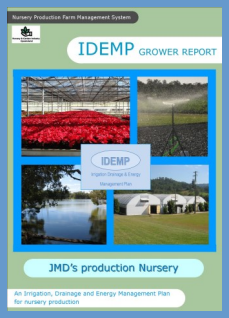
RURAL WATER USE EFFICIENCY
IRRIGATION FUTURES
Improving irrigation management for a profitable and sustainable future

Queensland Government
Supported by the Qld Government
Department of Natural Resources and Mines

Irrigation, Drainage & Energy Management Plans (IDEMP) describe the infrastructure and management practices in operation at a production nursery and outline plans, designs, suggestions and opportunities for on-farm system and equipment improvements and upgrades.

IDEMPs support growers in nursery production to address both economic and environmental issues relating to water access, recycling, storage and use to ensure the business remains profitable and sustainable into the future.



IDEMP
Irrigation Drainage & Energy Management Plan

Nursery & Garden Industry Queensland

The Pipeline

An electronic update on Nursery Production RWUE-IF project activities

Volume 5 Issue 3 **Newsletter Date 30.5.2018**

Nursery Production Rural Water Use Efficiency—Irrigation Futures (NGIQ RWUE-IF)

IN THIS PIPELINE

A wrap up of the 2018 RWUE-IF Project

Knowing your irrigation and drainage system

VIDEO

Sprinkler Selection video

https://youtu.be/5V2SaA-P-Fo

RWUE-IF Project Report

With the RWUE-IF project nearing its completion on June 30, its worth looking at the changes made by those nurseries involved in the project, and the gains that have been achieved by making these changes. This gives us all a reminder about the changes that all businesses can make to improve water and energy use efficiency.

At the start of the project, baseline data on productivity, water and energy use were gathered to develop a before and after comparison, and identify the benefits achieved from upgrades made during the project. This project highlighted the variation in water and energy use across the different production systems used by the nurseries involved in the project.

It should be noted that the project was only 12 months in length, and many items identified in the action plans would not realise their full benefit until 12 months or more past the end of the project.

Improvements in irrigation scheduling were the most common changes made, particularly when alterations were made to the irrigation system itself. It was apparent that whenever an alteration is made to any part of the system e.g. changes to irrigation infrastructure e.g. irrigation layouts, growing media or the plants being grown, that scheduling practices should be reviewed and fine-tuned to realise the maximum gains in water, energy and productivity. A large component of irrigation scheduling is simply awareness of the impact small changes to scheduling can make to the overall efficiency of the business. Because different components of a system impact on irrigation scheduling it's difficult to assign a specific range of values to irrigation scheduling.

A number of businesses constructed new growing areas, and while this may not necessarily improve water use efficiency, it does improve productivity by utilising the available water more effectively, provided the reliability of the water source is adequate. This also shows the industry is currently in an expansion phase, driven by high demand and business confidence.

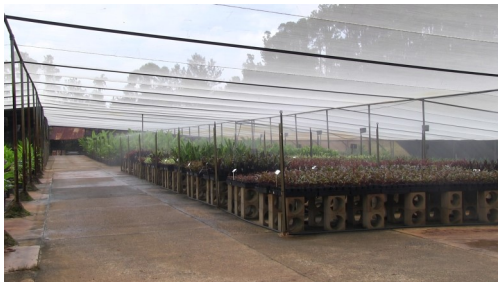
Other areas of improvement identified during the project were – maintenance of equipment (pumping and infrastructure – flushing pipes and sprinkler checks), installation of efficient pumping systems (Variable Frequency Drives), upgrading to more efficient delivery pipe designs, grouping plants of similar water use,

Video and Technical Information

For technical information visit the NGIQ Technical Information Library at https://www.ngiq.asn.au/resources/technical-information/

removing road guards, and changes to growing media.

The average improvement across all businesses involved in the project were - water down1.5%, energy use down 4.8%, and productivity increased by $11886/ML, with an average reduction in water use of 1.5 ML/ha/annum.



Knowing Your Irrigation and Drainage System

How much do you know about your irrigation and drainage? Knowledge of your irrigation and drainage systems helps you to make informed decisions on required system changes. The following short questionnaire will help to identify those areas you may need to look at to improve your irrigation and drainage systems.

Irrigation

- Do you have a water meter on your irrigation supply?
- How much water do you currently use per annum?
- In the middle of summer what is the highest daily water requirement?
- How much is water worth to your business in dollars/ megalitre
- For each irrigation zone in the nursery do you know the sprinkler being used, the operating pressure, Mean Application Rate, Coefficient of Uniformity and Scheduling Coefficient?
- How often do you check the block pressures on the irrigation system?
- How often do you check the Mean Application Rates (MAR) and uniformity on your nursery?
- Do you recycle your irrigation runoff?
- Do you collect the storm water runoff from your roofs and production areas separately?
- Which plants that you grow require the most water to produce?
- How much water do the plants require for a full production run?
- What plants require the least amount of water to produce?
- Do you check the quality of your drainage water and, if so, how often?
- How often do you schedule your irrigation?
- How do you change your irrigation practice under water restrictions or low water availability?

Drainage

- What components make up your drainage system? Surface earth drains, surface concrete drains, surface sealed drains other than concrete, pipe drains, slotted drainage pipes, sediment traps, interception traps, water treatment, and collection sumps/storage?
- What methods do you use to minimise downstream pollution?
- Does the current drainage system require maintenance e.g. erosion, ponding water?
- Does your drainage system meet all necessary state and local regulations?
- What are your recycling options?
- Is your drainage water storage of sufficient capacity to store the wettest month's runoff volume?

Does your irrigation and drainage systems need upgrading?

If you are unsure of the condition of your systems conduct an irrigation drainage and energy assessment using the Irrigation Drainage and Energy Management Plan (IDEMP) template, developed by NGIQ to assist growers in identifying what upgrades can be done. The template will also help to develop an action plan for the systems that will provide the greatest productivity gains.

In the Pipeline for June 2018

- Finalise and submit the project report.