# Position Details

## CSIRO Early Research Career (CERC) Postdoctoral Fellowship– CSOF4

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| The following information is for applicants |
| Advertised Job Title | CSIRO Postdoctoral Fellowship in cotton physiology, model development and application |
| Job Reference | 63460 |
| Tenure | Specified Term of 3 years Full-time |
| Salary Range | AU$83,687 to AU$94,679 pa (pro-rata for part-time) + up to 15.4% superannuation |
| Location(s) | Townsville |
| Relocation Assistance | Will be provided to the successful candidate if required |
| Applications are open to | All Candidates |
| Position reports to the | Principal Research Scientist |
| Client Focus – Internal | 50% |
| Client Focus – External | 50% |
| Number of Direct Reports | 0 |
| Enquire about this job | Dr Stephen Yeates, stephen.yeates@csiro.au +61747538588 or +61417015633 |
| How to apply | Apply online at <https://jobs.csiro.au/>. Internal applicants please apply via **Jobs Central**If you experience difficulties when applying, please email careers.online@csiro.au or call 1300 984 220. |

### Role Overview

**CSIRO Early Research Career (CERC) Postdoctoral Fellowships** provide opportunities to scientists and engineers who have completed their doctorate and have less than three years relevant postdoctoral work experience. These fellowships aim to develop the next generation of future leaders of the innovation system through:

* A differentiated career development program to deliver capability excellence and breadth across all facets of the national innovation system.
* Research training via strategic research and development projects with a clear focus that will deliver real impact through science and engineering excellence;
* An innovative culture supporting the development and demonstration of original thinking and expertise leading to peer-recognition; and
* Opportunities to develop skills and experience in collaborative research teams to effectively work within national and global multi/transdisciplinary and multi-stakeholder environments.

CERC Postdoctoral Fellows **are appointed for three years or part time equivalent.**

The Australian cotton industry is expanding into tropical Australia. The regional benefits will be large including the availability of seed as feed to value add to the local beef industry. However new cotton investments need to be at a scale to reliability support a ginnery to process raw cotton. The cost of transporting raw cotton to southern gins is unsustainable. The climate and soils of tropical Australia present new challenges for growing cotton compared to traditional growing areas in southern Australia; moreover, within the tropics the climate is more heterogeneous than many people appreciate. Potential investors and other stakeholder’s (e.g. regional & state governments, financiers) need to know the impact of climatic variability on production, fibre quality and input requirements such as irrigation water for a wide range of locations within the tropics. Applying the best crop simulation and other modelling tools to this challenge is the obvious solution. The best simulation model for this task is the APSIM-OZCOT model, unfortunately in validation studies to date the model has performed extremely poorly in the prediction of the key outputs yield, time-to-maturity and water use. The changed crop morphology, root development and early leaf area expansion are some of the contributing factors identified to date.

The Postdoctoral Fellow will conduct a project that will upgrade the current APSIM-cotton model for the tropical abiotic environment and integrate this into the NexGen crop models being developed in APSIM currently. The enhanced models will be applied in tropical Australia to meet stakeholder requirements. The Postdoctoral Fellow will gain experience with field experiments and commercial crops in tropical Australia as part of the data collection process for model enhancement as well as the wider teams research and development activities.

The position is co-funded by the Cotton Research and Development Cooperation and will interact closely with CSIRO and our collaborators researching cotton agronomy and physiology in tropical Australia and CSIRO’s modelling team in Toowoomba and Brisbane.

### Duties and Key Result Areas:

Under the direction of senior research scientists and engineers, CERC Postdoctoral Fellows:

* + Coordinate collection and review of data from cotton physiology and agronomy experiments conducted in the tropical and sub-tropical environments.
	+ Using the above data enhance the existing APSIM-OZCOT cotton model in collaboration with the wider project team.
	+ Engage with other researchers and industries to conduct simulation analyses to address key agronomic management issues to optimise cotton yields and reliability in tropical Australia.
	+ Develop and test an enhanced cotton module in APSIM NextGen in collaboration with the APSIM development team
	+ Produce client reports & scientific papers suitable for publication in journals.
	+ Present research findings to collaborating farmers, advisors and research partners
	+ Prepare appropriate conference papers and present those at conferences.
	+ Undertake limited administrative functions primarily connected with the area of research.
	+ Carry out innovative, impactful research of strategic importance to CSIRO that will, where possible, lead to novel and important scientific outcomes.
	+ Recognise and exploit opportunities for innovation and the generation of new theoretical perspectives, and progress opportunities for the further development or creation of new lines of research
	+ Utilise design thinking methodology to plan and prepare research proposals, and apply non-academic impact methodology to research projects
	+ Carry out research investigations requiring originality, creativity and innovation
	+ Record, manage, and analyse data/information using relevant domain data science techniques.
	+ Proactively undertake development to grow effective researcher capabilities to support career goals
* Adhere to the spirit and practice of CSIRO’s Code of Conduct, Health, Safety and Environment plans and policies, Diversity initiatives and Zero Harm goals
* Other duties as directed.

[**The CERC Postdoctoral Fellow learning and development program**](http://www.csiro.au/en/Careers/Student-and-graduate-programs/Postdoctoral-fellowships)is developed between the CERC Postdoctoral Fellow and their CSIRO supervisor. The program will focus on enhancing the Fellows’ capabilities to the level expected of an independent researcher and will include on-the-job and course-based development encompassing:

* Discipline-specific techniques and protocols
* Professional growth
* Project management
* Communication and influencing skills
* Working and collaborating with others

## **Required Competencies:**

* **Teamwork and Collaboration:** Cooperates with others to achieve organisational objectives and may share team resources in order to do this. Collaborates with other teams as well as industry colleagues.
* **Influence and Communication:** Uses knowledge of other party's priorities and adapts presentations or discussions to appeal to the interests and level of the audience. Anticipates and prepares for others reactions.
* **Resource Management/Leadership:** Allocates activities, directs tasks and manages resources to meet objectives. Provides coaching and on the job training, recognises and supports staff achievements and fosters open communication in the team.
* **Judgement and Problem Solving:** Investigates underlying issues of complex and ill-defined problems and develops appropriate response by adapting/creating and testing alternative solutions.
* **Independence:** Recognise and makes immediate changes to improve performance (faster, better, lower cost, more efficiently, better quality, improved client satisfaction).
* **Adaptability:**Copes with ambiguity or situations that lack clarity. Adapts readily to changing circumstances and new responsibilities (which may include activities outside own preferences) in the interests of achieving team objectives. Recognises the need for and undertakes personal development as a result of changes.

## **Selection Criteria**

#### Essential

*Under CSIRO policy only those who meet all essential criteria can be appointed.*

1. A doctorate (or will shortly satisfy the requirements of a PhD) in a relevant discipline area, such as agricultural science, crop or forage physiology, or crop simulation model development and application.

**Please note:** To be eligible for this role you must have **no more than 3 years** (or part time equivalent) of postdoctoral research experience

1. Currently hold, or ability to obtain, an Australian driver’s licence (car).
2. Demonstrated understanding of plant physiological processes in cotton or other tropical C3 crops with indeterminant flowering.
3. Experience with development and/or application of crop models.
4. High level written and oral communication skills with the ability to represent the research team effectively internally and externally, including the presentation of research outcomes at national and international conferences.
5. A sound history of publication in peer reviewed journals and/or authorship of scientific papers, reports, grant applications or patents.
6. A record of science innovation and creativity, including the ability & willingness to incorporate novel ideas and approaches into scientific investigations.

## **Desirable:**

1. Familiarity with cotton agronomy.
2. Appreciation for and experience in communicating and engaging with diverse stakeholders in research and practical application of research findings.
3. Remain productive, positive and resilient in complex, ambiguous and/or uncertain environments.
4. **The ability to work effectively as part of a multi-disciplinary, potentially regionally dispersed research team, plus the motivation and discipline to carry out autonomous research.**
5. A willingness to do field work in isolated, hot and humid sites in tropical Australia

To be appointed as a CERC Postdoctoral Fellow within CSIRO, candidates are required to have **submitted** their PhD at the time of commencement, as a minimum requirement, if PhD conferment has not been obtained. If a candidate has submitted, but their PhD has not yet been formally attained, the starting salary will be CSOF4-1 $83,687 + up to 15.4% superannuation. Upon CSIRO receiving written confirmation that the PhD has been awarded (within a six month period from commencement date), the salary will be increased to the negotiated level and the difference will be back-paid to the Officer’s start date.

Special Requirements

Appointment to this role may be subject to conditions including provision of a national police check as well as other security/medical/character clearance requirements.

* The successful candidate will be asked to obtain and provide evidence of a National Police Check or equivalent. Please note that people with criminal records are not automatically deemed ineligible. Each application will be considered on its merits.

**Our value proposition**

We want CERC Postdoc Fellows to join our world class science, engineering and digital teams to solve big, complex problems that make a real difference to the future of Australia and the world.

You'll get to work with some of the most talented minds in their fields, not just in Australia, but in the world. At CSIRO, we spark off each other, learn from each other, trust each other and collaborate closely to achieve more than we could individually.

CSIRO Early Research Career (CERC) Postdoctoral Fellow Experience Employee Value Proposition (EVP). Find out more [here](https://www.csiro.au/en/careers/postdoctoral-fellowships)!

## **About CSIRO:**

We solve the greatest challenges through innovative science and technology. To find out more visit us [online](http://www.csiro.au/)!

Find out more about CSIRO [Agriculture and Food](https://www.csiro.au/en/Research/AF)