



Nursery & Garden Industry  
Queensland

## Case Study



### *What a difference a little pressure can make*

Canopy Nursery has achieved a water saving of 6.45 megalitres per hectare of nursery production over the last three years. During this period the nursery has been engaged in the Rural Water Use Efficiency (RWUE) initiative, and an Irrigation, Drainage and Energy Management Plan (IDEMP) has been developed for the business, complete with action plans to guide the nursery through on-farm improvements and upgrades.

One of the first activities in developing the IDEMP was to complete irrigation assessments on the nursery irrigation systems.

The fixed overhead sprinkler system utilised Nelson R2000 sprinklers that were recommended to operate between 200 to 400 kpa. Initial catch-can assessments identified the system was not functioning to industry Best Management Practice (BMP).

Of serious concern was the operating pressure at the irrigation blocks, which was recorded at 600kpa, well in excess of the manufacturer's recommendations. Apart from the impact this has on the efficiency of the system, operating emitters at higher than recommended pressures can reduce their operational life.

System pressure on the Variable Frequency Drive (VFD) pump was scaled back to provide 400kpa at the irrigation block providing greatly improved performance. Nursery owner Ryan Eaton commented "I had no idea the improvement in uniformity of the irrigation that could be achieved simply by reducing the pressure to the manufacturers specifications. I've removed one scheduled irrigation each day and the end result is my crop is more uniform and healthy, and growth rates have improved".

*"It is amazing how something as simple as changing sprinkler pressure can save so much water and energy".*

*Ryan Eaton  
Canopy Nursery  
13.03.2017*



RURAL  
WATER USE  
EFFICIENCY

IRRIGATION  
FUTURES

Improving irrigation management  
for a profitable and sustainable future



# What a difference a little pressure can make



Nursery & Garden Industry  
Queensland

The fixed overhead sprinkler system at Canopy Nursery utilises Nelson R2000 sprinklers with a K4 9° purple plate and a #12 purple nozzle designed to operate between 200 to 400 kpa. The Nelson sprinklers are spaced on a grid, 10 metres by 10 metres, and located on 1.3 metre riser with Nelson high angle road guards installed.

Visual observations of the production block identified a lack of uniformity across the production block, with many areas of both wet and dry containers. Block pressure was reduced to 400kpa and road guards were removed, greatly improving the water use efficiency. This improved application uniformity allowed the removal of 1 scheduled irrigation each day and full utilization of the area, providing a 2.5% increase in stock holding.

Catchcan assessment on Block 9	with road guards	road guards removed	Industry BMP
Industry BMP parameter	600kpa	400kpa	10 – 25 mm/hr
Mean Application Rate (MAR)	9.2 mm/hr	4.2 mm/hr	> 85%
Co-efficient of Uniformity (CU)	62.4%	89%	< 1.5
Scheduling Co-efficient (SC)	13	1.5	

Follow-up irrigation assessments identified improved water use efficiency from the system. The nursery owner identified;

- an improvement in crop uniformity across the block, reducing order selection, picking and consolidation costs,
- a 2.5% increase in stock holding in the production blocks due to the ability to utilise the full width of the production pad,
- a 10% decrease in throw-outs or plant losses due to a reduction in crop water stress,
- a 15% improvement in crop health, reducing crop maintenance activities,
- a 10% improvement in general crop growth with healthier, better quality plants from improved irrigation uniformity resulting in reduced nutrient leaching,
- greater than 50% reduction in the water required in crop production,
- and reduced energy costs due to lower system pressure.

## For more information contact:

Nursery & Garden Industry Queensland (NGIQ)

Ph. 07 3277 7900

Email. [info@ngiq.asn.au](mailto:info@ngiq.asn.au)

NGIQ - Farm Management System Officer

Lex McMullin mobile. 0400 005 236

*“I’ve increased crop production and reduced water use simply by reducing sprinkler pressure and removing some road guards”.*

*Ryan Eaton  
Canopy Nursery  
13.03.2017*



Improving irrigation management  
for a profitable and sustainable future



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.