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.

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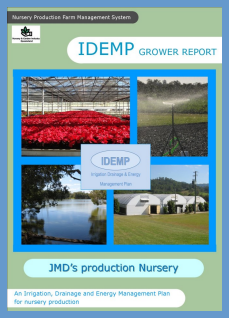


IDEMP
Irrigation Drainage & Energy Management Plan

Nursery & Garden Industry Queensland

The Pipeline

An electronic update on Nursery Production RWUE-IF project activities

Volume 1, Issue 6 **Newsletter Date 15.12.2014** Page 1

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

IN THIS PIPELINE
Waterwork Workshop Report
Case Study—Award Plants

DATE CLAIMERS
Waterwork Workshop in Toowoomba at the end of February. Further details as they become available.

Event Reports

Waterwork Workshop Yandina 12/11/14

On Wednesday November 12th a WaterWork workshop was conducted at Fernland Agencies, Yandina by NGIQ Farm Management System Officers Steve Hart and Lex McMullin. This workshop centered around 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. Eighteen growers from eleven businesses attended from as far afield as Kingaroy.

Steve Hart took the participants through the basics of how to set up a sprinkler system to Nursery Industry BMP standards. Topics covered included, what makes a good irrigation system, the ten things to look for in new and established irrigation systems, selecting the right sprinkler, the importance of having uniform irrigation and why hand watering is inefficient. The participants were shown how sprinkler specification sheets and other data can be used in designing an efficient sprinkler layout.


Running a catch can test


Explaining the finer points of BMP irrigation layouts

An explanation of the three Nursery Industry BMP benchmark figures of Mean Application Rate (MAR), Coefficient of Uniformity (CU) and Scheduling Coefficient (SC), and how these relate to the field situation was given by Lex McMullin. An area was set up in the conference room to demonstrate some of the issues growers regularly encounter from non-BMP irrigation layouts. During this demonstration, practical tips were given on how the MAR, SC, and evapotranspiration rate can be used as an aid in scheduling irrigation.

The group then adjourned outside for a practical session, where workshop participants carried out their own catch can tests on three different irrigation layouts. This exercise included entering the data into the Waterwork calculator to

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.

Measuring catch cans

determine the MAR, CU and SC of each of the systems, and a discussion of the results. At the end of the irrigation layout assessments, a range of nursery sprinklers was demonstrated, showing the performance, advantages and disadvantages of the different sprinkler types available.

Participants were provided with a USB flash drive containing links to a number of websites relevant to irrigation, links to training and educational videos on the NGIQ Nursery Production Technical Library and a copy of the presentation notes.

Thanks go to Fernland Agencies for providing the conference room, afternoon tea and facilities for the workshop.

COIR VIDEO

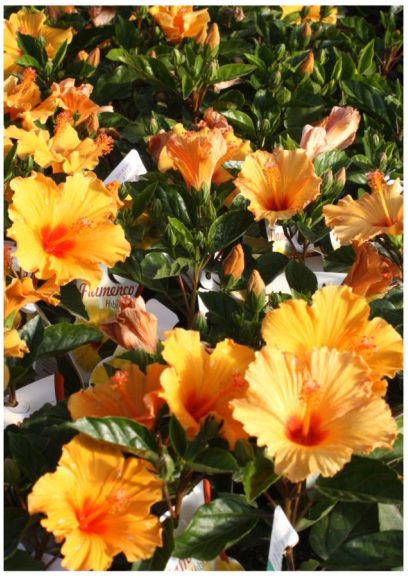
A video on using coir as a growing media is now available at the Nursery Production Technical Library web page www.ngiq.asn.au/technical-information or direct link - http://www.ngiq.asn.au/technical-information/?did=260

AWARD PLANTS — Building to Best Management Practice — a case study

Award Plants is a fast growing production nursery located just off the Bruce Highway north of Brisbane. The business is owned and operated by Marc and Selena Ward and recognised as producers of quality flowering and perennial shrubs for the retail industry. The business is quickly gaining a reputation for the consistent quality of their product range and in particular the flowering Hibiscus and Mandavilla cultivars regularly supplied onto the market. Award Plants currently supply stock to independently owned retail stores, garden centres and chain stores in both Queensland and New South Wales.

Marc and Selena purchased the five acre site on Lomond Drive at Ningi in June of 2009 and began to transform what was an existing nursery into a profitable and sustainable production nursery. Today's Award Plants bears no resemblance to the prior business as Marc and Selena demolished the existing infrastructure and other obstacles to upgrade the site using the nursery production BMP as the guide. Award Plants is not currently accredited under the Nursery Production Farm Management System but are endeavoring to ensure all improvements and upgrades meet the industry BMP standards in line with their long term plan of becoming accredited.

Sustainability is extremely important to Marc and Selena and their 'Award Plants' business. With a young family and financial commitments it was vitally important that the business be well positioned to continue current production targets as well as meet expansion plans.



Growing pads have been upgraded to ensure nursery wastewater can be collected and directed to storage. Gravel beds direct wastewater through Ag and stormwater pipes to the newly upgraded drainage system of concrete and weedmat lined open drains. To ensure all the benefits of the upgraded irrigation and drainage system along with the changes to the growing media could be realised, irrigation scheduling has been made simpler with the purchase of a 24 station Hunter irrigation controller. The 24 station irrigation controller provides improved flexibility by managing all the irrigation zones providing quick and easy adjustment of irrigation run times and eliminating any possibility of competing zone irrigation.

Marc and Selena are 'hands-on' within Award Plants and are supported by leading hand Nancy Finney and up to 3 casual staff during peak times. Current growing areas total over 5,500 square metres comprising approximately 3,900 m² of full sun production, 1,200 m² of shadehouse area and 350 m² of protected cropping. All growing areas have been upgraded to industry BMP with plastic underlay covered with 100mm depth of 20mm gravel. Five hundred and fifty square metres of the full sun production area is benched using concrete reinforcing mesh and irrigated efficiently through drippers. Almost all of the 140mm production is grown in

"We use an external specialist to monitor our irrigation and drainage water and growing media quality and employ a consultant to conduct pest and disease checks"

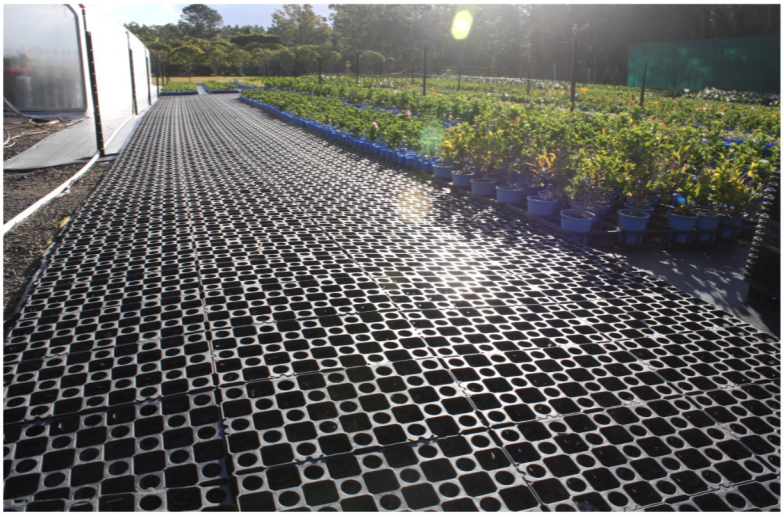
Marc Ward 06.11.2014

Water supply was a challenging factor from day one and to support the expanding nursery a management plan was devised to improve water use efficiency. The current water requirement of 40 to 55 thousand litres a day (dependent on seasonal and weather conditions) provided some initial challenges. The water storage facility has been improved to hold approximately 3 megalitres of water and two 22,500 litre holding tanks were installed to support a automated chlorine disinfestation system using a Grundfos liquid chlorine injector. Pumping was upgraded with the installation of a 1.6 kilowatt variable frequency drive Lowara multistage pump to supply the essential consistent flow and pressure to each of the newly improved irrigation zones. Sprinkler systems in each irrigation zone were upgraded and catch can assessments conducted to ensure the irrigation systems in each of the respective zones were operating efficiently to industry Mean Application Rate (MAR), Coefficient of Uniformity (CU) and Scheduling Coefficient (SC) parameters. The growing media has been adjusted to reduce the irrigation requirements of the crops by the addition of coir fibre. Currently the growing media contains up to 30% coir fibre to assist in container re-wetting and moisture retention thereby decreasing irrigation requirements, reducing plant stress and improving production efficiencies.

shuttle trays to ensure the containers are supported to stay upright and for improved manual handling efficiency. High water use crops such as Hibiscus are grown in the waterwell shuttle trays during summer to further reduce irrigation requirements.

External consultants are used to regularly test and monitor the irrigation and drainage water and the growing media along with pest and disease monitoring of the nursery crops. Growing media storage has been upgraded and new potting benches have been fabricated to support the increased potting production requirements. A Dosmatic fertiliser injector provides the nursery with the versatility to fertigate as required to manipulate crop growth to meet production requirements. Recent investment in a Yanmar 32hp tractor to manage the growing media and a forklift to support bulk handling in dispatch has improved nursery efficiency.

Award Plants has progressed a long way over the previous five years transforming the site into an efficient and sustainable production nursery. A new 42m by 22.6m Hibiscus production area is currently under construction to provide an additional 950 square metres of growing area under cover. This area should provide an ideal growing environment for the Hibiscus crop providing protection from the elements as well as reducing irrigation requirements. The current drip irrigated growing area is also planned for expansion increasing the growing area to 1,000m², however this involves major site and drainage works. Bench construction in many areas of the nursery is continuing as resources permit so as to provide improved air circulation around the crops, better drainage and a superior work space. Water security is a continuing priority issue with plans to investigate growing media amendments to reduce plant irrigation requirements, continue site drainage upgrades to return wastewater to storage, improve irrigation scheduling to reduce water applications and improve site storage facilities. Potting efficiency is also targeted with plans to purchase a potting machine to increase output and free up nursery resources currently dedicated full time to the manual potting system. Award Plants continue to obtain the benefits from upgrading to industry best management practice through increased production, reduced plant losses, less inputs and a more workable environment.



In the Pipeline for January / February 2015

- Lockyer Valley - IDEMP audits
- Waterwork workshop - Toowoomba.
- Contacting and sending surveys to businesses who have registered interest in having an IDEMP completed.
- Follow-up visits and further development of IDEMPs for businesses who have had preliminary IDEMPs developed.
- NGIQ RWUE-IF introductory forums— Lockyer Valley.