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CROSS YOUR I'S AND DOT YOUR BEES FOR POLLINATION

Cross-pollination for macadamias has proved critical for maximising yields in a Hort Innovation pollination research and development project. The project team recently finished up analysis on macadamia cross-pollination to better understand the implications on nut production and ensuring adequate pollination takes place.

Cross-pollination is the transfer of pollen from one flower to another flower on a different variety of the same species. Cross-pollination ensures genetic diversity of offspring which in some horticulture produce, means more fruit per tree and a better-quality product.

Hort Innovation Research and Development Manager Ashley Zamek said, "The team did a lot of DNA paternity testing of macadamia nuts to understand if they were self- or cross-pollinated. Work showed cross-pollination occurs in the majority of macadamia orchards, with only 2-6% of nuts tested coming from self-pollination. This means cross-pollination is critical for nut production and maximising yields in macadamia orchards."

The project - [*Increasing yield and quality in tropical horticulture with better pollination, fruit retention and nutrient distribution*](#) – aims to increase the productivity, profitability and global competitiveness of Australia's horticultural industries by helping to optimise crop pollination efficiency.

Ashley said, "The key objective of the six-year project is to increase yield and quality through better understanding of crop nutrition during crop pollination and through improved understanding of the effects of cross-pollination on a range of horticultural industries."

Outputs of the project will include a grower guide to help Aussie growers maximise crop pollination efficiency, optimise fertiliser applications and increase production.

New knowledge and technologies developed from this research will be relevant to both tropical and temperate fruit and nut industries.

Hort Innovation General Manager Research and Development Dr Alison Anderson said, "The program will also support capacity building in Australia by developing new international collaborations among pollination and plant physiology science groups in Australia, New Zealand and Germany, and support new students into the horticulture sector."

Professor Stephen Trueman from Griffith University said, "We now know that most nuts are only formed when macadamia flowers receive pollen from a different variety. However, the distance to another variety in large orchards is often more than 100 metres. We need to inter-plant the different macadamia varieties more closely to ensure that bees transport enough pollen from one variety to another."

Australian Macadamia Society CEO Jolyon Burnett said, "Maximising the Australian macadamia crop via advances in pollination techniques had proven challenging for the industry and had only been a relatively recent priority.

"This research is helping to put the pieces of the puzzle together. We're now beginning to understand the critical components. There is a lot of interest from Australian macadamia growers because of the potential for better pollination to improve yields and increase kernel recovery."

The project started in 2017 and will continue until 2023.

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More information:

- <https://www.horticulture.com.au/growers/help-your-business-grow/research-reports-publications-fact-sheets-and-more/ph16001/>
- [Listen to the latest Australian Macadamia's pollination podcast](#)
- www.horticulture.com.au