

MEDIA RELEASE

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SENSORS TO SPOT THE SWEETEST PEACH

How do you know if a peach is sweet without taking a bite? That is the challenge for researchers working on new hand-held sensing technology to measure the sweetness of any peach you point it at, and any nectarine, plum or apricot too, for that matter.

The device is one of three technologies being developed and tested in a new project launched today (Wednesday) by Food Agility Cooperative Research Centre (CRC).

Sensors for Summerfruit is a 2.5-year \$1.1 million Food Agility CRC project led by Agriculture Victoria in collaboration with RMIT University, Summerfruit Australia Ltd, and Australian technology companies Green Atlas and Rubens Technologies.

Food Agility CRC Chief Scientist Professor David Lamb says the ultimate goal of the project is to help growers get the right piece of fruit to the right consumer at the right time.

“From orchard to export, data-driven decisions are key. Two of the sensors, RMIT’s **Bistatic LiDAR** and Green Atlas’ **Cartographer**, will operate in the orchard helping to assess health status and predict fruit size, yield and maturity,” says Professor Lamb.

“A third sensor, Rubens™ **Fluorescent Spectrometer**, will be put to work in the packing sheds to detect sweetness, firmness and robustness for transport. It’s the closest thing to tasting the fruit, without actually taking a bite.”

The sensors will be calibrated on Agriculture Victoria’s Tatura SmartFarm in Goulburn Valley, and then road-tested in commercial orchards and packhouses in Goulburn Valley, Swan Hill, Cobram, and Sunraysia.

Research Leader Crop Physiology at Agriculture Victoria Dr Ian Goodwin says the project aims to benefit the Summerfruit sector by growing export markets and improving their operations.

“Fruit is downgraded or redirected at the harvesting and packing stages because it doesn’t meet consumer preferences for that market or, if fruit is harvested too early or too late, the quality can deteriorate in transit,” says Dr Goodwin.

“Using these sensors, we could help growers tailor their practices to grow the fruit consumers want, triaging fruit in the packing sheds, and only exporting those robust enough to make the journey.”

Summerfruit Australia Ltd CEO Trevor Ranford said the project would focus on the Chinese market but would ultimately be relevant to any export market for Australian stone fruit.

“We have spent years improving our understanding of consumer preferences,” said Mr Ranford.

“For example, when it comes to nectarines, our Chinese consumers prefer yellow nectarines that are sweet and low in acid, with a redder skin colour.”





This depth of consumer understanding has seen Australian Summerfruit exports increase annually by an average 12 per cent for the last 10 years.

“In the 2019/20 season alone the industry exported over 21,000 tonnes of stone fruit worth \$89.11 million,” said Mr Ranford.

“This project takes it to the next level, helping us refine those requirements and make decisions along the supply chain to grow high-quality fruit that looks, tastes and feels perfect to Chinese consumers and consumers in more than 40 other export markets.”

Quotes from other project participants:

Professor Roberto Sabatini, Chair of the Cyber-Physical and Autonomous Systems Group, RMIT University

“This project presents an exciting opportunity to demonstrate that our remote sensing and early diagnosis technologies are cost-effective, impactful and scalable both within and beyond the agriculture industry. Cyber-physical systems, sensor networks and data fusion technologies are increasingly relying on artificial intelligence to maximise business performance, profitability and sustainability in all sectors driving the digital transformation here in Australia and globally.”

Daniel Pelliccia - Founder, Rubens Technologies:

“Our aim is to help farmers grow the "perfect plum". Growers need to be able to identify the right harvest timing for optimum quality, but that's just the beginning. A plum may taste fantastic at harvest time, but is it robust enough to make the journey from Victoria to a market in Beijing? Our fluorescence spectrometer technology has the potential to give growers a fast answer without damaging the fruit.”

Steve Scheduling - Founder, Green Atlas:

“Our technology is currently in use in apple, almond, kiwifruit, wine grape, avocado and cherry orchards around the world. This project elevates our offering, by testing how well we can measure not only the yield of flowers, fruitlets and fruit in an orchard, but also the size and colour of the fruit. We are excited to demonstrate how the Cartographer can benefit Summerfruit growers.”

Technology:

Green Atlas Cartographer – a fast-moving mobile sensing platform equipped with optical cameras, LiDAR and GPS. It is currently used to map orchards, measure fruit size, yield and tree canopy size in other industries. The team will test how well the Cartographer works for different types of Summerfruit.

RMIT Bistatic LiDAR – This innovative technology uses ground and drone-based sensor networks to detect changes in molecular and aerosol concentrations. The data is then analysed using artificial intelligence. The team will test whether Bistatic LiDAR can be used to accurately assess the health of both individual plants and entire orchards by measuring key parameters for photosynthesis and fruit quality.



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Rubens™ Fluorescence Spectrometer – this hand-held device measures fluorescence spectra in fruit. The team will test whether it can accurately measure sweetness, firmness, maturity and internal disorders in Summerfruit.

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Food Agility CRC is a \$150million+ innovation hub that harnessing the power of data and digital technology for a more sustainable food future. We are funded by the Australian Government under its Cooperative Research Centre program and by our partners, which include agrifood businesses, technology companies, research institutions, agribusiness and service providers. Visit www.foodagility.com



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