PhD Opportunity: CSIRO iPhD Welfare and behaviour implications of virtual fencing in northern beef cow-calf systems

The Research Institute for Northern Agriculture (RINA) is seeking applicants for a ground breaking PhD project that will investigate the efficacy and welfare implications of virtual fencing in cow-calf systems in the northern rangelands. This project will provide the successful candidate with a rare opportunity to engage in industry-integrated research, studying the use of an emerging technology in a new environment, to inform best practice, support regulatory decision-making, and offer insights for producers seeking sustainable land management solutions.

Scholarship and financial support:
- A stipend of approximately $47,000/year for 4 years tax exempt (open to Australian citizens/residents or New Zealand citizens only)
- University relocation allowance may be available
- Generous project expense and development package of $13,000/yr

About the project:

While virtual fencing technology has proven effective in managing grazing and land use when all animals wear neckbands, its application in cow-calf systems is limited, as calves cannot wear neckbands before weaning due to their rapid growth, the high labour demands for fitting, and mismothering risk if cows and calves are disturbed. However, for most northern Australian beef properties, grazing areas are large, cow-calf systems are common, and calves remain with their mothers until weaning, presenting challenges for implementation of the technology in these systems. Research on how non-fenced calves influence cow behaviour, fence efficacy and welfare for both cow and calf is lacking, creating uncertainty for northern beef producers considering tech adoption. Furthermore, the lack of peer-reviewed evidence on welfare impacts in cow-calf systems could lead to regulatory restrictions on virtual fencing in these contexts.

This project therefore addresses the challenges of implementing virtual fencing in northern Australian cow-calf systems. This research is significant as it will provide some of the first peer-reviewed evidence on the efficacy and welfare implications of virtual fencing in cow-calf systems. Understanding its impact on cow and calf behaviour will help determine whether the technology can be adopted in northern Australia. The findings will inform best practices, support regulatory decision-making, and offer insights for producers seeking sustainable land management solutions. By addressing knowledge gaps, this project has the potential to enhance productivity, reduce costs, and improve environmental outcomes in northern Australian beef production.

About you:
- You have a research background in agriculture, animal science, veterinary science or similar and bring a high level of academic merit consistent with RTP stipend scholarship requirements
- Hold an Australian driving license or the capacity to obtain one
- Would ideally be based or willing to relocate to Darwin or Katherine, other locations possible by negotiation
- Ideally have cattle handling skills

Benefits to you:
- Generous stipend and support for project costs
- A professional development training program delivered alongside the PhD
- A 60-day industry engagement component provided by the Gallagher eShepherd
- Quality supervision by CDU, CSIRO and Gallagher eShepherd
- Play an integral role in a highly collaborative multidisciplinary research team
- Contribute to research with real-world impact
- 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

Selection criteria:
- First Class Honours, MSc or equivalent containing a substantial research component in a relevant field such as agriculture, animal science, economics/business or similar field
- Livestock handling skills with experience with animal trials (desirable)
- Must meet the RTP stipend requirements, including being either an Australian permanent resident or citizen, or a New Zealand citizen

How to apply:
Email an expression of interest to Beth Penrose (beth.penrose@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

Application closing date: Midnight 24 October 2025

Commencement date: Early 2026

Supervisory and Advisory Team: Beth Penrose (CDU), Sunil Kadri (CDU), Caroline Lee (CSIRO), Dana Campbell (CSIRO), Mark Dempsey (Gallagher eShepherd)

Enquiries: Associate Professor Beth Penrose beth.penrose@cdu.edu.au, 0436 839 662.

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.