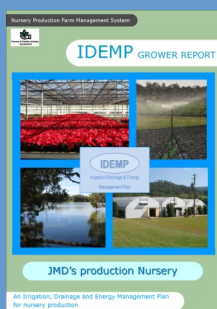


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**Nursery & Garden Industry
Queensland**

The Pipeline

An electronic update on Nursery Production RWUE-IF project activities

Volume 1, Issue 2

Newsletter Date 25.4.2014 Page 1

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

In March and April the team have been on the road talking to growers at introductory forums, and on site introducing the project to growers who are interested in having an IDEMP developed for their business.

In early March Steve and Lex visited the Maryborough/ Bundaberg region visiting 5 growers and running an introductory forum to explain what the RWUE-IF project can deliver for them.

In late March and early April Steve flew to Cairns and Mackay, and with Thea, spent the week visiting growers giving an insight into what the project could deliver for these businesses. The 9 businesses visited had already completed a survey as the first step in developing their IDEMP, and this information, along with information gathered during the site visit, will be used to develop a preliminary IDEMP and action plan to guide the further development of the IDEMP.

Over the next two month we'll be out in the field conducting forums, and field days, introducing growers to Irrigation Drainage and Energy Management Plans and gathering data from growers to begin developing their IDEMP's.

DATE CLAIMERS

The big events in May are a Field Day at Marlborough Nursery Redland Bay on 8th of May, and an Irrigation Field Day at Anza Nursery Mareeba on 26th of May. - more details to follow.



Plants Whitsunday

Regional Visits Reports

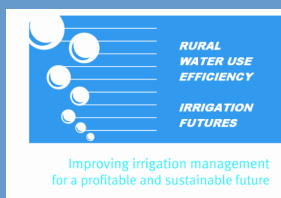
Wet Tropics and Mackay Whitsundays

Following on from the Nursery Production Rural Water Use Efficiency-Irrigation Futures (RWUE-IF) project forum held in Cairns on 5 March, project officer, Steve Hart, joined North Queensland Farm Management Systems Officer, Thea Pobjoy, visiting growers participating in the IDEMP program as part

of the RWUE-IF initiative. The purpose of the visits was to begin gathering on-farm data and to assist growers to improve and upgrade on-farm irrigation, drainage and energy infrastructure, processes and systems.

Anza Wholesale Nursery, at Mareeba on the Atherton Tablelands, is a NIASA Accredited and EcoHort Certified production nursery under

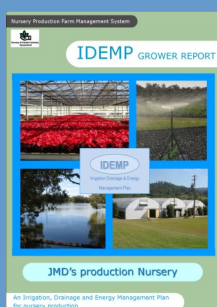
the Nursery Production Farm Management System and was the first of the participating production nurseries to be visited on Monday, 24 March 2014. Elaine Duncan and Tom Paterson provided a tour of facilities followed by an opportunity for the project team to gather some site data and identify opportunities for on-site improvements.



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On Tuesday's visit to Mad About Plants Wholesale Nursery located at Edmonton, 30 minutes south of Cairns, owner Darryl Madder and nursery manager Adrian Hawkins provided an insight into the operation of the business followed by a tour of the facilities. With the assistance of staff member Kevin

urements across the production system during the visit.

Thursday's visit was to Ann & Peter Radke at Yuruga Nursery at Walkamin on the Kennedy Highway again located on the Atherton Tablelands. The Radkes provided an extensive tour of Yuruga Nursery and their tissue culture facility, Clonal Solutions



Steve Hart and Thea Pobjoy talking with Lisa Peterson and Adrian Hawkins - Beantree Nursery about their IDEMP

Morton the project team was provided with site information on the operation of the irrigation infrastructure and witnessed firsthand the effectiveness of the drainage system throughout the production nursery due to being on-site during a heavy tropical rain event.

On Wednesday Adrian Hawkins and site manager Lisa Petersen hosted the RWUE-IF team at Beantree Nursery. This NIASA Accredited and EcoHort Certified production nursery is located at Malanda also on the Atherton Tablelands, a 90 minute drive west from Cairns. A great deal of information was gathered from various system meas-

urements across the production system during the visit. The visit provided the opportunity to identify and discuss potential areas the business could obtain water savings and productivity increases from possible on-farm improvements.

Pregno Edmonton Palm Nursery was visited on Friday where manager Brad Sterritt provided a tour of the production nursery facilities and the quality stock including lipstick palm, *Cyrtostachys renda*, and golden cane palm, *Dypsis lutescens*. The current on-farm irrigation and drainage infrastructure was assessed during the visit and upgrade options provided.

Maryborough and Bundaberg Visit report

In early March Steve and Lex hit the road, and visited 5 businesses in the Maryborough Bundaberg Region.

The first business visited was Golden Grove Pty Ltd, a large NIASA and EcoHort accredited citrus nursery, where Wayne Parr showed Lex and Steve over the production site, explaining his irrigation water recycling system and giving an overview of his operation. There was also an Introductory Forum conducted while at the site to discuss the RWUE-IF project and particularly the IDEMP concept.

The next visit was to Hervey Bay Nurseries, NIASA and EcoHort accredited growers of indoor plants, where the benefits of conducting an IDEMP were discussed with Brent Cardno, Operations Manager, who gave a tour of the operation, particularly demonstrating their upgraded two wire irrigation controller.

On day two, the first stop was at Forrest Nursery, a vegetable and forestry seedling nursery in Bundaberg, where owner Lindsay Forrest and site manager Jim Webster gave a comprehensive overview of their site, and how they planned to improve their irrigation water treatment using a slow flow filtration system. Also discussed was the Nursery Industry Farm Management System, and how the business was progressing towards NIASA accreditation.

At Wide Bay Passionvine Nursery, a small but very well set up and run operation, accredited under the Nursery Industry Farm Management System, specializing in growing passionfruit for sale to passionfruit growers.

Peter Griffiths gave a tour of their compact site, but due to the seasonal nature of their crop, the nursery didn't contain any plants. However, we were able to discuss growing media and the benefits of using coir, as well as how an IDEMP would benefit the business.

Elaine from Trewallyn Nursery was able to show the improvements that she has made since taking over management of the site, and their future plans for improving water use efficiency. We were able to show Elaine how an IDEMP would be able to help her prioritise the improvements that need to be made to improve their irrigation and drainage management.

Mackay/Whitsunday Grower Visits

In early April 2014, Steve Hart travelled to Mackay to assist Thea Pobjoy with visits to growers who have expressed interest in the development of an Irrigation Drainage Energy Management Plan (IDEMP) for their production nursery, as part of the Queensland government-funded Rural Water Use Efficiency – Irrigation Futures (RWUE-IF) project.

The Mackay/Whitsunday growers who completed the IDEMP survey to confirm their commitment to the project, and who are now actively engaged with the RWUE-IF initiative, are Mackay Regional Council Nursery, Mackay Plant Wholesalers, Plants Whitsunday Wholesale Nursery and Starlight Palm Plantation.

Richard Brown, Natural Environment Officer of Mackay Regional Council Nursery, highlighted the environmental improvements that have already been put into place at this nursery. The process will now be to measure these systems to determine how these improvements have benefited their local environment, crop health and nursery efficiency, and how further changes may improve their efficiency.

Peter Newton, owner of Mackay Plant Wholesalers, showed Steve and Thea how the use of his spring fed dam is being used to efficiently irrigate his nursery. The dam has a very healthy appearance and an abundance of bird life. One of the main focuses in devel-

oping an IDEMP will be helping Peter monitor the water quality of this important water source, and further improve the nursery's irrigation efficiencies.

Mark Stokes (co-owner with Matt and Julie Stokes) and Mary Murphy (nursery manager) at Plants Whitsunday Wholesale Nursery demonstrated the continuous improvements that the owners are passionately committed to in this nursery. The innovation and enthusiasm displayed by this nursery team is testament to a business that is leading the way in best management practice in this region, so it is no surprise that Plants Whitsunday Wholesale Nursery became a NIASA accredited nursery in 2013.

Kurt Zimmerman (grower/owner) of Starlight Palm Plantation at Grasree Beach gave a truly memorable tour of his very impressive palm nursery. Kurt showed Steve and Thea how a well-planned nursery hidden in the bush, can still be a hygienic and productive nursery. The quality of his in-ground palm production is excellent, and the commitment of his nursery team to vigilantly keeping weeds out of the production area was proof that it can be done, in the wet tropics, and in the bush! Kurt's nursery also has 4 magnificent dams as a backup irrigation source in the dry winter months.

Conducting an Irrigation System Audit.

A survey of production nurseries that participated in WaterWork workshops found that information on average water use, water cost, pumping cost, maintenance cost, and hand watering labour cost was not known. A similar lack of data has also been found during the course of the RWUE project. The benefit of a system audit for production nurseries is that it identifies maintenance items that will reduce system downtime and help to improve productivity and profitability. Conducting a system analysis demonstrates to regulatory authorities that a responsible approach is being taken to water management, and impacts to the environment are being minimised. As an industry, it is imperative that information gained from irrigation system audits is

readily available, so that nurseries have continued access to water.

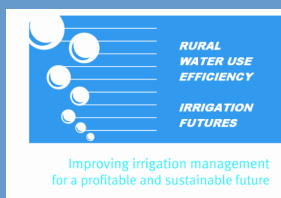
A full evaluation of the current irrigation system and irrigation management may require a qualified irrigation specialist, but much of the data on system performance can be collected by staff e.g. information on sprinkler performance.

When conducting an irrigation system audit, water supply is the first area to be investigated. Information on total availability, quality and quantity limitations, costs and backup supplies needs to be recorded. If bores are used as a water source, information on the sustainable long term pumping rate, seasonal variability in standing water level, depth of aquifers, casing size and screens used is required to determine the available water and pumping efficiency. The amount of drainage water and what collection and recycling options are available, along with the limiting factors for recycling or reusing water demonstrates the feasibility of water recycling. Water quality needs to be determined by a full laboratory analysis and, in addition to the full nutrient



Conducting an Irrigation System Audit

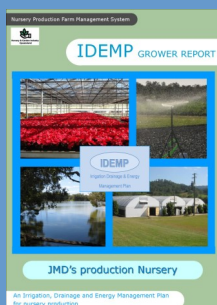
analysis, tests such as turbidity need to be done if ultra-violet disinfestation is being used. Full nutrient tests will determine if there is a clogging hazard, and what disinfestation limitations are imposed by water quality.



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Information is then gathered on irrigation scheduling covering areas such as how scheduling is managed to minimise wind effects, reduce excessively wet foliage, minimise interference with staff working schedules, and to take advantage of off-peak power for irrigation. A benefit of reviewing this information is that it can help to reduce excessive water use and nutrient leaching, which will improve uneven and/or slow plant growth, leaf drop, poor internode spacing and plant shape. This also provides information on how to reduce excessive drainage and minimise the impact on elevating and/or contaminating water tables. A record should be made of the current irrigation schedule for each block, the process used to determine irrigation run times, and any seasonal variations in scheduling.

Details of pumps, particularly pump curves, can be obtained from an irrigation specialist and the performance of the pump compared to the duties required. Recording shut off pressures and comparing these to pump curves

indicates the amount of impeller wear and, from this, in conjunction with measuring suction losses, the efficiency of the pumping system can be calculated. An assessment of system hydraulics can then be made to enable comments to be made on the adequacy of pumps, pipes and valves, and changes that need to be made to optimise performance. Finally, a maintenance schedule for the pumping units can be developed.

Other areas that are included in a system audit are the type and size of filter units and suitability for the application, along with records of back-flushing frequency and maintenance done on the unit. Catchcan tests can be done to determine Mean Application Rate (MAR), Coefficient of Uniformity (CU), and Scheduling Coefficient (SC) and a record of operating pressures, types of sprinklers and spacing made. An outline of a system maintenance schedule and how the system is monitored can then be prepared e.g. pressure and output monitoring.

Finally, the drainage system

is described detailing the types of drains used, and how well they cope with water in heavy rainfall, and demonstrate how drainage is managed to minimise downstream pollution. Information on how well the drainage system matches the slope, soils and rainfall intensity and if the system meets all regulations should also be recorded. In this assessment, it should be shown how the storage of water optimises water retention and minimises pollution in surface and groundwater systems, and that losses through seepage are minimised.

Auditing highlights the limitations and opportunities that are available for optimising water use efficiency through management and technological improvements. At the end of the process a prioritised action plan can be drawn up, and this then allows improvements to be costed and planned for.

For further information on conducting an irrigation system audit refer to The Nursery Papers May 2006 Issue no. 4.

In the pipeline for May June 2014

Over May and June we'll be in the following areas conducting the following activities: Contact us if you'd like to be involved in any of these.

- Redland Bay - Field day at Marlborough Nursery May 8. Steve and Lex.
- Atherton Tablelands - Irrigation workshop - Thea.
- On-farm BMP assessments - whole of state. Steve, Thea and Lex.
- Wet Tropics RWUE-IF IDEMP audits - Thea.
- Lockyer Valley - Introductory forum and IDEMP audits- Steve.
- Brisbane Trade Day Wednesday 28/5/14- Steve and 18/6/14 - Lex.
- Technical articles for the Leaflet magazine.
- Mareeba - Irrigation Field Day at Anza Nursery. Thea. Further details to follow.

