Inspirational ideas

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Olive groves and drones: science fiction turned reality

Andalusian Operational Group uses drones in olive farming to improve productivity and sustainability

How can drones improve olive farms? Andalusian Operational Group (Spain) 'I+D+i Precision Agriculture' is trying to find an answer to this question. For the past year, the group has been studying how they can improve productivity and competitiveness in olive farming, while protecting natural areas.

"This project started with an idea, a dream. A few years ago, the combination of drones and olive groves would have been considered as science fiction, but right now it is a reality," explains Luis Carlos Valero, manager and spokesperson of agrarian business organisation ASAJA-Jaén. "With this project we hope to enter a new era of precision agriculture, which will hopefully enable us to reduce costs and to focus on treatments that are necessary to optimise harvests in specific areas of farms. Besides, we hope that this project will significantly reduce the environmental impact of farming activities, saving on water and phytosanitary products."

Drone flights

In 2018, the first drone flights were carried out in July, October and November in olive groves of Jaén, Málaga, Granada, Córdoba and Almería. All the farms are located within the protected areas of the Natura 2000 network. The purpose of the flights was to check the status of the farms and the olive trees at different periods of harvest. The drones were equipped with the latest technology, including integrated multispectral and thermographic cameras. A team of the Andalusian Foundation for Aerospace Development (FADA) supervised the process.

Samples of soil and trees

In addition to the aerial data obtained by the drones, data in the form of samples is also being collected. Technicians of the Olivarum laboratory take samples of leaves and fruit and also of the soil. Valero: "These samples allow us to have a reference of the nutritional status of the olive trees, soil parameters such as humidity or ripeness of the olive. Our partner, the Instituto de Formación Agraria y Pesquera de Andalusia, is specialised in studying the Yield and ripening process of the olive. Therefore, they can determine the best time to start the harvest. The University of Jaén has developed the technology that can match the data from the drones with the samples. Moisture sensors in the soil can help in evaluating this."

funded by European Commission

"This Operational Group aims to encourage innovation, cooperation and knowledge development in rural areas and strengthen ties between agriculture and research. It will also improve the competitiveness of olive farmers, the efficiency of energy use in the olive grove and the management of water and soil resources in order to avoid erosion. As a final objective, we want to facilitate, through the knowledge of these tools, the creation and development of small businesses and the creation of employment," adds Valero.

The Operational Group is also collecting data on drone activity in this context such as flight zones, flight permits, possible flight restrictions, etc.

Valero is convinced that research is essential to improve the economic results of olive farms: "It would be wonderful if this project could encourage olive farmers to continue using drones, demonstrating that drones can become the ally of both the farmer and the olive grove."

The project will end later this year. Valero: "We are currently working on data analysis. As soon as we have results, we will disseminate them through journals and scientific publications. During the remaining months of 2019, we will again carry out field work, including flights and sample collection. After the field work, we will draw conclusions in order to apply these results to the creation of a specific technology adapted to olive grove management."

More information

https://asaja.com.es/grupo-operativo-drones-y-olivar

Video (in Spanish)

Photos: ASAJA-Jaén

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