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

The Pipeline

An electronic update on Nursery Production RWUE-IF project activities

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

In May and June the team have been talking to growers at introductory forums, field days and workshops, and collecting data on-site for businesses having IDEMPs developed.

In early May, Thea and Steve went to the Mackay/Whitsunday region to re-visit 5 growers in that area, and collect further data for inclusion in their IDEMPs.

Also in early May, a field day was held at Marlborough Nursery at Redland Bay. There were a number of speakers providing information on various aspects of irrigation drainage and energy management. See the field day report for more detail.

In late May, Thea held an irrigation field day at ANZA Nursery on the Atherton Tablelands. More information in the field day report.

In early June, Steve and Lex visited the Irrigation Australia Conference and saw the latest in irrigation technology particularly the development of web based irrigation system control.

For those businesses who have signed on to have an IDEMP created, preliminary IDEMPs have been completed and these will continue to be worked on into the future.

If you want to find out more about IDEMPS, there's now a video available in the NGIQ Technical Library at www.ngiq.asn.au/technical-information.

Over the next two months we'll be introducing more growers to Irrigation Drainage and Energy Management Plans, and gathering data to begin developing their IDEMPs.

DATE CLAIMERS

The big event in August is the NGIQ Green Expo at the Gold Coast Conventions Centre , Tuesday and Wednesday 5 -6/8/14. If you are at the Expo, come and have a chat with us.

Regional Visits and Field Day Reports

Mackay/Whitsunday Grower Visits

Thea Pobjoy collecting spray stake data for IDEMP - Mackay Plant Wholesalers

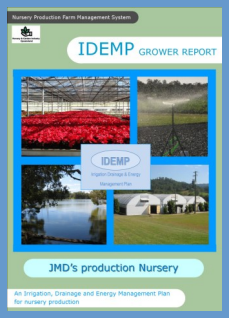
In the second week of May, Thea Pobjoy (NGIQ Northern Queensland) and Steve Hart (NGIQ) again travelled to the Whitsundays and Mackay region to meet with the five producers who are now actively involved in the RWUE-IF initiative. These producers are now receiving on-farm technical assistance from the FMSO's to improve productivity, profitability and sustainability through the development of 'whole of farm' irrigation, drainage and energy management plans (IDEMPs).

Aldabra Nursery at Dingo Beach, owned and operated by Andrea and Paul Deering, has been operating for over 30 years, and previously employed 45 staff to run the predominantly landscaping-oriented nursery, with a strong presence in landscaping on the islands in The Whitsundays – especially Hamilton Island. Aldabra Nursery is committed to improving drainage and irrigation efficiencies at the nursery. They've recently installed solar energy panels and inverters in two separate

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

RURAL WATER USE EFFICIENCY IRRIGATION FUTURES

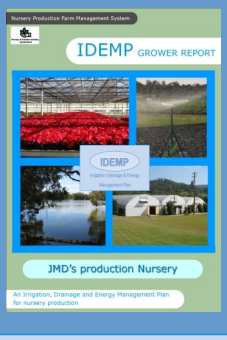
Improving irrigation management for a profitable and sustainable future

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

Steve Hart measuring dam dimensions - Mackay Plant Wholesalers

nursery locations, to more cost effectively use the energy they require to run their businesses.

Plants Whitsunday Wholesale Nursery, owned and operated by Matt & Julie Stokes, continues to improve the efficiencies of their wholesale production through continuous improvement as a NIASA accredited nursery. The passion and dedication of their nursery manager, Mary Murphy, is obvious in the uptake of new technologies to continuously improve plant health and plant production. With good demand for landscaping plants continuing in this region, the nursery is well placed to deliver high quality plants, while also being committed to improving the efficiencies of their nursery operation. The upgrading of nursery drainage and growing media storage areas was in progress when Steve and Thea visited the nursery. These improvements will be recorded in the IDEMP which is being developed for Plants Whitsunday Wholesale Nursery.

Thea and Steve also visited three plant production nurseries in Mackay – Mackay Regional Council Nursery, Starlight Palm Plantation, and Mackay Plant Wholesalers. Good progress is being made on the IDEMPs for these nurseries, with a significant amount of irrigation data being collected during each of these visits.

Marlborough Nursery Field Day

Sixty two growers attended the Marlborough Nursery Field Day presentation at Redland Bay on the 8th May. A tight schedule with a quality speaker program, potting demonstration and tour of the nursery packed the afternoon. The field day began with Marlborough Nursery production manager, Michael Duffy, demonstrating the operation of the Demtec potting machine, and answering the many questions on the benefits mechanical potting provides the nursery. The formal program commenced with Sean Hughes (Nelson Irrigation), Pat Daley (Daley's Water Services) and Darren Dodson (Total Water Services) presenting information on irrigation pumping, distribution and application. John McDonald (NGIQ) was the next presenter providing an insight into the use of coir in growing media to assist with water use efficiency ,and then Rob Cirocco (Phosyn Analytical) outlined plant and water quality issues as well as irrigation water sampling techniques. Michael Scobie (University of Southern Qld) provided an overview of the dam seepage and evaporation case study recently conducted on a local Brisbane Nursery, and David Hunt (Water and Energy consultant) spoke on energy efficiency in horticulture and provided simple ways to reduce energy costs. The final speaker, Lex McMullin (NGIQ), gave an overview of the development of the portable weight based irrigation scheduling unit (PWBSU), and outlined how it can be used to assist growers with their water use efficiency.

Marlborough Nursery Field Day

The field day concluded with Gary and Terry Spink, owners of Marlborough Nursery, escorting growers on a tour of the nursery facilities.

ANZA Nursery field day

A Nursery Production Farm Management Systems Irrigation Field Day was held at Anza Wholesale Nursery at Mareeba on the Atherton Tablelands on 26 May 2014. This was the first Nursery Production Field Day held in Northern Queensland for 2014. The Field Day was planned and coordinated by Thea Pobjoy, the Northern Queensland Farm Management Systems Officer (FMSO) for the Nursery & Garden Industry Queensland (NGIQ).
Attendees who travelled from Cairns and the Atherton Tablelands were welcomed by Thea Pobjoy and Elaine Duncan, the Nursery Manager and NGIQ Vice President. Elaine revealed to the attendees the history of the nursery, from its early beginnings as a vegetable seedling nursery producing seedlings for farmers on the Atherton Tablelands, to its present operation as a thriving ornamental and vegetable seedling nursery that produces

ANZA Nursery Field Day

seedlings and potted colour for customers throughout northern Queensland. Elaine gave the attendees a tour through the nursery, highlighting the best management practice systems in place at this NIASA and EcoHort accredited production nursery.

Thea Pobjoy and representatives from local allied industries, provided information on sprinkler selection, filtration, irrigation delivery options, water savings benefits of coir fibre, how to manage on-farm water storages, water quality testing and solar energy options. Thea compared the different water sterilisation treatments available to nurseries, and specifically addressed the benefits and limitations of Slow Flow Filtration versus Ultra Violet disinfestation where water quality, flow rate and light penetration into the storage tank can be critical factors in considering which filtration treatment to use.

Also discussed, were the practical concerns to be taken into account when selecting the right sprinkler, specifically: sprinkler spacing, positioning sprinklers on the outside of the growing area; sprinkler orientation to give maximum flexibility, mean application rate (MAR) of the sprinkler layout, operating pressure at the sprinkler, single stream sprinklers and closer sprinkler spacing for high or constant wind areas.

The growers attending the field day were advised to visit the Nursery Production Technical Information Library for more information (http://www.ngig.asn.au/technical-information/).

Using Coir Fibre

Note: Growing media is an important component in producing plants in container production and it is strongly recommended that growers undertake extensive trials with new blends and mixes before making changes to their standard growing media.

Coir, coir fibre pith or coconut fibre is a one hundred percent natural, environmentally friendly product. It is a sustainable and renewable resource. Coir is derived from the husk of the coconut, the fruit of the coconut palm, Cocos nucifera, which can often produce in excess of one hundred coconut fruits per tree per year. Coir is produced in many countries throughout the world; however the major production originates from Sri Lanka and India.

Coir is a 'peat like' byproduct produced from the processing of coconut husks. It is the fibrous material found between the hard, internal shell and the outer coat of a coconut. The coir is removed by soaking the husk in water to loosen the fibres, often by floating the husks in a lagoon for several months. The fibres are then removed and screened for size, dried and compressed into blocks or bales (other treatments are employed by some processors including heat treatment and washing in fresh water). Coir chips are obtained by cutting the coconut husk into small graded pieces.

Coir is a homogenous material composed of millions of capillary microsponges. The individual fibre cells are narrow and hollow with thick walls made of cellulose and lignin. The naturally aerated structure of the coir fibre allows it to hold up to eight times its weight in water, while its fibrous nature allows moisture to easily drain. Coir has a natural pH of 5.7 to 6.5.

Coir is sustainable, lightweight, retains moisture and is currently an affordable growing media substrate or component in a growing media blend. Growers using coir fibre in container production have observed that the crops produced have a stronger, healthy, more fibrous root system.

Coir has an excellent Water Holding Capacity (WHC). The inclusion of coir in growing media can improve the water holding capacity of the mix while maintaining good air filled porosity and good drainage. The higher the volume of coir in the growing media, the greater quantity of water the growing media can support. Improved WHC of growing media leads to less irrigation, less water used, less energy consumed in irrigation pumping, and less leaching of fertilisers, providing better, faster plant growth. The high WHC and wettability of coir aids in the development of a strong fibrous root system throughout the container. Growers report the WHC of coir provides quicker plant establishment, less transplant shock, longer shelf life and fewer production losses.

Expanded Coir

RURAL WATER USE EFFICIENCY IRRIGATION FUTURES

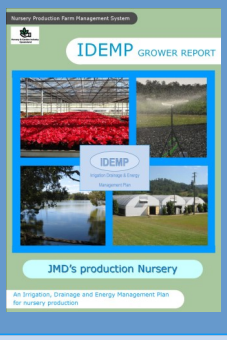
Improving irrigation management for a profitable and sustainable future

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

Coir has an excellent wetting and rewetting capacity. Many growing media components such as pine bark and peat moss are difficult to rewet, as they dry out and are labeled hydrophobic i.e. they repel water. Coir remains hydrophilic, or water attracting, and contains no waxy cutin to repel water, as is the case with peat moss. With overhead and drip irrigation, coir ensures quick and efficient rewetting of the entire growing media in the container. In capillary watering, the coir assists in quickly establishing a capillary connection with the capillary mat. The capillary action of coir also assists in redistributing water throughout the container as it is absorbed by the growing media.

Coir maintains an excellent Air Filled Porosity (AFP) of approximately 20%. The AFP of the growing media in containers is a measure of the air available to the plant root system required to sustain plant growth. Coir chips and blends of coir fibre and chips often have a much higher AFP.

Coir has a high Cation Exchange Capacity (CEC) similar to peat moss. This CEC ability to hold nutrients in the growing media ensures the fertiliser applied is available to the crops in containers through the growing period.
Coir has excellent physical stability. Each tough coarse fibre maintains its shape when incorporated into growing media. The coir fibers resist compaction providing more airspace in the container. Coir fibre growing media blends do not shrink and settle in the container. The high lignin content of the coir material means the growing media will be longer lasting, hold more water and will not shrink from the sides of the container as it dries out.

Grower experience has identified that a growing media blend or mix with 10 – 20% coir provides all the benefits of coir, while allowing growers to 'stand out' the batch with other crops that may not have coir included in the media. This is particularly valuable as growers make the transition to coir based growing media mixes throughout the production. Growers have used coir at rates above 20% with increased benefits, with some producers using 100% coir (100% coir growing media is generally a blend of 60% coir chip and 40% coir fibre. However blends can be tailor-made to suit grower requirements). Coir is often used as a replacement for sand in growing media mixes.

Coir is available in various grades and blend combinations of fine and chip material. Each grade and blend of coir will exhibit different physical properties and it is important to specify to the distributer the exact grade or blend required.

Coir is supplied in compressed blocks or bales, individually wrapped, or in bulk quantities on pallets. Blocks can be expanded by adding water and physically breaking up the bale as water is absorbed, or bales can be placed in special shredders to break up the bale before wetting and use. Small quantities can be placed in a tub or wheelbarrow of water to expand, or larger quantities placed in a concrete bay and water applied slowly through sprinklers.

In the Pipeline for July August 2014

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

- Wet Tropics RWUE-IF IDEMP audits - Thea.
- Lockyer Valley - IDEMP audits- Steve.
- Technical articles for the Leaflet magazine.
- Green Expo 5-6th August - Gold Coast Convention Centre.