



THE UNIVERSITY OF
SYDNEY

On the Pulse

Research symposium

Tuesday 12 July 2016

Faculty of Agriculture and Environment



2016 marks the United Nations Food and Agriculture Organization's International Year of Pulses – a celebration of the importance of these legumes.

Pulses are a valued agricultural crop due to their high seed protein and mineral content and their role in sustainable agricultural practices through a nitrogen-fixing symbiosis with soil bacteria called rhizobia.

Even though pulses are grown and consumed in most regions of the globe, they currently deliver less than 3% of global basic food supplies, which predominantly comes from wheat, maize, rice and soybean.

Since the 1960s, a 200-800% increase in cereal and oilseed yields has been achieved (FAO, 2014), while pulses have only achieved a 54% increase in production over the same period. This lack of growth is primarily due to limited

commercial and industrial interest in pulses, in what is commonly considered a 'specialty crop' within the general agricultural sector. As continual cropping focuses attention towards sustainable production choices, pulses offer an opportunity to growers to meet this criteria as well as diversify and expand annual plantings.

Coming from a low base, pulses stand at the precipice of achieving rapid expansion in both productivity and quality through targeted research investment.

Australia produces around 3.5% of the global pulse crop (~\$1.1 billion AUS), with the majority of commodities being





exported to India, North Africa and Europe. Expanding sustainable pulse production will help to meet the challenges of food production and environmental sustainability.

On the Pulse brings together domestic and international researchers to discuss strategies and advances that are future proofing pulse agriculture, focusing on three themes: pulse diversity, pulse benefits to agronomy and genetic pulse sustainability.

– **Associate Professor Brent N. Kaiser**,
Chair, 2016 Research Symposium

Visiting symposium presenters include:

Professor Douglas R. Cook,
University of California, Davis USA.
Director, Feed the Future Innovation
Lab - Climate Resilient Chickpea

Professor Peter M. Gresshoff,
University of Queensland.
Professor of Plant Molecular
Genetics and Director, Centre for
Integrative Legume Research

Dr Kristy Hobson,
NSW Department of Primary
Industries.
Chickpea Breeder

Event details

On the Pulse:

Faculty of Agriculture and Environment Research Symposium 2016

Tuesday 12 July 2016

8.15am – 6.00pm

Veterinary Science Conference Centre

University of Sydney [Map](#)

[Register here](#)



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Order of proceedings

Master of Ceremonies

Dr Damien Field

Faculty of Agriculture and Environment

Order of proceedings

8.15am	Registration Tea and coffee will be served on arrival
8.30am	Welcome and Opening Remarks Professor Alex McBratney, Dean, Faculty of Agriculture and Environment
8.50am	Managing Legumes in Challenging Environments Abiotic Stress in Cool Season Grain Professor Kadambot Siddique, Hackett Professor of Agriculture Chair and Director of Agriculture, University of Western Australia Stabilising Pulse Yields in Challenging Environments: Genetic Options Professor Richard Trethowan, Director, IA Watson Grains Research Centre, Narrabri, Plant Breeding Institute Cobbity, University of Sydney Breeding Profitable and Reliable Chickpea Varieties for Australian Growers: PBA Chickpeas Dr Kristy Hobson, Leader – Pulse Breeding Australia Chickpea Program, NSW Department of Primary Industries Grain legume water use strategies: can we improve productivity and drought resistance? Dr Helen Bramley, GRDC Lecturer in Agronomy, Plant Breeding Institute, Cobbity, University of Sydney Exploring Natural Diversity in Chickpea for Genomic Regions Associated with Salinity Tolerance Dr Tim Sutton, Principal Scientist, Crop Improvement, SARDI Sustainable Systems Managing Grain Legumes in Challenging Environments Associate Professor Daniel Tan, Faculty of Agriculture and Environment, University of Sydney Target Traits for Improving Water Use Efficiency in Chickpea Under Water Limited Environments Mr Peter Kaloki, PhD student, Faculty of Agriculture and Environment, University of Sydney
11.10am	Morning tea

Order of proceedings (continued)

11.30am

Delivering Sustainable Legumes

Harvesting Natural Variation for Climate Resilience from Crop Wild Progenitors

Professor Douglas Cook, Professor of Plant Pathology, Director of Feed the Future Innovation Lab for Climate Resilient Chickpea, UC Davis

Molecular control of legume nodulation

Professor Peter Gresshoff, Plant Molecular Genetics Director, Centre for Integrative Legume Research, University of Queensland

Managing Legume and Grower Nitrogen Needs

Associate Professor Brent N. Kaiser, Legume Biology and Molecular, Faculty of Agriculture and Environment, University of Sydney

Making the Most of High Quality Legume Inoculants

Dr Rosalind Deaker, Lecturer In Rhizobiology and Biological Nitrogen Fixation, Faculty of Agriculture and Environment, University of Sydney

Progress Towards Improving Nitrogen Fixation in Chickpea in the Central Dry Zone of Myanmar

Dr Matt Denton, Senior Lecturer in Agronomy, University of Adelaide

1.30pm

Lunch and poster session

2.10pm

Panel discussion

Challenges and Opportunities for Legumes in Agriculture

Facilitated by Professor Les Copeland

Panel members:

- Professor Douglas Cook
 - Mr Tom Giles, Manager - Varieties, Grains Research and Development Corporation
 - Professor Peter Gresshoff
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2.35pm

Achieving Benefits from Legume Nitrogen Fixation

Rotational Benefits of Legume N₂ Fixation – Universal or with Caveats?

Professor David Herridge, Primary Industries Innovation Centre, School of Environmental & Rural Science, University of New England

Legumes, Nitrogen, Water and Photosynthesis: Prospects for Genetic Improvement

Professor Mark Adams, Director of Centre for Carbon, Water and Food, Faculty of Agriculture and Environment, University of Sydney

Interaction of Nitrogen Fixation and Water Use Efficiency in Chickpeas

Dr Carola Blessing, Postdoctoral Research Associate, Faculty of Agriculture and Environment, University of Sydney

Understanding Phenology and Biomass Distribution In Faba Bean (*Vicia Faba L.*)

Mr Najeeb Alharbi, PhD Student, University of Sydney

3.55pm

3-Minute Thesis (3MT) Competition

Poster awards and 3MT awards

4.45pm

Closing remarks

5.00pm

Cocktail reception

6.00pm

Event close

For more information

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sydney.edu.au/agriculture/outreach/symposium