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OPTIMIZE PLANT DEFENCE BY MONITORING THE VINEYARDS AND USING A DECISION SUPPORT SYSTEM (DSS)

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HOW WILL BE THE FUTURE OF PEST MANAGEMENT?

The EU Directive n° 128 (21 Oct 2009) – Sustainable use of pesticides - highlight that plant defence should be based on the field monitoring and forecasting systems allowing an early diagnosys of emerging pests and diseases.

WHY MONITORING AND DECISION SUPPORT SYSTEMS (DSS) ARE IMPORTANT?

Pesticide application should be schedule based on the prediction of infections (DSS) and on the occurrence of symptoms in the field.

RESEARCH QUESTION & RELEVANCE

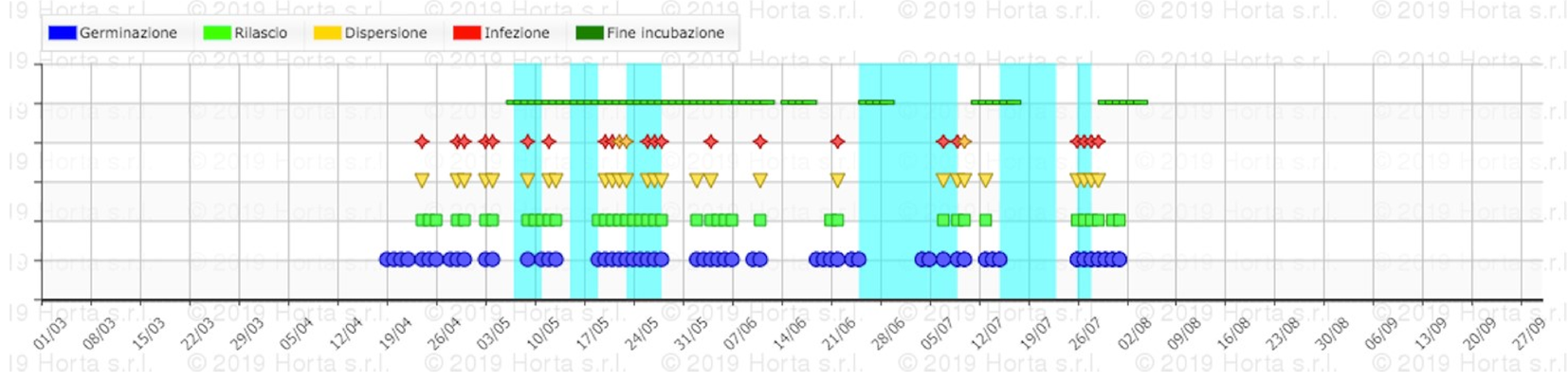
Is it possible to optimize pesticide applications monitoring the vineyards and using DSS?

The accurate monitoring of vineyards in the transborder Karst area and the use of a forecasting model allowed to help growers with plant defence using less impacting pesticides and with lower dosages.

EXPERIMENTAL APPROACH

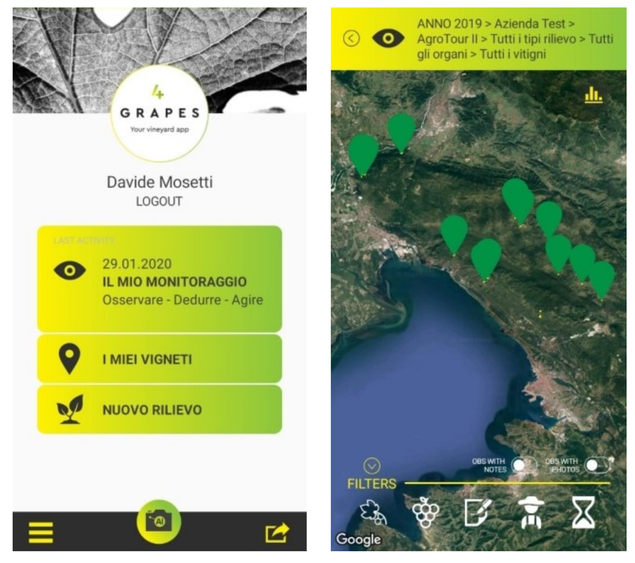
- Ten vineyards of Refošk were selected in the tranborder Karst and monitored every week in the seasons 2018-19 for the occurrence of downey and powdery mildew, moths and other insects using the app 4Grapes®.
- In two sites, weather data were implemented on Vite.net® DSS to forecast infections in the field.
- Based on monitoring and DSS results, a low input pest management strategy was decided

EXPERIMENTAL RESULTS



Evolution of downey mildew infections in the season 2019 in Slovenian Karst

↑ Vite.net® forecast the risk of main diseases. Based on the prediction, a fungicides can be scheduled correctly reducing both the application rate and the number of interventions



↑ 4Grapes® allowed a precise vineyard monitoring

CONCLUSIONS & PERSPECTIVES

- The occurrence of pests and diseases in Karst area was limited in both seasons 2018 and 2019
- The adoption of a Decision Support System allowed the identification of infection events of powdery and downey mildew
- By monitoring the vineyard with 4Grapes® and forecasting infections with Vite.net® the management of diseases in Karst was carried out with 7 and 14 pesticide interventions in 2018 and 2019, respectively.
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