Nursery & Garden Industry Australia

Case Study

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Roof boosts production 25 per cent

Investing in a 20,000 square metre retractable roof greenhouse has enabled one of Australia's longest running wholesale nurseries to increase production by around 25 per cent in the foothills of the Dandenong Ranges near Melbourne.

Humphris Nursery built the Cravo Retractable Roof Production System™ on a sloping block with a 5 per cent gradient on their existing 16 hectare nursery site at Mooroolbark, with the aim of protecting crops of retail and landscape plants from excessive cold, heat, rain, hail and wind.

Image 1 (L-R): Barry Humphris and Andrew White in 'The Cravo'.

'The Cravo', as it's called around the nursery, originated from Canada. Humphris' General Manager Andrew White says while the cost was substantial – $50-70 per m^2 or approximately $1.2 million – the benefits have been immediate.

"The retractable roof and retractable side walls are all automated off a weather station and advanced software, which directs the roof and walls to close to protect crops from weather extremes, such as high winds, frosts and excessive rain events," Mr White explained.

"This climate control allows us to start planting out in the greenhouse up to a month earlier at the start of season and grow for a month later at the end, extending the growing season by a few months."

Image 2: Building the 'The Cravo'

As well as 'smoothing out the bumps' of production, he says the Cravo system enables staff to carry out nursery work, regardless of the weather.

"It significantly improves targeted spraying and minimizes the challenges of rain and windy conditions when we need to apply chemicals," Mr White says.

"There is also an infrared sensor that measures the temperatures of the leaves of plants, the potting media and the surrounding environment, to indicate the temperatures being experienced and whether crops should be shaded by partially closing the roof.

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"There are labour savings through automation of tasks like potting up and placement of stock. The pathway is wide enough for a forklift to access stock in large volumes, and it has a pot fork which can pick up as many as 150 plants and place them and space them automatically, rather than by hand."

These are the 'one percenters' from the Cravo that Mr White says deliver a cumulative benefit to the business, although it's difficult to put an exact figure on the value of each of them.

Image 3: Building 'The Cravo'

The Cravo also fits in with Humphris Nursery's commitment to sustainable production systems through the Nursery Industry Accreditation Scheme, Australia (NIASA).

"We've been involved in NIASA since its inception, particularly with regard to water re-use and recycling," Mr White said.

"In a heavy downpour the amount of water that comes off the Cravo's roof area of two hectares is significant, the large gutters drain into a holding pond and then pumped over the hill to our wetland and 75 megalitre dam for recycling.

"Through automation we can also maintain efficient watering of the crop without excessive runoff. Our whole nursery is on an automated irrigation system - I think we only have three or four hand-held hoses across the whole site!"

He does have two words of advice for those thinking of installing a climate-controlled, retractable roof greenhouse: plan ahead.

Image 4: 'The Cravo' completed and fully stocked

"If it's being installed in a new growing area not currently in production, loss of production and sales are minimal. But if you're building it in an existing growing area, be prepared to lose a year and a half of the production cycle there," Mr White said.

"For us, the site of the new greenhouse was an existing growing area and impacted production during eight months of construction.

"Plan for extreme pressures on the business during construction because whether you use contractors or do it yourself, it's a major distraction to business."

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It takes a number of seasons to fully maximise the Cravo's environmental control parameters, to understand local weather patterns in relation to nursery crops and to be able to finesse and set the many parameters to automate the Cravo accordingly.

"When you purchase the Cravo, you design the number of zones you require, which impacts on the opening and shutting of the roof and wall zones," Mr White says.

"This provides great flexibility for the needs of various products grown, but it can potentially be a limiting factor as the market place and your product mix, changes over time."

He says the new facility has been a welcome addition to the state of the art nursery, started by the Humphris family five generations ago in 1854.

"The Cravo is just one of the building blocks in the whole production process of the business, which is all about best practice," Mr White said.

Humphris supply more than one million plants annually to the retail, council and landscape trade across Australia.

They produce a diverse range of more than 600 lines including ornamental camellias, magnolias and conifers, Australian natives, grafted natives, bamboos and grasses and a range of edibles including citrus and berry plants.

NIASA was developed by Nursery & Garden Industry Australia in partnership with Horticulture Innovation Australia, using the nursery R&D levy and funds from the Australian Government.

For information about NIASA, visit: http://nurseryproductionfms.com.au/ or contact NGIA on 02 8861 5100 or info@ngia.com.au

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