

Sustainable Agriculture Theme

About the Theme:

The Sustainable Agriculture Theme has focused on identifying and providing a small amount of funds to support collaborative research that combines genetic improvement with systems-based sciences, across field, farm and landscape scales, for positive impact on productivity, profitability and sustainable resource management to underpin the future of key agricultural systems in Australia and China

Past and present projects have included partnerships between CAS and CSIRO which have utilised transformational technologies to explore genetic and management strategies to either reduce yield gaps between genetic potential and what is achieved in farmers' fields under abiotic stress conditions induced by water constraints and extreme temperatures, to generate differentiated crop germplasm that improve the nutritional and health attributes of cereal grains, or evaluate new approaches to reducing crop losses and damage resulting from insect pest predation.

The 2020 direction for the Theme:

Key requirements for Joint Projects within this Theme this year is that they must align with [Category 1 Missions](#) and have the prospects of collectively attracting at least \$500K per annum of 3rd party investment support as either in-kind and/or cash from Australian and Chinese external partners.

To this end it is proposed that Theme Directions in 2020 should focus on potential collaborations between CAS and CSIRO scientists which address either of the following two priority topics:

- 1- Development of new strategies to build resilience into cropping, pasture and/or livestock systems in response to production challenges associated with drought.
- 2- Development of innovative and flexible approaches to meeting biosecurity and food safety requirements of trade in livestock products.

While the Theme is lead from within the A&F Business Unit, we welcome EOIs to attend the workshop from researchers in other Business Units that are able to contribute towards our goals for the year.

2020 Theme Workshop Location and Dates:

Sustainable Agriculture and Crop Breeding - Online,  Date: 19 June 2020

Theme Management:

Within CSIRO the Theme is lead within the Agriculture and Food Business Units.

- Theme Leader CSIRO: [Mark Peoples \(A&F\)](#)

- CSIRO Key Contact and Theme Champion: [Jean-Philippe Ral \(A&F\)](#)

Within CAS the Theme includes the:

- [Dalian Institute of Chemical Physics](#)
- [Institute of Botany](#)

Theme Leader CAS: Professor Haichun JING

Previous/Current Projects in the Theme:

2019/2020: Solutions to Agricultural pests through application of novel RNAi technologies – Project Leader Lingling Gao (A&F)

2018/2019: Development of cereal crops with improved health benefits – Project Leader Philip Larkin (A&F)

2017/2018: Improve crop Yield potential under water and climatic constraints in the North China Plain and Australia's northern grain zone - Project Leader Zvi Hochman (A&F)

2016/2017: How do plants feel the cold? - Project Leader Ben Trevaskis (A&F)

2015/2016: Gene editing of CsIF6 to make soluble betaglucan wheat - Project Leader Steve Jobling (A&F)

2014/2015: A complex system biology approach to understand the factors affecting canopy photosynthesis - Project Leader Xavier Sirault (A&F)

2013/2014: Development of next-generation nutrient dense cereals - Project Leader Philip Larkin (A&F)

2012/2013: Advancing crop yield while reducing use of water and nitrogen - Project Leader Enli Wang (A&F)

2011/2012: Genome-wide sequence strategies for gene discovery in wheat - Project Leader John Manners (A&F)

2010/2011: Parental gene memories and their role in regulating rice endosperm development and grain size - Project Leader Ming Luo (A&F)