Expression of Interest
An invitation to plant scientists
Pilot Projects for field phenotyping platform using the phenoMobile®

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The CSIRO node of the Australian Plant Phenomics Facility (APPF) invites expressions of interest from plant scientists wishing to undertake pilot projects utilising emerging technologies for field phenotyping.

The phenoMobile® is a rugged, mobile, and easy to use field phenotyping buggy that is electronically adjustable for crops with variable heights (up to 2.5 m) and plot widths (1.2-2.2m). It can carry a flexible range of imaging and sensing equipment (up to 50 kg) for efficient non-destructive monitoring and characterisation of plant canopies. The phenoMobile® is self-propelled and requires an operator to steer the machine.

Capability highlights
- Rugged, easy to use and mobile - transportable to remote sites
- Flexible imaging and sensing equipment for efficient non-destructive monitoring and characterisation of crop canopies, including:
  - GreenSeeker® spectral sensor used to acquire vegetation indices such as the normalised vegetation index (NDVI). *provided
  - LiDAR (a remote sensing method that uses light in the form of pulsed laser light to measure distance) to generate 3D reconstruction of crop canopies. *provided
  - Colour imaging camera can be used to estimate fractional ground cover for monitoring crop growth and development
  - Easily mount and integrate other custom payloads (e.g. thermal, hyperspectral).

The buggy is suited to experiments aiming to develop new methods, and testing proof of concepts and new sensor technologies for the field environment. The buggy is capable of measuring a large number of plots in a short amount of time, and offers greater resolution compared to conventional drone systems. It has been widely used to support method development for high-throughput screening in breeding applications such as digital estimates of biomass, height, fractional cover and object detection such as panicle counting.

Research supported

The APPF's CSIRO node combines expertise in plant science and engineering to develop and build cutting-edge phenotyping technologies to support mediumthroughput phenotyping of model and potted plants in controlled environments.

Enquiries are welcome prior to submission of an EOI. Please contact Mrs Marni Tebbutt marni.tebbut@csiro.au to discuss your proposal.

Expertise

The facility also has expertise in plant physiology, remote and proximal sensing, engineering, machine vision and data analysis.

Postgraduate internship grants are available to support research.

The Australian Plant Phenomics Facility (APPF) is funded by the Australian Government under the National Collaborative Research Infrastructure Strategy (NCRIS). Research projects undertaken as a result of this EOI will acknowledge the use of NCRIS-enabled APPF infrastructure.

Read more about the APPF: www.plantphenomics.org.au/about-us/

plantphenomics.org.au

The Australian Plant Phenomics Facility has three nodes strategically located at

THE UNIVERSITY of ADELAIDE

CSIRO

Australian National University

NCRIS enabled infrastructure

NCRIS
National Research
Infrastructure for Australia
An Australian Government Initiative