PROJECT FACTSHEET

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BIOSCOPE

A sustainable system for ‘connected’ farmers, using both satellite and drone imagery, for a variable-rate treatment to crop fields.

INSPIRATION

In traditional agriculture, farmers apply fertilizers and pesticides to their crop fields in a constant and global way. However, the prevailing soil properties, water availability and pest occurrence, affect the crop with local variations and many products are worthlessly widespread on crop fields. Rationalizing this spreading, through precise and controlled application of the right product in the right place at the right time, would reduce both the impact of agro-chemistry on the environment and farm running costs. In parallel, policy change, technological development and economic pressure are also key factors enabling the evolution from traditional to precision agriculture. To achieve this, farmers must receive detailed and efficient crop field reports and remote sensing is one of the best ways to do this. Unfortunately, one cannot rely on the use of satellite imagery alone. In bad weather conditions, such as an overcast sky, this imagery does not provide images of sufficient quality and therefore needs to be completed by images taken from drone flights over crop fields. A real logistical challenge for BIOSCOPE project partners.

INNOVATION

BIOSCOPE is a ‘demo’ project which aims to set-up a sustainable system for ‘connected’ farmers so that they can apply a variable-rate treatment to their crop fields. This service, based on remote-sensing components from both satellite and drone imagery, will guide the farmer on the exact application area of a product, as well as on the appropriate dose. The project partners will thus develop a business model, an image processing chain, a drone image facility and a hyper spectral camera: a camera detecting and identifying substances and targets unobservable in the visible spectrum. As for LIST researchers, they will more specifically develop a new and innovative hyperspectral vegetation index, allowing ground vegetation to be quantified using data collected by satellites and drones, to improve the algorithm of application maps currently used by farmers. They will conduct full-scale tests at the heart of Luxembourg crop fields to validate their hypotheses. Then, LIST will contribute to the application of the final algorithm to the demonstration case.

IMPACT

At the end of the project, partners will develop a demonstration case for market. Including the services set up during the project, it will facilitate the development of innovative solutions for farmers. The project consortium will promote this innovative solution after the project is complete.

Partners

AeroVision (NL) , TerraSphere Imaging & GIS (NL) , Wageningen University (NL) , CROP-R (NL) , Aurea Imaging (BE) , Gamaya (CH)

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