PestNu

"Field-testing and demonstration of Digital and Space based technologies with Agro-ecological and Organic practices in systemic innovation"

The importance of Earth Observation Tools: The AgroRadar

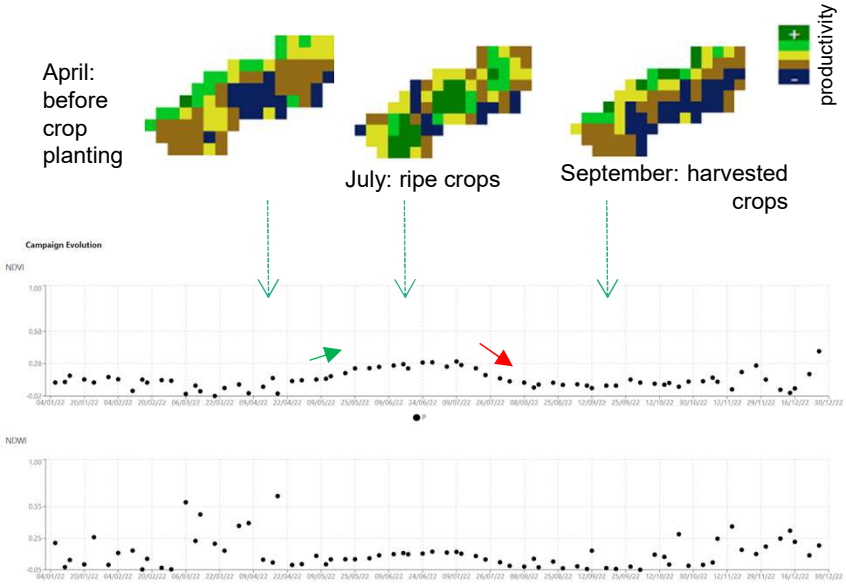
precision agriculture, remote sensing, blockchain, crop anomalies

Portugal

PestNu project follows the Farm to Fork and Green Deal strategies for a new and better balance of nature, food systems and biodiversity, by field-testing and demonstrating space-based digital technologies and agro-ecological practices to reduce the pesticides and fertilisers use. Earth Observation (EO) tools arise as a good technological and cheap approach to map plant nutrients and pests using satellite images from the Copernicus program data/services from European Space Agency (ESA).

Farmers can have their crops monitored and inspected in space and time. They can access information on plant productivity and water stress, vegetation structure, regional canopy temperature (extremely important to delineate pests and diseases management risk zones) through the SmartAG application, the user-friendly interface of AgroInsider's AgroRadar platform (deployed in PestNu), which automatically downloads and processes EO (ESA Sentinel 1, 2) and Meteosat 2nd Generation (Land Surface Temperature) data using artificial intelligence algorithms that provide big data and deep learning abilities on agro data.

Through the SmartAG app, the farmer can also register georeferenced evidence - samples' coordinates, photos, videos and sound recordings from the field can be automatically uploaded to the database, thus improving traceability procedures of food production systems targeting the Sustainable Development Goals marketplaces. Moreover, PestNu foresees additional protection of the evidence registered through AgroRadar by blockchain technologies (deployed by CERTH). In this way, PestNu is creating a transparent process from food production to the end consumer throughout the value chain.



6 Monthly analysis of crop (tomatoes and peppers) productivity in 2022

Temporal analysis of tomato and pepper production in 2022 at CDTA (Spain) with visible productivity increase up to July when they were ripe (maximum productivity and NDVI - Normalized Difference Vegetation Index - value)

Practice abstract n.5

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