

Smashing the avocado production bottleneck

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Queensland is responsible for 50 per cent of Australia's high-value avocado crop.
Credit: University of Queensland

A method of supplying 500 times more avocado plants to industry than is currently possible has been invented by University of Queensland researchers.

The new stem cell multiplication method could double avocado production in Queensland, as well as reducing the time it takes for new avocado varieties to reach commercial orchards from 10 years to three years or less.

Professor Neena Mitter from the Queensland Alliance for Agriculture

and Food Innovation, a UQ research institute supported by the Queensland Government, is leading the project.

"At present, to supply new [trees](#), the avocado industry follows the same process they have for the last 40 years, which is to take cuttings from high quality trees and root them," Professor Mitter said.

"However, this is a cumbersome, labour and resource intensive process, as it takes about 18 months from the cutting stage to having a plant for sale, which creates a huge bottleneck for nurseries across the globe in the number of trees that they can supply trees to growers."

Queensland produces 50 per cent of Australia's high-value avocado crop, worth \$460 million a year.

However, the industry is hampered by a shortage of high-quality planting material and there is a backlog of plant orders until 2020.

With funding from the avocado industry and Department of Agriculture and Fisheries, Professor Mitter's team successfully developed a stem cell tissue-culture system that can supply 500 times more plants.

The technology is non-GM and environmentally-friendly, requiring less land, water, fertilisers and pesticides.

"Ten-thousand plants can be generated in a 10 square-meter room on a soil-less media," Professor Mitter said.

"This is a potential game changer for the [avocado industry](#) across the globe."

The Queensland-owned technology involves a secret recipe of media, light, temperature and other factors to grow and root multiple avocado

plants from the shoot tip of an existing plant.

Professor Mitter's team is now working with banana growers in Lakeland who are seeking heat-adapted avocado trees to grow alongside bananas, as a way of diversifying their income.

Avocado growers in Central Queensland, New South Wales and Western Australia are also collaborating on the project.

With new funding from the Queensland Government's Advance Queensland Innovation Partnerships, and in collaboration with Anderson Horticulture and other industry partners more than 600 avocado plants developed by the new method will be tested in regions across Australia.

Growers will capture performance data on the growth, flowering and fruiting of the trees.

"From an initial investment of less than \$2 million from government, universities and industry, we should see an annual return of \$335 million, with benefits flowing across the production and supply chain in Queensland," Professor Mitter said.

The project also involves collaboration with the University of Southern Queensland and Central Queensland University.

Professor Mitter said the avocado multiplication technology would establish Queensland as a world leader in [avocado](#) clonal propagation.

"It would substantially boost exports, and create growth and jobs in the regions."

Provided by University of Queensland

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