The Problem
Global agriculture relies on synthetic Plant Protection Products (PPP) for plant disease control to support sustainable yield productivity. Farmers and crop advisors follow conventional crop protection strategies that were established after the Green Revolution (1950-1960), maintaining significant use of PPPs despite the negative impacts on the environment and human health. This clearly indicates that more sustainable PPPs should be used under common rules for safer and more efficient application.

The Approach
The proposed IPM system consists of innovations in DSS for disease prediction, early disease detection methods, alternative synthetic PPPs and substituting/supportive bio-PPPs, optimized dosage and timing of treatment schemes, and smart spraying applications of PPPs to improve deposition and coverage, while reducing the risk of contamination.

OPTIMA Overall Objective
The overall objective of OPTIMA is to develop an environmentally friendly Integrated Pest Management (IPM) framework for use-cases in Apple orchards, vineyards and open-field carrots by providing a holistic approach which includes the major elements related to integrated disease management:

(i) combined use of bio-PPPs and synthetic PPPs,
(ii) DSS for disease prediction,
(iii) spectral disease detection systems,
(iv) precision spraying techniques.

OPTIMA Main work-flow diagram

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