Co-funded by the European Union

Program: «CENTRAL MACEDONIA» 2021-2027
Action: Innovation Investment Plans»

Project title:

«Development of an Integrated Management and Monitoring System for Equipment Using Plant Protection Products»

Brief Description:

The Centre for Research and Technology Hellas participates in the Program «Central Macedonia» ΕΣΠΑ 2021-2027 through Action «**Innovation Investment Plans**» which is co-financed by the European Union and National Resources.

The project titled "Development of an Integrated Management and Monitoring System for Equipment Using Plant Protection Products" aims to develop a management and monitoring system for equipment used in applying plant protection products in fields, including the management of empty packaging after use.

Indicative expected benefits of this project, through its interventions, include:

- Development of an integrated management and monitoring system for equipment using plant protection products, serving as an essential tool for producers, with significant economic and environmental benefits.
- Establishment of innovative rational usage methods for plant protection substances through new technologies, contributing to the modernization of agricultural practices leading to future-oriented agriculture.
- Optimization and rationalization of the use of plant protection substances, resulting in increased producers' revenue through reduced chemical inputs and enhanced productivity on treated agricultural land.
- Increased environmental benefits by reducing the quantities of agricultural chemicals applied to crops, thereby reducing the environmental footprint of farms adopting the system.
- Development of expertise by the company ZAINDOUDIS O.E. in cutting-edge agricultural technologies through project implementation, thus strengthening the agricultural spraying equipment market in the Central Macedonia Region.

The project's goal is to create a series of tools and best practice guidelines for applying and managing plant protection products, providing a sustainable competitive advantage to producers using the system. These best practices are tailored to specific conditions of the critical process of applying plant protection products, significantly affecting product quality and safety and environmental impact. Data collection and analysis of critical parameters occur through various technologies, supporting decision-making in critical application stages. Specifically, the project includes:

- Extensive use of digital sensors (manometers, flow meters, GPS, etc.) for real-time monitoring of proper plant protection application.

- Development of an integrated monitoring and early warning system, supporting both operational parameter adjustments and environmental protection assessments.
- Design and development of a portable pilot station for correct use of plant protection products (applicable to linear crop spraying machines and orchard mist sprayers), easy for producers to use.
- Producer training and awareness programs addressing point and diffuse pollution sources and user safety, highlighting critical compliance points tailored to regional specificities.
- Development of a digital application (Smartphone Application) for systematic recording of plant protection product packaging to facilitate organized disposal and recycling.
- Creation of a decision support information system, synthesizing and analyzing data from field applications, user safety during application, and exposure assessments.
- Evaluation of economic sustainability, effectiveness, and acceptance of the proposed methods across technical, environmental, social, and economic dimensions.

Total Project Budget: 331.261,90€
CERTH's Budget: 206.846,90€