

APPN is a coordinated national network of nine research infrastructure nodes hosted by renowned plant research organisations across Australia. We provide open access to state-of-the-art plant phenotyping technologies, underpinned by multidisciplinary expertise and FAIR data principles, to enable research excellence and innovation, and to accelerate research output.

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plantphenomics.org.au

High resolution, high throughput plant monitoring at scale

The APPN node at The University of Sydney is based in Narrabri in north west NSW, a regional hub for agricultural industry and research.

Our extensive field facilities and mobile phenomics infrastructure provide plant scientists and industry researchers in northern NSW the capacity to assess novel plant traits at unprecedented scales using non-destructive digital technologies.

Air and ground based sensing

APPN staff can support your research using novel drone and ground based platforms with robust, reproducible data collection protocols. We can deploy a broad variety of sensors on these platforms, from LiDAR to RGB to hyperspectral, to enable you to answer the research questions that are important to you.

Robust ground truthing

We can provide researchers with the tools that will help you to contextualise data collected at broader scales, including plant physiological and environmental monitoring instrumentation.

Data analytics

We are aligned with the Sydney Informatics Hub, a data science core research facility at the University of Sydney, and we can support your research from project inception through to data analysis. We operate using FAIR data principles to deliver datasets with full transparency so that you can have confidence in your data.



Technical Details

Fixed field infrastructure

- >40,000 irrigable trial plots on Narrabri's rich Vertosol clay soils
- >2,000 ha research farm for farming systems/commercial scale trials
- Heat chambers and rain out shelters for control of canopy microclimate
- Environment carefully characterised and continuously monitored
- Field machinery to sow, maintain and harvest trials of different sizes
- Closely located laboratories and workshops to support field research

Soil and environmental sensing

- "Cropseratory" mobile and trial localised environmental and climate monitoring stations
- Extensive suite of proximal soil sensing systems, including electromagnetic induction and gamma radiometer systems, field deployable soil moisture probes and soil sampling equipment

Mobile drone based systems

- DJI M350 drone with GRYFN Gobi hyperspectral (VNIR), LiDAR and high-resolution RGB sensors
- DJI M600 Pro drone with Micasense Altum multispectral sensor
- 2 x DJI Mavic 3 multispectral drones

Mobile ground based systems

- 2 x Farm NG Amiga robotic platforms
- Specim FX10 VNIR + FX17 SWIR hyperspectral sensors
- SICK LMS4000 LiDAR sensor
- High resolution RGB sensors

Physiology instruments

- 2 x LI-COR LI-6800F gas exchange and chlorophyll fluorescence systems
- 2 x LI-COR LI-600F porometer/fluorometer systems
- 2 x SVC HR1024i spectroradiometers
- 3 x Dinolite digital field microscopes
- Canopy environment sensors and field deployable data loggers

