



Australian Plant Phenomics Facility

The Plant Accelerator[®] at the APPF

The Australian Plant Phenomics Facility (APPF) is Australia's leading plant phenotyping facility, providing open access to world-class technology and expertise to accelerate the development of new and improved crops, and more sustainable agricultural practice.

plantphenomics.org.au

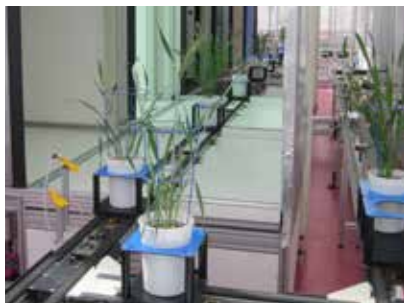
The Australian Plant Phenomics Facility has three nodes strategically located at



We are proudly supported by



As Australia's leading plant phenomics facility our depth and breadth of expertise is unmatched



The APPF is a world-leading research infrastructure facility. It provides Australian scientists with a competitive advantage, drives cross-disciplinary research and international collaboration, and contributes to bridging public research and agricultural business.

The facility is a distributed network of research infrastructure platforms, located across three renowned research organisations with world-class expertise in plant and agricultural sciences:

- The Plant Accelerator® (TPA) at the University of Adelaide's Waite Campus
- High Resolution Plant Phenomics Centre (HRPPC) at CSIRO Agriculture and Food
- Research School of Biology, Australian National University

THE PLANT ACCELERATOR® AT THE UNIVERSITY OF ADELAIDE

Controlled environment

- **Smarthouses** - The TPA contains four large greenhouses fitted with conveyor systems and imaging stations (LemnaTec Scanalyzer 3D) for the automated, high-throughput, non-destructive phenotyping of plants. This system has a capacity to phenotype up to 2,400 plants per day. Technology includes RGB, steady-state fluorescence and full-range hyperspectral imaging and programmable watering to weight. Possible applications are diverse with respect to the measured traits and plant species studied.
- **DroughtSpotter greenhouse** - A specialised, LED lit greenhouse fitted with 168 fully automated gravimetric irrigation units.
- **Drought and Heat Phenotyping Platform** - the first of its kind in Australia - comprising two controlled environment rooms (CERs) each fitted with a 96-pot DroughtSpotter system. The twin setting enables researchers to undertake experiments under two different climate regimes in parallel, with variables including light quality, humidity, temperature and water stress.

- 34 state-of-the-art **greenhouses** all certified for GMO, with a number also certified for quarantine work.
- 13 **controlled environment** growth rooms and chambers including GMO certified rooms.

Field research

UAV based field phenotyping services are offered in partnership with the Unmanned Research Aircraft Facility (URAF) at the University of Adelaide. Hyperspectral imaging is offered via a ground-based phenotyping platform, from the air using UAVs in collaboration with URAF, and via manned aircraft in collaboration with Airborne Research Australia (ARA).

Data

TPA provides a suite of analytical tools and tailored support for phenotyping projects in either controlled environments or in the field. Users can visualise, query and filter their data and corresponding images from Smarthouse experiments through Zegami. Our statisticians and biometricians provide experimental design and data analysis, including spatial adjustment and growth analyses.

Expertise at The Plant Accelerator®

The TPA is a true service facility, with the team focused on delivering high quality customer support, from initial consultation through to analysis of results. TPA researchers, with a background in plant physiology and biometry, will provide advice on experimental design and optimal use of technology, backed by a cross-disciplinary team including experts in horticulture, data analysis, mechatronics, software engineering, and statistics.

TPA is certified to undertake quarantine and GMO research, and the team can assist with the necessary applications.

Discover more: plantphenomics.org.au

Australian Plant Phenomics Facility The Plant Accelerator®

University of Adelaide, Waite Campus
School of Agriculture, Food & Wine
Bldg 32, Hartley Grove, Urrbrae SA 5064
P(08) 8313 0159 | info@plantaccelerator.org.au