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Australian Plant Phenomics Network

Plant Growth Facility

Physical containment level 2 (PC2) and quarantine-certified biosecurity facility with reach-in growth chambers for growing plants under controlled conditions. Phenotyping capabilities (3D-multispectral and hyperspectral scanners and chlorophyll fluorescence imaging) are available in an adjacent PC2 laboratory.

plantphenomics.org.au

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NCRIS
National Research Infrastructure for Australia
An Australian Government Initiative

Australian National University

Plant growth facility

The reach-in chambers at APPN's ANU Node can be used to simulate a wide range of conditions – such as past, present or future climates, as well as heatwave and freezing events.

Capability highlights

- 31 individual reach-in growth chambers.
- PC2 and biosecurity-certified facility.
- Temperature control -10°C to +40°C.
- Controllable LED and fluorescent lighting.
- Staff available to maintain plants and run experiments if required.

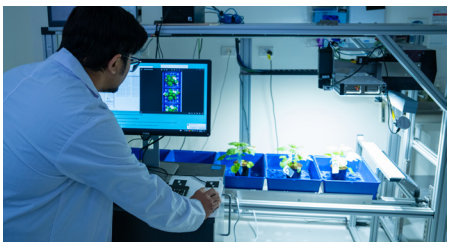
About

The APPN-ANU Plant Growth Facility is a comprehensive laboratory for growing and measuring plants in a secure and controlled environment, with facilities for planting, propagation, growth, and phenotyping. It is a PC2 and biosecurity-certified installation, where users can grow plants under reproducible conditions.

The facility features 31 reach-in growth chambers, each with varying temperature, humidity and light control capabilities. The chambers can be operated on schedules that simulate real-world conditions, such as heatwaves, droughts or freezing events.

Located within the Research School of Biology, the Plant Growth Facility provides convenient access to a wide range of phenotyping equipment. Adjacent laboratory space within the same PC2 facility features 3D and hyperspectral scanners and chlorophyll fluorescence capability, which allow for the convenient transfer of plants to and from the growth chambers.

Users can also request access to the lab for wet lab work.



Technical Details

Plant capacity

- 1-tier chambers: growth height to 1.5 m, total growth area 1.5 m^2
- 3-tier chambers: growth height to 37 cm, total growth area 4.5m^2

Lighting

- Mix of multispectral LED (3-9 channels) and fluorescent lights
- High light LED up to 1400µMol / m^2/s

Climate control

- Temperature range from -10°C to +40°C
- Additive humidity is standard. Some chambers have dehumidification capability.

PC2 and biosecurity certified

Research benefits

Precise climate control with industry-standard chambers enables repeatable experiments and results. The multi-parameter environmental controls are ideal for simulating field or synthetic growth conditions, including freezing, drought or heatwave events, with very high reliability and accuracy.

Expertise and support

APPN ANU staff can provide expert advice on appropriate growing conditions, as well as perform regular equipment checks and maintenance. The growth chambers are linked to ANU's Building Management System, with staff on call 24 hours a day to respond to any incidents.

Our team is able to maintain plants, run phenotyping experiments, and conduct 3D scanning on a fee-for-service basis for our clients.

Access

Access to infrastructure on the ANU campus is restricted to ANU staff and students. All visitors need to be inducted into the facility and PC2-trained in order to access the growth chambers. Users can only conduct experiments and manage chamber conditions after receiving the appropriate training.

We can arrange guest visits for external users during their experiment, for training or hands-on demonstrations. Please contact us to learn more.

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