Improving phosphorous management in Australian macadamias

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Southern Cross University (SCU), in collaboration with the NSW Department of Primary Industries and Regional Development (DPIRD) and the Australian Macadamia Society (AMS), is leading innovative research to strengthen the sustainability and productivity of the $280 million macadamia industry.

The project focuses on optimising nutrient use efficiency, especially phosphorus (P), which is a finite resource and can damage waterways if it enters the catchment.

The work also aims to improve soil–plant symbioses, and develop strategies for long-term orchard health.

Southern Cross University

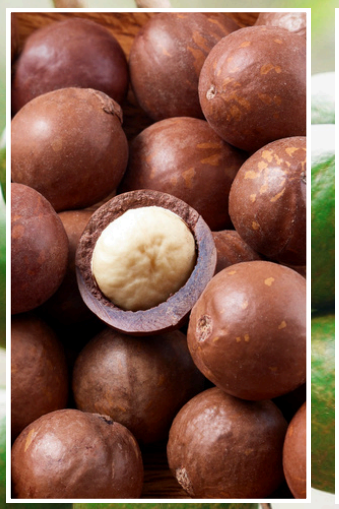
Harvest to Health Research Cluster

Australian Government Australian Research Council

NSW

Australian Macadamia Society

The University of Adelaide



Expected outcomes

- Identify and clarify **how macadamia trees form cluster roots** under low-phosphorus conditions, and how this process assists with nutrient uptake and reduces fertiliser dependence.
- **Boost phosphorus and micronutrient absorption** in orchards by promoting the vital relationship between plant roots and soil fungi (arbuscular mycorrhiza symbiosis).
- New guidelines for efficient phosphorus use, supporting **productivity and sustainability**.

Potential impacts

Improved orchard and soil health
Providing farmers and peak bodies with best-practice strategies for fertiliser use will help improve sustainability and productivity.

Reduced fertiliser use
By understanding cluster root formation and improving nutrient uptake, growers can reduce fertiliser inputs, lowering costs and environmental impact.

Environmental benefits
More effective and efficient use of fertilisers will reduce the use of phosphorus, which can enter waterways and impact surrounding ecosystems.