# Position Details

## Research Scientist/Engineer- CSOF5

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| The following information is for applicants | |
| Advertised Job Title | Cropping Systems Scientist |
| Job Reference | 93213 |
| Tenure | Specified Term of 3 years  Full-time |
| Salary Range | AU$105k - AU$114k per annum (pro-rata for part-time)  plus up to 15.4% superannuation |
| Location(s) | Brisbane, Qld |
| Relocation Assistance | Will be provided to the successful candidate if required |
| Applications are open to | All candidates, visa sponsorship may be provided if required |
| Position reports to the | Team Leader |
| Client Focus – Internal | 50% |
| Client Focus – External | 50% |
| Number of Direct Reports | 0 |
| Enquire about this job | Contact Donald Gaydon via email at donald.gaydon@csiro.au or phone  +61 7 3214 2415 (available until 12 July)  Peter Thorburn via email at [peter.thorburn@csiro.au](mailto:peter.thorburn@csiro.au) or phone +61 7 3214 24 12 (from July 13th) |
| 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](mailto: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, profitability, and risk management, whilst minimising environmental damage. The core of the Program’s science lies in better understanding and managing soil-plant-climate interactions that underpin productive, profitable and sustainable farm businesses. We operate within and across scales; from plants to paddocks to regional and national scale integration of whole farm systems along with landscape management. We use combinations of field experimentation, remote sensing, proximal sensing, crop modelling, climate forecasting, and data science to identify and invest in novel approaches to sustainably intensify Australia’s cropping systems.

We seek to appoint a Research Scientist / Engineer to the Systems program, located in Brisbane. The person should have well-developed skills and experience in cropping systems analysis and simulation, plus spatial (GIS, satellite and remote-sensing) technologies. They should possess a strong interest in crops, pastures and agriculture generally, in addition to climate science and forecasting applications. We are looking to develop our project pipelines, impact pathways, and uptake and application of various digital technologies that can be deployed to address agricultural problems. Where necessary, we wish to further develop technologies with a clear need, use case and application to enhance the productivity and input-use efficiency of dryland farming systems, with enhanced digital systems and analytics.

Emerging digital technologies may address problems related to crop and pasture inputs, agricultural economics, land quality, and risk management. Many of the technologies use advances in soil and crop sensing, next generation satellites and farming systems simulation. The person will engage with industry to further develop technology, based on their needs. Projects could be conceived that draw on other CSIRO resources such as developments in data science, analytics, and high-performance computing, that are available to solve problems for industry. There is a need for an individual who is comfortable engaging with the SME sector, Startup Community, Multi-National Corporations, Rural Development Agencies, the farming community, Government sector and Academic sectors.

The Systems program is looking to grow the application and use of its existing digital and spatial technologies and link these with cropping systems simulations and climate forecasting to operate at scales from paddock to regional to national. Where necessary, the role would develop and negotiate new concepts, with other scientists and focus on the deliver pathway. In keeping with CSIRO’s role as an “innovation catalyst” we envisage that the systems program will provide opportunities to link cutting edge data science, data handling, and data integration to existing and emerging problems in the agricultural sector. In this role, you will form an important linkage between the real world, and CSIRO resources in digital agriculture that reside in CSIRO Agriculture and Food.

Initially the role will be linked to specific investigations of interest to the Systems program related to quantifying the magnitude of severe events on production with multiple layers of information. However, the position offers a unique opportunity to deploy data science skills into agricultural systems to become a future leader of R&D in the area of modern farming systems research and engineering.

### Duties and Key Result Areas

* Engage with the Government and RDC sector to develop new opportunities in extending cropping systems modelling into new areas through linkages with spatial (GIS, satellite, and remote sensing) technologies and climate forecasting.
* Develop relationships with digital agriculture enterprises to better understand how to position CSIRO research for impact
* Engage with scientists across CSIRO business units, to help develop new project opportunities in cropping systems modelling application at scale, including decision-support tools.
* Contribute to delivery of research projects in the cropping systems, remote sensing, and climate forecasting domains
* Communicate and work collaboratively with other research disciplines, particularly data scientists, engineers, and agricultural researchers.
* Actively engage with and communicate research findings to industry stakeholders, particularly delivering information arising from system simulation tools, spatial and other digital technologies.
* Produce high quality scientific papers suitable for publication in quality journals, for client reports and granting of patents.
* Contribute to the effective functioning of the research team and help deliver CSIRO’s organisational objectives and plans.
* Work collaboratively with colleagues within your team, the business unit and across CSIRO.
* Communicate effectively and respectfully with all staff, clients, and suppliers in the interests of good business practice, collaboration, and enhancement of CSIRO’s reputation.
* Adhere to the spirit and practice of CSIRO’s Values, Code of Conduct, Health, Safety and Environment procedures and policy and diversity initiatives.
* Undertake an appropriate training and development program developed by CSIRO.
* Other duties as directed.

## **Selection Criteria**

#### Essential

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

1. A PhD (or an equivalent combination of qualifications and research experience) in a relevant field relating to farming systems science that could include agronomy, crop physiology, soil science, natural resource management or related disciplines.
2. Demonstrated ability to undertake original, creative, and innovative research by generating and pursuing novel ideas and solutions to scientific research problems.
3. A demonstrated publication history of authorship on scientific papers in peer reviewed journals and/or reports, grant applications or inventorship on patent applications.
4. A proven ability to work effectively as part of a multi-disciplinary team, plus the motivation and discipline to carry out autonomous activities
5. The demonstrated ability to effectively manage a number of competing priorities simultaneously and carry out non-routine tasks under general direction.
6. Proven ability to investigate routine problems by identifying and considering the implications of a range of available alternative solutions.

**Desirable Criteria:**

1. Experience and/or demonstrated capacity for detailed cropping systems analysis and simulation (e.g. APSIM), including broad scale gridded or spatial applications.
2. Knowledge of spatial (GIS, satellite, and remote sensing) and data (R, python, JavaScript) technologies and understanding of potential ways these can be integrated with, and add value to, traditional point or paddock-scale crop modelling
3. Knowledge and experience in climate science and climate forecasting technologies.
4. Knowledge and experience in decision-support needs of Australian farmers, particularly around crop management, agronomy, and strategic scenario analyses.

## **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

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/) 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