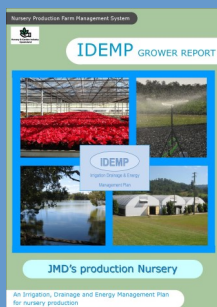


Queensland Government
Supported by the Qld Government
Department of Natural Resources and Mines

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.



Nursery & Garden Industry
Queensland

The Pipeline

An electronic update on Nursery Production RWUE-IF project activities

Volume 2 Issue 1

Newsletter Date 28.2.2015

Page 1

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

IN THIS PIPELINE

Toowoomba Waterwork Workshop.
Conducting Water Balances.

DATE CLAIMERS

Irrigation Workshop at Mareeba In North
Queensland on Wednesday April 15th.

Event Report



Toowoomba Waterwork Participants

Toowoomba Waterwork Workshop

Another successful Waterwork workshop was conducted on Thursday February 26th at the TAFE South West campus by NGIQ Farm Management System Officers Steve Hart and Lex McMullin. Six participants from the nursery industry attended, along with eight TAFE students interested in further their knowledge of nursery irrigation.

The information provided centered on how to set up a sprinkler system to Nursery Industry Best Management Practice (BMP), and how to assess a system against Nursery Industry BMP benchmarks.

The participants were provided with information on how to install a sprinkler system to Nursery Industry BMP standards and a demonstration area was set up showing the issues grow-

ers regularly encounter from non-BMP irrigation layouts. During this demonstration, practical tips were given on how the Mean Application Rate (MAR), Scheduling Coefficient (SC), and evapotranspiration rate can be used to help with scheduling irrigation.

During the practical session, the participants carried out catch can tests on three different irrigation layouts. The data was entered into the Waterwork calculator and the MAR, Coefficient of Uniformity (CU) and SC of each of the systems calculated and discussed. A range of nursery sprinklers was demonstrated, showing the performance, advantages and disadvantages of the different sprinkler types available.

Information from the workshop was given to each participant on a USB flash drive.

Thanks go to TAFE South West for providing the facilities for the workshop.

IDEMP Video and Technical Information

For an introduction to IDEMPs go to the following link to see a video explaining more—<http://www.ngiq.asn.au/technical-information/?did=252>. For technical information visit the NGIQ Technical Information Library at www.ngiq.asn.au/technical-information or click on the centre icon on the home page.

Calculating Water Balances

To maintain maximum production output it essential the business has sufficient water security to for the entire growing season. Some simple calculations can shed some light on the crop requirements for a season, and the how this aligns with water reserves or supply.

Crop water use:

Water meters installed in the irrigation system can quickly and simply provide water use data for a growing season or production year. This information can often include both the crop irrigation along with other nursery water use such as washing and cleaning of beds, benches and containers. Where a water meter is not installed it is possible to calculate water use by measuring the volume of water emitted by one sprinkler in an irrigation zone, multiplying by the number of sprinklers in that zone, and then simply multiplying by the duration the irrigation zone is operated in a year. The results from each irrigation zone can be totaled, and then added to the calculated water volume used in general hosing and cleaning in a similar time frame, providing a measure of the total water used in production in a growing season or production year.

Available water:

Water has a cost to the production nursery. Reticulated town water supply has a direct cost, underground water has to be brought to the surface and distributed around the nursery, and surface water has to be stored, pumped and disinfested. Town water supplies may be limited by restrictions on 'time of day' use, supply due to service pipe size, restriction on volumes available for general horticulture, and seasonal restrictions due to local conditions such as drought. Underground water may be limited by the volume of water available due to climatic conditions, local pumping competition, the aquifer recharge time, or by the water quality and the need for treating or blending the water to make it suitable for use. Surface water in storages is restricted by the physical catchment and collection infrastructure, storage volume, storage water quality, weather conditions, losses due to evaporation and seepage, recycling efficiency and filtration and disinfestation capabilities.

Water available for production and irrigation can be calculated and compared against rainfall data from normal and dry years to identify any shortfalls that may occur. This is particularly important when planning for expansion phases within a business. Water security should be addressed as part of physical or production expansion planning.

Water conservation:

A number of actions can be taken to improve water security in nursery production:

1. Calculate current and future water requirements to allow sensi-

ble production planning.

2. Install an efficient drainage system to ensure maximum capture of nursery wastewater.

3. Recycle nursery wastewater back onto production areas with appropriate disinfestation.

4. Improve on-farm irrigation infrastructure to improve water use efficiency - improve irrigation application systems to industry BMP, upgrade application systems to more efficient techniques e.g. drip irrigation, adjust plant spacing, group like water use plants together in an irrigation zone and adjust growing media e.g. add water holding materials

5. Improve on-farm practices to improve irrigation efficiency - improve irrigation scheduling e.g. evapotranspiration based decision making, consolidate plants in zones or blocks during sales periods to facilitate turning off irrigation in areas not in use.



Water Storage

Effective production and expansion planning is not feasible without some knowledge of current and future water requirements. Contingency planning for dry years and drought periods is not possible without an understanding of the production water use requirements. It is difficult to communicate with government or local authorities for water allocations or water access, if a history of production irrigation requirements for a business is not available. Financial institutions are more comfortable in lending money if business sustainability can be documented. Local authorities often require documentation on sustainability and catchment interaction when reviewing site approval for development or construction of structures. The information contained in an Irrigation Drainage and Energy Management Plan (IDEMP) helps to answer many of the above questions, and provides a prioritised action plan to improve overall system efficiency. More information on IDEMP's can be found by contacting NGIQ or a Farm Management Systems Officer.

In the Pipeline for March / April 2015

- Burnett/ Wide Bay, Sunshine Coast, Brisbane, Wet Tropics, Dry Tropics, Central Queensland and Lockyer Valley - IDEMP development
- Contacting and sending surveys to businesses who have registered interest in having an IDEMP completed
- Producing a video on drip irrigation
- Irrigation workshop in North Queensland
- March & April - Brisbane Trade Day. April – Toowoomba Trade Day

