

vinoLAS®

Laser-based remote detection of fungal infestations in viticulture



Brief description

The occurrence of harmful fungi in viticulture can lead to major economic losses. Detecting and combating fungal infestations at an early stage is vital in order to implement targeted countermeasures and restrict the spread at a local level. Systematic inventory control makes it possible to reduce crop failures and the use of crop protection agents.

The *vinoLAS*® remote detection system, developed by the DLR Institute of Technical Physics, is based on laser spectroscopy techniques. It is especially designed for use in the **contactless** detection and classification of fungal infestations **on surfaces**.

vinoLAS® is a lightweight, compact laboratory demonstrator that enables the detection of fungal infestation in selected places as well as **over large areas in a short period of time**. The laser spectroscopic approach offers two major advantages over passive detection systems. It can be used regardless of weather conditions and daylight, while also maintaining a **high degree of sensitivity**. Defined communication interfaces and real-time on-board data processing allow comprehensive and systematic investigation of large areas under cultivation, allowing the implementation of appropriate measures to combat any diseases locally and at an earlier stage, thus improving crop protection and increasing yield.

Facts and figures

Remote system for the detection of fungal infestations in viticulture using laser spectroscopy

- Sensitive detection system that can be used regardless of weather conditions
- High sensitivity and specificity – identification of type of fungal infestation and classification via spectroscopic signatures
- Long-term, systematic and large-scale monitoring of crop inventory

Uses and prospects

- Attachment unit to a moving platform (for example, a towed sprayer)
- Optimisation of spraying intervals and minimisation of the use of crop protection agents
- Fully automated detection system, following further size reduction also drone-compatible
- Expansion of databases for detection of fungal diseases in fruit and vegetable cultivation

Parties involved

DLR Institute of Technical Physics,
Lampoldshausen,
DLR Technology Marketing
Hochschule Geisenheim University –
Department of Crop Protection

