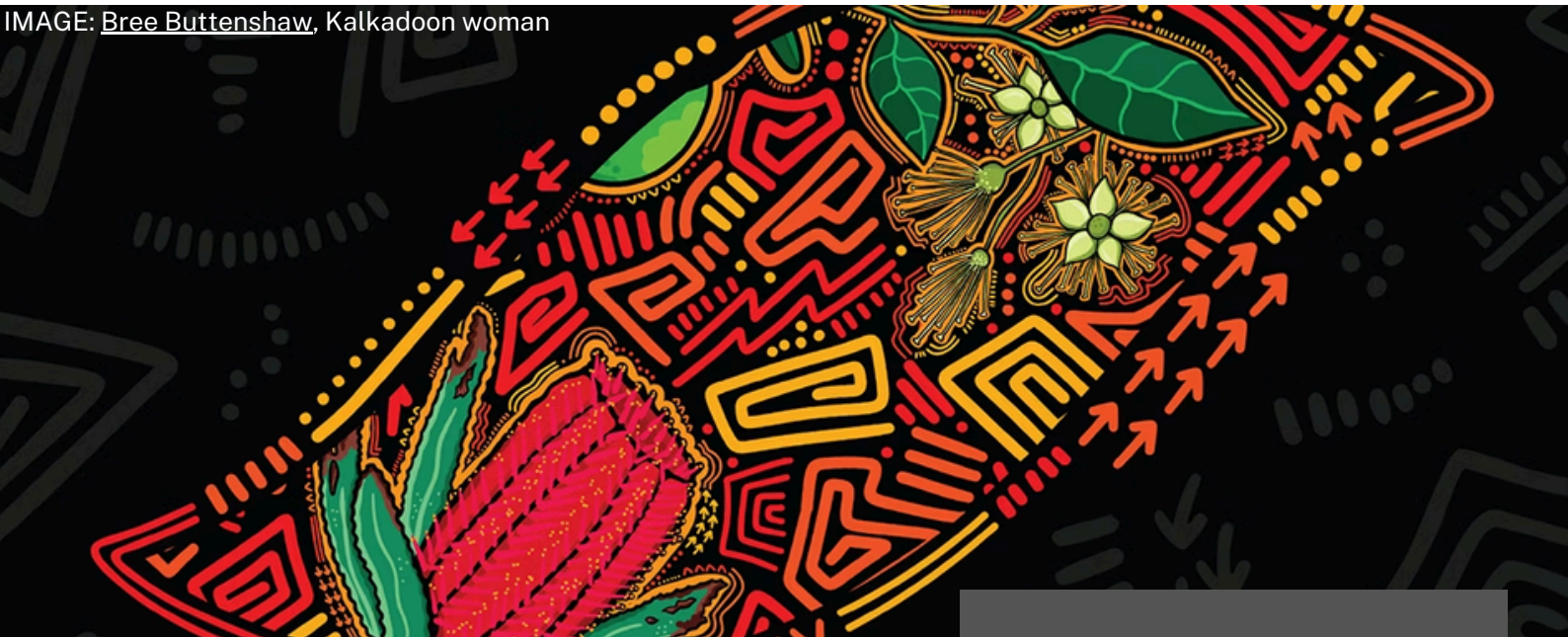




# ARC TRAINING CENTRE FOR **FUTURE CROPS DEVELOPMENT**

IMAGE: [Bree Buttenshaw](#), Kalkadoon woman



## Preview of Centre achievements before Annual meeting

By *Lauren DuFall and Julie Leroux*

We are very excited to get everyone together in just a few weeks for our third Annual Meeting. We have had two incredible meetings so far and we are feeling the pressure to top those. Thankfully our Centre members have worked together to pull together an exciting program and secure **six invited speakers** covering a broad range of topics.

This quarter we celebrate ALL of our Centre students having commenced. Just when Derek thought we were finished with **recruitment**, we may be able to appoint some new research roles thanks to our fellows obtaining external funding.

Read on to meet our **new students**, see **awards**, news of our **first ever DIR** for limited release of GMO canola, **placements**, **publications** and hot off the press a Centre **video** production showcasing one of our partnerships. More to come as we roll out similar initiatives across our Centre students, fellows and partners.

Next quarter will see our Annual meeting delivered, more placements starting up, science week activities to engage with the broader community and hopefully some rain for Adelaide!

### THINGS TO NOTE

**ANNUAL MEETING**  
**16 JUNE (UNI ONLY)**  
**17 - 18 JUNE 2025**  
**CANBERRA**

**GRANTS SUCCESS  
AND AWARDS**

**ACT EMERGING  
SCIENTIST OF THE  
YEAR 2025**  
**NOMINATION OPEN**  
**CLOSING 20 JUNE**

### LET'S GET CONNECTED



Socials



Congratulations to **Benjamin Schwessinger** who was awarded a **College of Science Commendation for Outstanding Contribution to Education Experience**



Congratulations to **Caitlin Byrt** and her team! Research supported by ANU, ARC and the Australian Academy of Science (FT180100476 and Thomas Davies Research Grant for Marine, Soil and Plant Biology).



**Thomas Davies 2024 grants from the Australian Academy of Science**

Congratulations to **Florence Danila**



**Targeted approach to map the genetic switches of plasmodesmata formation in C4 leaves to improve crops**

"This should benefit improved crop yield and plant performance in the face of climate change, contributing towards global food security and plant biosecurity."

Congratulations to **Julian Greenwood**  
**Establishing a transient assay to rapidly assess resistance responses in canola**

"I'm very excited to be a recipient of the Thomas Davies research grant and I look forward to putting it towards the improvement of canola disease resistance. Canola is the third most important crop in Australia, but its production is under constant threat of disease. The fungal disease, Blackleg, is the most devastating disease of canola in Australia with estimated yield losses of 10 to 15 percent each year. The interaction between Blackleg disease and canola disease resistance is poorly understood and there is no method to quickly assess the function of new and existing canola immune receptors. This grant will support the establishment of a method to rapidly assess resistance responses in single canola cells called protoplasts."



**Professor Joan Leach has been appointed the new Deputy Vice-Chancellor (Academic)**

We congratulate **Professor Joan Leach** on her new role of Deputy Vice-Chancellor (Academic). Professor Leach brings a wealth of experience and a bold, future-oriented vision to the role. She believes that ANU and the higher education sector has a "once-in-a-generation" opportunity to come together and reassert our value to society in what is a challenging period for universities amid heightened global political tensions. The Centre for Public Awareness of Science will appoint a new Director but Joan will remain engaged with our Centre!

Congratulations  
Joan!



**Mid-career research fellowship**

Congratulations to **Julian Greenwood!!**  
**Establishing transient assays to rapidly assess resistance responses in canola and test engineered resistance receptors for improved blackleg resistance**

This project aims to develop transient gene expression systems for assessing canola resistance responses. It will provide high throughput methods to test the large number of resistance receptor variants generated by AI and classical methods which must be screened to confirm new functional variants. Newly identified resistance receptor variants can then be integrated into elite cultivars to provide resistance to blackleg in the field.

## NEW STUDENTS



### Meet Chairunisa (Nyssa)

I obtained a Bachelor of Science in Biochemistry from Bogor Agricultural University, Indonesia. I worked as a primary school science teacher before joining the Indonesian Institute of Sciences (now National Research and Innovation Agency, Indonesia) as a research assistant in 2014.

In 2019 I completed my Master of Biotechnology at the University of Adelaide. My Master's thesis focused on image-based phenotyping of transgenic rice. I came back to the University of Adelaide in 2025 to pursue a PhD in Agricultural Science. Both my Master's and PhD studies are sponsored by the Australia Awards Scholarship for Indonesia.

My current PhD research aims to identify gene(s) involved in peduncle growth in barley and to improve barley head retention against head-loss by CRISPR gene editing. My research is based at UoA under the supervision of Prof. Matthew Tucker. I am looking forward to becoming an independent researcher in plant genetic engineering area for crop improvement.



### Meet Qiwei Shen

I am Qiwei, and I come from China. I am delighted to join the ARC Training Center for Future Crops Development as a PhD student based in Third Party Arrangement (TPA) at the University of Adelaide.

My academic journey began at Sichuan Agricultural University, where I earned my Bachelor's degree with a specialization in P-phytoextraction. During my studies, I became acutely aware of the limitations inherent in conventional plant phenotyping methods. Driven by these constraints, I pursued a Master's degree in Geomatics at Delft University of Technology, Netherlands, specializing in advanced techniques for 3D data analysis, computer graphics, and deep learning.

My PhD research primarily focuses on developing innovative, field-based phenotyping methods. Specifically, my aim is to leverage integrated 3D, RGB, and hyperspectral sensors mounted on an unmanned ground vehicle (UGV) to extract trait information. My objective is to establish a high-throughput, automated algorithm capable of accurately and efficiently evaluating morphological and physiological crop traits under field conditions.

Outside of academia, I enjoy photography and exploring new places, particularly through hiking. I am eager to actively contribute to the vibrant academic community at the training center and engage in collaborative projects.



## Paolo Balahadia

Paolo is a plant molecular biologist and a first-year PhD candidate at the Australian National University (ANU). With a decade of experience in rice research at the International Rice Research Institute (IRRI), he has contributed to major initiatives in plant biotechnology. He began his career at the C4 Rice Center before transitioning to the Host Plant Resistance and Plant Pathology group.

His expertise spans CRISPR-based gene editing, molecular breeding, and plant transformation. Paolo earned his M.S. in Molecular Biology and Biotechnology from the University of the Philippines Los Baños, where he investigated glycine decarboxylase complex P-protein silencing in rice mesophyll cells.

Before starting his PhD, Paolo played a key role in genome editing initiatives at IRRI, leading the first CRISPR/Cas9 field trial in the Philippines to develop bacterial blight-resistant rice. He also pioneered the development of PRIME-edited plants to validate resistance-associated SNPs.

Beyond research, Paolo is actively involved in training and capacity-building efforts. He has facilitated workshops on gene editing and plant breeding innovations, collaborating with institutions such as the Innovative Genomics Institute and the University of the Philippines Los Baños. His technical expertise includes plant tissue culture, CRISPR construct design, and biosafety compliance.

At ANU, Paolo is investigating how fungal pathogens of wheat utilize plasmodesmata during infection, aiming to uncover novel genetic strategies to enhance plant resilience. He is conducting his research under the mentorship of Dr. Florence Danila, Prof. John Rathjen, and Prof. Peter Solomon.

Paolo is also delighted to be part of the Future Crops Training Centre, particularly its wheat transformation initiatives. He looks forward to expanding his knowledge on improving Australian crops while sharing his expertise in plant genetic engineering with the center.

## GRDC VISITING FELLOW



## Annapurna (Anu) Devi Allu

Anu obtained her PhD in Molecular Biology from the University of Potsdam and the Max-Planck Institute of Molecular Plant Physiology, Germany, in 2014. She continued as a postdoctoral research fellow in the same “Gene-Regulatory Networks” research group at the Max-Planck Institute of Molecular Plant Physiology and the University of Potsdam, Germany, until January 2016. Later, she worked as a postdoctoral researcher at the University of Melbourne, Australia, before joining the Commonwealth Scientific and Industrial Research Organisation (CSIRO), ACT, Australia. After spending one year at CSIRO, she joined the Indian Institute of Science Education and Research (IISER) Tirupati in November 2018 as Assistant Professor in Biology, and now she is an Associate Professor in Biology and Associate Dean of International Relations at IISER Tirupati.

# Highlights from the Centre

## Congratulations to Chris, Emily and Rachel

the plant journal



SOCIETY FOR EXPERIMENTAL BIOLOGY

Original Article | Open Access | CC BY

### Problematic use of sustainability claims in recent scientific literature on crop gene technologies: toward improving practices and communication

Chris Wenzl, Emily A. Buddle, Rachel A. Ankeny

We reviewed over 200 scientific articles on crop gene technologies that make "sustainability claims", and one thing became clear: While many claim their work promotes "sustainability," very few take the time to define what that really means.

This paper isn't about calling anyone out - it's about pushing for better writing, clearer definitions, and improved communication across scientific disciplines.

## Sustainability often used as a buzzword in agricultural genomics

Posted on May 6, 2025 by Johnny von Einem

Congrats Chris on your recent media associated with your research which included two radio interviews! Great to know that this has already led to your article being cited too.

## Congratulations to Rita and Benjamin

Research

### Long-read genomics reveal extensive nuclear-specific evolution and allele-specific expression in a dikaryotic fungus

Rita Tam,<sup>1</sup> Mareike Möller,<sup>1</sup> Runpeng Luo,<sup>1</sup> Zhenyan Luo,<sup>1</sup> Ashley Jones,<sup>1</sup> Sambasivam Periyannan,<sup>1,2,3</sup> John P. Rathjen,<sup>1</sup> and Benjamin Schwessinger<sup>1</sup>

YouTube | ANU TV

How scientists are working with farmers to develop the crops of the future



NEW VIDEO

theland.com.au

Rice, corn, tricked into starvation by enzyme, as fungal pressures increase  
Researchers hope to engineer more resilient food crops after discovery.

28 Feb (82 kB)



Department of  
Primary Industries and  
Regional Development

A media release from our partners at Wagga Wagga Agricultural Institute showcasing the collaborative research featuring our Centre students and fellows **Nay Chi Khin, Edward Asare, Reshma Roy, Sadia Majeed, Ebtihal Mohamed, Alex Jose, Mary Ma, Arslan Mahmood** - well done!



**Benjamin Schwessinger** spoke to ABC Radio about mushroom foraging, listen to ABC Drive

# Placements

## Toowoomba Industry Visit – Pacific Seeds (May 12–16)

by *Sadia Majeed*

As part of my PhD journey with the ARC Centre for Future Crops Development, I had the valuable opportunity to visit my industry partner, **Pacific Seeds**, located in Toowoomba, Central Queensland. This visit was a remarkable experience that provided me with **deep insights into real-world breeding programs and commercial canola development**.

Throughout the week, I observed **key steps in the breeding program** and took part in **hands-on activities** such as seed sorting, trait introgression planning, A/B conversions, and threshing – both manually and using a thresher machine. I also learned how to perform **controlled crosses** in canola, gaining practical insight into the precision and techniques involved in line development. I followed the entire process from seed sorting through to commercial packaging and storage in silos, which gave me a **clear view of the operational scale and post-harvest logistics of a commercial seed company**.

One of the highlights was **working with the NIR** (Near-Infrared Reflectance) system to assess seed quality traits including oil, protein, and glucosinolates. It was impressive to see how rapidly and accurately this technology supports data-driven breeding decisions.

At the Gatton canola field site, I observed clear differences between inbred and hybrid canola lines, which strongly demonstrated hybrid vigor during the early growth stages.

This visit helped me **connect my academic research with the practical needs of the seed industry** and gave me a clearer perspective on potential career pathways in applied crop science.



## Nufarm (previously Nuseed) - Horsham

by *Ebtihal Mohamed*



Thank you for supporting my trip to Nufarm's lab in Horsham for **analysing my seed samples!!**

On the photo, you can see **Tony Leonforte (Nufarm)** and me at the NIR lab. It was so kind of him to come to say Hi, have a chat and make sure that my work is going well!!

I am very grateful to the Training Centre for offering me such an extraordinary opportunity to engage with an amazing industry partner like Nufarm!!

**Thank you, Nufarm!!**





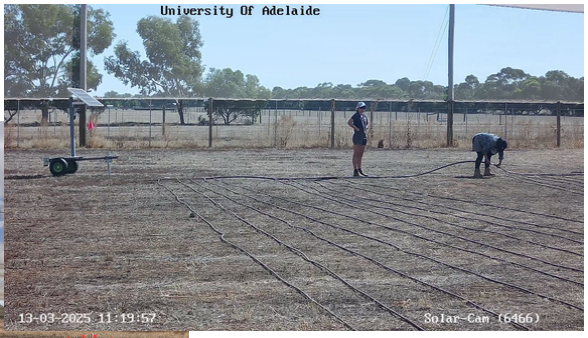
## Longreach summer nursery - Naracoorte

Over an 8-hour journey, **Alex** and **Ola** visited the **LongReach** Naracoorte summer nursery, where they have been bulking some of Alex's material so it can be grown in larger plots over the winter season. The central pivot irrigation system was absolutely essential, allowing them to bypass one of the driest summers on record and keep our projects on the right track.

# Update from the Field



Stu in the lab!



Monitoring areas free of plants



Setting up an irrigation system



Rainout shelter

### Post harvest monitoring 2023 & 2024 field sites

Recording, destroying and reporting any volunteers

2025 trials will include GMO barley for the first time at this site

Home > [GMO dealings](#) >

## DIR 212

Limited and controlled release of canola genetically modified for increased photosynthesis and photorespiration

We have just obtained our **first ever** DIR for limited release of GMO canola (photosynthesis and respiration). A great cross node collaboration.

# Conferences

## Australian Crop Breeders



Had a great interactive session with **crop breeders** and groups involved in regulation when I presented the work of the Centre at the Industry forum at the **“Breeders Week”**. Lots of questions/discussions afterwards on the results shown from Programs 2, ,3 & 4 (went through the whole 1 1/2 hr lunch break!). Everyone was impressed with the progress of the Centre - thank you all!!

– **Stuart Roy**

I gave an overview of Centre work in the Canola sessions at ACB. I showed off four Centre projects from **Ebtihal, Arslan, Reshma & Mary**, and talked about the technologies we are using in the Centre to generate edits and manipulate biosynthetic pathways. There was plenty of interest from breeders in the use of this technology.

I think this next year of screening for differences in target traits is going to be very exciting, the breeders agree!

– **Julian Greenwood**

## The Southern Australia Durum Growers Association Inc & Grain Forum

By *Ava Wilkinson*

Attended the SADGA Durum & Grains Forum on the 19th March before my leave and thought I'd share some photos!

This was an incredible day hosted out the **Coopers Brewery** in Adelaide. We got to tour around the facilities and then settle into an afternoon of presentations from a range of actors across the industry.

**Growers, suppliers, and industry associations** took turns with quick presentations to provide updates. Centre partners such as **AGT, InterGrain and Nufarm** were also involved.

Big thank you to **GrainGrowers** for taking me with them as part of my internship and for being sponsors





## Reflective piece - Netherlands travel

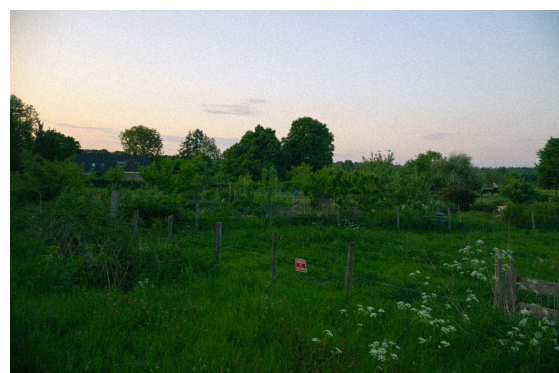
By Michail Ivanov

In May, I was fortunate enough to travel to the Netherlands and present at the **European Biosafety Association (EBSA) 2025 Conference** in **Maastricht** (a city far more charming than Amsterdam, in my view). This was my first proper conference presentation and first presentation to an international audience of approximately 250 academics, industry figures and government workers/representatives. It was a great success. It revisited the case of *Marsh v Baxter* and reflected on the regulatory environment as it relates to coexistence, ten years after *Marsh v Baxter* was decided.

By great coincidence, following my presentation, I was approached by an individual (with no connection to Australia, I should add) who provided expert evidence in *Marsh v Baxter* ten years ago in Perth. Hearing from him was invaluable in providing context to the case which is otherwise foundational to my thesis. In addition, I was lucky enough to attract the attention of a big player in global agriculture who has expressed interest in being interviewed by me as part of my research – saving me the often laborious efforts involved in reaching out to them and getting them on board.

Aside from presenting at the EBSA Conference, I spent three days with **Rachel** in Wageningen, the City of Life Sciences (self-proclaimed), at Wageningen University & Research (WUR). Our visits to the Netherlands, thankfully, coincided and it was, as always, my pleasure to spend time with her. During my time at WUR, I attended a couple of **research seminars** led by preeminent scholars on topics such as the **formation of conspiracy theories** (Professor Jesper Strömbäck) and the **ethnographic study of the Anga** in Papua New Guinea (Professor Pierre Lemonnier). I also met a number of Rachel's colleagues at WUR and other STS/law scholars in Amsterdam (Vrije Universiteit Amsterdam) and Maastricht (Maastricht University) – all people I intend to keep in touch with going forward.

My thanks for the ITTC's funding support, which made this conference presentation and trip possible. I find The Netherlands to be a beautiful, flat and especially green country. A picture is worth a thousand words, so do see the accompanying two photos (which bring this reflection to 2,385 words). So, if you've ever the time to visit, I encourage you to; whether you do so for an academic pursuit or pleasure (or both, if that's possible!)



International  
Placement  
opportunity



Are you interested to learn about a business passionate about people, training and the seed business?

The Centre can support visits or placements to KWS, one of our Centre partners - they have sites across Europe, the UK and the world! Check out their [website](#) and let us know if you are interested. Maybe a visit that can back onto a conference opportunity?



## Stress to stress burst: Mechanisms to cope heat stress in plants

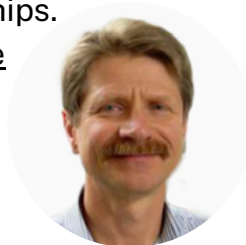


As part of the ANU Plant Science series, **Anu** gave a seminar about heat stress. More details [here](#).

## Collaboration opportunities with DArT in Agriculture and Ecology

**Andrzej Kilian**, from DArT, gave a seminar on his career pathway, establishment of the business, values and partnerships.

More details [here](#)



## Student Talks

**Asma, Arslan, Alex, Edward and Sadia** gave each a 8-minute talk for the bi-annual HDR conference



IMAGE: JENNY MORTIMER

**Ola** gave his CCSP introductory seminar, talking about his **Longreach** supported project on wheat herbicide tolerance on the 2nd May

## Teaching



IMAGE: TONY MILLAR

Nay Chi runs a three day gene-editing workshop for the Master of Biotech students, this is an Advanced Masters subject. Lucy joined to observe the workshop.

Thank you, Asma and Arslan, for taking the time to show the Master's students around the lab and share your projects with them. It gave them a perspective on the application of the gene-editing techniques and nanoparticle transformation they've been learning about over the past three days of the workshop! Much appreciated! Also, it was great to have Lucy there observing the workshop.

- **Nay Chi Khin**



IMAGES: NAY CHI KHIN

**Caitlin Byrt** shared a presentation and joined a panel event organised by the **NSW Smart Sensing Network (NSSN)** at the Sydney Startup Hub, supported by the Federal Department of Industry, Science and Resources, which focussed on cutting-edge waste-to-profit technologies. Read more about the event on the NSSN website, [From waste to wealth: researchers showcase innovative technologies at Climate Action Week event](#).

# Visits

We were pleased to host **Nuffield Scholar Lauren Benoit** and thank her for sharing valuable insights into agriculture, as well as for the engaging discussion on public-private partnerships with the Centre and AFII team.



Last Friday in the midst of a whole day ANU shut down of systems we had a rather last minute visit from the **ANU Council Finance Committee!** The Council members were really nice. **Genevieve Bell** was with the group too.

Thanks very much to **Bec, Rose and Nay Chi** for joining. Bec and Rose did a great job of talking about their research. **Lauren** covered how important the Centre was in enabling the collaboration with University of Adelaide and industry partnerships. **Barry** talked about synbio and all the possibilities across nodes there for collaborative research and impact.

We managed to get the tv in the lab so we had some footage of our student placements - as close as a tractor will get to the lab!

## Celebrating women building a more food-secure world

The Centre and the Agrifood Innovation Institute co-hosted a special event on 7 March marking International Women's Day. The event focused on **careers in Agriculture** at a student and ECR audience. Deputy Director Alison Bentley led a panel discussion featuring **four inspiring women** (plant scientist, anthropologist, social science, and economics) who shared their insights on driving change in agriculture and tackling global challenges such as climate change and instability. A special shoutout to **Sadia Majeed**, who represented the panel brilliantly!



IMAGE: AGRIFOOD INNOVATION INSTITUTE



In early May, **SunRice Group Head of Agribusiness Nicole Griffin** and Research & Development Director Adam Cheney visited ANU.

During their visit, Nicole and Adam met with the **AFII** team and researchers from the Research School of Biology, Crawford School of Public Policy, School of Law, and the Fenner School of Environment and Society.

They shared insights into SunRice's diverse product range, global markets, and R&D priorities. **Hendry** also had the opportunity to present our **KONEKSI** project.

# Annual Meeting

16 June - only for University members

17-18 June - Annual meeting with partners

## Invited Speakers

### Sector updates and challenges

- Yu Sheng, Crawford Chair in Agricultural Economics at Crawford School of Public Policy, ANU
- Allan Green, Principal of AGRENEW

### Navigating Agricultural policy: Challenges, Change, and the Role of Innovation

- Su McCluskey, Special Representative for Australian Agriculture
- Troy Williams, Chief Executive of National Farmers Federation
- Joanna Stanion, First Assistant Secretary for Agricultural Policy

### Recent Developments in Patenting, Access and Benefit Sharing in Genomics

- Dianne Nicol, Emeritus Professor of Law at University of Tasmania

## NZ changing regulatory reforms and learning from Australia's experience

Recently I had the opportunity thanks to our Partner Org ASF, specifically Katherine Delbridge, to join a visit of the NZ Minister for Science, Innovation and Technology Dr Shane Reti along with Professor Emily Parker from the Victoria University of Wellington/Te Herenga Waka and senior policy advisors from government.

The visit was to meet with research and industry stakeholders on Australia's experiences with GM, impacts of markets, how segregation works, what worked and didn't work basically. NZ is moving to end their 30 years of no GM with a new Gene Technology Bill that has undergone public consultation and will likely be taken through parliament later this year.

Centre partner Grain Trade Australia (Rosemary Richards and Pat O'Shannassy) were at the meeting, as well as GRDC, NFF, CropLife, Cotton representatives, BASF, and others. They met earlier that day with the OGTR.



Minister Dr Shane Reti  
on the NZ Gene Tech Bill

It is that time of year again, nominations for the **ACT Emerging Scientist of the Year** are now open, **closing 20 June 2025**.

If you know excellent candidate for this award, please encourage them to nominate themselves.



## UPCOMING EVENTS

17th Australasian Plant Breeding Conference  
2025

04 - 06 June 2025 - Perth

Centre Annual Meeting - Uni day  
16 June 2025 - Canberra

Centre Annual Meeting  
17-18 June 2025 - Canberra

Plant SynBio Australia Launch  
18 June 2025 - Canberra

Australian Brassica Conference 2025  
21 -23 July 2025 - Horsham

Breeding Horizons 2025  
22 -25 July 2025 - Brisbane

Seed Business 2025  
25 -28 August 2025 - Christchurch, NZ

Australian Society for Plant Scientist conference  
24 -27 November 2025 - Adelaide

Are there any conferences coming up that you think your Centre colleagues would like to know about? Let us know [here](#).