# Position Details

## Research Scientist/Engineer- CSOF5

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| The following information is for applicants |
| Advertised Job Title | Cropping Systems Modeller |
| Job Reference | 96115 |
| Tenure | Specified Term of 3 years Full-time |
| Salary Range | AU$110,038 - AU$119,080 per annum (pro-rata for part-time)plus, up to 15.4% superannuation |
| Location(s) | Canberra ACT |
| Relocation Assistance | Will be provided to the successful candidate if required |
| Applications are open to | All Candidates |
| Position reports to the | Research Scientist |
| Client Focus – Internal | 0% |
| Client Focus – External | 100% |
| Number of Direct Reports | 0 |
| Enquire about this job | Enli Wang via email at enli.wang@csiro.au or phone +61 2 6246 5964  |
| 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. |

**Acknowledgement of Country**

CSIRO acknowledges the Traditional Owners of the land, sea and waters, of the areas that we live and work on across Australia. We acknowledge their continuing connection to their culture and pay our respects to their Elders past and present. View our [vision towards reconciliation](https://www.csiro.au/en/about/Indigenous-engagement/Reconciliation-Action-Plan).

**Child Safety**

CSIRO is committed to the safety and wellbeing of all children and young people involved in our activities and programs. View our [Child Safe Policy](https://www.csiro.au/en/about/policies/child-safe-policy).

### Role Overview

The role of Research Scientist/Engineer staff is to conduct innovative research leading to scientific achievements that are aligned with CSIRO’s strategies. The Research Scientist/Engineer may be engaged in scientific activity ranging from fundamental research to the investigation of specific industry or community problems.

The Research Scientist/Engineer will have the opportunity to build and maintain networks, play a lead role in securing project funds, provide scientific leadership, and pursue new ideas and approaches that create new concepts.

The Systems Program of CSIRO Agriculture works in partnership with rural industries, communities, and governments to deliver improvements in agricultural productivity and profitability whilst minimising environmental damage. The core of the Program’s science lies in better understanding and managing soil-plant interactions that underpin productive, profitable, and sustainable farm businesses. We operate within and across scales, from plants to paddocks, integration of whole farm systems along with landscape management. We use combinations of field experimentation, remote sensing, proximal sensing, crop modelling, and data science to identify and invest in novel approaches to sustainably intensify Australia’s farming systems.

Research Scientist will work closely with leading scientists in crop physiology, genetics, farming systems research and modelling, and digital agriculture to solve complex problems related to design of crops and cropping systems to increase productivity, resilience, and sustainability of agricultural systems. The position requires an individual with extensive skills in modelling crops and cropping systems, with a strong interest in the integration of knowledge and data from relevant disciplines and evaluation of crops and cropping systems performance.

A willingness to engage with industry engagement and demonstrated ability to deliver high quality research outputs into projects in a timely manner is essential.

This role requires that the individual be prepared to deploy cropping systems models in an innovative fashion to solve complex systems problems.

An understanding of modern data science, AI and remote sensing technologies, and how they may be used in conjunction with cropping systems modelling would be an advantage.

In keeping with CSIRO’s role as an “innovation catalyst” we envisage that the systems program will provide opportunities to link cutting crop modelling with data science, data handling, and data integration to existing and emerging problems in the agricultural sector.

In this role, you will develop your modelling abilities, be a team player and solve real world problems with modern modelling approaches.

### Duties and Key Result Areas

* + Develop or improve crop and farming systems models to enhance the predictive capabilities.
	+ Conduct cropping systems modelling to evaluate multiple crop species in Australian broadacre farming system and to determine what aspects of the crop and system could be improved.
	+ Develop novel solutions in the design of crops, cropping systems and management strategies, and address systems level questions.
	+ Publish results in relevant international scientific venues (high-level journals and conferences).
	+ Carry out innovative, impactful research of strategic importance to CSIRO that will, where possible, lead to novel and important scientific outcomes.
	+ Collaborate with members of a diverse project team and external partners to ensure research directions can lead to lasting impact in application domains.
	+ Communicate effectively and respectfully with all staff, clients, and suppliers in the interests of good business practise collaboration and enhancement of CSIRO's reputation.
	+ Adhere to the spirit and practice of CSIRO's Code of Conduct, Health, Safety and Environment procedures and policy, Diversity initiatives and Making Safety Personal goals.
* Other duties as directed.

## **Selection Criteria**

## **Essential**

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

1. A PhD in a relevant discipline, such as crop eco-physiology, cropping systems, agricultural science, plant science, data science, and computer science.
2. Demonstrated experience in conceptualizing, developing, and evaluating process-based models or model components for simulation of the key plant and soil processes that control productivity and environmental outcomes.
3. Demonstrated experience in applying systems modelling to assess performance of crops and cropping systems across different soil and climate regions.
4. Demonstrated knowledge and application of contemporary approaches for data management and analysis (such as using R, python, javascript, etc.), and programming (e.g. C#).
5. **High level written and oral communication skills with the ability to represent the research team effectively internally and externally, including at national and international conferences.**
6. A record of innovation and creativity, plus the ability & willingness to incorporate novel ideas and approaches into scientific investigations.
7. An ability to deliver complex research components within projects in a timely manner and **the ability to work effectively as part of a multi-disciplinary, regionally dispersed research team.**
8. **Current Australian drivers’ licence or the ability and willingness to obtain one.**

**Desirable Criteria:**

1. Knowledge in genetics, genomics, and crop design and how crop modelling can be extended to integrate such knowledge and data.
2. Experience in modelling plant-soil interactions.

## **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 responses by adapting/creating and testing alternative solutions.
* **Independence:** Plans, sets and works to meet challenging standards and goals for self and/or others. Recognises where endeavours will make the most impact or difference, decides on desired outcome and sets realistic goals to reach this target.
* **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 change.

Special Requirements

Appointment to this role may be subject to conditions including security/medical/character clearance requirements.

The successful candidate will undertake a pre-employment background check. Please note that individuals with criminal records are not automatically deemed ineligible. Each application will be considered on its merits.

## **About CSIRO**

We solve the greatest challenges through innovative science and technology. Visit [CSIRO Online](http://www.csiro.au/) and [Agriculture and Food](https://www.csiro.au/en/about/people/business-units/Agriculture-and-Food) for more information.

CSIRO is a values-based organisation.  In your application and at interview you will need to demonstrate behaviours aligned to our values of:

* People First
* Further Together
* Making it Real
* Trusted