Service ID S00222

Location Italy

Testing and validation of smart fertilisation systems

Provider service

Università degli Studi di Napoli (UNINA)

Link to content

https://agrifoodtef.eu/catalogue-of-services/testing-and-validation-smart-fertilisation-systems

Type of Sector

Arable farming, Food processing, Greenhouse, Horticulture

Accepted type of products

Design / Documentation, Physical system, Software or AI model

Type of service

Collection of test data, Data analysis, Provision of datasets, Test design, Test execution, Test setup, Performance evaluation

Description

Precise resource management requires monitoring of plant nutrient status through technologies that allow continuous and rapid assessment. Nowadays, several proximal and remote sensors are used in combination with digital platforms to assess soil/crop nutrient requirements and design customised fertilisation schemes. We help customers in assessing and validating the reliability of proposed smart fertilisation systems in an experimental field testing context, in which the proposed systems are tested vs measured soil nutrient contents, plant nutrient status and overall yield performance. The service will help companies in testing and validating their technologies in real-world conditions before launching them on the market.

How can the service help you

The service supports companies in fine-tuning their digital products by testing and validating how the proposed fertilisation technology will perform in the field. Customers with advanced prototypes need field validation before entering the market. After testing, we will provide data and critical analysis to document the performance of the proposed system and points for improvements (at software or hardware levels).

How the service will be delivered

The service can be customised by selecting appropriate remote sensing technologies and ground sensors based on crop type (e.g., cereals, vegetables), soil characteristics, and local climate conditions. Machine learning models can be adjusted to improve the accuracy of yield predictions and nutrient management for specific use cases within the limits of available data resolution (e.g., 10–30 m for satellite imagery) and sensor coverage. Specific nutrient maps, N-index scores, or vegetation trends can be provided, allowing technology providers to evaluate and refine their solutions by focusing on the most critical aspects of fertilisation efficiency and crop performance.

Service customisation

The service will be performed at the experimental farms of the University of Napoli Federico II. Depending on the crop and/or need for repetitions, the service may last two growing seasons. Companies will receive a report on the fertilisation system performance and actionable insights to improve it. Pilot testing can also be carried out in parallel with associated farms to reduce the time of service delivery and ensure a broader testing analysis.