

PhD opportunity: CSIRO iPhD *Understanding gene flow and resistance in an emerging cotton pest in Northern Australia*

Charles Darwin University (CDU) and CSIRO are partnering to offer an exciting PhD opportunity focused on population genetics and Bt resistance in the emerging cotton pest *Spodoptera litura*. The successful candidate will commence in 2026.

Scholarship and financial support

- **\$41,190*** (\$34,190 + \$7000 top-up) per annum tax exempt stipend, indexed annually
- 3 to 3.5 years duration
- Open to Australian citizens/residents or New Zealand citizens for domestic enrolment
- Includes a generous research budget
- University relocation allowance of up to \$2,000 may be available

About the project

Cotton production in Northern Australia is expanding rapidly, but the region differs markedly from the southern cotton production areas, particularly in climate, cropping systems, and pest management practices. These differences likely shape the biology, movement, and resistance profile of key insect pests, yet there is very limited empirical data to validate this. Understanding the risks posed by northern production systems is essential to ensuring that the Resistance Management Plan (RMP) continues to minimise the evolution of Bt resistance in cotton pest species across Australia. A major knowledge gap relates to *Spodoptera* spp., particularly *S. litura*, an emerging pest in northern landscapes. Little is known about its life history in Australian cotton systems, patterns of dispersal and gene flow, current and potential pesticide resistance or role in broader landscape-level dynamics. This PhD project will provide the first comprehensive assessment of *S. litura* population structure, movement, and resistance development across Northern Australian cotton landscapes.

The research will form the foundation for future modelling and management strategies, helping industry anticipate and mitigate emerging pest risks. This is an excellent opportunity to work at the interface of molecular ecology, agricultural biosecurity, and sustainable pest management, with strong support from both CDU, CSIRO, CRDC and industry.

Benefits to you

- Generous stipend and support for project costs.
- Training and experience in population genomics, data analysis and modelling.
- Integral part of a multidisciplinary research team providing ample opportunity for professional development.
- Access to Student Support Services and Wellbeing Support Program.
- Work with a University committed to changing people's lives for the better through training, education and research.

Essential selection criteria

- Must be eligible for admission to the PhD program at Charles Darwin University
- Be an Australian citizen or permanent resident, or a New Zealand citizen
- Have First-Class Honours or equivalent in Molecular Biology, Ecology, Genetics, Bioinformatics or a

related field

- Be available to commence the PhD in 2026
- Living in or willing to relocate to Darwin

Highly desirable

- Experience in molecular or genomics or bioinformatics
- At least one publication in a recognised peer-reviewed journal
- Experience with fieldwork

Location: The successful candidate will be expected to spend time at both CDU and CSIRO, but will primarily be based at CDU Darwin, Northern Territory.

How to apply:

Email an expression of interest to Maxine Piggott (maxine.piggott@cdu.edu.au), including:

- A curriculum vitae, including the name and contact details of two academic referees
- A brief statement, describing your background, research experience and interest in this research project

Application closing date: 13 February 2026

Commencement date: Ideally March 2026

Supervisory and Advisory Team: Maxine Piggott (CDU), Amanda Padovan (CSIRO)

Enquiries: For more information on the research project please contact:

- **Amanda Padovan** (Research Scientist, Agriculture and Food, CSIRO Canberra)
phone (02) 6246 4156, email Amanda.Padovan@csiro.au, or
- **Maxine Piggott** (Professor of Tropical Biosecurity, Charles Darwin University, Darwin)
phone (08) 8946 6763, email maxine.piggott@cdu.edu.au

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.