PROJECT FACTSHEET

MonESCA

With the help of drone data, a yearly monitoring of the esca will be established which shall allow a better understanding of the disease.

Inspiration

In the Mosel valley in Luxembourg, high quality wines are produced and wine production is of outstanding local economic importance. Esca is a trunk disease, which is not new, but its recent spreading is devastating. Probably climate change led to this tremendous spreading in Luxembourg as well as on the whole globe. Esca-related phenomena include wood decay, grapevine leaf stripe disease and vascular dysfunction. Esca is still poorly understood and no treatment to prevent or minimise the infections of the plants exists. Winegrowers are facing this problem without having a sustainable solution. Remote sensing techniques provide spatial and spectral information that allow for the detection of symptomatic or missing plants within a vineyard.

As consequence, the project MonESCA was developed together in collaboration between different working groups at LIST (remote sensing, agriculture and geoinformation), the drone company Luxsense, the competence centre for research and consulting in the field of organic agriculture and viticulture IBLA, the Institut Viti-Vinicole (IVV) and four winegrowers. The aim of the research project is the continuous high resolution monitoring of esca symptoms as well as the development of recommendations for practical viticulture.

Innovation

Drone based very high-resolution images can help monitoring long term and small scale patterns of diseases. Recently, innovative hyperspectral sensors, which are very light and can be installed on drones, came on the market. This allows for new insights into diseases reactions and developments in vegetation canopies which haven't been possible before. Esca, in contrast to many other diseases is not spreading continuously within the vineyard but occurs on single plants. Furthermore, symptoms may occur in one year and disappear the following year on infected plants. Thus, very high resolution is necessary to detect the symptoms. In combination with thermal sensors, innovative methods will be developed which may help to detect and understand the disease.

Furthermore, different tools like a mobile app will be developed which may help the data acquisition in the field. A visualisation tool will allow the winegrower to observe the disease patterns in his vineyards. The different management strategies which are also partly tested within the project will be collected and described.

Impact

Esca is one of the most impacting diseases in viticulture. Even so it is still very poorly understood and management strategies are missing. We hope that the results of our project contribute to a better understanding of Esca and for the development of adapted management strategies. The very close collaboration with winegrowers and the development of advisory within the project make the research very practical and useful.

Partners

Luxsense (LU) , Ibla (LU)

Financial Support

Ministère de l'Agriculture, de l'Alimentation et de la Viticulture

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