Annual Report

2025

ARC CENTRE OF EXCELLENCE FOR

PLANT SUCCESS

IN NATURE AND AGRICULTURE

The ARC Centre of Excellence for Plant Success in Nature and Agriculture acknowledges the Traditional Owners of Country throughout Australia and their continuing connection to lands, waters, and communities. We pay our respect to Aboriginal and Torres Strait Islander cultures and to Elders past, present, and emerging.

Attendees of the Plant Success media training workshop.

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OUR CENTRE

CENTRE OVERVIEW

The Australian Research Council (ARC) Centre of Excellence (CoE) for Plant Success in Nature and Agriculture is making discoveries about the adaptive strategies underpinning productivity and resilience in diverse plants. The CoE is deepening understanding of genetic and physiological networks that govern key traits, contributing to efforts aimed at protecting and sustaining the global food supply and biodiversity.

Using novel quantitative and computational approaches, we are linking gene networks with traits across biological levels, giving plant breeders an unparalleled predictive capacity. We will use this understanding to accelerate technologies that will transfer successful networks into crops and build legal frameworks to secure this knowledge.

With our uniquely interdisciplinary team, not only are we future-proofing crops and native plant species, but we are also modernising outdated legal and social frameworks, advancing evolutionary systems biology, establishing Australia as a global leader in these areas, and transforming plant science for the next generation.

The Centre was funded by the ARC in 2020 for seven years under its Centre of Excellence scheme, with further support from our partners totalling $42m cash and $68m in-kind.

VISION

Through an ability to predict and improve plant performance in diverse environments, we will enable the sustainable and productive future of plants in nature and agriculture.

MISSION

We will:

1. Develop new, more effective ways of solving persistent problems in nature and agriculture and inspire others in plant science and beyond.
2. Strive to realise the potential of people, research and interdisciplinary approaches through active and broad dialogue and collaboration within the Centre, plant sciences and beyond.
3. Become a “preferred choice” collaborator because of our professional ways of working with intellectual property and contractual commitments, and our high standard of ethics, integrity and inclusion.
4. Promote a safe and rewarding workplace where we are all encouraged to be creative thinkers.

OBJECTIVES

- Discover physiological mechanisms and networks of genes underpinning plant success across plant lineages.
- Develop new mathematical theory capable of handling the evolution of gene networks and the linkage of genome to phenome.
- Improve understanding of how different plant systems have evolved.
- Develop theoretical predictions of how different gene networks influence crop productivity, yield and resilience over time and under different environments.
- Validate theoretical predictions by modifying features of genetic networks and testing outcomes in the laboratory and / or field.
- Develop novel legal and social frameworks that encourage acceptance of new technologies and protect the rights of all parties.

OUR PARTNERS

The Centre has Nodes at The University of Queensland (UQ), University of Tasmania (UTas), Queensland University of Technology (QUT), Monash University, and Western Sydney University (WSU).

Our strong global partnerships with plant science experts and with the plant breeding industry will help to spread the advances we make worldwide. These partners are advising us on our research trajectories, based on industry needs. They are providing access to global genomic and phenomic Big Data sets, including unpublished data from many years of experiments, field trials and measurements with several crop plants. They are also helping us to test our predictive crop breeding tools on genotype combinations present in breeders' germplasm collections or current breeding crosses.

UNIVERSITY AND RESEARCH CENTRE PARTNERS:

- Colorado State University
- Commonwealth Scientific and Industrial Research Organisation (CSIRO)
- Harvard University
- Iowa State University
- The Max Planck Institute of Molecular Plant Physiology
- The University of British Columbia
- The University of Saskatchewan

INDUSTRY PARTNERS:

- BASF
- Bioplatforms Australia
- Computomics
- Corteva Agriscience
- The Crop Trust
- The International Maize and Wheat Improvement Centre (CIMMYT)
- Queensland Government Department of Primary Industries (DPI)
- The Stephanie Alexander Kitchen Garden Foundation

Attendees of the Eucalypt Workshop held at the University of Tasmania.

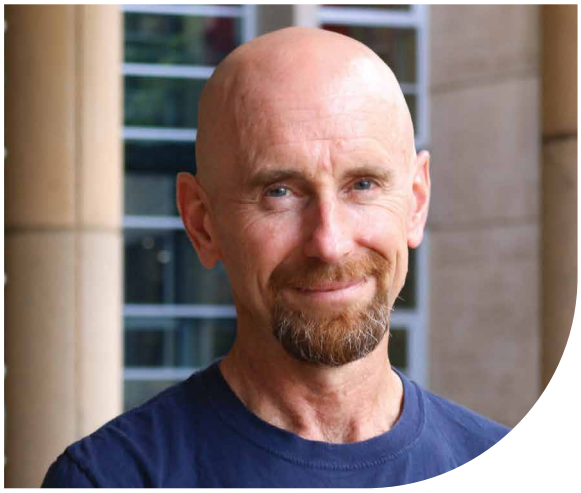
DIRECTOR AND DEPUTY'S REPORT

2025 has been a year of continued momentum for the ARC Centre of Excellence for Plant Success in Nature and Agriculture. A defining feature of the Centre remains the integration of diverse disciplines to better understand how plants grow, adapt, and succeed across natural and agricultural systems. It is wonderful to see researchers cross into areas outside their normal comfort zone such as developmental biologists working on populations instead of mutants, ecophysiologists working in genetics, and molecular geneticists working on populations and ecophysiology. And of course, in all this, we are continuing our thread of incorporating mathematics and systems thinking into diverse projects. It is obvious that the Centre is changing the capacity of its experienced researchers and fostering researchers earlier in their careers who are capable of thinking in terms that are not blinkered by traditional discipline boundaries.

We hosted a variety of significant collaborative meetings this year including visits from international partners from Iowa State University, Wageningen University and Research, and University of Florida. We also held interdisciplinary workshops on Macadamia research, Andropogoneae, and Eucalyptus bringing together researchers from different Nodes to share knowledge and shape the future of these research areas.

We were delighted to gather in person for our annual Research Retreat on the Gold Coast in 2025 where we again embedded activities to help us value and appreciate the diversity of our members and the ethical aspects of our research. We were joined by Tia Squire from Untapped who delivered a fantastic workshop on communication across neurotypes, which sparked some great conversations. Another highly valuable presentation that produced some great insights was from UQ Copyright Officer James Lewandowski-Cox on generative AI in research and publishing. AI continues to be a hot topic across plant science and beyond. AI-driven tools are opening new avenues for discovery as well as rapidly enhancing the rate of discovery and the capacity of researchers to learn, create and innovate. As we embrace these technologies, we must remain mindful of their limitations and ethical considerations. James' examples of how AI methods limit IP ownership highlighted the importance of providing the personal touch to ensure ownership of innovations and discoveries. Ensuring transparency, accuracy, and responsible use will be key as we incorporate AI into our research strategies. The Retreat is a yearly highlight, demonstrating the breadth and depth of talent within the Centre. We were blessed again this year with attendance of members of our Advisory boards and associate members who enrich conversations and their leadership perspectives for the benefit of researchers and professional staff at all career stages.

Our students and EMCRs continue to ignite the intellectual and cultural energy of the Centre. Through workshops, seminars, and peer-led initiatives, the Researcher Development Group (page 47) once again delivered a strong program of activities that support professional growth and skill development. These initiatives not only strengthen research capability but also foster a supportive and collaborative environment for researchers at all stages of their careers. The Centre's Outreach activities (page 50) have also



continued to expand, we participated in the World Science Festival Brisbane for the first time and five events during National Science Week. We also released the Cool Jobs video series, highlighting some of the diverse career opportunities available in STEM. Communicating the importance of plant science – whether for food security, climate resilience, or biodiversity – remains central to our mission, and we are grateful to all members who dedicate their time and creativity to these efforts.

In 2025, we laid groundwork ready for two major events in the 2026, including the fourth Genotype x Environment x Management (GxExM) Symposium and a brand-new initiative, the UQ Winter School in AI and Predictive Agriculture. The GxExM Symposium has grown year-on-year and attracts researchers from around the globe, including supporting partners from Wageningen University and Research and the University of Florida. The 2026 Symposium will be held in Brisbane in November, and the Winter School will be held in Brisbane in July; both will be advertised on the Centre website, newsletter and social media.

We would like to take the time to acknowledge the retirement of Chief Investigators Robert Henry and Graeme Hammer. We are grateful that Robert and Graeme will continue in their role as Chief Investigators for the remainder of our funding period to contribute their knowledge and expertise to our research. Christine also started a new part-time role as Director of the Centre for Horticultural Science at the Queensland Alliance for Agriculture and Food Innovation. In this and many other ways, we continue to have influence beyond the Centre.

As always, the achievements of the Centre are the result of the collective efforts of our students, researchers, staff, and partners. We heartily thank our diverse membership, partners, and advisors for another great year.

Christine Beveridge, Centre Director, Mark Cooper, Deputy Centre Director, and David Tomlins, Chief Operating Officer

A defining feature of the Centre remains the integration of diverse disciplines to better understand how plants grow, adapt, and succeed across natural and agricultural systems.

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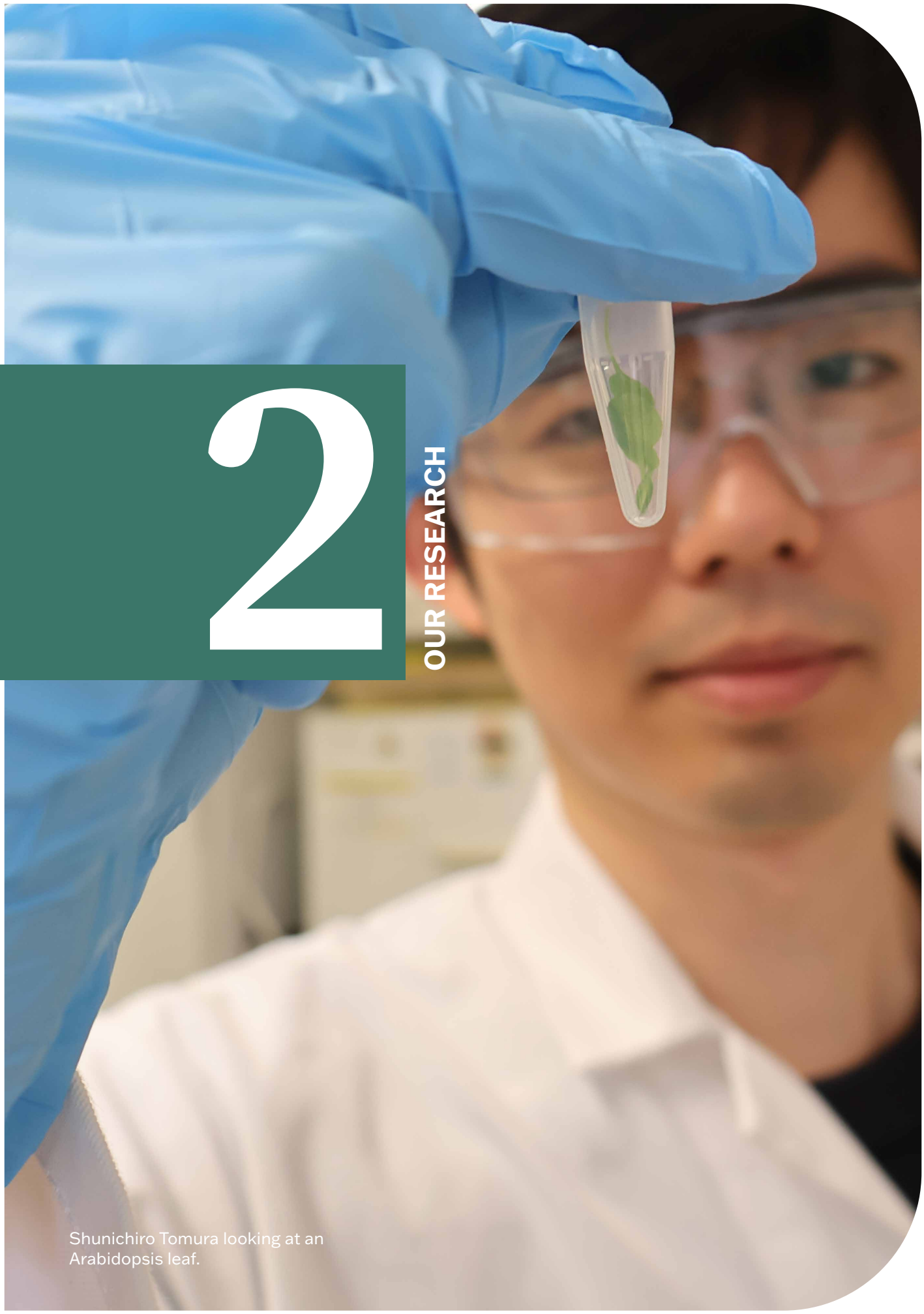
OUR RESEARCH



Shunichiro Tomura looking at an Arabidopsis leaf.

RESEARCH THEMES

The Centre for Plant Success uses an interdisciplinary approach to advance Australia's capabilities in genomic prediction and genome editing, aiming to provide diverse outcomes. Some expected outcomes include:

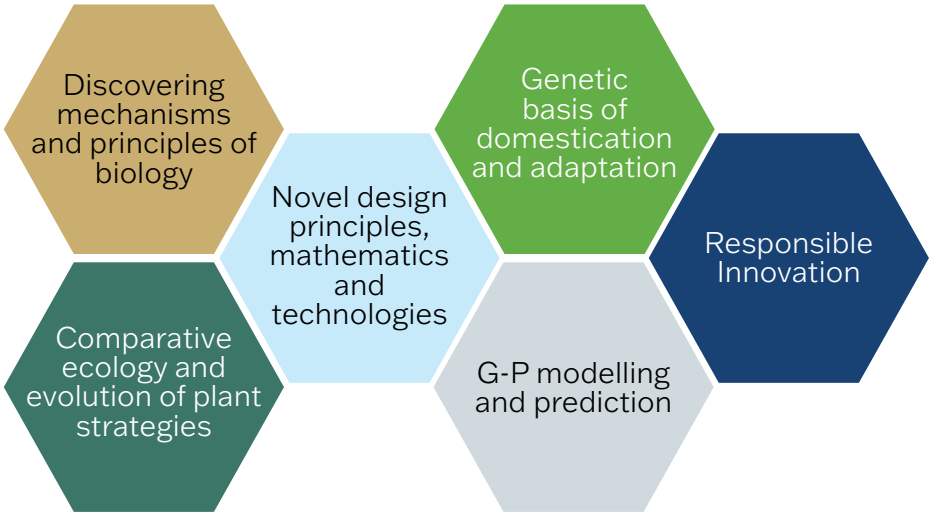
1. fundamental understanding of the physiological and genetic drivers of evolutionary adaptations in plant form and function across lineages and within crops;

2. new mathematical theory and software capable of accurately predicting plant phenotype or yield based on genotype—saving breeders time and money;

3. knowledge that will help safeguard species, particularly crops, against climate change; and

4. innovation of legal and social paradigms to protect complex and intangible intellectual property and increase investment in Australia's rapidly growing biotechnology industries.

Our research projects are classified under six Themes:



CREATING A STEP CHANGE FOR PLANT SUCCESS

THE CENTRE WILL:

1

Discover and integrate different **mechanisms** of plant success in different environments

2

Develop **models** that connect mechanisms and genomes for predictions

3

Innovate the **path to crops** including gene technology, law and society

THEME 1: DISCOVERING MECHANISMS AND PRINCIPLES OF BIOLOGY

Eloise Foo
Theme Chair

Christine Beveridge
Theme Co-Chair

Within the Theme "Discovering mechanisms and principles of biology" we seek to uncover the gene networks and physiology that govern plant development and response to environmental cues and stress. We work across a wide range of species and processes to provide fundamental information that informs and underpins research undertaken in the Centre on genotype–phenotype models and understanding of trait evolution.

We seek to discover and build genetic, transcriptional, metabolic and physiological pathways that explain how plants grow, develop and respond to the environment. This work is done across a range of land plants, from non-vascular species to herbs and trees, giving us insight into highly conserved and divergent aspects of plant development and physiology. We have chosen to investigate processes with major implications for plant success in nature and agriculture, including the control of shoot architecture, flowering and apical arrest, interactions with beneficial microbes, water relations and response to heat and drought stress. We are also working to understand how these networks interact, in particular the interaction between flowering and shoot architecture, as well as trade-offs between growth, symbioses and stress responses. As plant hormones and secondary metabolites, such a sporopollenin, are a major factor in controlling these traits, we also focus on understanding how these pathways have evolved. This enables us to understand the evolution of complex traits and provides a context for future modification of these pathways to optimise crop performance.

Recent discoveries and innovations have been made in our understanding of water relations and drought tolerance. We have discovered divergent drought response strategies within species that highlights complex genetic and environmental control over leaf cuticle composition, and we have pioneered new techniques to observe trait syndromes that underpin plant water transport function in response to changes in the environment. These provide us with new tools to understand and select superior plant genotypes in a drying world. We have made discoveries in how plants control development, including how plants connect sugar and hormone pathways to control architecture, the hormonal control of formation of new lateral root organs and insights into the evolution of secondary wall features, fundamental information we can now deploy in building predictive genotype to phenotype models.

THEME 2: COMPARATIVE ECOLOGY AND EVOLUTION OF PLANT STRATEGIES

Tim Brodribb
Theme Chair

Ian Wright
Theme Co-Chair

This Theme seeks to connect trait evolution, trait function and gene networks to develop a "first principles" understanding of macroevolution through adaptation to drought and heat. Targeting the full range of variation between individuals and species, we compare patterns of change due to plasticity, with large-scale patterns of evolution in natural systems. Trait variation is connected with adaptation by examining associations between trait variation and climate within species (e.g. Themeda) and across clades (e.g. Eucalyptus), using field collection, common garden and glasshouse grown specimens. Theme 2 interlocks with Themes 1 and 3 by exploring how key traits and mechanisms described in model species can be used in diverse clades to explain broad patterns of evolution.

Approaches vary from field collection of "soft" trait data, to experimental manipulation of plants designed to uncover recurrent patterns of trait and genetic evolution. Combinations of trait collection, physiological characterisation and gene expression are used to explain the path from gene to adaptive evolution, while using phylogeny as a marker of the tempo and effectiveness of whole-plant adaptation to heat and drought.

THEME 3: NOVEL DESIGN PRINCIPLES, MATHEMATICS, AND TECHNOLOGIES

Barbara Holland
Theme Chair

Kevin Burrage
Theme Co-Chair

The Theme "Novel design principles, mathematics, and technologies" develops mathematical and computational approaches that advance our understanding of plant success. This Theme serves as a bridge between themes focused on understanding underlying gene regulatory networks and those focused on practical agricultural applications.

We seek to learn from evolutionary patterns of adaptation by understanding how plants have independently evolved similar "solutions" to similar environments. Application of multi-response phylogenetic mixed models provides a sophisticated statistical framework to analyse trait evolution and correlation patterns. For example, using eucalypts as a model system, we have uncovered a coordinated shift in functional traits associated with replicated evolution into arid environments. The group is developing phylogenetic G2P methods based on hidden Markov models to identify genomic regions associated with adaptive traits, alongside methods for analysing presence-absence patterns in sequence data for evidence of convergent evolution. We are also conducting a large-scale study of the comparative transcriptomics of adaptation to aridity. We have been using PlantSage, our rapid genome, epigenome, genetic trait discovery, validation, and editing system (based on the Australian native, *Nicotiana benthamiana*), to understand and engineer differing drought resilience strategies.

We seek to enhance the Agricultural Production Systems Simulator (APSIM) platform in relation to modelling and prediction of the physiology and genetics of key adaptive traits (branching/tillering; phenology; high temperature and water limitation responses) in field crops. The ongoing development of APSIM affords a predictive link between the functional physiology underpinning key adaptive traits, their genetic variability, and consequences on plant/crop scale phenotypic outcomes in target production environments. These enhancements are linked closely with G-P modelling and prediction activities in Theme 5.

A major recent innovation has been the application of hypergraph theory to biological systems. Unlike traditional network approaches that are limited to pairwise interactions, hypergraphs can capture complex multi-way interactions in biological systems. These methods have proven particularly valuable for identifying essential proteins and understanding complex biological processes through innovative centrality measures. The group also develops sophisticated approaches for working with mechanistic and crop growth models, including techniques in model calibration with uncertainty, emulation, and optimal control for maximising desired model outputs. This research extends to establishing the predictivity of the parameter-free models in use within the Centre, analysis of genetic networks using hypergraphs, and improved identification of evolutionary pressures in the context of genetic drift.

Technological innovations advanced within the Theme include development of novel gene editing technologies, and the use of miniaturised cameras to do fine scale monitoring of plants water-use in the field.

THEME 4: GENETIC BASIS OF DOMESTICATION AND ADAPTATION

Daniel Ortiz-Barrientos
Theme Chair

David Jordan
Theme Co-Chair

The Theme "Genetic basis of domestication and adaptation" seeks to understand what makes a plant 'successful' in both nature and agriculture. By integrating large-scale genomics and phenotypic data, we will explore the genetic underpinnings of plant success across a vast range of environmental conditions. This will enable us to link the phenotype, genotype, and fitness in multiple study systems—one of the holy grails of evolutionary biology.

We will disentangle how the genetic architecture of traits (including alleles, genes, gene expression patterns, methylation, gene pathways, gene networks, structural arrangements, and 3D genome structure) contributes to plant success. We will harness the emerging field of pangenomics to reveal how core and accessory genes shape domestication and adaptation. Additionally, we will investigate how hormonal networks and co-regulated gene expression modules evolve when plants encounter extreme environmental pressures, such as drought and heat.

By combining insights from genomics with advanced machine learning techniques, we aim to identify signatures of domestication and adaptation across diverse plant genomes. These methods will also help uncover complex genetic interactions that drive trait evolution. Understanding these processes will enable us to investigate how multivariate phenotypes evolve over time and determine whether evolutionary trade-offs emerge when multiple traits are under selection. Our Theme focusses on a broad range of traits related to drought and heat tolerance, yield, flowering, branching, phenology, nutrient acquisition through symbioses, and other biotic and abiotic stressors.

Finally, this Theme will harness systems of replicated evolution to investigate how repeatable evolution is and whether populations consistently follow the same evolutionary pathways during adaptation. This work will help us to create models to predict adaptive responses, helping us understand how plants will respond to an ever-changing climate.

THEME 5: G-P MODELLING AND PREDICTION

Mark Cooper
Theme Chair

Graeme Hammer
Theme Co-Chair

Theme 5 is focused on developing and testing hierarchical genome to phenome (G2P) models for multiple traits to provide a framework for enhancing genomic prediction to accelerate genetic gain for yield and yield stability achieved by breeding programs. Crop Growth Models (CGMs) are used as a multi-trait framework for hierarchical integration of trait-by-trait-by-environment interactions to investigate and predict crop adaptation to agricultural environments.

The APSIM modelling platform (see Theme 3) is utilised for crop modelling. Implementations of APSIM and ensemble prediction methods are enabled through the development of software pipelines within the high-performance computing capacities of the Australian National Computing Infrastructure. A wholistic breeding cycle approach is considered to investigate the interplay between the components of the breeder's equation for investigation of selection trajectories and genetic gain; including, (1) the applied and realised selection intensity throughout the G2P trait hierarchy, (2) the theoretical and realized prediction accuracy for the genomic, environomic and phenotyping capabilities of a breeding program, (3) the alignment of the breeding program testing capacities with the Genotype-by-Environment-by-Management (GxExM) context of the Target Population of Environments, (4) trait genetic architecture, genetic diversity and the accessible standing genetic variation of the reference population of genotypes of the breeding program, and (5) effective cycle time of the target breeding program.

Experimental investigations are designed to explore achievable selection trajectories and predict genetic gain over breeding cycles. Experiments are conducted for the model species *Arabidopsis thaliana* and the important crop species *Sorghum bicolor*. Collaborations with industry partners are investigating the potential to operationalise enhanced prediction capabilities; Maize and Sorghum with Corteva, and Soybean with BASF. Projects are conducted to consider the complex relationships between predictability and interpretability of the genetic architecture for complex traits. Experiments are conducted to map traits and investigate multi-trait strategies contributing to crop performance and adaptation for current and projected future environments. The branching network and its influences on plant architecture in combination with plant development and flowering time are priority traits used to test G2P modelling capabilities and prediction-based breeding strategies. In addition, traits related to the water availability and temperature conditions of agricultural environments are also priority areas of focus. All experiments are designed to leverage advances in genomics and pangenomics capabilities, together with improvements in trait phenotyping in collaboration with Bioplatforms and the Australian Plant Phenomics Network.

THEME 6: RESPONSIBLE INNOVATION

Brad Sherman
Theme Chair

Robert Henry
Theme Co-Chair

Paving the way for breeders to adopt new tools and utilise more of the available plant biodiversity we are improving genomic and gene-editing technology, while making sure our innovations are responsible, legal, ethical and socially acceptable.

We are developing new legal and social frameworks that encourage acceptance of new technologies and protect the rights of all parties, including intellectual property rights.

We are actively shaping modern legal and social frameworks to support responsible innovation. By fostering policies that encourage the acceptance of new technologies, the Centre aims to bridge the gap between scientific advancements and societal adoption.

A key focus is ensuring that all stakeholders—researchers, industry leaders, policymakers, and the public—benefit from these innovations while safeguarding their rights. This includes strengthening intellectual property protections to promote fair access and ethical commercialisation of discoveries. Additionally, the Centre is working to modernise outdated legal precedents, enabling impactful research to be recognized and integrated into real-world applications.

"The Centre has supported my growth as a researcher and enabled me to contribute to interdisciplinary projects aimed at advancing scientific understanding, conservation, and crop improvement."

James Lefevre
Postdoctoral Researcher

PROJECTS

THEME KEY

1 DISCOVERING MECHANISMS AND PRINCIPLES OF BIOLOGY

2 COMPARATIVE ECOLOGY AND EVOLUTION OF PLANT STRATEGIES

3 NOVEL DESIGN PRINCIPLES, MATHEMATICS, AND TECHNOLOGIES

4 GENETIC BASIS OF DOMESTICATION AND ADAPTATION

5 G-P MODELLING AND PREDICTION

6 RESPONSIBLE INNOVATION

Project title	Theme(s)	Lead CI	Collaborating CIs
Linkage of whole genome prediction (WGP) to crop growth models (CGM)		Mark Cooper	Graeme Hammer David Jordan Christine Beveridge Kevin Burrage
Synthetic data sets for analysis of GxExM and method development		Graeme Hammer	Mark Cooper Christine Beveridge
Genetic architecture branching/ tillering		Christine Beveridge	Mark Cooper David Jordan Graeme Hammer Jim Weller
Grass pan genome : exploring genetic networks across grasses		David Jordan	Mark Cooper Barbara Holland
PSoup for introducing networks for modelling and prediction		Christine Beveridge	Graeme Hammer Kevin Burrage Mark Cooper
Base knowledge on trait adaptations to temperature and aridity		Ian Wright	Tim Brodribb Peter Waterhouse Mark Cooper Graeme Hammer Eloise Foo Barbara Holland Steven Smith
Combined use of phylogeny, genetics and transcriptomics to discover principles of evolution, local adaptation and mechanisms of adaptation		Steve Smith	Ian Wright Eloise Foo Tim Brodribb Barbara Holland Peter Waterhouse

Project title	Theme(s)	Lead CI	Collaborating CIs
Discover new traits and their relation to whole-plant water relationships		Tim Brodribb	Ian Wright
Rules of biology and predictions: Evolution of hormone networks and sporopollenin and predictive capacity		John Bowman	Tim Brodribb Christine Beveridge
Coordination among branching, flowering, and meristem and apical arrest		Christine Beveridge	Jim Weller
Domestication in legumes – flowering genomics and trait dissection for gene discovery		Jim Weller	
Delivery of denovo domestication		Robert Henry	Peter Waterhouse
Application of advanced genome sequencing		Robert Henry	
Demonstration of Spatial Mass Spectrometry for plant biology		Eloise Foo	Christine Beveridge Tim Brodribb
Discovery of mechanisms and network topology for plant-microbe symbioses		Eloise Foo	Tim Brodribb Barbara Holland
Gene editing technology, drought and cell walls		Peter Waterhouse	Tim Brodribb
Properties of Food		Brad Sherman	Robert Henry
Ensemble models for genomic prediction and accelerated crop breeding		Mark Cooper	Diane Donovan

Project title	Theme(s)	Lead CI	Collaborating CIs
Complex mathematical networks		Diane Donovan	Christine Beveridge Kevin Burrage Daniel Ortiz-Barrientos
Cessation of tiller growth		Christine Beveridge	Graeme Hammer Mark Cooper Jim Weller David Jordan
Genetics of adaptation understood through modelling approaches and machine learning		Daniel Ortiz-Barrientos	Diane Donovan Barbara Holland Kevin Burrage
Genetics of adaptation: Using Senecio to discover how the genome responds to adaptation		Daniel Ortiz-Barrientos	Barbara Holland
The *Senecio* pangenome		Daniel Ortiz-Barrientos	David Jordan
Integrating physiological responses to drought into plant extinction risk assessment and conservation		Ian Wright	Tim Brodribb Barbara Holland
Domestication of symbioses		Eloise Foo	David Jordan Ian Wright
Technology for measuring water traits in any plant including field situation		Tim Brodribb	
How do ecology, phylogeny and genetics determine the partitioning of trait variance		Barbara Holland	Daniel Ortiz-Barrientos

Note. All projects are interdisciplinary, with Early-Mid Career Researchers working across projects with other Chief Investigator groups.

CASE STUDY: PREDICTING CROP PERFORMANCE

Centre researchers are conducting large-scale experimental and modelling research to help crops survive in harsher and more variable environments. These prediction-based approaches use mathematical models to better understand how plant genetics adapt to complex environmental conditions and are a promising way to improve crop genetics quickly and efficiently. However, crop resilience depends on more than just the plant's genetics. It is also influenced by changes in both the environment and management practices used by farmers growing the crops, known as Genotype-by-Environment-by-Management (GxExM) interactions. Therefore, prediction-based models are needed that can anticipate how these different elements interact.

One of the major advances in 2025 is a computational tool called Ensemble AnalySis with Interpretable Genomic Prediction (EasiGP), developed by PhD candidate Shunichiro Tomura. EasiGP uses machine learning and AI to enhance predictions by combining traditional parametric prediction models, machine learning models and quantitative genetics. EasiGP is already being used to make new genomic discoveries utilising available crop breeding data resources.

Together with industry partners, EasiGP has been used to map new regions of crop genomes involved in control of traits responsible for adaptation to agricultural environments. New experiments are underway in a range of plant species to improve ensemble-based prediction, along with other mathematical methods that help us deeply understand the effect of GxExM on target traits.

Work is also being undertaken to improve the accuracy of genomic prediction in crop breeding. Rather than focusing on identifying a single "best" prediction model, researchers developed a simple ensemble approach that averages predictions from several models. Using maize-related data and examining traits linked to crop yield – days to anthesis and tiller number per plant – the study found that the ensemble method produced more accurate predictions and lower errors than individual models. The findings suggest that combining diverse model predictions provides a more comprehensive understanding of complex genetic traits and could improve the efficiency of crop breeding programs.

By improving prediction-based breeding, these discoveries offer a powerful pathway for developing crops that can thrive in future climate conditions. Plant Success researchers are working with multiple global partner organisations to support the adoption and further improvement of the prediction methods. Such research will help safeguard food production, support regional economies and contribute to global food security.

References

- Tomura, S., Wilkinson, M.J., Powell, O. and Cooper, M. (2025). Ensemble AnalySis with Interpretable Genomic Prediction (EasiGP): Computational tool for interpreting ensembles of genomic prediction models. The Plant Genome, 18(4). doi:https://doi.org/10.1002/tpg2.70138.
- Tomura, S., Wilkinson, M.J., Cooper, M. and Powell, O. (2025). Improved Genomic Prediction Performance with Ensembles of Diverse Models. G3 Genes Genomes Genetics. doi:https://doi.org/10.1093/g3journal/jkaf048.

CASE STUDY: PHYLOGENETIC APPROACHES TO UNDERSTANDING BIOLOGICAL TRAITS

Biologists have long sought to link specific genes to specific traits to better understand the mechanisms underlying characteristics. Researchers at the Centre are contributing to this effort through a substantial body of work that uses phylogenetic approaches to investigate biological trait variation. This suite of methods provides a powerful and rapidly developing toolkit for understanding how traits evolve and diversify across species, allowing researchers to uncover the genetic and evolutionary processes that shape biological diversity.

Phylogenetic Genotype to Phenotype mapping, or PhyloG2P is a way of comparing different species across their evolutionary family tree, moving beyond traditional methods that focus on individuals within a single species. By linking genomic variation with trait diversity in an evolutionary context, researchers can better understand how changes in DNA can alter the observable characteristics of a species. Macdonald et al. outlines some of the advantages and disadvantages of different PhyloG2P approaches and shows how they rely heavily on how a trait is defined and measured. The authors suggest that combining different approaches is often necessary to form a clearer picture of how genomes shape biological forms over millions of years.

Halliwell et al. is a practical guide for biologists on how to use a powerful statistical tool called Multi-Response Phylogenetic Mixed Models (MR-PMMs). Rather than analysing traits in isolation, MR-PMMs look at multiple traits simultaneously. This allows researchers to fill in gaps where data might be missing for certain species. In doing so, this helps researchers understand how different species' traits evolve while accounting for their shared family tree (phylogeny), allowing the model to see a bigger picture of how they are connected. While highly effective, these models such as these are often viewed as too technical for many biologists to use. To help this, the paper shows biologists when, why, and how to use them and provides a comprehensive tutorial on how these models can be implemented and applied using two different R packages.

Evolution is not a straightforward process. There are situations where species become more similar because of processes like gene flow, hybridisation, or selective pressures. Standard phylogenetic trees assume species only ever branch apart (divergence), which fails to capture the complex reality of evolutionary data. An alternative option is Convergence–Divergence Models (CDMs), which can use a wide range of data types to provide insights by modelling gene flow between otherwise isolated species over time. In their paper, Mitchell and Holland demonstrate that their new methods accurately map both the basic family tree and the points where species became more similar. This supports the practical usefulness of CDMs as a flexible, statistically grounded alternative to standard trees.

These methods are some of the mathematical tools Centre researchers are using to better understand the evolution of specific traits and advance our understanding of plant success. The research helps to form a bridge between some of our fundamental biological work and agricultural outcomes.

References

- Halliwell, B., Holland, B.R. and Yates, L.A. (2025). Multi-response phylogenetic mixed models: concepts and application. Biological Reviews. doi:https://doi.org/10.1111/brv.70001.
- Macdonald, A.R., James, M.E., Mitchell, J.D. and Holland, B.R. (2025). From Trees to Traits: A Review of Advances in PhyloG2P Methods and Future Directions. Genome Biology and Evolution. doi:https://doi.org/10.1093/gbe/evaf150.
- Mitchell, J.D. and Holland, B.R. (2025). Convergence-Divergence Models: Generalizations of Phylogenetic Trees Modeling Gene Flow Over Time. Bulletin of Mathematical Biology. doi:https://doi.org/10.1007/s11538-025-01565-4.

SUMMARY OF 2025 RESEARCH OUTPUTS

87 JOURNAL ARTICLES

113 CITATIONS

TOP 3 COLLABORATING COUNTRIES

United States of America, China, Germany.

JOURNAL QUALITY

Percentage of publications in Q1, Q2 and Q3 journals.

RESEARCH OUTPUT ATTENTION SOURCE BREAKDOWN

1,618 total mentions including:

69 NEWS MENTIONS

16 BLOG MENTIONS

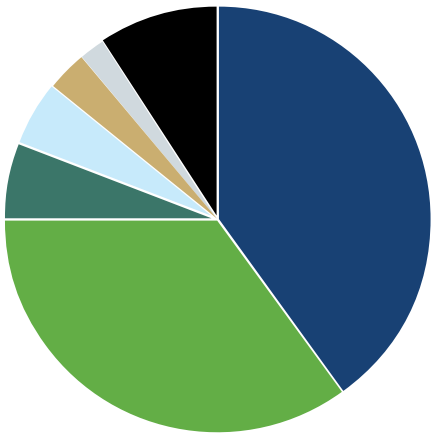
787 X (TWITTER) MENTIONS

10 FACEBOOK MENTIONS

13 PEER REVIEW MENTIONS

723 BLUESKY MENTIONS

Percentage of 2025 publications by subject area:



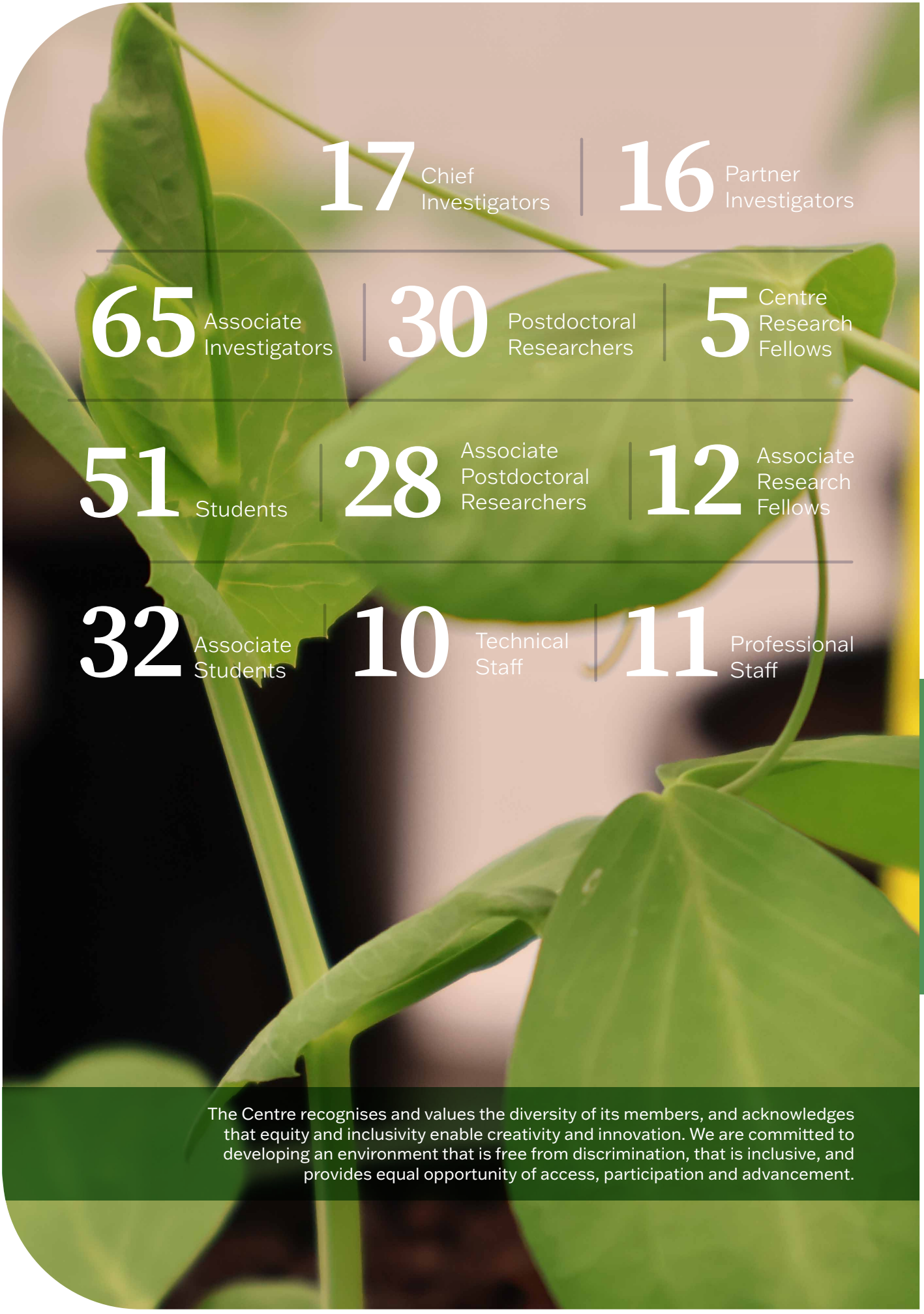
SUBJECT AREA	PUBLICATIONS (%)
Agricultural and Biological Sciences	40
Biochemistry, Genetics and Molecular Biology	35
Mathematics	6
Environmental Science	5
Computer Science	3
Multidisciplinary	2
Other	9

Percentage of papers with international collaboration, national collaboration, institutional collaboration, or single authorship in in 2025.

3

OUR COMMUNITY

Kritika Sharma at the World Science Festival.



17 Chief Investigators

16 Partner Investigators

65 Associate Investigators

30 Postdoctoral Researchers

5 Centre Research Fellows

51 Students

28 Associate Postdoctoral Researchers

12 Associate Research Fellows

32 Associate Students

10 Technical Staff

11 Professional Staff

The Centre recognises and values the diversity of its members, and acknowledges that equity and inclusivity enable creativity and innovation. We are committed to developing an environment that is free from discrimination, that is inclusive, and provides equal opportunity of access, participation and advancement.

OUR PEOPLE

CHIEF INVESTIGATORS (CI)

Christine Beveridge

Centre Director
The University of Queensland

Robert Henry

Node Leader
The University of Queensland

Peter Waterhouse

Node Leader
Queensland University
of Technology

Ian Wright

Node Leader
Western Sydney University

Kevin Burrage

Queensland University
of Technology

Graeme Hammer

The University of Queensland

David Jordan

The University of Queensland

Brad Sherman

The University of Queensland

Jim (James) Weller

University of Tasmania

Mark Cooper

Deputy Centre Director
The University of Queensland

Tim Brodribb

Node Leader
University of Tasmania

John Bowman

Node Leader and
Researcher Development
Leader
Monash University

Eloise Foo

Outreach Leader
University of Tasmania

Diane Donovan

The University of Queensland

Barbara Holland

University of Tasmania

Daniel Ortiz-Barrientos

The University of Queensland

Steven Smith

University of Tasmania

PARTNER INVESTIGATORS (PI)

Name	Organisation
Sotirios Archontoulis	Iowa State University
Kirstin Bett	University of Saskatchewan
Colin Cavanagh	BASF
Rupashree Dass	Computomics
Abelardo de la Vega	Corteva Agriscience
Hannes Dempewolf	The Crop Trust
Natasha Grogan	Stephanie Alexander Kitchen Garden Foundation
Sarah Hearne	CIMMYT
N. Michele (Missy) Holbrook	Harvard University
David Innes	Department of Agriculture and Fisheries
John Lunn	Max Planck Institute of Molecular Plant Physiology
Sophie Mazard	Bioplatforms Australia
Geoffrey Morris	Colorado State University
Loren Rieseberg	The University of British Columbia
Kelly Scarlett	Bioplatforms Australia
Radu Totir	Corteva Agriscience

ASSOCIATE INVESTIGATORS (AI)

Name	Organisation
Vanessa Adams	University of Tasmania
Brian Atwell	Macquarie University
Francois Barbier	Institute for Plant Sciences of Montpellier
Jaqueline Batley	University of Western Australia
Pariya Behrouzi	Wageningen University & Research
Michael Bode	Queensland University of Technology
Scott Boden	The University of Adelaide
Justin Borevitz	Australian National University
Andrew Borrell	The University of Queensland
Phil Brewer	Central Queensland University
Craig Brodersen	Yale University
Ed Buckler	United States Department of Agriculture
Pamela Burrage	Queensland University of Technology
Daniela Bustos Korts	Universidad Austral de Chile
Scott Chapman	The University of Queensland
Michael Charleston	University of Tasmania
Brendan Choat	Western Sydney University
Darren Crayn	James Cook University
Felipe de Felippes	Queensland University of Technology
Pierre-Marc Delaux	The French National Centre for Scientific Research
Jan Engelstaedter	The University of Queensland
Andrea Eveland	Donald Danforth Plant Science Center
Brett Ferguson	The University of Queensland
Franziska Fichtner	Heinrich Heine Universität Düsseldorf
Adam Frew	Western Sydney University
Rachael Gallagher	Western Sydney University

ASSOCIATE INVESTIGATORS (AI)

Name	Organisation
Jason Geijskes	CSIRO
Carla Gho Brito	The University of Queensland
Jim Hanan	The University of Queensland
Craig Hardner	The University of Queensland
Simon Hart	The University of Queensland
Lee Hickey	The University of Queensland
Kay Hodgins	Monash University
Philip Hugenholtz	The University of Queensland
Rebecca Jones	University of Tasmania
Gregory Jordan	University of Tasmania
Michelle Leishman	Macquarie University
David Lowry	Michigan State University
Emma Mace	The University of Queensland
Colleen MacMillan	CSIRO
Scott McAdam	Purdue University
Katrina McGuigan	The University of Queensland
Meredith McNeil	CSIRO
Carlos (Charlie) Messina	University of Florida
Rana Munns	University of Western Australia
Dianne Nicol	University of Tasmania
Riku Oya	The University of Queensland
Libby Pinkard	University of Tasmania
Jonathan Plett	Western Sydney University
Jeff Powell	Western Sydney University
Sean Reynolds Massey-Reed	The University of Queensland
Vivien Rolland	CSIRO

ASSOCIATE INVESTIGATORS (AI)

Name	Organisation
Yong-Ling Ruan	Australian National University
Paul Rymer	Western Sydney University
Ben Smith	Western Sydney University
Miloš Tanurdžić	The University of Queensland
Matthew Tucker	University of Adelaide
Michael Udvardi	The University of Queensland
Fred van Eeuwijk	Wageningen University & Research
Kai Voss-Fels	Hochschule Geisenheim University
Gregory Walter	University of Tasmania
Lizzie Wandrag	University of Tasmania
Brett Williams	Queensland University of Technology
Christopher Winefield	Lincoln University
Sam Yeaman	University of Calgary

CENTRE RESEARCH FELLOWS

Name	Organisation
 Agnelo Furtado	The University of Queensland
 David Kainer	The University of Queensland
 Owen Powell	The University of Queensland
 Frances Sussmilch	University of Tasmania
 Erik van Oosterom	The University of Queensland

POSTDOCTORAL RESEARCHERS

Name	Organisation
 Leila Asadyar	Queensland University of Technology
 Sruthi Balaji	The University of Queensland
 Chantelle Beagley	University of Tasmania
 Christopher Blackman	University of Tasmania
 Ibrahim Bourbia	University of Tasmania
 Travis Britton	Western Sydney University
 Eduardo Burillo Richart	University of Tasmania
 Candice Bywater	The University of Queensland
 Stephanie Conway	The University of Queensland
 Elizabeth Dun	The University of Queensland
 Suz Everingham	Western Sydney University
 Tom Fisher	Monash University
 Eduardo Flores-Sandoval	Monash University
 Nicole Fortuna	The University of Queensland
 Geetika Geetika	The University of Queensland

POSTDOCTORAL RESEARCHERS

	Name	Organisation
	Benjamin Halliwell	University of Tasmania
	Satomi Hayashi	Queensland University of Technology
	Jazmine Humphreys	University of Tasmania
	Vinod Jacob	Western Sydney University
	Maddie James	The University of Queensland
	Brodie Lawson	Queensland University of Technology
	James Lefevre	The University of Queensland
	Yang Liu	The University of Queensland
	Jonathan Mitchell	University of Tasmania
	Raul Ortega Martinez	University of Tasmania
	Sofie Pearson	The University of Queensland
	Buddhini Ranawaka	Queensland University of Technology
	Karen Velandia	University of Tasmania
	Melanie Wilkinson	The University of Queensland
	Luke Yates	University of Tasmania

PHD STUDENTS

	Name	Organisation
	Zuba Ahmed	Queensland University of Technology
	Maram Alqarni	The University of Queensland
	Isabella (Ellie) Amor	The University of Queensland
	Muwahid Asim	The University of Queensland
	Katya Bandow	University of Tasmania
	Lily Bennett	University of Tasmania
	Zoe Broad	The University of Queensland
	Kanishka Chandora	The University of Queensland
	Rahul Chandora	The University of Queensland
	Thomas Crow	The University of Queensland
	Paula Demarco	The University of Queensland
	Muhammad Waqas Dogar	The University of Queensland
	Jacqueline Foster	University of Tasmania
	Wil Harris	The University of Queensland
	Gabrielle Hartill	University of Tasmania

PHD STUDENTS

	Name	Organisation
	Xia Jin	The University of Queensland
	Anoban Karunananthan	Western Sydney University
	Tara Kemp	The University of Queensland
	Arlie Macdonald	University of Tasmania
	Christopher McCarthy	University of Tasmania
	Kathleen McLay	The University of Queensland
	Anu Middha	Western Sydney University
	Tori Millsteed	The University of Queensland
	Christos Mitsanis	The University of Queensland
	Sabrina Morrison	The University of Queensland
	Shamsunnahar Mukta	University of Tasmania
	Nurmansyah Nurmansyah	The University of Queensland
	Nicholas O'Brien	The University of Queensland
	Jack Price	The University of Queensland
	Md. Shohel Rana	The University of Queensland
	Chamilka Ratnayake	Queensland University of Technology

PHD STUDENTS

Name	Organisation
 Christopher Ray	University of Tasmania
 Asad Riaz	The University of Queensland
 Efat (Ati) Rostami	Queensland University of Technology
 Tiana Scott	University of Tasmania
 Fergus Smith	University of Tasmania
 Abhishek Soni	The University of Queensland
 Seema Soni	The University of Queensland
 Jiacan Sun	University of Tasmania
 Yulin Sun	The University of Queensland
 Joe Thomas	University of Tasmania
 Shunichiro Tomura	The University of Queensland
 Burhan Ud Din Abbasi	The University of Queensland
 Jiahao Wen	Western Sydney University
 Angus Whittington	University of Tasmania
 Zheng Yang Teoh	Monash University
 Chan Yuen Lim	Queensland University of Technology

HONOURS STUDENTS

	Name	Organisation
	Ben Davie	University of Tasmania
	Claire Edwards	University of Tasmania
	Daniel Gerlach	University of Tasmania
	May Hensher	University of Tasmania

TECHNICAL STAFF

	Name	Organisation	Job title
	Nick Appleton	The University of Queensland	Senior Research Assistant
	Alejandro Correa Lozano	University of Tasmania	Laboratory Research Assistant
	Phuong Hoang	The University of Queensland	Senior Research Assistant
	Colleen Hunt	The University of Queensland	Senior Biometrician
	Greg McLean	The University of Queensland	Senior Research Assistant
	Pushpavalli Raju	The University of Queensland	Senior Research Assistant
	Sally Roden	Queensland University of Technology	Research Technician
	Joe Saddigh	The University of Queensland	Software Engineer
	Alex Tomkinson	University of Tasmania	Research Assistant
	Jacqueline Vander Schoor	University of Tasmania	Senior Research Technician

PROFESSIONAL STAFF – CENTRE OFFICE FOR RESEARCH MANAGEMENT AND SUPPORT (CORMS)

	Name	Organisation	Job title
	John Alvarez	Monash University	Node Administrator
	Phoebe Baldwin	The University of Queensland	Communications and Engagement Officer
	Carol Ballard	The University of Queensland	Law Project Officer
	Kylie Brice	Western Sydney University	Node Administrator
	Uwe Dressel	The University of Queensland	Centre Coordinator
	Susie Green	The University of Queensland	Node Administrator
	Catherine Jones	University of Tasmania	Node Administrator
	Tracy Kelly	Queensland University of Technology	Node Administrator
	Susan Rowcliffe	The University of Queensland	Project Administrator
	Joanne Simpkins	Queensland University of Technology	Node Administrator
	David Tomlins	The University of Queensland	Chief Operating Officer
	Chris Wacker	The University of Queensland	Outreach Officer

ASSOCIATE RESEARCH FELLOWS

Name	Organisation
Kamalesh Adhikari	The University of Queensland
Sam Andrew	CSIRO
Inigo Auzmendi	The University of Queensland
Julia Bally	Queensland University of Technology
Jason Brider	The University of Queensland
Karine Chenu	The University of Queensland
Peter Crisp	The University of Queensland
Pratap Deverapalli	The University of Queensland
Leila Joudi	The University of Queensland
Lindsay Shaw	The University of Queensland
Shilpi Singh	Monash University
Alex Wu	The University of Queensland

ASSOCIATE POSTDOCTORAL RESEARCHERS

Name	Organisation
Esinam Nancy Amuzu-Aweh	The University of Queensland
Jiyuan An	Queensland University of Technology
Jakob Butler	University of Tasmania
Madeline Carins-Murphy	University of Tasmania
Shubham Chhajed	Western Sydney University
Germano Costa-Neto	Cornell University
Tom Dierschke	Monash University
Daniel Edge-Garza	The University of Queensland
Shashi Goonetilleke	The University of Queensland
Peter Harrison	University of Tasmania

ASSOCIATE POSTDOCTORAL RESEARCHERS

Name	Organisation
Beatrice Harrison Day	Western Sydney University
Adrian Hathorn	The University of Queensland
Claire Huang	The University of Queensland
Alon Israeli	Monash University
Kate Johnson	Swiss Federal Institute of technology
Cade Kane	Harvard University
Stephanie Kerr	Queensland University of Technology
Ardashir Kharabian-Masouleh	The University of Queensland
Javier Lopez Jurado	University of Tasmania
Patrick Mason	The University of Queensland
Isaac Njaci	The University of Queensland
Daniel Otwani	The University of Queensland
Chenyu Rong	Nanjing Agriculture University
Alan Severini	The University of Queensland
Emma Sumner	Western Sydney University
Yongfu Tao	Chinese Academy of Sciences
Vanessa Tonet	Yale University
Andrea Westerband	Western Sydney University

ASSOCIATE PHD STUDENTS

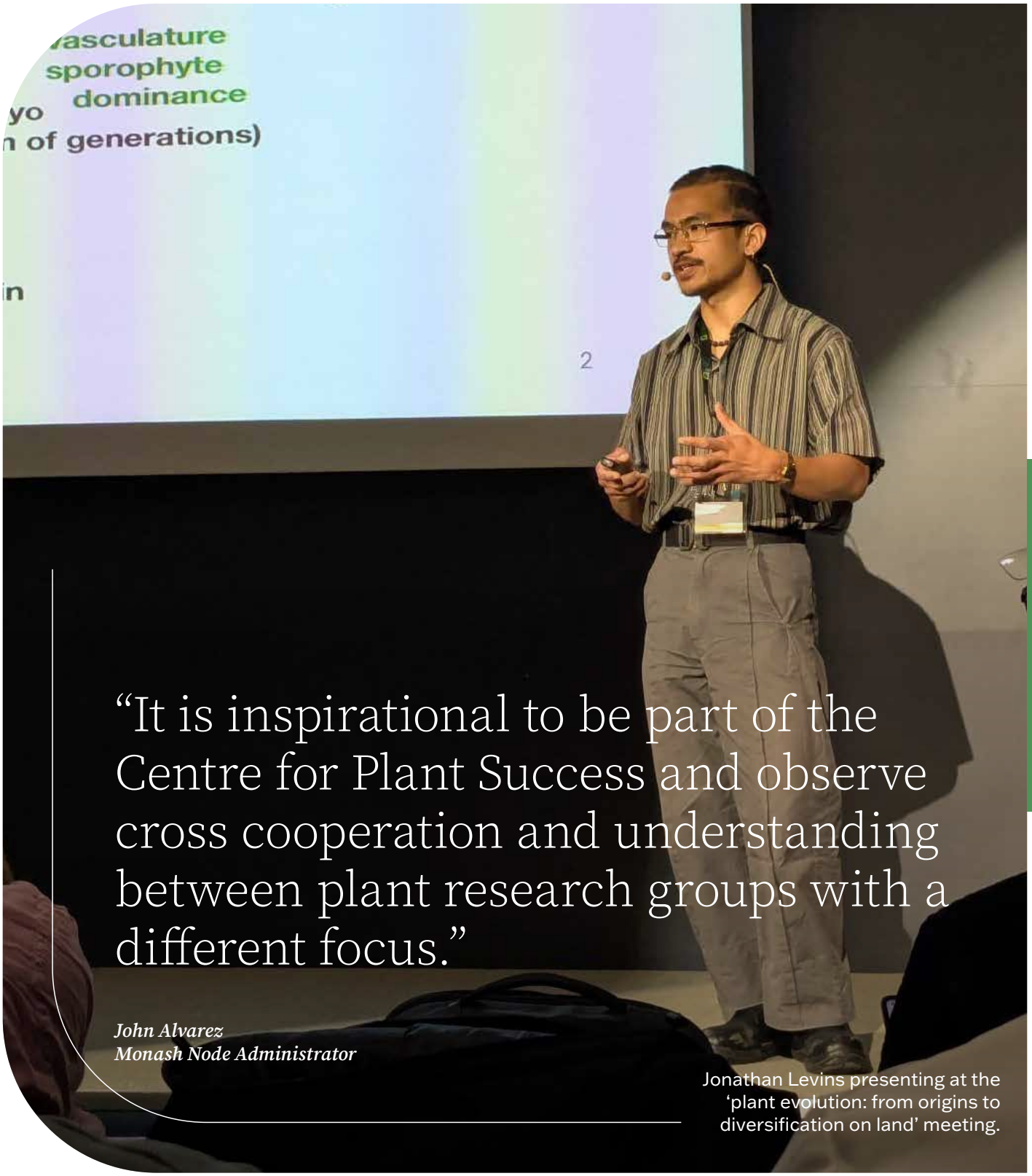
Name	Organisation
Muhammad Abdullah	The University of Queensland
Maliheh Alaei Tazehkand	University of Mohaghegh Ardabili
Alfredo Caldera	The University of Queensland
Dinithi Chithrarachchige	Monash University
Yang Dai	University of Tasmania

ASSOCIATE PHD STUDENTS

Name	Organisation
Hannah Drieberg	The University of Queensland
Caitlin Dudley	The University of Queensland
Genevieve Durrington	The University of Queensland
Giulia Folini	Monash University
Mona Giraud	Forschungszentrum Jülich Gmbh
Augustus Grant	University of Tasmania
Nodoka Izumi	Western Sydney University
Sophie Jones	The University of Queensland
Jasvanti Lala	The University of Queensland
Sarah Lawson	The University of Queensland
Jonathan Levins	Monash University
Sachini Manatunga	The University of Queensland
Srinivasa Mothukuri	The University of Queensland
Habtu Nigus	University of Tasmania
Tiantian Pan	Macquarie University
Chaitanya Purushothama	The University of Queensland
Hamza Ramzan	The University of Queensland
Sayyad Ali Raza Bukhari	University of Tasmania
Esmat Sarafraz	University of Tasmania
Kritika Sharma	University of Tasmania
Saiyara Shehnaz	The University of Queensland
Aparna Thulaseedharan	The University of Queensland
Hanh Vo	University of Tasmania
Taylor Wass	The University of Queensland
Upendra Wijesundara	The University of Queensland
Charles Zhou	The University of Queensland

ASSOCIATE HONOURS STUDENT

Name	Organisation
Jessica Lazner	Monash University



"It is inspirational to be part of the Centre for Plant Success and observe cross cooperation and understanding between plant research groups with a different focus."

John Alvarez
Monash Node Administrator

Jonathan Levins presenting at the 'plant evolution: from origins to diversification on land' meeting.

GOVERNANCE STRUCTURE

CENTRE ADVISORY COMMITTEE

The Centre Advisory Committee (CAC) comprises members from government, academia, industry, and the community, serving as a vital link to these sectors. Their guidance and insights have solidified the Centre's reputation as a global leader in plant science, postgraduate and postdoctoral training, researcher development, and the promotion of equity, diversity, and inclusion.

In 2025, Nicole Fortuna (UQ) and Tiana Scott (UTAS) joined the Committee as Early-Career Researcher representatives. The CAC has played an instrumental role in advising Centre management on strategies to enhance research organisation and shape future directions, ensuring a lasting legacy for the broader plant science community. The Committee also provided recommendations on supporting HDR students and Early Career Researchers (ECRs) as the Centre approaches its wind-down phase in 2027.

Each year, the Committee eagerly anticipates the opportunity to engage with ECRs to gain insights into their research and experiences within the Centre. In 2025, Dr Ibrahim Bourbia (UTAS) and Dr Maddie James (UQ) presented their research outcomes and shared their experiences with the Committee.

Membership

 Dr John Manners (Chair)	Honorary Fellow, CSIRO Agriculture & Food; former Head of Division; Adjunct Professor, UQ
 Richard Dickmann	Chief Executive Officer, Australian Plant Phenomics Network (APPN); Industry advisor
 Henrietta Marrie AM	Honorary Professor, Queensland Alliance for Agriculture & Food Innovation; Community representative
 Dr Julia Playford	Executive Director Office of the Great Barrier Reef and World Heritage; Department of Environment, Science and Innovation; Government advisor
 Emeritus Professor Joanne Tompkins	Professor, Theatre Studies & Emeritus Professor, School of Communication & Arts, UQ; formerly Executive Director for Humanities and Creative Arts at the ARC (2017-2020)
 Dr Nicole Fortuna	Postdoctoral Research Fellow, The University of Queensland; Early Career Researcher representative
 Tiana Scott	PhD Student, University of Tasmania; Early Career Researcher representative
 Professor Christine Beveridge (ex-officio)	Centre Director
 Professor Mark Cooper (ex-officio)	Centre Deputy Director
 David Tomlins (ex-officio)	Centre Chief Operating Officer
 Secretariat: Dr Uwe Dressel	Centre Coordinator

In 2025, the Committee met on two occasions.

SCIENCE ADVISORY PANEL

The Scientific Advisory Panel's role is to advise and provide guidance to the leadership team on the Centre's research planning and outputs. The panel also gives an international perspective on the Centre's field of research, advising the Centre leadership and Centre Advisory Committee on the development of the Centre's strategic research direction.

We were fortunate to have Prof. Marilyn Anderson, Prof. Bruce Walsh and Associate Prof. Bettina Berger attend the 2025 Research Retreat alongside our ECR representative Dr. Yang Liu. Each of their contributions during the Retreat were deeply valued by the wider Centre membership.

The panel convened to provide detailed feedback on the year of Centre activities and to provide guidance and advice on planning for the remaining term of the centre, translation of Centre research and Centre legacy projects.

Key recommendations from this meeting have been taken into consideration in our future planning.

Membership

 Professor Marilyn Anderson (Chair)	La Trobe University Expertise: plant molecular biology and biochemistry
 Dr Marianne Bänziger	Former Deputy Director General for Research at CIMMYT
 Associate Professor Bettina Berger	University of Adelaide; Australian Plant Phenomics Facility (APPF) Expertise: molecular biology of plants; phenotyping
 Dr Yang Liu	Postdoctoral Research Fellow, Centre for Crop Science, Queensland Alliance for Agriculture & Food Innovation; Early Career Researcher representative
 Professor Bruce Walsh	University of Arizona Expertise: genetics of complex traits; quantitative genetics; plant breeding
 Professor Detlef Weigel	Max Planck Institute Expertise: developmental and evolutionary biology
 Professor Christine Beveridge (ex-officio)	Centre Director
 Professor Mark Cooper (ex-officio)	Centre Deputy Director
 David Tomlins (ex-officio)	Centre Chief Operating Officer
 Secretariat: Susie Green	UQ Node Administrator

In 2025, the Committee met on one occasion.

EXECUTIVE COMMITTEE

Chaired by Centre Director, the Centre Executive Committee is responsible for overseeing all aspects of management, including strategic planning, financial oversight, personnel matters, and Intellectual Property (IP) management. The Committee also tracks key performance indicators, manages reporting processes, and provides guidance on the Centre's ongoing initiatives.

Throughout the year, the Committee approved the allocation of additional funds for new strategic projects, endorsed travel support to facilitate cross-Nodal collaboration and supervision, oversaw the planning and delivery of the Centre's Annual Research Retreat, and monitored research programs to ensure they met the Centre's key performing objectives.

In 2025, the Committee devoted considerable effort to shaping strategies that will secure the Centre's enduring impact well beyond its scheduled conclusion in 2027. A key initiative under discussion is the establishment of an Annual Winter School on Artificial Intelligence and Predictive Agriculture, designed to foster cutting-edge skills and knowledge transfer across the plant science community.

Additionally, the Committee focused on developing targeted programs to support HDR candidates and Early Career Researchers (ECRs) as the Centre approaches its wind-down phase in 2027. These initiatives aim to ensure continuity of mentorship, career development opportunities, and collaborative networks, helping emerging researchers thrive in the next stage of their careers while preserving the Centre's legacy of excellence.

Membership

 Professor Christine Beveridge (Chair) (ex-officio)	Centre Director
 Professor Mark Cooper (ex-officio)	Centre Deputy Director
 Professor John Bowman (ex-officio)	Monash Node Leader, and Researcher Development Portfolio Lead
 Professor Tim Brodribb	UTas Node Co-Leader
 Professor Robert Henry (ex-officio)	UQ Node Leader
 Professor Barbara Holland (ex-officio)	UTas Node Co-Leader
 Professor Eloise Foo (ex-officio)	Outreach Portfolio Lead
 Professor Peter Waterhouse (ex-officio)	QUT Node Leader
 Distinguished Professor Ian Wright (ex-officio)	WSU Node Leader
 David Tomlins (ex-officio)	Centre Chief Operating Officer
 Secretariat: Dr Uwe Dressel	Centre Coordinator

In 2025, the Committee held 6 formal meetings (including two by circular resolution).

TRANSLATION AND IMPACT COMMITTEE

The purpose of the Translation and Impact Committee (TIC) is to advise the Centre Executive Committee how best to maximise the adoption and impact of the Centre's research outputs. This includes developing procedures to identify and include new partner organisations.

In 2025, the Committee reviewed and discussed ways to further support significant outcomes in the Law and Intellectual Property Portfolio, Cavicam funding, and Genotype x Environment x Management collaborations. These initiatives are major outcomes that will be legacy items for the Centre.

At the end of the year, Professor Eloise Foo chose to step back from her position as Outreach Lead and Professor Brad Sherman agreed to take up this role. The committee thanks Eloise for her work in the Outreach portfolio and as a member of the TIC.

Membership

	Professor Mark Cooper (Chair) (ex-officio)	Centre Deputy Director
	David Tomlins (Deputy Chair)	Centre Chief Operating Officer
	Professor Christine Beveridge (ex-officio)	Centre Director
	Professor Eloise Foo (ex-officio)	Outreach Portfolio Lead
	Professor Robert Henry	UQ Node Leader and QAAFI representative
	Professor Peter Waterhouse	QUT Node Leader
	Professor Brad Sherman	Chief Investigator and law specialist
	Distinguished Professor Ian Wright	WSU Node Leader
	Secretariat: Phoebe Baldwin	Communications and Engagement Officer

In 2025, the Committee held 4 formal meetings (including two by circular resolution).

RESEARCHER DEVELOPMENT WORKING GROUP

The Researcher Development Working Group (RDG) collaborates across the Centre's Nodes to identify training and development needs of Centre members, and sources or develops appropriate learning programs to enable researcher development.

At the start of 2025, Professor Daniel Ortiz-Barrientos chose to step back from his role as co-chair. The Working Group thanks Daniel for his work in the RDG portfolio. See page 47 for detail on Researcher Development initiatives.

Membership

 Professor John Bowman (Chair)	Chair and Node Leader representative
 Wil Harris	Higher Degree by Research Student representative, UQ Node
 Kanishka Chandora	Higher Degree by Research Student representative, UQ Node
 Thomas Crow	Higher Degree by Research Student representative, UQ Node
 Hamza Ramzan	Higher Degree by Research Student representative, UQ Node
 Anu Middha	Higher Degree by Research Student representative, WSU Node
 Shamsunnahar Mukta	Higher Degree by Research Student representative, UTas Node
 Sayyad Ali Raza Bukhari	Higher Degree by Research Student representative, UTas Node
 Dr Geetika Geetika	Postdoctoral Researcher representative, UQ Node
 Dr Daniel Otwani	Postdoctoral Researcher representative, UQ Node
 Dr Sruthi Balaji	Postdoctoral Researcher representative, UQ Node
 Dr David Kainer	Postdoctoral Researcher representative, UQ Node
 Dr Brodie Lawson	Postdoctoral Researcher representative, QUT Node
 David Tomlins (Observer)	Centre Chief Operating Officer
 Secretariat: Susan Rowcliffe	Project Officer

In 2025, the Working Group met on six occasions.

OUTREACH WORKING GROUP

The purpose of the Outreach Working Group (OWG) is to facilitate the promotion of the Centre's research to stakeholders.

The Working Group develops and facilitates Outreach opportunities in the categories of:
1. Addressing Fundamentals (Education/Schools)
2. Connecting with Community (Opportunities for Engagement)
3. Igniting Passion (Our big ideas/projects)

See page 50 for detail on Outreach initiatives.

Membership

 Professor Eloise Foo (Chair) (ex-officio)	Outreach Portfolio Lead
 Phoebe Baldwin (ex-officio)	Communications & Engagement Officer
 David Tomlins (ex-officio)	Centre Chief Operating Officer
 Dr Ben Halliwell	Early Career Researcher representative
 Dr Maddie James	Early Career Researcher representative
 Lily Bennett	Higher Degree by Research Student representative
 Kritika Sharma	Higher Degree by Research Student representative
 Hanh Vo	Higher Degree by Research Student representative
 Caitlin Dudley	Higher Degree by Research Student representative
 Thomas Crow	Higher Degree by Research Student representative
Other	Other members from the Centre with a general interest in outreach activities also participate on the Working Group
 Secretariat: Dr Chris Wacker (ex-officio), Outreach Officer	

In 2025, the Working Group met on two occasions.

Chantelle Beagley presenting at the 2025 Research Retreat.

"The Centre's interdisciplinary environment has supported my growth and confidence as a researcher, while also strengthening the collective impact of our work to develop climate-smart, productive, and economically viable crops for Australia."

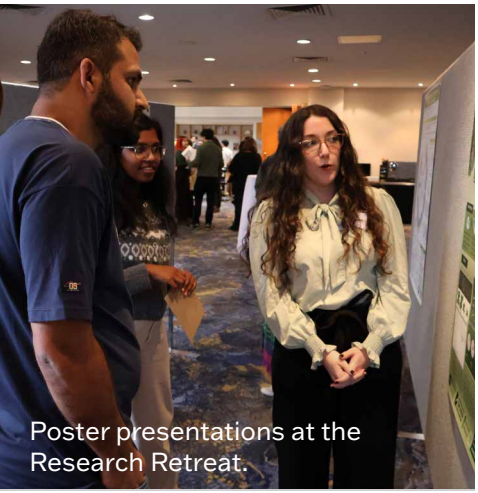
Chantelle Beagley
Postdoctoral Researcher

RESEARCHER DEVELOPMENT WORKING GROUP (RDG)

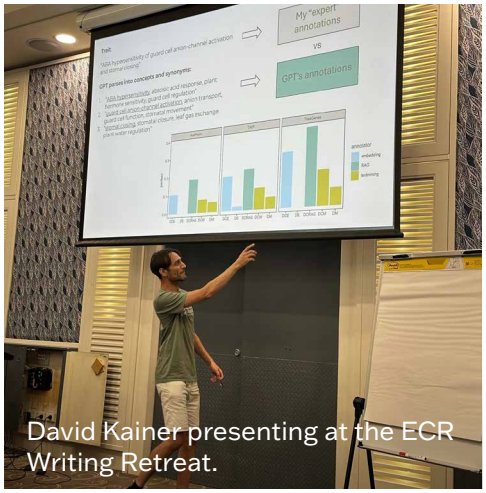
John Bowman
Researcher Development Lead

The Researcher Development Working Group (RDG) is comprised of a small but enthusiastic team of ECRs and Higher Degree by Research (HDR) Students (page 44). Through the efforts of the RDG, the Centre delivers a diverse suite of training and professional development programs to build capacity and grow future research leaders. The RDG achieves this through three development domains – Science, Wellbeing and Engagement.

The Kickstart Grant Program and ECR Capacity Building Grant scheme continued to be available for funding to ECRs in 2025 to support them in their research endeavours. The Kickstart Grant Program, designed to enable ECRS to practice independent research and improve their grantsmanship, leadership and networking skills, provided a total of $37,997 to two Kickstart Research Groups. Kickstarter Research Group 7 comprised of three investigators and five mentors across three nodes. Kickstarter Research Group 8 comprised of four investigators and one mentor across three nodes.



Poster presentations at the Research Retreat.



David Kainer presenting at the ECR Writing Retreat.

Discussions during the ECR training days at the Research Retreat.

ECR Lead	Project Title	Funds awarded
Sofie Pearson (Group 7)	Unlocking Sorghum's Hidden Partners: Genetics, AM Fungi, and Future Farming	$19,817
Ibrahim Bourbia (Group 8)	Influence of soil texture on plant water pressure regulation	$18,180

The ECR Capacity Building Grant Scheme aims to build and strengthen ECR capacity through enhancing opportunities for collaboration, communication and training. This year the scheme was offered monthly and resulted in 25 successful grants totalling $97,550.00 being awarded.

ECR	Purpose	Funds awarded
Kanishka Chandora, UQ Node	Domestic travel/exchange	$2,500
Shohel Rana, UQ Node	Domestic travel/exchange	$2,500
Yang Liu, UQ Node	International travel/exchange	$5,000
Muhammad Muwahid Asim, UQ Node	International travel/exchange	$2,400
Kathleen McLay, UQ Node	International travel/exchange	$1,950
Sabrina Morrison, UQ Node	International travel/exchange	$5,000
Yulin Sun, UQ Node	International travel/exchange	$2,000
Anu Middha, WSU Node	International travel/exchange	$3,000
Travis Britton, WSU Node	International travel/exchange	$4,055
Maddie James, UQ Node	International travel/exchange	$3,700
Arlie Macdonald, UTas Node	International travel/exchange	$2,550
Meikun (Charles) Zhou, UQ Node	International travel/exchange	$2,806
Tiana Scott, UTas Node	International travel/exchange	$1,814
Jiacan Sun, UTas Node	International travel/exchange	$5,000
Karen Velandia, UTas Node	International travel/exchange	$3,805
Isabella Amor, UQ Node	International travel/exchange	$3,400
Sophie Jones, UQ Node	International travel/exchange	$5,000
Tori Millsteed, UQ Node	International travel/exchange	$5,000
Luke Yates, UTas Node	International travel/exchange	$5,000
Dinithi Chithrarachchige, Monash Node	International travel/exchange	$3,390
Jonathan Levins, Monash Node	International travel/exchange	$4,950
Jessica Lazner, Monash Node	International travel/exchange	$3,500
Giulia Folini, Monash Node	International travel/exchange	$2,300
Eduardo Flores Sandoval, Monash Node	International travel/exchange	$5,000
Yulin Sun, UQ Node	International travel/exchange	$3,000
Asad Riaz, UQ Node	International exchange	$8,930

The following development activities were delivered in 2025:

When	Activity	Presenter	Domain
Feb	Two Day Writing Retreat	Blake Chapman, Steve Smith, Daniel Ortiz-Barrientos, David Kainer	Science
	Searching for Selection via Slopes	Brodie Lawson	Engagement
Apr	Measuring Plant Genome Size with 'The Flow'	Abishek Soni	Engagement
Jun	Exploring Non-academic Careers Workshop and Panel discussion	Cruxes Innovation	Science
	Writing a High Impact paper – Research planning through to publication	Christine Beveridge, Eloise Foo	Science
	Panel session with highly cited researchers – why is their research highly cited?	Richard Fuller, Tamara Davis, Catherine Lovelock, Janeen Baxter	Science
	Unpacking Complexity in Mathematical Models: Bayesian Inference and Analysis of Model Sloppiness	Ati Rostami	Engagement
	A Bit Shady: The Secret Role of KA12 in Shoot Branching	Ellie Amor	Engagement
Sep	Evolutionary Conservation of the Sporopollenin Biosynthesis Pathway Across Land	Jonathan Levins	Engagement
	Characterizing Stomatal Behaviour in Response to Vapor Pressure Deficit (VPD) in Pinus Radiata	Kritika Sharma	Engagement
Nov	Harnessing Adversarial Networks to Evolve Realism	Charles Zhou	Engagement
	Exploring Disease Resistance Gene Candidates in Wild Rice	Sabrina Morrison	Engagement
	Getting Good Feedback	Hugh Kearns (ithinkwell.com.au)	Wellness
	Conflict Resolution Workshop	Jo Porter (Leading Lighter)	Wellness
Dec	Just Write – Writing Workshop	Christine Beveridge, David Jordan, Mark Cooper, Eloise Foo, Barbara Holland	Science

OUTREACH WORKING GROUP (OWG)

Eloise Foo
Outreach Lead

Chris Wacker
Outreach Officer

2025 was a record year for Outreach with Centre members participating in a large number of initiatives! We said farewell to Outreach Officer Emma Horswill at the start of the year and in May, welcomed Chris Wacker into the role. With the support of Outreach Lead Professor Eloise Foo and Communications and Engagement Officer Phoebe Baldwin the Centre continued to develop resources and projects in the three categories below.

ADDRESSING FUNDAMENTALS (EDUCATION/SCHOOLS)

We streamlined the topics for our Parts of Plants resources and refined the content to produce a broad range of curriculum-aligned activities for schools. The ten resources cover topics from gene editing to gravitropism, and have been made to help teachers ignite a passion for plants in students from grades 5-10. Resources will be housed on the Centre website as well as Skootle from 2026. Skootle provides free quality curriculum-aligned resources for Australian educators. We hope that these resources will form part of our Outreach legacy and will be used in classrooms across Australia.

CONNECTING WITH COMMUNITY (OPPORTUNITIES FOR ENGAGEMENT)

STEM Professionals in Schools Program (CSIRO) – Full year, Jonathan Mitchell participated in the Ask a Mathematician Series and Jim Hanan worked with Centenary State High School in Brisbane on robotics and offering biology teachers a demonstration on computational plant modelling.

STEMPals – Full year, Maddie James participated in this program which sets up a pen-pal relationship between STEM professionals and primary school aged students.

Young Achievers Program – January, Charles Zhou, Arlie Macdonald and Caitlin Dudley delivered our pollen detective activity.

National Youth Science Forum – January, Caitlin Dudley, Burhan Ud Din Abbasi, Kath McLay, Sophie Jones and Wil Harris delivered our pollen detective activity.

The Science Experience – January, Sofie Pearson, Kath McLay, Arlie Macdonald and Jim Hanan delivered a plant modelling workshop.

Wonder of Science Flying Scientist Program – March, Maddie James travelled to Weipa and Mossman.

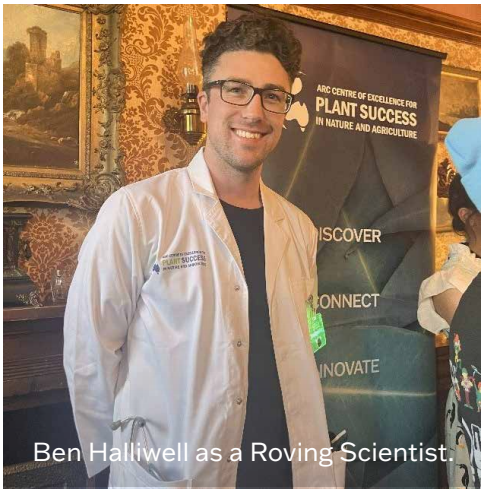
World Science Festival Brisbane – March, Kritika Sharma, Caitlin Dudley, Chamilka Ratnayake and Abhishek Soni presented the Plant Detectives activity and interacted with ~2000 members of the public.

Pint of Science – May, Sabrina Morrison presented 'Baddies in the paddies' at one of the Brisbane events.

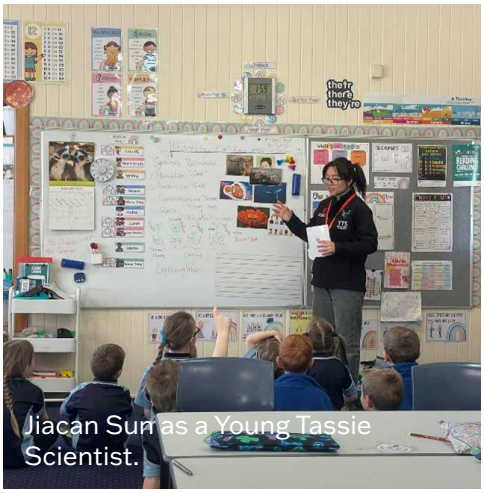
Northwest at Inveresk – June, Lily Bennett and Christopher McCarthy visited year 10 students from three High Schools in Launceston.

Conference for Queensland Education Science Technicians – July, Kanishka Chandora and Pushpavalli Raju provided a tour of plant laboratories and the Plant Futures Facility at The University of Queensland.

St Brendan-Shaw College – July, Kritika Sharma and Eloise Foo ran the UnbeLEAFable activity for 18 year 12 students who visited UTAS.



Ben Halliwell as a Roving Scientist.


Jiacan Sun as a Young Tassie Scientist.


Hanh Vo (right) as a Roving Scientist.

InspireU Kickstarter – July, Sruthi Balaji ran an interactive session for Aboriginal and Torres Strait Islander students in years 7, 8 and 9, focusing on human genes, ethics and the law.

Future Science Talk – July, Arlie Macdonald participated in the Future Science Talks Comedy Edition in Brisbane. Arlie presented a comedy talk based on their role as a statistician in the Centre.

Mabel Park State High School – August, Chris Wacker delivered a STEM Career pathways talk to 120 year 10 students as part of National Science Week.

Australian Science Teachers Association – August, Burhan Ud Din Abbasi spoke to 170 teachers on how AI and computational technologies are transforming crop science as part of National Science Week.

Beaker Street Festival Roving Scientists and Scientists in the Pub – August, Chris McCarthy, Fergus Smith, Hanh Vo, Joe Thomas, Katya Bandow, Ben Halliwell, and Lily Bennett.

Festival of Bright Ideas – August, Kritika Sharma, Katya Bandow, Shamsunnahar Mukta, and Hanh Vo delivered the Plant Detectives activity in Hobart, Tasmania.

Young Tassie Scientists – August, Kritika Sharma and Jiacan Sun visited seven primary schools in Circular Head, Tasmania. They also participated in the Circular Head Science Gig.

InspireU – September, Zoe Broad, Kath McLay, Hamza Ramzan, Caitlin Dudley, Arlie Macdonald developed and delivered a new activity: The Plant Time Machine.

St Mary's College – November, Katya Bandow and Kritika Sharma presented the UnbeLEAFable activity to year 10 students visiting the University of Tasmania campus.

Frontiers for Young Minds – November, Hanh Vo, Caitlin Dudley, Vanessa Tonet, Jazmine Humphreys and Eloise Foo had an article published in Frontiers for Young Minds titled "How scientists can improve adaptation for the plants we eat in preparation for harsher environments."

IGNITING PASSION (OUR BIG IDEAS/ PROJECTS)

Cool Jobs – a video series was published on YouTube that highlighting some of the diverse career opportunities available in STEM.

Plant Game Project – the card design was completed and an initial test print ordered. After assessing the test print, we will print card sets to send out for testing to interested parties in 2026.

Grant Applications – to share our expertise and enthusiasm for plant science with as many Australians as possible, we applied for Queensland Engaging Science and National Science Week grants this year. Results will be announced early in 2026.

COMMUNICATIONS, MEDIA AND EVENTS

Phoebe Baldwin
Communications and Engagement Officer

Throughout 2025 we focused on supporting effective science communication, and creating opportunities for engagement both within and beyond the Centre. A particular highlight was the media training session for early career researchers held in Melbourne, which gave participants the chance to develop practical skills in communicating their research and to experience a real television and radio studio environment. The training session built researchers' confidence in sharing their work to help ensure the Centre's discoveries reach diverse audiences.

WEBSITE

The Centre website is our digital home to outline our research, showcase our Centre members, celebrate achievements, and engage with stakeholders. A variety of new resources were added to the website including a page to showcase software packages developed by Centre members.

The website is a key element of our public profile and in 2025 attracted 15,201 users from all over the world:

- Australia remains the top user country, followed by the China, United States of America, Germany, and Singapore.
- The most visited pages were Home, People, Opportunities, About, and Research.

NEWSLETTER

The newsletter is a major channel of Centre communication for both internal and external stakeholders that highlights recent achievements, opportunities, publications, appointments, events, and other general news for our members, stakeholders, and the wider community. It also features a spotlight section where a different Centre member is profiled each month to help our geographically dispersed team get to know one another better. 11 editions of the newsletter were sent in 2025 with a greater number of ECRs writing headline articles showcasing their experiences and perspective.

Number of newsletter subscribers as of 19 December 2025: 663

SOCIAL MEDIA

The Centre's social media presence continued to show higher levels of interaction on LinkedIn and Bluesky. We uploaded some of our previously internal only webinar series recordings to YouTube, increasing our subscriber count and adding to our publicly available resources.

Number of followers as of 19 December 2025:

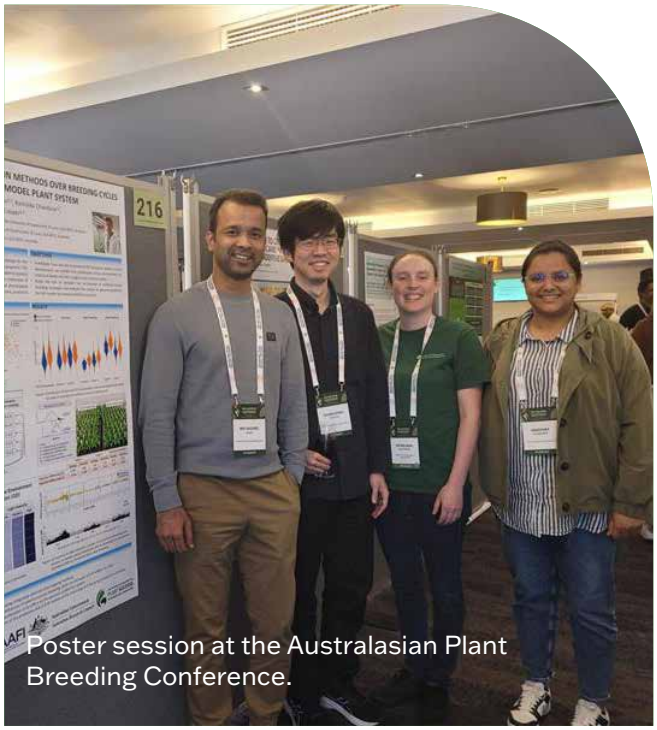
- LinkedIn – 3,017 followers
- X (Twitter) – 2,011 followers
- Bluesky – 1,387 followers
- Facebook – 77 followers
- Instagram – 138 followers
- YouTube – 435 subscribers, 126 public videos, 68,482 views

MEDIA HIGHLIGHTS

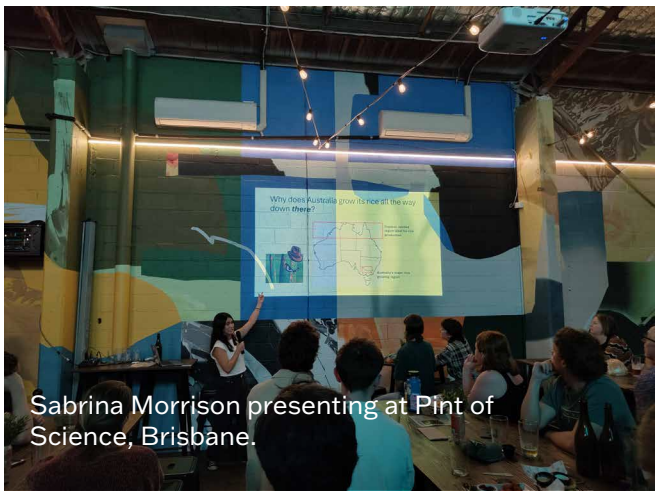
There were a total of 57 media mentions about the Centre in 2025 with a potential reach of 247 million. Some highlights included:

- Tim Brodribb, The Conversation, 'Plants breathe with millions of tiny mouths. We used lasers to understand how this skill evolved'
- Sophie Jones, The Conversation, 'Why mangoes fall before they're ripe – and how science is helping them hang on'
- John Bowman, Monash University, 'Monash researchers uncover ancient genetic switch that lets plants grow,adapt and survive'

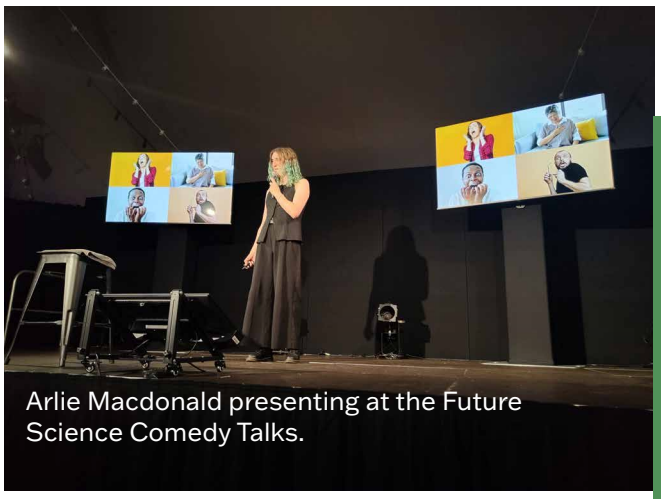
Attendees of the GxExM meeting.



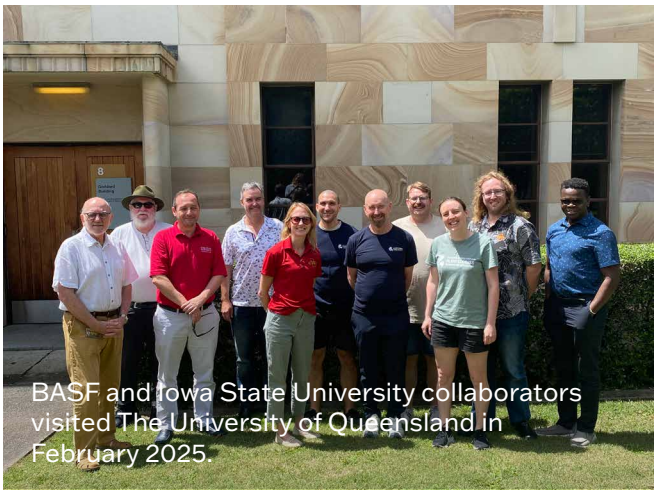
Poster session at the Australasian Plant Breeding Conference.



Sabrina Morrison presenting at Pint of Science, Brisbane.



Arlie Macdonald presenting at the Future Science Comedy Talks.



BASF and Iowa State University collaborators visited The University of Queensland in February 2025.

Jessica Lazner receiving the judges' choice award for her Paphiopedilum orchid artwork.

CENTRE EVENT HIGHLIGHTS

In 2025 we held the Research Retreat at the Gold Coast, Queensland from 23 – 27 June. We ran a new initiative alongside the Retreat in 2025, an art competition where Centre members were invited to submit a piece of art they created and attendees could vote on their favourite. Jessica Lazner won the judges' choice category and Waqas Dogar won the people's choice.

Our public online lecture series 'People, Plants and the Law' and 'Talking Plant Science' both continued to grow, building on the success of previous years. Showcasing thought leaders in law and plant science. Recordings of the events are available on the Plant Success YouTube channel.

The Centre continued to run our Plant Success webinar series led by Shamsunnahar Mukta (UTas) and Thomas Crow (UQ) from the Researcher Development Group. The five 1-hour events were an opportunity for predominantly ECR members to communicate their research to the Centre and ignite discussion.

In November, the Centre hosted a Genotype × Environment × Management (G×E×M) workshop, bringing together leading researchers to discuss their latest advances in modelling complex G×E×M interactions. We were delighted to welcome international Associate Investigators Fred van Eeuwijk (Wageningen University) and Charlie Messina (University of Florida), along with members of their research teams, to collaborate with Chief Investigators Mark Cooper, Graeme Hammer, David Jordan, Christine Beveridge, and their groups.

A two-day Andropogoneae Workshop was held at Western Sydney University's Hawkesbury Campus in September. The workshop welcomed 16 participants and explored key thematic areas, including Themeda genomics, trait–climate research and trait variation across environments. In November, another two-day workshop was held at the University of Tasmania on Eucalyptus. 17 people participated and explored topics such as PhyloGWAS, experimental design and physiology. Both workshops had engaging open discussions that encouraged collaboration and knowledge sharing.

We continued our internal Chief Investigator Project Updates Seminar series in 2025 with presentations from the Beveridge, Foo, Weller and Smith labs. This series showcases Centre research around different themes and bring members together to discuss further collaboration opportunities.

CONFERENCES

This year, Centre members delivered 85 talks at conferences / research seminars. The Centre sponsored the Australian Society for Plant Scientists (ASPS) Conference, TropAg, and InterDrought VIII. We also supported the AusSORGM, Phylomania and Australian Summer Grains conferences.

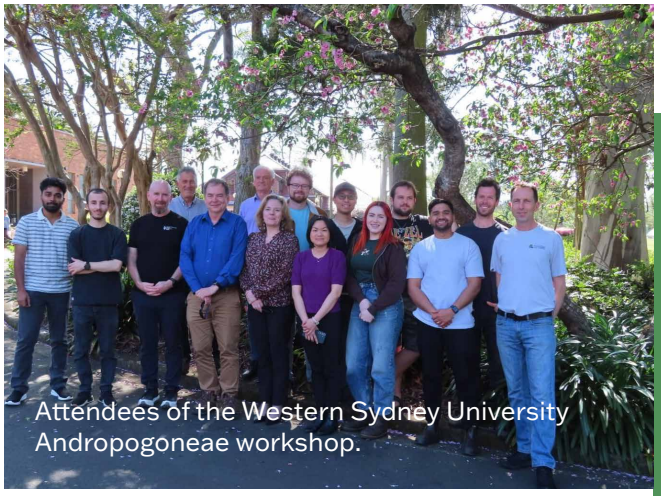
Lastly, five members of the professional staff team had the opportunity to attend a Centres of Excellence workshop and networking day in Melbourne.

> "The Centre has supported my growth through resources and collaborative opportunities, helping me develop confidence and independence in my research direction."
>
> ***Satomi Hayashi***
> ***Postdoctoral Researcher***

QUT Node members wearing their ‘Benth’ shirts at the Research Retreat.

Professional staff at the Centre of Excellence Summit.

Caitlin Dudley presenting at the Society for Experimental Biology Conference.



Attendees of the Western Sydney University Andropogoneae workshop.

Plant Success Research Retreat 2025.

LOOKING AHEAD

As the Centre moves further into the latter phase of its funding period, 2026 will focus on consolidating our research strengths while preparing for the long-term legacy of the Centre. With a clear strategic direction in place following our mid-term review and planning activities, the coming year will emphasise translating discoveries into real-world impact while supporting the next generation of plant scientists with career development opportunities and connections with other Centres. The Centre will continue to invest in initiatives that strengthen collaboration across Nodes, enhance career development opportunities for early and mid-career researchers, and position our research outputs for continued influence beyond the current funding horizon.

RESEARCH AND TRANSLATION

In 2026 the Centre will continue to progress major research projects across all six themes while strengthening connections between fundamental discovery and agricultural application. A key focus will be identifying opportunities where the Centre's discoveries can move closer to adoption by industry partners and research users.

The Centre Executive Committee will strategically allocate remaining research funds, with a focus on supporting high-impact projects that are well positioned to deliver outcomes by the end of the Centre's funding period. These investments will also prioritise initiatives that foster collaboration across nodes and disciplines.

PROFESSIONAL DEVELOPMENT AND CAPACITY BUILDING

Workforce development will remain a major focus in 2026 as increasing numbers of PhD students complete their degrees and postdoctoral researchers prepare for the next stage of their careers. The Researcher Development Group will continue delivering a range of training activities designed to support members across different career stages.

The Centre will also continue to support collaboration and skill development through internal funding schemes and mobility opportunities. Programs such as the Capacity Building Grant Scheme will remain an important mechanism for enabling travel, exchanges and training that strengthen connections between researchers across institutions.

Strengthening leadership opportunities for early and mid-career researchers will remain an ongoing priority. Increasing ECR representation on committees and encouraging emerging leaders to take on coordination roles within Centre initiatives will help build capacity for the future of the plant science community.

DIVERSITY, EQUITY, AND INCLUSION (DEI)

Fostering a research environment that values diversity, equity and inclusion has always been at the heart of the Plant Success ethos. Feedback gathered through pulse surveys and other consultation processes guides improvements in workplace culture and member support. These insights help the Centre identify emerging priorities and respond to the needs of its diverse research community.

Ongoing efforts will focus on ensuring diverse representation across Centre activities, including seminars, workshops and leadership opportunities. The Centre will also continue reviewing its funding schemes, recruitment practices and committee structures to ensure they promote equitable participation.

ENGAGEMENT AND OUTREACH

Through public events, digital storytelling and education initiatives, we aim to increase awareness of the importance of plant science while highlighting the achievements of our researchers.

A major highlight of the year will be GxExM Symposium IV, which will be hosted in Brisbane. Building on the success of previous symposia, the event is expected to be the largest yet and will bring together researchers, industry representatives and collaborators to share progress and discuss future directions in this space. The symposium will provide an important opportunity to showcase the Centre's research and strengthen connections across the community working to improve crop productivity and resilience that will have lasting impacts.

The Centre's outreach program will also publish a suite of plant science school resources. These materials have been developed to support teachers in introducing concepts in plant biology, genetics and agriculture to primary and secondary school students. By making these resources widely available, the Centre hopes to support science education while inspiring students to consider future careers in plant science and related fields.

Centre members will also continue to participate in major public engagement events throughout the year, including the World Science Festival and National Science Week. These events provide valuable opportunities to share research with the public, engage students and families, and demonstrate the relevance of plant science.

Alongside these activities, the Centre will place a stronger focus on showcasing the people behind the research. A series of researcher profiles will be published on the Centre's website and social media in the form of short videos and blog posts. These stories will highlight individual achievements, career journeys and research contributions, helping to capture the impact of our community over the life of the Centre and celebrate the diverse group of scientists working within Plant Success.

INDIGENOUS KNOWLEDGE AND ENGAGEMENT

Efforts to disseminate and promote the Best Practice Guidelines for the Collection and Transfer of Genetic Resources will continue, encouraging their adoption across relevant research and institutional networks.

GOVERNANCE AND STRATEGIC DIRECTION

As the Centre looks toward the final phase of its current funding cycle, planning will increasingly focus on ensuring the long-term impact of the Centre's research, collaborations and community. By continuing to support innovation, collaboration and researcher development, the Centre aims to ensure that the work of Plant Success lives well beyond 2027.

David Tomlins, Chief Operating Officer

2026 will focus on consolidating our research strengths while preparing for the long-term legacy of the Centre.

Alex Wu drawing a graph at the G×ExM meeting.

4 OUR PERFORMANCE

KEY PERFORMANCE INDICATORS

Performance Measure		Target 2025	Actual 2025
Number of research outputs	Journal articles (Centre acknowledged)	80	87
	Books	0	0
	Book Chapters	2	4
	Conference publications	6	2
	Patent applications	2	0
	Resources developed	4	8
	Total number of publications	94	101
Quality of research outputs	Number of highly cited papers (top 1% in an ESI category)	10	10
	Number of publications in top 10% (ESI category)	26	59
Number of workshops/ conferences held/ offered by the Centre	Number of Centre-wide meetings (Annual Centre Conference)	1	1
	Number of CI events including national workshops, seminars, outreach activities (e.g., Kitchen Garden), international conference support such as to IPMB and APBC.	20	25

Performance Measure		Target 2025	Actual 2025
Number of training courses held/offered by the Centre	Number of researcher development activities	10	17
	Equity, Diversity and Inclusion Special initiatives / events	4	5
Number of researchers working on Centre research	Postdoctoral researchers	21	35
	PhD Students	50	47
	Other research students	17	4
	Associate Investigators	60	64
Number of postgraduate completions		19	4
Number of mentoring programs offered by the Centre		3	1
Number of presentations/ briefings	To the public	10	21
	To government (parliamentarians and department/ agencies at both State and Federal level)	4	17
	To industry/business/end users	15	30
	To non-government organisations	2	22
	Number of international keynotes / invited talks	15	31
	Number of national keynotes / invited talks	25	54
	Number of school interactions	22	29
Number of new organisations collaborating with, or involved in, the Centre	Number of new partnerships / industry projects	5	8
Number of female research personnel	% female research personnel	50	42
	% non-CI female research personnel	-	46

Centre-specific KPIs		Target 2025	Actual 2025
Leadership / impact	Number of roles on advisory boards	6	25
	Number of roles on editorial boards	5	19
	New funding opportunities resulting from CoE research and collaborations	20	34
	Leadership support and encouragement of research staff careers - number of applications for recognition of excellence, e.g. prizes, fellowships, travel	10	66
Researcher Capacity	Number of externally funded ECRs / MCRs (including associates)	15	72
	Number of researchers nominated for recognition of excellence awards	20	5
Equity, Diversity and Inclusion	Centre-wide review of Centre Charter: The Centre will annually review how well the Charter is enabling us to operate in a way that is empowering the team to be inclusive and equitable, and that measures for promoting diversity are effective. This will be achieved through self-review, and review by the Centre Advisory Board.	1	1
	Benchmarking gender and diversity: The Centre will assess whether we are leading on gender and diversity metrics including indigenous people and cross sectionality. This will be achieved through self-review and review by the Centre Advisory Board. Metrics will be obtained from the ARC, Australian universities, and CSIRO.	1	1
	Reviews of Centre-wide processes impacting GEDI, e.g. Athena Swan: The Centre will regularly review Centre processes to identify processes that are leading to success in reaching GEDI targets and those that are detracting from them. Such processes would include, but not limited to, those related to hiring, promotion, access to resources, training, recognition, celebration, opportunities, travel, participation, flexible working opportunities, carers support, committee structures and decision making.	1	1
Collaboration	Number of industry exchanges / visits	18	28
	Number of researcher exchange visits	50	59
Governance	Number of Centre advisory committee meetings	2	2
	Number of scientific advisory panel meetings	2	1
	Number of Centre executive meetings	6	6
	Number of Translation committee meetings	4	4
Transdisciplinarity	% of Centre-funded projects that cross 'disciplines' (student, postdoc, or Centre-wide projects)	60	100

FINANCES

Income	CY2025
ARC income	6,072,492
State Government Grants	-
Other Grants	-
University Contributions	1,250,000
Partner Contributions	-
Other income	-
TOTAL FUNDS AVAILABLE	7,322,492

Expenditure	
Personnel	6,589,494
Equipment	109,642
Maintenance	843,662
Travel	288,073
Field Research	6,454
Teaching Relief	-
Other	418,900
TOTAL EXPENDITURE	8,256,225
Annual Surplus/Deficit	-933,733
Carry Forward	10,269,972
Adjustments	-
CLOSING BALANCE	9,336,240

Annual cash contributions from Administering and collaborating organisations	2020	2021	2022	2023	2024	2025
The University of Queensland	158,408	643,839	643,839	643,839	643,839	643,935
University of Tasmania	-	406,250	325,000	325,000	325,000	325,000
Queensland University of Technology	-	166,451	133,161	133,161	133,161	133,161
Monash University	-	92,500	74,000	74,000	74,000	74,000
Macquarie University	-	92,500	-	- 90,750	-	-
Western Sydney University	-	-	166,500	74,000	74,000	74,000

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"Being part of the Centre gives me valuable connections with young scientists, both through outreach and involvement with PhD students and ECRs."

Jim Hanan
Associate Investigator

(L-R) Kanishka Chandora, Nick Appleton and Pushpa Raju working with Arabidopsis plants growing at the Plant Futures Facility.

RECOGNITIONS

AWARDS AND ACHIEVEMENTS

Jacqui Batley. Scientist of the Year, Western Australian Premier's Science Awards.

Christine Beveridge. Excellence in Research Award, Women in Technology (WiT) Awards.

John Bowman. International Plant Growth Substances Association, Silver Medal for contributions to plant hormone biology.

Tim Brodribb, Ed Buckler, Brendan Choat, John Lunn, Scott McAdam, Loren Rieseberg, Ian Wright. 2025 Highly Cited Researchers by Clarivate.

Kanishka Chandora. Best Student Poster, 17th Australasian Plant Breeding Conference.

Mark Cooper. BASF Committee for Scientific Innovation and Interaction (CSI²) Distinguished Seminar Series.

Caitlin Dudley. Young Scientists Award, Society of Experimental Biology.

Caitlin Dudley. Runner-up, FameLab Australia.

Graeme Hammer. InterDrought Lifetime Achievement Award.

Satomi Hayashi. Mid Career Researcher of the Year, QUT School of Biology and Environmental Sciences.

David Jordan. Chair of the Global Sorghum Association Board.

Sabrina Morrison. QAAFI Industry Placement Award.

Nurmansyah Nurmansyah. AGSA Student Conference Attendance Award.

Hamza Ramzan. Best Poster Presentation Award at the 2025 NextGen Ag Symposium.

Buddhini Ranawaka. Best ECR paper, QUT Centre for Agriculture and the Bioeconomy.

Esmat Sarafraz. UTAS Sustainability Fellowship.

Tiana Scott. UTAS WD Jackson Genetic Honours Prize.

Tiana Scott. UTAS recognition of High Academic Achievement in Honours.

Karen Velandia. UTAS Award for Outstanding Performance during Postgraduate Studies in Biological Sciences.

Karen Velandia. Australian & New Zealand Society of Cell & Developmental Biology, Best Oral Presentation.

Jiahao Wen. WSU Director's Award for Outstanding Student Poster.

Charles (Meikun) Zhou. The University of Queensland Faculty of Science Future Superstars Award (HDR).

CENTRE AWARDS

Zuba Ahmed. Centre for Plant Success 2025 Research Retreat - Best Student Poster.

Isabella (Ellie) Amor. Centre for Plant Success 2025 Research Retreat - Best Speed Talk.

Phoebe Baldwin. Centre for Plant Success, Core Values Awards - Integrity category.

Travis Britton. Centre for Plant Success 2025 Research Retreat - Best Postdoctoral Researcher Poster.

Zoe Broad, Tori Millsteed. Centre for Plant Success 2025 Research Retreat - Best Presentation (Student, tie).

Waqas Dogar. Centre for Plant Success Art Competition - People's Choice.

Tom Fisher. Centre for Plant Success, Core Values Awards - Inclusivity category.

Jessica Lazner. Centre for Plant Success Art Competition - Judges' Choice.

Tiana Scott. Centre for Plant Success, Core Values Awards - Inclusivity category.

Kritika Sharma. Centre for Plant Success, Core Values Awards - International Excellence category.

Melanie Wilkinson. Centre for Plant Success 2025 Research Retreat - Best Presentation (Postdoctoral Researcher).

FUNDING

Maram Alqarni. SACM and University of Bisha Scholarship.

Isabella (Ellie) Amor. AGFS HDR Student Travel award.

Leila Asadyar. BES EMCR Travel Funding Scheme.

Sruthi Balaji. UQ TC Beirne School of Law funding 'Properties of Food: Sovereignty, Stewardship and the Legal Life of Sonoran Wheat.'

Sruthi Balaji, Robert Henry, Brad Sherman. UQ TC Beirne School of Law funding 'Properties of Food: Macadamia.'

Julia Bally. QUT 'Identifying the Genetics Underlying Plant Morphology in a Native Citrus Cross.'

Julia Bally, David Jordan, Peter Waterhouse, et al. GRDC 'RNAi-Primed Seeds: Shielding Crops from FAW.'

Julia Bally, Peter Waterhouse et al. Hort Innovation 'Revolutionising Management of Fruit and Banana Spotting Bugs through Genome Empowerment.'

Julia Bally, Peter Waterhouse, Brett Williams et al. Invertigro/QUT, 'Maximising Crop Performance by Manipulating Plant Stress Pathways.'

Lily Bennett. Holsworth Wildlife Research Endowment.

John Bowman. ARC Discovery Project 'The genetic basis of sporopollenin, the most durable biopolymer known.'

Tim Brodribb and Chris Lucani. Beanstalk Ventures' Drought Venture Studios program.

"As a mathematician it's amazing to work in environment that encourages thinking about deep questions in biology and have them validated by 'real' biologists."

Michael Charleston
Associate Investigator

Mark Cooper, Graeme Hammer, David Jordan, Emma Mace, Alex Wu. GRDC MCR Postdoctoral Fellowship: Crop modelling approaches for optimising water-limited yield potential in grain crops.

Thomas Crow. Australian BioCommons BioHackathon funding.

Giulia Folini. Monash ECR National Conference Support Award.

Rachael Gallagher. ARC Future Fellowship.

Satomi Hayashi. Thomas Davies Research Grant for Marine, Soil and Plant Biology, The Australian Academy of Science.

Satomi Hayashi et al. CRC Food Agility QUT, Terragen Biotech Pty Ltd. 'Microbial Solutions to Agricultural Emissions'

Maddie James. PacBio Onso Pilot Grant Scheme, Garvan Institute of Medical Research.

David Jordan, Emma Mace, Michael Bitterlick. GRDC Grant 'Prime Time Sorghum Grain Filling Done Better -bigger grains better returns'.

David Kainer. Grains Research and Development Corporation (GRDC) GrainData Fusion investment.

Sabrina Morrison, Shunichiro Tomura. QAAFI HDR Travel Award.

Kritika Sharma, Jiacan Sun. ASPS Travel Grant.

Kritika Sharma, Jiacan Sun. UTAS Travel Grant.

Jiahao Wen. Hawkesbury Foundation Grant.

Alex Wu. Gates Ag One investment.

Burhan Ud Din Abbasi. QAAFI Industry Placement Award.

GRADUATIONS

Samuel Barton. The University of Queensland, PhD Student.

Daniel Gerlach. University of Tasmania, Honours Student.

Claire Edwards. University of Tasmania, Honours Student.

Jessica Lazner. Monash University, Associate Honours Student.

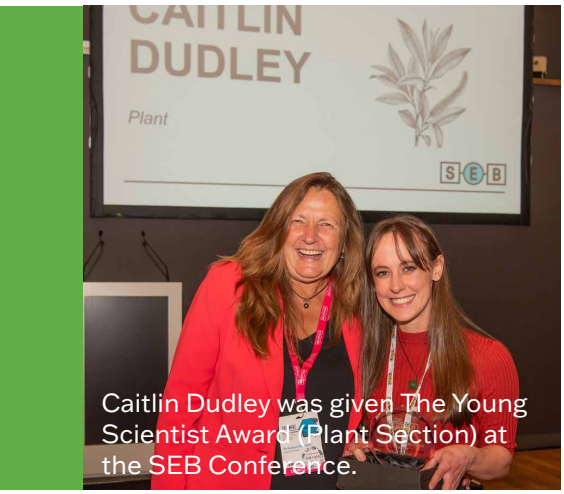
Upuli Nakandala. The University of Queensland, Associate PhD Student.

Daniel Otwani. The University of Queensland, Associate PhD Student.

Priyanka Sharma. The University of Queensland, Associate PhD Student.

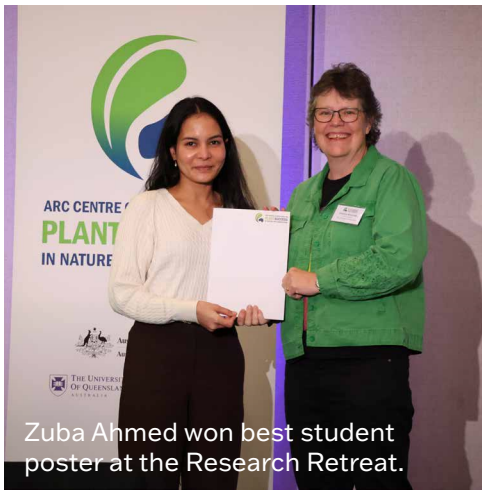
Saiyara Shehnaz. The University of Queensland, Associate PhD Student.

Upendra Wijesundara. The University of Queensland, Associate PhD Student.



Caitlin Dudley was given The Young Scientist Award (Plant Section) at the SEB Conference.


Mark Cooper presenting at BASF Headquarters where he received an award.



Zuba Ahmed won best student poster at the Research Retreat.

Travis Britton measuring photosynthesis.

"The Centre has pulled me out of my ecological comfort zone and into the exciting intersection of ecology, genetics, and agriculture."

Jiahao Wen
PhD Student

CONNECT WITH US

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We are interested in connecting with researchers or potential industry partners that want to explore ways to further our research or apply it to their area of expertise. If you're interested in having a conversation about ways we might be able to work together, please contact the Plant Success Chief Operating Officer:

coo@plantsuccess.org

MEDIA

The Centre welcomes opportunities to profile our research in the press or offer expert comment on relevant issues. For all media enquiries, please contact the Plant Success Communications and Engagement Officer:

communication@plantsuccess.org
0460 320 259

OUTREACH

The Centre is committed to the development of STEM education in Australia. If you're interested in learning more about how we support science educators through resources or in-school activities, please connect with the Plant Success Outreach Officer:

outreach@plantsuccess.org

WEBSITE

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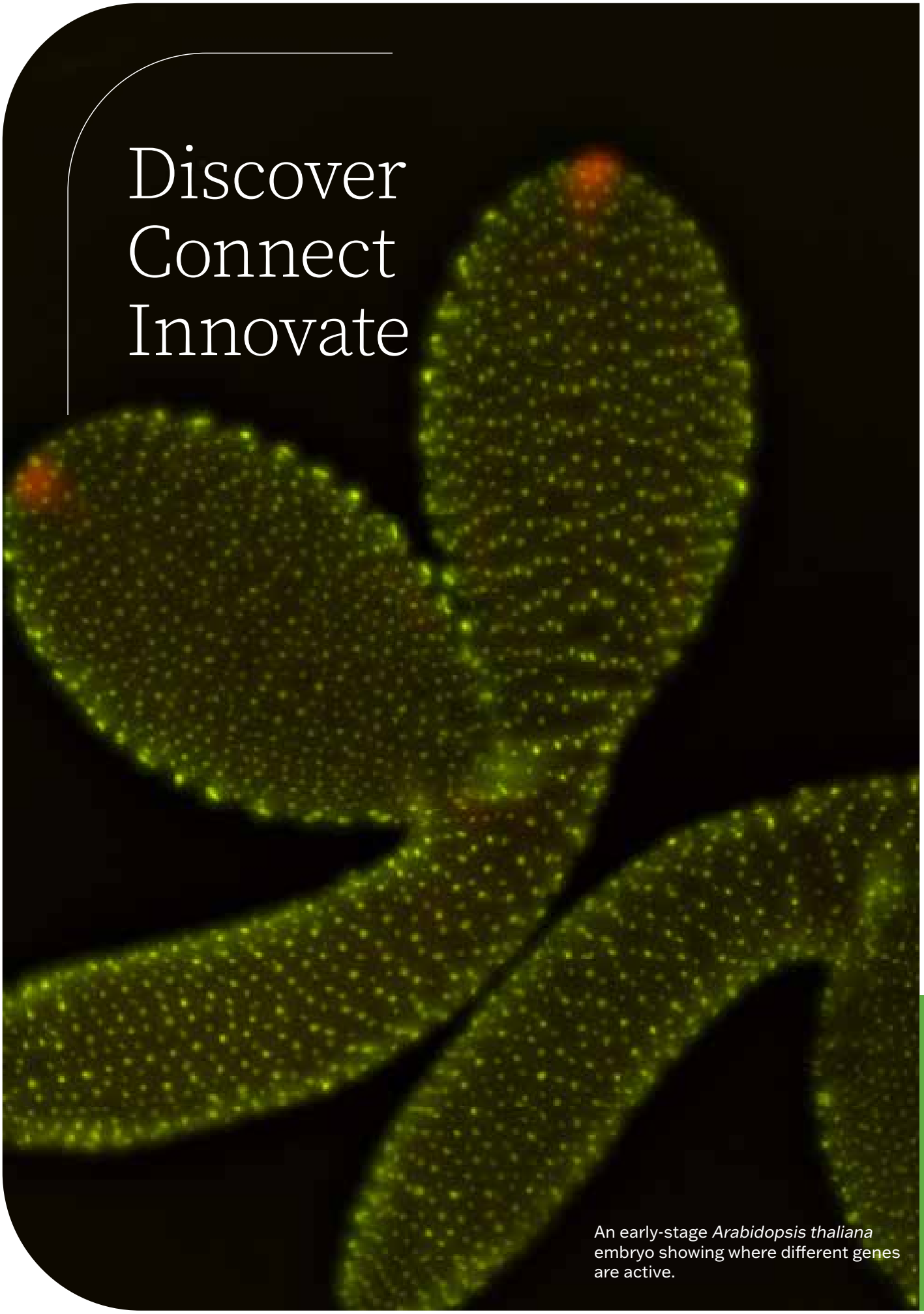

An early-stage *Arabidopsis thaliana* embryo showing where different genes are active.

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