Robots help farmers say goodbye to repetitive tasks

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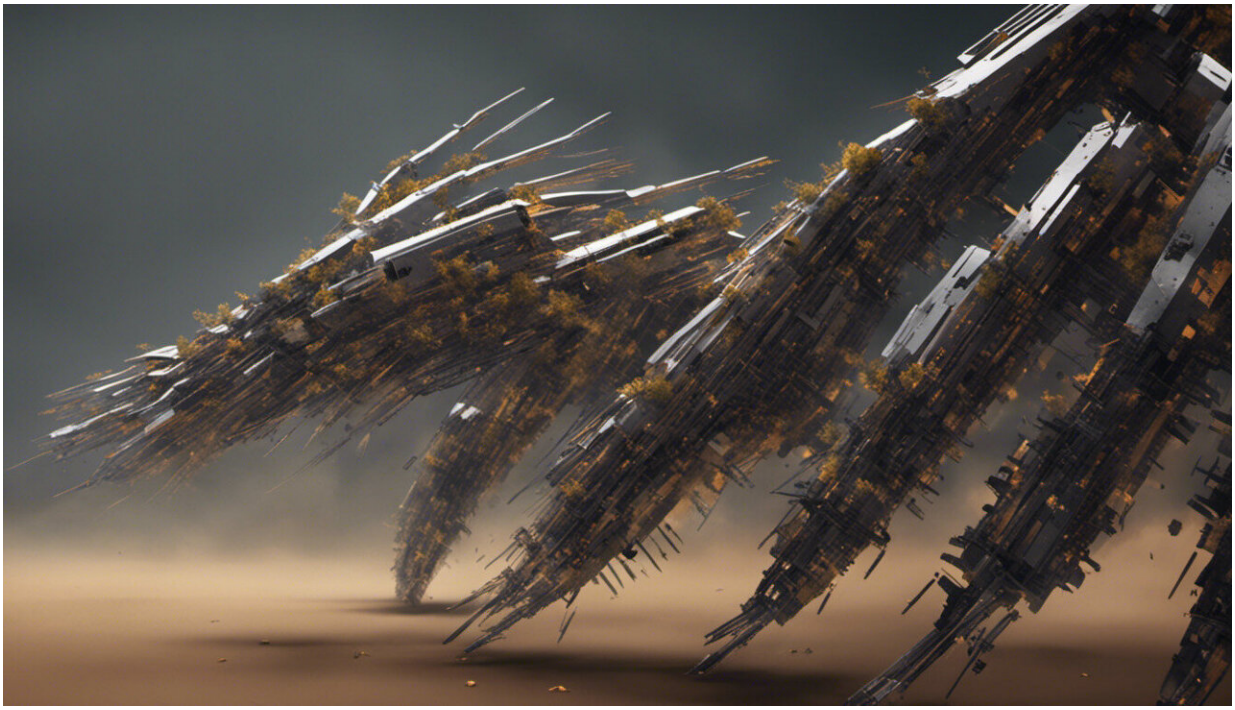

Credit: AI-generated image (disclaimer)

We do not often think about the labor that goes into bringing our favorite fruits and vegetables to our table. For farmers, growing healthy crops involves repetitive tasks such as weeding and spraying while the crop is growing. These tasks are not only repetitive, they are also costly and time-consuming. Robotic technologies can solve these problems by

relieving farmers from work that is mundane, unhealthy and unpleasant.

With this solution in mind, the EU-funded ROBS4CROPS project is working to accelerate the large-scale implementation of robotics and automation in European farming. Its main goals are to increase productivity, improve efficiency and promote environmental sustainability.

The ROBS4CROPS solution consists of a robotic platform that can assist farmers with different tasks and can also be tailored to different settings. Pilot testing is being conducted in Greece, Spain, France and the Netherlands.

"With ROBS4CROPS we combine technology and business expertise, as well as on-field know-how by growers. They are those giving insight and inputs to perfect the system," states Growth Lead Maja Žikić of ROBS4CROPS project partner Foodscale Hub, Serbia, in a news item posted on the "Innovation Origins' website. "The idea is to bring all the members of the value chain together."

Two solutions to the table

The project will provide farmers with two different solutions for automating processes. In the fully automated solution, weeding and spraying are carried out autonomously by robots. In the partially automated option, tractors are retrofitted with a smart box to automate processes. "Both platforms will be topped up with a number of smart implements for weeding and spraying," explains Žikić. "The goal is to help farmers get rid of repetitive tasks in different settings, from orchards to vineyards."

The ROBS4CROPS solutions are being tested in different areas. In France, ROBS4CROPS project partner Agreenculture's Ceol robot is

replacing mechanical weeding in Loire Valley vineyards to reduce labor costs and the number of weeding passes and chemical uses per season. It is tackling the problems of mechanical weed control in vegetable production.

Seasonal spraying of table grape vineyards entails various challenges—a high number of pesticide and fertilizer applications, high labor costs and workforce shortages. In the Greek pilot, these challenges are being addressed using the Ceol robot, a retrofitted tractor and an ASM model sprayer from Spanish project partner Teyme. Both the retrofit tractor and Ceol robot are being used on the same sprayer. This will help ROBS4CROPS researchers compare the two platforms and draw useful conclusions about their performance in the hilly Greek pilot sites.

By automating orchard spraying in Catalonia with the aid of a retrofitted tractor using Agreenculture's smart box and Teyme's EOLO model sprayer, ROBS4CROPS aims to reduce chemical use and labor. In the Netherlands, the project has set up a pilot in potato crop rotation. Project partner AgroIntelli's Robotti robot and a camera-based smart weeder will be used to test several tasks there, including early seeding, weeding, hilling and harvesting.

"Robots can relieve farmers from the burden of daily tasks by reducing them. Having robots in the fields means having some time to focus on more valuable tasks—such as production analysis," comments Žikić. The ROBS4CROPS (Robots for protecting crops) solutions can therefore result in higher quality products while also ensuring a smaller carbon footprint and less exposure to harmful chemicals.

More information: ROBS4CROPS project website: robs4crops.eu/

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