

HDR Opportunity: Mango Climate Resilience and Heat Stress Physiology



The Research Institute for Northern Agriculture ([RINA](#)) at Charles Darwin University (CDU) is seeking applicants for a Higher Degree by Research opportunity investigating the effects of high temperature on mango pollen viability, pollination and reproductive success under tropical conditions. The research forms part of the Future Drought Fund Scaling Success project, delivered in collaboration with the Northern Territory Government Department of Agriculture and Fisheries and industry stakeholders.

Scholarship and financial support:

For Domestic Candidates

- Enrolment in a Master by Research.
- Full tuition fee waiver for up to 2 years.
- Basic stipend of \$35,489 per annum from 2026, indexed annually, for up to 2 years open to Australian citizens/residents of New Zealand for domestic enrolment.
- Project research costs supported.
- Up to \$2000 in relocation assistance may be available.

For International Candidates

- PhD enrolment only; applicants MUST already be onshore in Australia to meet compelling project timeframe.
- Full tuition fee waiver for up to 4 years.
- Basic stipend of \$35,489 per annum from 2026, indexed annually, for up to 2 years.
- Must be eligible to apply onshore for a student visa for PhD study.

About the project:

High temperatures during mango flowering can affect pollen development, viability, germination and pollination success. Climate change and increasing temperature thus will risk the sustainability of mango industry in the tropical regions. This project will identify temperature thresholds and varietal differences that can inform practical climate adaptation strategies for Northern Australia's mango industry.

The research arrangement is flexible and may combine controlled-environment experiments, laboratory pollen viability and germination assessments, microscopy, field observations and analysis of climatic and reproductive data. The final research plan will be refined with the successful candidate and the supervisory team.

Indicative research areas include:

- Effects of high temperature on mango pollen development and viability.
- Temperature thresholds affecting pollen germination and pollen tube growth.
- Pollination success and reproductive performance under heat stress.
- Differences in heat tolerance among mango varieties.
- Practical adaptation and management options for growers.

About you:

- You will have a research background in a relevant discipline such as agricultural science, horticulture, plant science, plant physiology, crop science, reproductive biology, environmental science or a related field.
- Strong motivation to undertake applied, industry-linked research.
- Interest in plant reproductive biology, crop physiology, climate resilience, microscopy, controlled-environment research or field experimentation.
- Capacity to work independently and collaboratively with university, government and industry partners.
- Willingness to undertake laboratory and field work in tropical conditions and to be based in Darwin.

Benefits to you:

- Work on a nationally funded project addressing climate resilience in Northern Australian horticulture.
- Collaborate directly with CDU, NT Government researchers and industry stakeholders.
- Strong pathway to impact in agriculture, sustainability, and food security.
- Development of skills in plant reproductive physiology, controlled-environment experimentation, microscopy, data analysis and industry translation.
- Access to Student Support Services and Wellbeing Support Program
- Supportive, multidisciplinary research environment at CDU

Selection criteria:

- First Class Honours or equivalent in agricultural science, horticulture, plant science, microbial biology, or related fields.
- Experience with mango production or physiology are highly desirable.
- Demonstrated ability or willingness to:
 - Undertake field and experimental work in tropical conditions
 - Work effectively in a collaborative research team environment
 - Engage with industry partners and multidisciplinary stakeholders
 - Contribute to project reporting
- Must meet CDU [Higher Degree by Research entry requirements](#)

How to apply:

Email an expression of interest to Prof. Stephen Xu (stephen.xu@cdu.edu.au) including:

- A curriculum vitae, including a list of any peer-reviewed publications, conference presentations and relevant work and/or research experience
- A brief statement, not exceeding 500 words, describing your background, research experience and interest in this research project/area
- Names and contact details of two academic referees
- Academic transcript
- Sample writing work like first-authored publications, thesis, project report, etc.

Application closing date: 11:59pm (ACST) 31/10/26

Commencement date: Semester 1, 2027

Supervisory and Advisory Team: Stephen Xu (CDU), Doris Marcsik (Northern Territory Department of Agriculture and Fisheries)

Enquiries: Professor Stephen Xu (stephen.xu@cdu.edu.au, 0423 261 276)

Diversity and Inclusion: At CDU, we actively celebrate our diversity. We innovate, embrace new ideas, and act with courage and kindness. We're about what we can give to the world rather than what we take, and we believe in the transformative power of education. We work hard to make sure every member of our university community feels that they truly belong. Understanding that it is through our focus on our people and leveraging our differences that will make CDU the most connected university in Australia, we are striving to ensure that our culture and our community are inclusive of all our staff, students and visitors. We are committed to maintaining a culture where everyone feels respected, safe, encouraged to speak up and supported in achieving their professional goals. You make CDU. And we want you to be exactly who you are.