



**Nursery & Garden Industry  
Queensland**



**RURAL  
WATER USE  
EFFICIENCY**  
**IRRIGATION  
FUTURES**

Improving irrigation management  
for a profitable and sustainable future

# Flourish Plants North Queensland

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has experienced  
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over the last five  
years”*

*Elaine Duncan  
31.08.2016*

Flourish Plants North Queensland specialises in cell grown flower, vegetable and herb seedlings, potted colour and ornamental plants for the commercial and domestic market under the brand ‘Selections’. The business was originally established in 1986 in Mareeba, North Queensland where it began trading as Anza Nursery. In 2016 the business undertook a restructure and the trading name changed to Flourish Plants North Queensland. The nursery supplies to independent retailers, garden centres, landscapers, councils and the large box stores from Rockhampton, north to the Torres Strait, and west to Mt Isa.

Over the last five years Flourish Plants North Queensland has experienced exceptional growth, more than doubling annual turnover from a little over two million to five and a half million dollars. Flourish Plants company directors, Elaine Duncan and Melanie Trickey lead a dedicated workforce of eleven permanent employees and, depending on seasonal requirements, up to fifteen casuals. Implementation of efficiencies, technology and mechanization has facilitated only modest staff increases over the last five years, three permanent and five casuals, despite substantially increasing turnover.



# Flourish Plants North Queensland



“The growing media and substrate upgrading is holding irrigation in the containers for longer reducing the overall nursery water use substantially”

*Elaine Duncan 18.11.2016*



The nursery is located in the Mareeba shire (currently drought declared in 2016) and within the Mareeba-Dimbulah irrigation area. The irrigation area is serviced by 176 km of gravity fed main channels and 189 km of subsidiary channels from the Tinaroo Falls dam. Flourish Plants North Queensland has a water allocation for nursery irrigation from SunWater of 21 megalitres, however poor rainfall over the previous two seasons has Tinaroo Falls Dam level at approximately 40% capacity mid 2016, leading to a 30% reduction in water allocation to the nursery. Flourish Plants North Queensland has expanded over recent years and the nursery has been able to obtain temporary water transfers or assignments from local businesses with available excess water, with 10 megalitres again sourced for 2016—2017. Seasonal daily water use for the nursery varies between 48 to 78 thousand litres.

Water is transferred after UV disinfection from the SunWater scheme into a forty thousand litre storage tank from where it is pumped via a 5.5kw Grundfos CRE16-60 Frequency Controlled Multi-stage Centrifugal Pump. The six stage pump is capable of pumping 16m<sup>3</sup> or 16,000 litres of water per hour for irrigation across the nursery. The frequency control of the pump motor enables continuously variable control of the motor speed allowing the Grundfos pump to operate in any duty point in the range between pump minimum and maximum performance curves. A media filter is installed in the system to remove any impurities from the scheme water. Nursery irrigation is applied through a range of overhead irrigation systems that when initially installed operated to industry BMP. However due to the pressure on the nursery water supply, further irrigation system upgrades to improve water use efficiency are scheduled to be included within the nursery short term priority list.

To improve water use efficiency the nursery has upgraded its growing media to 100% coir fibre to assist in water holding and wettability in the container production. Seedling production substrate has also been upgraded to a peat based media to hold water and nutrients. Flourish Plants director Elaine Duncan said “The growing media and substrate upgrade is holding irrigation in the containers for longer, reducing the overall nursery water use substantially”.

# Flourish Plants North Queensland



Flourish Plants North Queensland's nursery production area is currently just under three hectares. This consists of 5400m<sup>2</sup> main seedling production area covered with 30% green shade cloth and capable of holding just over one hundred & eighty thousand seedling punnets on raised benches. The area is currently overhead irrigated using Antelco Rotor Max sprinklers on a five by five metre grid located just 0.5 metres above the crop. Container production at Flourish Plants North Queensland has a holding capacity of approximately 80,000 units. This is produced from 1700m<sup>2</sup> of white hail-net structure, a 2300m<sup>2</sup> thirty percent green shade cloth production area, 2000m<sup>2</sup> of covered tunnel houses, and 5,600m<sup>2</sup> of full sun production.

**“Improving the growing media has assisted in reducing water use by approximately 12%. The nursery is currently looking at other water use efficiency options such as recycling to support the growing media changes.”**

*Elaine Duncan 18.11.2016*

Irrigation in the shade and full sun areas is from Rainbird LF sprinklers and the hail net structure from Antelco Rotor Max sprinklers, both on five by five metre grids. Tunnel house irrigation is from inverted Eindor 866 and Netafim SpinNet inverted sprinklers on a five by three metre grid.

Improvements in available irrigation technology along with changes to the growing media provide opportunities to upgrade irrigation infrastructure to improve water use efficiency. Flourish Plants North Queensland is investigating recycling nursery wastewater to reduce dependence on the SunWater irrigation scheme.



# Flourish Plants North Queensland

Flourish Plants North Queensland has invested seriously in plant and equipment to ensure the business is a leader in its field. The investment in technology has also provided the efficiencies to allow increased production with only modest staff increases over the last five years.

The move to peat based substrates for seedling production has not only delivered water savings but allowed for the improved mechanisation in the seeding and transplanting operations. An Urbinati bale breaker, seeding machine, denester and trayfiller, along with a Hamilton T.E.A. Transplanter highlights the investment in technology in the seedling production.

Container production has also benefited from the recent purchase of a Demtec 3016 potting machine and the inclusion of coir fibre in the growing media providing both production and water use efficiencies.

Flourish Plants North Queensland is continually improving through upgrades to infrastructure, adoption of new technologies and staff training. Currently the nursery is investigating a number of water use efficiency initiatives including; wastewater storage and recycling, improving wastewater collection and drainage systems, alternate water disinfection options, irrigation scheduling , and upgraded irrigation application systems.

Flourish Plants North Queensland is a member of and actively participates in a number of state and national grower organisations. The nursery is active on social media and is currently developing a new website in the transition to the new company Flourish Plants North Queensland.

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Queensland Government The RWUE-IF initiative helps irrigators make better use of their on-farm water supplies, through efficient irrigation system design and management. It also helps irrigators to reduce energy consumption associated with their pumping applications. RWUE-IF is a partnership between the Queensland Government and major rural industries, where the government provides financial support to assist industry groups in providing services to irrigators.