomic models, directly providing support services and technical support, with the possibility of creating customized maintenance programs and guaranteeing the full functionality of the systems for a long time.

Remaining at your disposal to provide further information, we hope to have you among our prestigious Customers.

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