We conduct world-leading research targeting enhanced profitability and sustainability of cereal and legume cropping systems in tropical and sub-tropical environments. We pursue excellence in crop science at molecular, whole plant, and production system levels. Our integrated research capabilities include crop genetics, physiology, and modelling, along with soil science and weed biology.

Crop improvement
Integrated pre-breeding research programs delivering advanced lines to industry based on advanced genetics, phenotyping, bioinformatics, trait physiology and modelling
- Germplasm development with structured populations, advanced phenotyping, and speed breeding in sorghum, barley, and wheat
- Traits delivering adaptation to water limited environments and resistance to pests and diseases
- Strong industry and international links

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Farming systems
Integrating field experimentation, modelling tools, and socioeconomic data, to generate new science that supports decision-making for economic, environmental, and social outcomes
- Designing farming systems better able to deal with production, climate and market risks
- Working with farmers to reduce yield gaps, manage risks, and enhance resilience and sustainability of production systems

Weed biology and management
Weed seed biology and weed ecology research targeting management of weed species
- Non-chemical and chemical control options to manage weeds in grain and cotton cropping systems
- Managing herbicide resistant weeds
- Weed and seed physiology and biology

Grain crop physiology and modelling
Integrating crop science from the molecular to whole plant levels by linking experimentation with mathematical models of crop growth and development
- Exploring the physiology and genetics of complex adaptive traits in field crops with a focus on water productivity
- Aiding crop management and design for enhanced production in water-limited environments
- Evaluating the efficiency with which resources (radiation, water and nitrogen) are utilized by crop plants

Soil nutrition and health
Field and controlled environment research to support the development of agronomic practices and crop rotations that maintain healthy soils and sustainable farming systems.
- Developing fertility management strategies to maintain productive capacity of cropping soils.
- Exploring impacts of root systems on acquisition of water and nutrients
- Developing strategies for effective use of grain legumes in farming systems

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QAAFI is a research institute of the University of Queensland (UQ), supported by the Queensland Government. As one of the few research-intensive universities worldwide located in a subtropical environment, UQ is a global leader in agriculture and food science research in subtropical and tropical production systems. Agriculture-related research at UQ is consistently ranked among the best in the world.

QAAFI’s vision is to improve the productivity, competitiveness and sustainability of tropical and subtropical food, fibre and agribusiness industries.

**Our Research Centres**
- **Crop Science**
- **Animal Science**
- **Nutrition and Food Sciences**
- **Horticultural Science**

*NTU rankings 2017*
**Thomas Reuters 2015**