

Program

Monday 29 August 2022

8.30-9.55. **Session 1. Opening ceremony and keynote address.**

Chair: Professor Richard Trethowan, President of the Wheat Breeding Society of Australia

8.30-8.45. Welcome to the Assembly by the President of the Wheat Breeding Society and to Narrabri by the Mayor.

8.45-9.15. Address by the Managing Director of the Grains Research and Development Corporation,
Dr Nicole Jensen

9.15-9.55. Assembly Opening Keynote Address
Dr Alison Bentley, Global Director of CIMMYT.

9.55-11.35. **Session 2. Genomics and Phenomics.**

Chair: Dr. Ben Travaskis, CSIRO

9.55-10.10. OzWheat: A functional genomics platform for wheat breeding.
Dr Jessica Hyles, CSIRO

10.10-10.25. A multi-donor x elite-based populations approach reveals QTL for low-lodging wheat.
Dr Fernanda Dreccer, CSIRO

10.25-10.30. Discussion.

10.30-11.00. *Refreshment break*

11.00-11.15. Wheat improvement through germplasm exchange and omics approach.
Professor Guijun Yan, The University of Western Australia

11.15-11.30. Pan'omics Toolbox - a practical tool for creating and analysing pangenomic datasets.
Mr Brendan Boesen, CSIRO

11.30-11.35. Discussion.

11.35-2.05. **Session 3. Phenotyping, data management and analysis.**

Chair: Dr. Scott Sydenham, LongReach Plant Breeders

11.35-11.50. CAIGE (CIMMYT-AUSTRALIA-ICARDA GERMLASM EXCHANGE): an international model of collaboration for wheat improvement in Australia.
Dr Julie Nicol, The University of Sydney

11.50-12.05. Managing the complex data underpinning the CAIGE collaboration.
Dr Amit Singh, The University of Sydney

12.05-12.20. Applications of multi-scale data to characterise wheat trials and environment interactions
Professor Scott Chapman, The University of Queensland

12.20-12.30. Discussion.

12.30-1.30. *Lunch break*

1.30-1.45. Deep Phenotyping - Using AI for Crop Growth Monitoring and Yield Estimation.
Dr Dadong Wang, CSIRO

1.45-2.00. Model-based design for early stage selection experiments using a reduced animal model.
Professor Brian Cullis, University of Wollongong

2.00-2.05. Discussion.



2.05-4.20. Session 4. Technology for wheat breeding.

Chair: Dr Evgeny Glazov, Illumina.

2.05-2.30. Keynote address: Dr Adam Norman, Australian Grain Technologies Pty Ltd.

2.30-2.45. Unlocking the future of wheat breeding and research with the Infinium Wheat Barley 40K SNP array.
Dr Gabriel Keeble-Gagnère, Agriculture Victoria

2.45-3.00. Bayesian genomic prediction incorporating with gene expression and environmental data for wheat traits.
Dr Shannon Dillon, CSIRO

3.00-3.30. Refreshment break

3.30-3.45. Artificial intelligence guided stacking to develop high yielding, highly resistant varieties.
Dr Eric Dinglasan, The University of Queensland

3.45-4.00. Prediction of flowering time in Australian wheat incorporating domain knowledge and machine learning.
Dr Hawlader Al-Mamun, CSIRO

4.00-4.20. Discussion.

4.20-5.30. Session 5. Breeding for quality and future markets.

Chair: Dr. Dan Mullan, InterGrain Pty Ltd.

4.20-4.45. Keynote address: Dr Josquin Tibbits, Agriculture Victoria.

4.45-5.00. Spikelet architecture, floret fertility and grain quality: the breeder's trinity of yield traits.
Dr Scott Boden, The University of Adelaide

5.00-5.15. Nicotianamine biofortified wheat as a nutritionally enhanced crop for future markets.
Dr Jesse Beasley, University of Melbourne

5.15-5.30. Discussion.

5.30-6.30. Happy hour and poster display.



Tuesday 30 August 2022

8.30-10.30. Session 6. Breeding for abiotic constraints on yield.

Chair: Dr. Russell Eastwood, Australian Grain Technologies Pty Ltd.

8.30-8.55. Keynote address: Dr Felicity Harris, Charles Sturt University

8.55-9.10. Physiology, anatomy and proteomic analysis reveal a metabolic pathway and stress-related root adaptations in bread wheat lines differing in salt tolerance mechanisms.
Dr Bhagya Dissanayake, ARC Centre of Excellence in Plant Energy Biology

9.10-9.25. GWAS, KASP-SNP markers and haplotype-based pre-breeding for improving yield potential on sodic-dispersive soils in wheat (*Triticum aestivum* L.)
Dr Roopali Bhoite, Department of Primary Industries and Regional Development

9.25-9.40. Sodicty tolerant wheat selections, genomic regions and phenotyping improvement in Western Australia.
Dr Mirza Dowla, Department of Primary Industries and Regional Development

9.40-9.55. Dissection of morphological, biochemical and grain formation pattern on fertility for the selection of heat tolerant wheat genotypes.
Dr Anowarul Bokshi, The University of Sydney

9.55-10.10. Ice nucleating bacteria-hosting ability varies among wheat genotypes.
Dr Amanuel Bekuma, Department of Primary Industries and Regional Development

10.10-10.30. Discussion.

10.30-11.00. *Refreshment break.*

11.00-12.00. Session 7. Breeding for resistance and tolerance to biotic traits.

Chair: Dr. Maqbool Ahmad, BASF.

11.00-11.25. Keynote address: Dr Grant Hollaway, Agriculture Victoria.

11.25-11.40. A dual role of labile carbohydrates in the algorithm of wheat yield.
Professor Victor Sadras, SARDI

11.40-11.55. Management of *Septoria tritici* blotch (STB) in wheat in the medium and low rainfall zones of southern Australia.
Dr Hari Dadu, Agriculture Victoria

11.55-12.00. Discussion.

12.00-1.45. Board buses to Sunville for field tour and lunch.

1.45-2.00. Board buses to the Plant Breeding Institute for field tour, business meeting and dinner.

9.00pm Board buses back to Narrabri.



Wednesday 31 August 2022

8.30-10.30. Session 8. Breeding for resistance and tolerance to biotic traits (Continued).

Chair: Nick Willey, S and W Seed Company.

- 8.30-8.45. Identification of novel septoria nodorum blotch resistance of wheat.
Dr Huyen Phan, Curtin University
-
- 8.45-9.00. Untangling the 'Gordian knot' – How to unravel a complex fungal disease of wheat by understanding its game of effector hide-and-seek.
Dr Kar-Chun Tan, Curtin University
-
- 9.00-9.15. Recent progress in Fusarium crown rot resistance in wheat.
Dr Zhi Zheng CSIRO
-
- 9.15-9.30. Intermediate host resistance to new variant of the barley grass stripe rust pathogen in common wheat.
Dr Laura Ziemis, The University of Sydney
-
- 9.30-9.45. Mitigating the effects of stripe rust on wheat production in south Asia and eastern Africa: Genome wide association mapping of wheat for resistance to Puccinia striiformis f.sp. tritici.
Dr Laura Ziemis, The University of Sydney
-
- 9.45-10.00. Characterisation of diverse sources of rust resistance from the Watkins Collection of common wheat landraces.
Professor Harbans Bariana, The University of Sydney
-

10.00-10.30 Discussion Session.

10.30-11.00. *Refreshment break*

11.00-12.30. Session 9. Breeding for future farming systems.

Chair and moderator: Dr Alison Bentley, CIMMYT.

- 11.00-11.15. Manipulation of stomata to increase yield potential in wheat.
Dr Abdeljalil El Habi, The University of Adelaide
-
- 11.15-11.30. Adapting wheat to heat and drought in current and future climates.
Dr Karine Chenu, The University of Queensland
-
- 11.30-11.45. Exploring root-shoot dynamics to enhance yield potential and stability of future wheat cultivars.
Dr Samir Alahmad, The University of Queensland
-
- 11.45-12.00. Grain growers' future needs – Northern Cropping region. Ian Gourley, Narrabri.
-
- 12.00-12.15. Growers' future needs – Central west region. Mark Swift, Parkes District
-
- 12.15-12.30. Discussion and ideas for breeding for future farming systems.

12.30-1.30. *Lunch break*

1.30-3.00. Session 10. Emerging researchers and the breeders of the future.

Chair: Professor Brent Kaiser, Sydney Institute of Agriculture.

- 1.30-1.36. Genomic prediction of APSIM Next Gen phenology model parameters in wheat using machine learning.
Cordelia Dravitzki, La Trobe University
-
- 1.36-1.42. Spatial Models for Colocated Trials
Monique Jordan, University of Wollongong
-
- 1.42-1.48. QTL Mapping for Nitrogen Use Efficiency (NUE) Based on A High-Density Consensus Map of Wheat.
Hang Liu, Murdoch University
-

1.48-1.54.	Do adult plant rust resistance genes in wheat interact with each other to fight against their rust enemies? Dr Sambasivam Periyannan, CSIRO
1.54-2.00.	Variations in genotypic responses to heat stress on grain size and quality in wheat. Muhammad Yahya, The University of Queensland
2.00-2.06.	Is lipid metabolism in leaf and pollen tissue altered by heat stress, and does this affect pollen viability in wheat (<i>Triticum aestivum</i>)? Yifeng Lyu, The University of Sydney
2.06-2.12.	From lab to field: a major QTL to modify root system architecture in elite durum wheat. Yichen Kang, The University of Queensland
2.12-2.18.	Post anthesis mild water stress can accentuate differences in late deep root development between wheat genotypes. Kanwal Shazadi, The University of Queensland
2.18-2.24.	100-day Wheats for Adaptation to a Changing Australian Climate. Timothy Green, Charles Sturt University
2.24-2.30.	Adaption of Australian wheat to warmer growth environments. Mitchell Clifton, The University of Sydney
2.30-2.36.	Rotational intervals and tillage methods required to reduce yellow leaf spot inoculum. Melissa Cook, Agriculture Victoria
2.36-2.42.	On the use of factor analysis and iClasses to assess genotype by environment interactions in falling number across Australia. David Hughes, University of Wollongong
2.42-2.48.	Late Maturity α -Amylase (LMA) and its implications for wheat breeding. William Fairlie, Australian Grain Technologies
2.48-3.00.	Discussion.
3.00-3.30.	<i>Refreshment break</i>
3.30-5.00.	Session 11. Changes in the grains industry and current issues.
	Chair: Peter Graham, Managing Director of Cotton Seeds Distributors and Director Australian Grain Technologies Pty Ltd.
3.30-3.45.	A new era for the Australian Grains Industry. Rebecca Reardon. Board Member, Grains Australia Limited.
3.45-4.00.	Australia wheat breeding: celebrating success and future opportunities Ms Tress Walmsley, Director, Australian Crop Breeders Dr Haydn Kuchel, Director, Australian Crop Breeders
4.00-4.15.	Growing soft wheat in the northwest of NSW. James Kahl and Sam Kahl, Merced Farming Pty Ltd.
4.15-4.30.	Support Australian breeding programs to meet soft wheat quality requirements in Asia. Dr Siem Siah, Australian Export Grains Innovation Centre.
4.30-4.45.	Are there barriers to profitable soft wheat production? Dr Lindsay O'Brien, Solheimar Pty Ltd.
4.45-5.00.	General discussion and meeting close by the President Professor Richard Trethowan.
6.30-11.00.	Pre-dinner drinks, Riverside Room; Gala Dinner, Auditorium at The Crossing Theatre Including the Presentation of the Triticum Award for Excellence in Wheat Improvement and the Triticum Address.



POSTERS

#	POSTERS
1	NSW Dpi Post-Entry Quarantine Glasshouses - Open for Business Brett Lobsey , NSW Department of Primary Industries
2	DMSO enhances wheat doubled haploid production via anther culture Dr Marieclaire Castello , DPIRD
3	Symmetric response to neighbour in binary mixed cultivars associate with genetic gain in wheat yield over the last five decades C. Mariano Cossani , Sardi
4	Deep-sown wheat (<i>Triticum aestivum</i> L.): The influence of semi-dwarfing genes and the Lcol-A1 QTL on its coleoptile, seedling vigour, and establishment Jordan Bathgate , Department of Primary Industries
5	The effect of pot size on timing of important developmental stages of wheat Cordelia Dravitzki , La Trobe University
6	Pollen lipids in wheat (<i>Triticum aestivum</i>) varieties are affected by heat stress. Yunlong Bai , USYD
7	Influence of salinity stress on wheat leaf metabolism through its developmental gradient Samalka Wijeweera , University of Western Australia
8	A three-tiered phenotyping approach to effectively improving the heat tolerance of wheat. Dr Rebecca Thistlethwaite , University of Sydney
9	Rapid non-destructive method to phenotype stomatal traits Dr Abdeljalil El Habti , The University of Adelaide
10	Cytological characterisation of wheat- <i>Thinopyrum ponticum</i> translocations carrying leaf rust and stem rust resistance genes Lr24 and Sr24 Dr Jianbo Li , The University of Sydney
11	Improving crown rot phenotyping strategies Dr Philip Davies , Australian Grain Technologies
12	The Effect of Durum Wheat (<i>Triticum turgidum</i> var. <i>Durum</i>) Varieties Westcourt, Bitalli and Zulu on Pasta Production Zoe Taggart Kirbyshire , University of Sydney
13	Connecting wheat breeding and pan-genomics with Pretzel Mr Gabriel Keeble-Gagnère , Agriculture Victoria Research
14	Leveraging from the Vavilov wheat collection for new sources of stripe rust (<i>Puccinia striiformis</i> f.sp. <i>tritici</i>) resistance in Ethiopia Mr Zerihun Tadesse , The University of Queensland

