**Stations & Sensors**

The starting point for the use of plant disease models are accurate measurements of environmental parameters.

Pessl Instruments stations are easy to install and maintain, and provide detailed information on the environment in which they operate.

The *iMETOS*® 2.2 IoT 200 comes with the complete sensor set for the calculation of the disease models available on the *ng.FieldClim*® mate.com platform.

**Insect Monitoring**

To optimise field defence strategies, *iMETOS SCOUT®* can be used. It is an electronic trap which enables remote monitoring of insect population development such as the grape berry moth *(Lobesia botrana)* and the *Drosophila suzukii*.

The solution uses an automatic learning algorithm (machine learning) for the recognition and the counting of insects. Availability from a PC or smartphone enables the technicians to manage the control operations in the territory more efficiently.

**Contact us**

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**Crop Health Management**

**Turning information into profits**
Plant Disease Prediction Models

A plant disease model is a mathematical description of interactions among the environment, the host plant and the variables related to the pathogen that can lead to the development of the disease. The more advanced models are those which can predict the impact or severity of the disease and the development of inoculum.

Pessl Instruments models have been developed to provide the best information possible to enable decision making and use the best tools to produce more, both in terms of quantity and quality.

The majority are a result of international scientific cooperation with research institutes and universities over the last 30 years. Having been used by farmers for several years in different climates and environments, they have proven their efficiency over time.

Pessl Instruments has more than 80 disease models for more than 35 crops, which can be accessed directly through the ng.fieldclimate.com platform.

To offer full support for plant protection management we collaborate with the Swiss partner meteoblue. Plant disease models are thus based on highly precise weather forecast which is localized and calibrated on the monitoring site. A forecast of all the main meteorological variables and other agronomic information, such as the window for phytosanitary interventions, is provided on an hourly basis, for 7 days and updated each time the service is accessed on ng.fieldclimate.com.

**What you get:**
- Highly precise weather forecast of all major meteorological variables
- Disease model calculation and other agronomic information
- Hourly forecast for 7 days
- Real-time data at the time of accessing the service

The spray window helps identify suitable periods for the application of crop protection measures by showing suitable (green), less suitable (yellow) and unsuitable (red) periods for spray application.

**Information management in the vineyard is of key importance for the decision-making process. It leads to the production of high quality grapes and is the starting point of the production of fine wines.**

We have been helping grape producers and wine experts in the management of their crop for more than 25 years, and were pioneers in producing weather stations capable of calculating disease models for downy mildew of the vine.

**Other Disease Models**

**APPLE**
- Apple scab (Venturia inaequalis)
- Brown spot of pear (Cladosporium cladosporioides)
- Scab of the light (Scabrous amorphous)
- Ripe rot accumulation and leaf growth
- Chilling periods

**PEAR**
- Pear scab (Venturia inaequalis)
- Brown spot of pear (Cladosporium cladosporioides)
- Chilling periods

**CHERRY**
- Blossom blight (Monilinia fructigena)
- Rainfall accumulation and leaf growth
- Chilling periods

**CITRUS**
- Alternaria rot (Alternaria alternata)
- COLLECTORIONS AURICULAT

**PEACH**
- Peach leaf curl (Pseudomonas syringae)
- Peach Scab (Streptomyces pyrini)
- Initial accumulation and leaf growth
- Chilling periods

**OLIVE**
- Olive scab (Pseudocercospora oleae)
- Anthracnose

**NUTS**
- Walnut scab (Cercospora lycopersica)
- Walnut blight (Cercospora coryli)
- Parelle and shag blight
- Rust infection

**STRAWBERRY**
- Grey leaf (graminicola coronus)
- Powdery Mildew (Sphaerotheca pannosa)
- Rainfall accumulation and leaf growth
- Chilling periods

**BLUEBERRY**
- Ripe rot (Coryneum Lidae)
- Anthracnose (Discolous virens)
- Chilling periods

**PLANT DISEASE PREDICTION MODELS**

- Downy mildew (Plasmopara viticola): Primary reflection according to Cortesi, Hill et al. Secondary infection according to Arena, Blaser and Gethman (incubation period time according to Moulier and Staeumer)
- Powdery mildew (Podospora australis). Secondary infection according to Gubler and Thomas and powdery mildew risk modified to take into account the effects of A. quisqualis
- Grey mould
- Black rot
- Anthracnose
- Leaf growth and rainfall accumulation
- Fungicide wash off
- Grape berry moth

**DISEASE MODELS FOR VITICULTURE**

The METTEO® (METTEO® 3.3 and METTEO® 2.0) of products provides the raw data [leaf wetness, leaf wetness, temperature and humidity] that are used in the mathematical calculation of disease models. They are available through the ng.fieldclimate.com platform - for the main plant diseases and insects.

**THE MODELS HAVE BEEN VALIDATED THROUGH THE YEARS OF USE IN THE WIDE RANGE OF WINE-GROWING AREAS.**

In the graph you can see how a period with rainfall, long intervals of leaf wetness and high relative humidity combined with air temperature is followed by the development of a primary infection of pathogens. When the infection reaches 100%, the model begins to calculate the incubation period for this infection. When 100% incubation is reached, symptoms are visible on leaves (oil spots).