Chile: Researchers create prototype that measures damage in post-harvest fruit

Engineering academics from the University of Talca (UTALCA), in conjunction with the Universidad de la Frontera (Ufro) and the Bio-Bio University (UBB) started to work on a technological solution to measure the damage that the fruit receives due to the constant movements it undergoes after being harvested and before being shipped to its final export destination, which generates a high percentage of rejection of the fruit once it reaches its target market.

This initiative, which was first designed for berries and cherries, has the support of Fondef and is called the 'Decision support system for fruit harvesting based on the Internet of Things'. The project is led by the Ufro research team, Patricio Galeas, and Professor Mario Fernández of the Engineering Faculty of UTALCA -who is the alternate director-, as well as Luis Segura and Cristian Durán, who are both of the UBB and are in charge of executing different parts of the project.

"The transfer of the fruit until arrival in a foreign market can last several months, so it is essential to manage the products beforehand so that they do not deteriorate," said Professor Mario Fernandez of the University of Talca.

Progress

One year after the start of its execution, the project has made important advances. The team headed by Fernandez in the UTALCA has already built a first prototype that emulates the movements that the fruit undergoes after being harvested and that allows them to obtaining data through sensors.

The information to be collected includes the weight of the box, the damages of the fruit, and other characteristics that will allow an analysis and evaluation of the effect that the movement of the product inside the container produces on the fruit. "The researchers of the Bio-Bio University are working to generate a mathematical model that can predict the fruits shelf life depending on the conditions it's been through," Fernandez said.

Researchers expect to improve the system during the second year so that it has online communication. In addition, they are working on the development of a software based on the mathematical model that will help companies make decisions regarding the extension of these fruits ' shelf life, which has substantially increased their exports in recent years.

The project is part of the joint work carried out by the Engineering MacroFaculty made up by these three state-owned study centers in south-central Chile.

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