

A photograph of a male scientist wearing a blue lab coat and glasses, looking down at a small plant in a black tray. He is in a controlled environment with rows of similar trays containing young plants under a ceiling of fluorescent lights. The scene is brightly lit, and the background shows the structure of the growth chamber.

# CONTROLLED ENVIRONMENTS

For Plant Science Research

AUSTRALASIA



A1000 Reach-in

Single chamber uniquely adaptable to four different applications:

- Plant Growth
- Arabidopsis
- Tissue Culture
- Incubation

Precisely designed airflow and lighting configurations for each application

## REACH-IN CHAMBERS

For research applications requiring precise control of environmental parameters provided within flexible and space-efficient chamber designs.



PGC Flex Reach-In

# PROVIDING SOLUTIONS

## For Your Research

Convion's controlled environments provide precise, uniform, and repeatable control of critical environmental parameters including temperature, light, humidity, CO<sub>2</sub> and other gases. All environmental conditions can be remotely programmed, monitored and analyzed with both accuracy and convenience. Numerous other options are available to meet research requirements, such as:

- Extended temperature range
- Increased growth height
- Air and water cooled refrigeration
- Fluorescent, HID and LED lighting
- Dehumidification
- HEPA filtration



BDW40 Walk-in

### WALK-IN ROOMS

For larger scale, higher throughput applications that demand uniformity of environmental conditions throughout a larger growth space.



Convion Growth House™

### CONVION GROWTH HOUSE™

For applications that require the capacity of a greenhouse with the precision of a growth chamber.



Custom High Light Xenon Chamber

### CUSTOM SOLUTIONS

With a team of over 50 designers and engineers, we specialize in custom designing controlled environments to meet unique research requirements.

Established in 1964, Convion is the world's largest supplier of controlled environment systems for plant science and agricultural biotechnology research.

- Tall and short plants
- Incubation, germination
- Arabidopsis
- Seed storage
- Tissue culture
- Entomology

# INTEGRATING TECHNOLOGIES

## For High Performance Facilities

### ADVANCED CONTROL SYSTEMS BY ARGUS

An advanced control system is critical to translate the researchers' expertise into action accurately and reliably. Acquired by Conviron in 2013, Argus (Canada) has over thirty years' experience specializing in the design and manufacture of integrated control systems for greenhouses and plant growth chambers and rooms.

Argus offers proven solutions for comprehensive central management of entire research and production facilities, including growth rooms and building systems. In addition to precision temperature and humidity control, Argus offers:

- Sophisticated programs for managing light intensity, photoperiods and CO<sub>2</sub>
- Precision hydroponic feed recipes tailored for each plant using advanced irrigation scheduling and the Argus Multi-Feed nutrient injection system
- 24/7 monitoring of all equipment and facility conditions with local, remote alarm annunciation and custom email alerts to allow rapid response to alarms
- Monitoring of crop conditions and development with integrated camera imagery
- Tracking of all production parameters over time with extensive data acquisition and graphing capabilities
- Secure remote system access via LAN/Internet
- Comprehensive remote service and support



Argus Control System



LED Lighting Solutions

## LIGHTING SOLUTIONS

### Optimizing Spectrum and Energy-Savings

The selection of lighting depends on your requirements for light spectrum and energy-usage. Most Conviron plant growth rooms and chambers have primary and secondary lighting or a mix of types – fluorescent, halogen incandescent, high pressure sodium, metal halide and ceramic metal halide, and LED – to deliver a range of intensity from 100 to 1,400  $\mu\text{mol}$ .

As an exclusive distributor for Valoya (Finland), Conviron offers continuous wide spectrum LEDs that have been developed specifically for high volume plant growth applications and can reduce energy consumption by nearly 40% compared to fluorescent T5. Conviron also integrates LEDs from other manufacturers to provide researchers with LEDs most suited to their application.



Argus Multi-feed Injectors

## STREAMLINING WORKFLOW AND IMPROVING CONTROL

### Controlled Irrigation

Conviron's automated irrigation systems eliminate the inaccuracies of manual watering of plants. "Flood and drain" systems for trays or drip systems for individual plants are available depending on the plant requirements and size of growth room.

### Automated Nutrient Supply

Argus Multi-Feed injectors offer advanced fertigation capabilities including full single-element dosing options and on-the-fly delivery of multiple stock concentrates regardless of the system flow rate. The same dosing equipment is capable of delivering numerous recipes, which can be modified to suit changing environmental conditions. Fully integrated with the Argus control system, Multi-Feed injection systems enable researchers to simply dial in a precision feeding program for every crop.



Automated Plant Imaging System

### Space-Efficient Benching

Conviron provides various shelving and benching solutions, including rolling benches with integrated irrigation trays, expanded metal tops, or solid tops mounted on the bench.

### Plant Imaging

The Conviron Growth House™ is easily configured to work seamlessly with commercially available imaging and automated plant handling systems.



# AUSTRALASIA REGION

## MAJOR INSTALLATIONS

### AUSTRALIA

Australian National University  
32 Reach-In

Charles Sturt University  
15 Reach-In, 9 Walk-In

CSIRO Black Mountain  
111 Reach-In, 7 Walk-In

CSIRO Perth  
7 Reach-In

Curtin University  
2 Reach-In, 2 Walk-In

Department of Fisheries and Forestry  
8 Reach-In, 2 Walk-In

Flinders University  
2 Walk-In

Queensland University of Technology  
10 Reach-In, 3 Walk-In

University of Adelaide  
7 Reach-In, 6 Walk-In

University of Newcastle  
11 Reach-In

University of Western Australia  
19 Reach-In, 12 Walk-In

### MALAYSIA

Crops for the Future Research Centre  
12 Reach-In, 11 Walk-In

University of Nottingham  
9 Reach-In, 13 Walk-In

### NEW ZEALAND

Lincoln University  
9 Walk-in

### PHILIPPINES

International Rice Research Institute (IRRI)  
25 Reach-In, 5 Walk-In

## OTHER INSTALLATIONS

### AUSTRALIA

BSES  
CSIRO-Adelaide  
CSIRO-Brisbane  
CSIRO-Narrabri  
CSIRO-Perth  
DAFF  
Deakin University  
DEEDI  
DPI-Bundoorra  
Ecocatalysts  
Enza Zaden  
Intergrain  
Jurlique  
La Trobe University  
Murdoch University  
Nuseed  
RMIT  
Royal Botanic Gardens  
Seasol  
Southern Cross University  
University of Melbourne-City Campus  
University of Melbourne-Dookie  
University of New South Wales  
University of Queensland  
University of Sydney  
University of Tasmania

### INDONESIA

Denpasar Centre of Plant Quarantine  
Hasanuddin University  
Research Centre for Biogenetics  
SMART  
Wilmar Seed

### MALAYSIA

Applied Agricultural Resources  
Forest Research Institute Malaysia  
Kustem University  
Malaysian Palm Oil Board  
Malaysian Rubber Board  
MARDI  
National University of Malaysia  
Putra University, Malaysia  
Sime Darby Technology Center  
Sultan Zainal Abidin University  
University of Malaya  
University of Malaysia, Terengganu

### NEW ZEALAND

AgResearch  
Auckland University of Technology  
Massey University-Auckland  
Massey University - Palmerston North

NIWA-Hamilton  
Plant & Food Research

### PHILIPPINES

BASF  
Philippine Atomic Energy Commission  
Philippine Tobacco Administration  
San Miguel Corporation  
U.P. Los Banos Institute of Plant Breeding

### SINGAPORE

Institute of Molecular and Cell Biology  
Sembang Field Research Centre  
National University of Singapore

### THAILAND

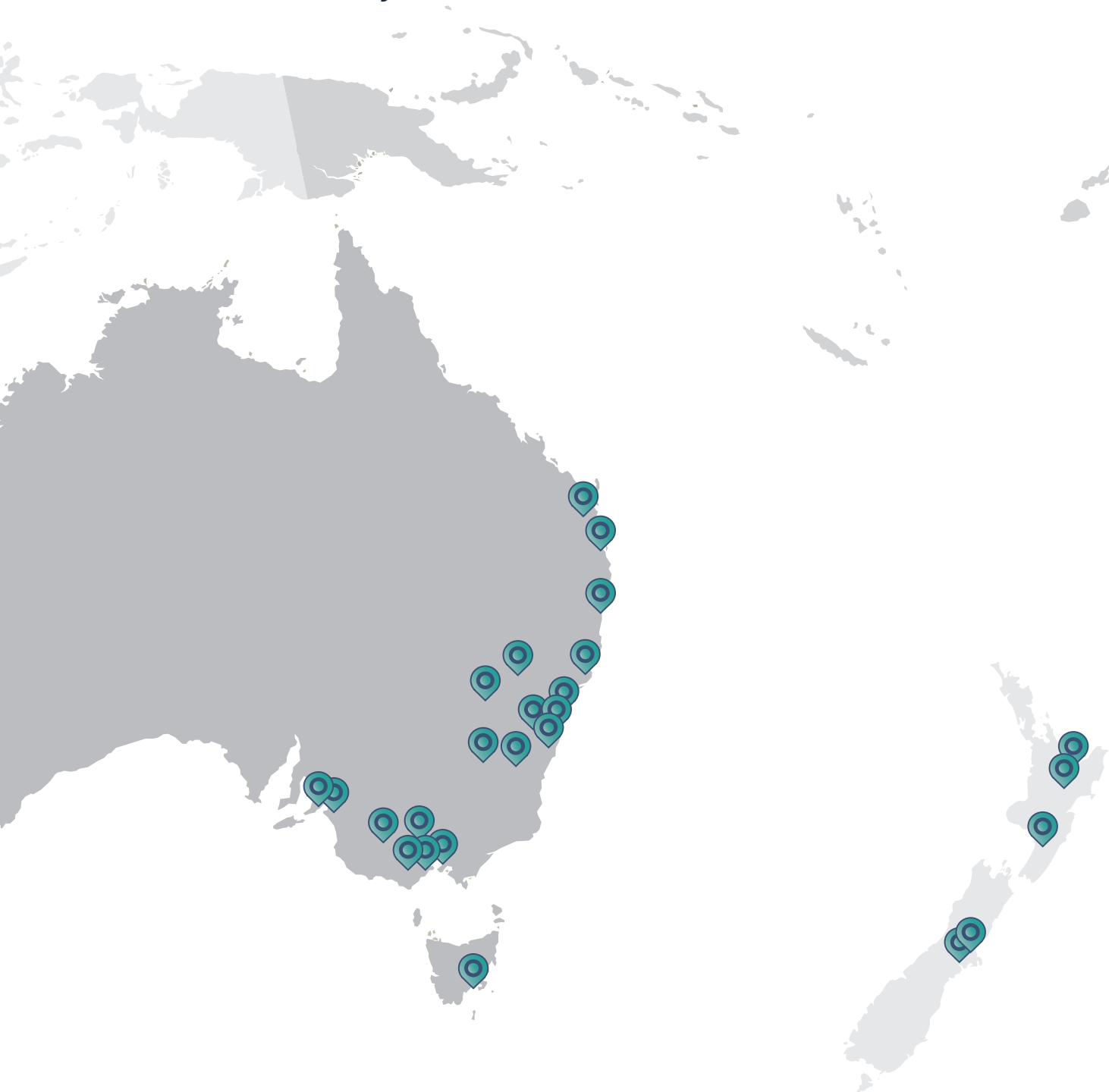
Monsanto  
Botanical Gardens  
Ubon Ratchathani University

### VIETNAM

Hanoi Agricultural University  
Hanoi National University  
Hanoi Department of Standardization Metrology & Quality Control  
Ho Chi Minh City Vegetable Project  
Institute of Biotechnology  
Institute of Agricultural Genetics

## CONVIRON DISTRIBUTORS

*With installations in more than 90 countries, Conviron's projects range from small single-chamber installations to large scale, multi-chamber facilities in some of the most prestigious corporate, university and research institutions around the world. In the Australasia region alone, Conviron has successfully installed over 500 controlled environments since 1974.*



## Conviron Asia Pacific Pty Ltd.

Toll free: +1 300 438 912  
[www.convirion.com.au](http://www.convirion.com.au)

David Napier  
Territory Manager -  
Australasia  
Tel: +61 438 623 316  
Email: [dnapier@convirion.com](mailto:dnapier@convirion.com)

Randy McPherson  
Service Manager - Australasia  
Tel: +61 478 705 800  
Email: [rmcpherson@convirion.com](mailto:rmcpherson@convirion.com)

**Indonesia**  
ITS Indonesia  
[www.its-interscience.com](http://www.its-interscience.com)

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**Vietnam**

VN ITS Co., Ltd &  
Hanoi Branch  
[www.its-vietnam.com](http://www.its-vietnam.com)

## Advancing Research Through Partnership



Cambridge University, UK



Biotron, New Zealand



University of California, Davis - USA



National Institute of Plant Genome  
Research, India



Australian National University, Australia



Donald Danforth Plant Science  
Center - USA

[www.convirion.com](http://www.convirion.com)



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Management System Certified to ISO 9001

Jan 5, 2018, Rev 04

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