



LOCATION



Belgium

PARTNERS



3.4

Open Platform for Improved Crop Monitoring in Potato Farms

CHALLENGE

Farmers with large areas of potato fields, spread out geographically over several communities, often suffer from lack of sufficient ground truth data (measured yields, crop variety, exact planting date). This hampers the calibration and validation of crop growth models and the provision of specific advice on field management practices. Early identification of the fields that need extra activities (irrigation, fertilisation) to boost production, and estimating the expected crop yield as a result of these activities, can optimise the farmer's revenues. At the same time, an estimation of crop yield is important for the downstream potato processing industry, securing storage facilities, and accepting purchase orders. However, this data is not always readily available.

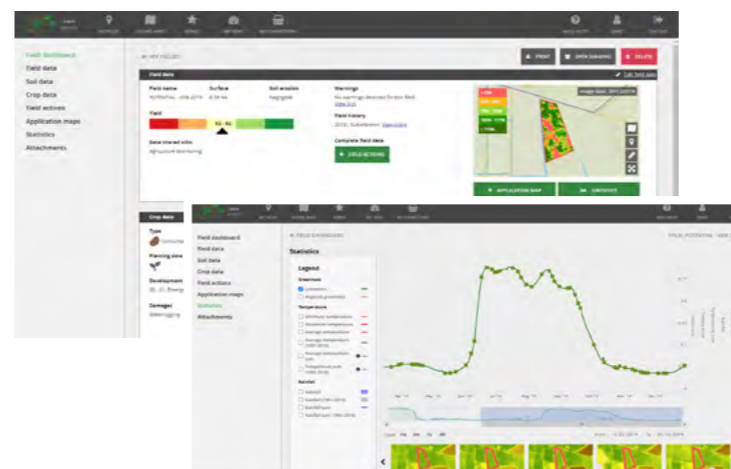
AIM

This pilot aims to integrate field machinery data from AVR potato harvesters with remote sensing, meteorological and soil data into the WatchITgrow (WIG, watchitgrow.be) platform, to increase ground truth data. Using detailed data from the machinery in the field (detailed yield information, planting dates), the manually fine-tuned physical crop model can be replaced by a purely data-driven approach using machine learning (ML) techniques.



HOW

AVR Connect is the recently started IoT cloud platform that collects data from the AVR field machinery (potato planters, yield sensors on the potato harvesters) using 4G communication and makes the data available to third parties. Geotagged yield data are collected at a frequency 1Hz, which leads to very detailed yield maps. The data collected via AVR will be used as training data for machine learning models that predict yield based on satellite imagery (Sentinel 1 and 2, Copernicus program), weather and soil data.



BENEFIT

Physical crop growth models need to be manually fine-tuned for every crop type and variety, using ground truth data. The increase in ground truth data (AVR harvesting machines) is expected to lead to better crop growth and yield prediction models, while the conformance to DEMETER standards ensures that the data is discoverable and accessible to third parties that might want to develop their own algorithms.