

*Are you a student looking for an outstanding PhD opportunity with strong industry links and career opportunities at an equivalent graduate level salary? Are you an industry professional who is open to undertaking a PhD project while retaining employment and salary benefits?*

**PhD project ID:** 1BPhD25-02

**Date advertised:** 11 April 2025

**PhD project title:** Understanding chill and mitigation of insufficient chill accumulation in pistachio trees

**Description of the topic of PhD project:**

Pistachio nuts are grown in arid semi-desert climates; in Australia this is mostly inland, within the southern part of the Murray-Darling Basin. A pistachio tree requires sufficient chilling temperatures from Autumn through Winter to break dormancy and synchronise bud burst, along with hot summers for nut maturation. Insufficient chilling can delay or extend bud burst, delay foliation, and reduce fruit set and quality. For this reason, increasing winter temperatures in some pistachio growing regions is a major concern for the long-term productivity and sustainability of the Australian pistachio industry.

To overcome insufficient chill conditions, spraying of oil on trees in late winter is common practice; recent trials with an additional application of an anionic polyacrylamide polymer have shown further improvements in mitigating insufficient chill accumulation. However, the mechanisms underlying bud dormancy and bud burst for pistachios are still unknown. Consequently, the following aspects require further research:

1. What are the underlying physiological mechanisms of bud dormancy and bud burst in pistachio trees?
2. How do oil and polymer applications affect chill accumulation and bud physiology?
3. What management practices optimise chill accumulation?

This is an opportunity to embark on an exciting research journey in Mildura, Victoria. Mildura is a dynamic regional city with a rich mixture of cultures, sporting clubs, outdoor spaces, a vibrant events scene and significance as a hub for horticultural production.

The 3.5-year PhD scholarship provides a competitive stipend and funding for project expenses, with opportunity to attend a relevant national and international conference. You'll be based with a supportive academic cohort at the One Basin CRC offices, located on the SuniTAFE Mildura campus, which provides a supportive social and productive environment. The opportunity also includes access to research lab space at the Loxton Research Centre in the Riverland of South Australia and at Flinders University in Adelaide, along with regular guidance from expert supervisors. Additionally, you will undertake a six-month placement in the pistachio industry, gaining on-farm experience and insights into real-world production practices, with opportunities to meet regularly with the Pistachio Growers' Association and gain valuable industry perspectives. Industry and the project supervisors are looking for a candidate who is keen to collaborate and learn from industry, wants to enjoy the benefits of regional living and who has the appropriate academic background for the project.

**Primary university supervisor(s):**

Dr Sunita Ramesh (Flinders University)

**Co-supervisors:**

Professor Paul Petrie (The University of Adelaide / South Australian Research and Development Institute)

**Requisite qualifications and experience:**

Candidates with Masters or Honours degrees in science, or with equivalent research or work experience will be favourably considered. Study or experience in horticulture, agriculture, plant or environmental science is preferred.

To determine your eligibility for studying at Flinders University, see:

<https://handbook.flinders.edu.au/courses/2025/phd>

**1BCRC industry partner(s) involved:**

Pistachio Growers' Association Inc., Horticulture Innovation Australia

# ONE BASIN CRC PhD program


**Are you looking at developing world-leading skills in helping communities tackle climate change, capitalise on the digital transformation and accelerate rural innovation? Are you interested in receiving training from internationally renowned experts, whilst working with industry partners in the iconic Murray-Darling Basin on real-world problems?**

The One Basin Cooperative Research Centre (One Basin CRC) offers attractive PhD packages in a broad range of disciplinary fields and across multiple universities in Australia (Australian National University, Charles Sturt University, Flinders University, The University of Adelaide, The University of Melbourne, The University of Sydney). Our PhD graduates will be the future leaders in basin research and application. Our One Basin PhD program provides unprecedented leadership development opportunities, extensive industry networking, and the chance to establish a deep understanding of your chosen field. Key features of the One Basin CRC PhD Program are:

- A 3.5 year scholarship with the option of a 6 month-funded internship with an industry partner or equivalent part-time employment.
- A flexible funding package including a stipend as much as \$56,000 pa\* and generous travel and operational costs, with potential additional income from working part-time with industry partners and further scholarship funding.
- The PhD program seeks to achieve gender balance and attract candidates from all walks of life, with Australians of Indigenous and Torres Strait Islander heritage particularly encouraged to apply.
- Opportunities for travel (including the possibility of international conferences), development and engagement with a strong research network that is being developed through the 10-year CRC.
- Each candidate will spend the majority of their time in one of the following research hubs: Loxton (South Australia), Mildura (Victoria), Griffith (NSW) and Goondiwindi (Queensland) with associated node in Narrabri (NSW).

**Our PhD program will give you the professional skills and networks to accelerate your career in research or practice across the water, agriculture or environmental sectors.**

*\* This is dependent on the host university policies, other available co-funding, and candidature experience and background. Candidates will receive a minimum stipend of \$36,705 pa and a further minimum \$20,000 (total) in operational funding (2025-26 rate). The exact allocation of the funding package between the stipend and support activities (such as conferences, travel to and from regional hubs) will be agreed to by the host university, PhD student and the 1BCRC. Applicants must be intending to apply for, and be highly competitive for, a Research Training Program (RTP) Stipend (or an equivalent scholarship). The student will enter the PhD program in 2025 and enrol on a full-time basis.*

A banner image featuring a landscape of a river winding through a dry, hilly area. The image is partially covered by a green and blue gradient overlay on the right side.

**Apply via: [onebasin.com.au](https://onebasin.com.au)**