appf

Australian Plant Phenomics Facility

phenoMobile® Lite

A rugged, mobile and easy to use field phenotyping system available for hire or purchase. Electronically adjustable for crops with variable heights and widths, offers flexible imaging and sensing equipment for efficient non-destructive monitoring and characterisation of plant canopies such as light detection and ranging (LiDAR) 3D reconstructions.

plantphenomics.org.au

The Australian Plant Phenomics Facility has three nodes strategically located at

THE UNIVERSITY of ADELAIDE

CSIRO

Australian National University

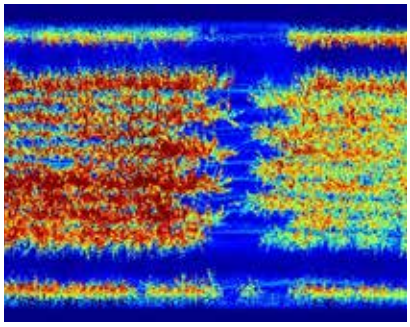
We are proudly supported by

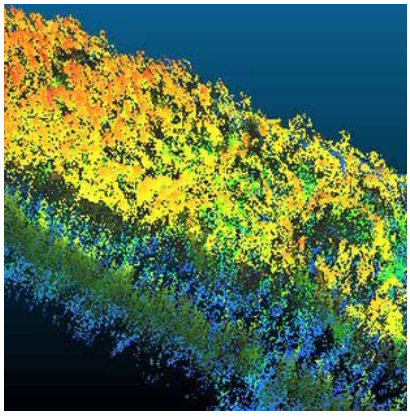
NCRIS National Research Infrastructure for Australia
An Australian Government Initiative

Australian Plant Phenomics Facility

Discover more

Dynamic characterisation and monitoring of crop canopies





PHENOMOBILE® LITE

Capability highlights

- Flexible imaging and sensing equipment for efficient non-destructive monitoring and characterisation of crop canopies.
- Rugged, mobile and easy to use - transportable to remote sites.
- Data handled by phenoSMART®, a Cloud-based data processing and visualisation platform.
- Available for purchase or hire.

phenoMobile® Lite consists of a rugged lightweight frame with an electronically adjustable wheel base to accommodate variable crop widths and heights. A single user can easily operate phenoMobile® Lite via a joystick controlling dual electric wheels. Data acquisition control and monitoring is achieved through the custom phenoMobile® Lite graphical user interface running on a touch-screen tablet mounted to the platform. Data is uploaded to phenoSMART® via an internet connection and can be analysed at anytime and anywhere in the world.

phenoMobile® Lite has a flexible and adaptable imaging and sensor payload and can accommodate commercially available sensors such as The GreenSeeker® spectral sensor used to acquire vegetation indices such as the normalised vegetation index (NDVI). phenoMobile® Lite reduces labour costs and enables non-destructive characterisation and monitoring of crop canopies.

Capability benefits

The High Resolution Plant Phenomics Centre (HRPPC) developed the phenoMobile® Lite to use light pulses from LiDAR (a remote sensing method that uses light in the form of pulsed laser light to measure distance) to generate precise 3D reconstruction of crop canopies at the field scale. These can be analysed on a cloud-based analytical and data visualisation platform called phenoSMART® to measure canopy height and biomass. An optional colour imaging camera can be used to estimate fractional ground cover for monitoring crop growth and development. The technology can be used, for example, to assist scientific and agricultural research, pre-breeding and breeding.

Expertise at the High Resolution Plant Phenomics Centre (HRPPC)

The HRPPC combines expertise in plant science and engineering to develop and build (i) cutting-edge phenotyping technologies to support medium-throughput phenotyping of model and potted plants in controlled environments, and (ii) novel plant phenotyping solutions to support research experiments at large scale and high-throughput in the field with a capacity of over 250,000 plots p.a.

Technical specifications

Dimensions

- Approx. L 2700 x W 2400 x H 1930mm, electronically folding to approx. L 2700 x W 1300 x H 1930mm

Wheel base

- Electronically adjusted between approx. 1.2 - 2.2m

Gross weight

- Approx. 600kg

Speed

- Adjustable between 1 - 6km/hr (typical speed 3 km/hr)

Image sensor height

- Adjustable from approx. 1 to 2.5m

Drive

- Joystick steering. Dual-drive high-torque motorised wheel, 1-6km/hr, suitable for steep terrain).

Maximum payload

- Approx. 50kg

Power

- 2 x 24 v and 2 x 48 v rechargeable batteries provide approx. 5 hours continual operation

GUI

- Rugged daylight display touch-screen tablet running Microsoft Windows®

LiDAR

- LMS 400, 650 nm monochromatic laser

Other

- Flexible camera and sensor payloads. Additional storage space.

Discover more: plantphenomics.org.au

Australian Plant Phenomics Facility
High Resolution Plant Phenomics Centre
CSIRO Agriculture and Food
Clunies Ross Street, Canberra ACT 2601
P (02) 6246 4339 | HRPPCenquiries@csiro.au