The Pipeline

An electronic update on Nursery Production RWUE-IF project activities

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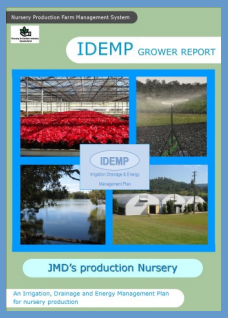

Nursery Production Rural Water Use Efficiency—Irrigation Futures (RWUE-IF)

In July and August the team have been planning and preparing for the next round of visits to regional areas as well as re-visiting business's in North Queensland who have had a preliminary IDEMP completed.

During August 5th and 6th Steve was at the Green Expo at the Gold Coast Convention Centre talking to growers about the project and encouraging them to come on board with IDEMPs.

In North Queensland, Thea has re-visited those businesses that had a preliminary IDEMP in the Mackay and Wet Tropics areas, collecting further data to complete their Interim IDEMP and helping particular businesses with irrigation layouts.

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

Don't forget, 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. On this website there's a wealth of other information available on many different topics relevant to production nurseries. This should be your first point of contact to find out any information relevant to production nurseries.

Over the next two months we'll be introducing more growers to Irrigation Drainage and Energy Management Plans, conducting forums, bringing more businesses on board with the project and begin gathering data for their preliminary IDEMPs.

DATE CLAIMERS
We'll be conducting a field event on the Sunshine Coast in October. Date and venue to be advised.

Regional Visits and Event Reports

Mackay/Whitsunday Grower Visits

In mid-July, Thea Pobjoy (NGIQ Northern Queensland) travelled to the Whitsundays and Mackay region to collect data from the five producers now actively involved in having IDEMPs completed as part of the RWUE-IF initiative. Further information on the size of irrigation zones and operating pressures of the irrigation system was collected at 5 businesses in the Mackay Whitsunday region. Other data relevant to these business' IDEMPs was also gathered in preparation for completing their interim IDEMPs. The information gathered will be used to determine water use and guide the process of creating an action plan for future improvement.

In the Wet Tropics region another 5 businesses who have already had preliminary site data collected also had similar follow-up visits to gather further information to help complete their Interim IDEMPs.

Funding for the Department of Agriculture Fisheries and Forestry Queensland (DAFFQ) project Thea was involved in has

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Improving irrigation management for a profitable and sustainable future

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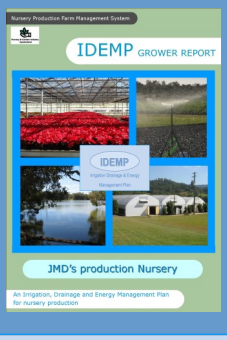

IDEMP
Irrigation Drainage & Energy Management Plan

Nursery & Garden Industry Queensland

now officially finished, and Thea will no longer be assisting with the RWUE- IF project. We wish Thea the best in her future endeavors. Steve Hart will be conducting follow-up visits in the northern regions of the state to gather data for businesses who are interested in having an IDEMP completed for their businesses.

NGIQ Spring Green Expo

The NGIQ Spring Green Expo trade event was held on Tuesday 5th and Wednesday 6th of August at the Gold Coast Convention & Exhibition Centre. Steve Hart participated in the trade only event by manning the Nursery Production Farm Management System stand to highlight to growers the services and support available under the Rural Water Use Efficiency – Irrigation Futures (RWUE-IF) project. Many growers who had previously indicated interest in the RWUE-IF project and those already directly involved in the project stopped by the display stand for an update. The two day event presented the opportunity to network with growers, provide technical advice, highlight the Nursery Production Farm Management System, promote the Rural Water Use Efficiency – Irrigation Futures (RWUE-IF) project and explain to growers the process of developing Irrigation Drainage & Energy Management Plans (IDEMP) for production nurseries.

RWUE-IF Spring Green Expo Display

Measuring the Volume of Small Dams

The measurement of dam volumes is an essential part of efficient water management. Firstly, knowledge of how much water a dam holds is needed to ensure that there are sufficient quantities available for the production area available through the driest times. This information should form part of the data collected when determining the size of production areas. Secondly, an accurate measurement of the volume remaining as dam levels fall allows management decisions to be made about where water is best used in the business e.g. reducing irrigation on mother stock areas. Thirdly, if the dam is used to collect runoff water to minimise impacts from nutrient run off, or catching the first 25mm of runoff from the site to retain the majority of pollutants, the maximum height that the dam must be held at needs to be known.

Water storage dam - Wallum Nurseries

There are broadly four dam shapes – gully dams (triangular), rectangular dams, round dams and irregularly shaped dams. The first step in determining dam volumes is to collect information on the dimensions of the dam. The length, width and depth as well as the shape of the surface area and the cross section profile of gully dams are required – see Figures 1 and 2.

There are three components to calculating dam volumes – surface area, depth and a reduction factor to allow for the sloping base and sides of the dam. The surface area is calculated by multiplying the length (L) by width (W) of the dam and then applying a factor depending on the shape of the dam surface. The surface area is multiplied by the depth (D), and finally, this is multiplied by a reduction factor to account for the sloping sides of the dam. When measuring the depth, it is important to only measure to the top of the sediment layer to give an accurate figure. All measurements are made in meters and then converted into megalitres in the final calculation. Volumes of irregular shaped dams can be difficult to calculate, but can be made easier by dividing the dam into a number of smaller regular shapes and adding the results together. Table 1 can be used as an aid to calculating the volume of small dams of different shapes. However, if large dams are being measured using simple factors won't provide an accurate calculation. A calculator can be accessed from the Western Australian Department of Agriculture and Food using an internet search for "Dam Water Volume Calculator". Information on length, width, depth and shape can be input into this calculator to calculate the dam volume of larger dams.

Once a maximum storage volume has been calculated, volumes for different depths of water should be calculated to enable the volume of water remaining to be measured. This calculation needs to take into account that the length and width of the water surface will also change as the dam level falls. When calculating available water, allowances must also be made for evaporation and usable water. Estimates of evaporation losses can be made by accessing local evaporation data from the Bureau of Meteorology website http://www.bom.gov.au/jsp/ncc/climate_averages/evaporation/index.jsp and multiplying the dam surface area by the average evaporation/annum (1mm from $1m^2$ = 1L).The amount of usable water takes into account water in the bottom of the dam that may not be accessible or usable when the dam falls to very low levels. In some instances, this may only be possible to determine when dam levels fall, as the quality of water in the lower levels may not be suitable for irrigation.

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Dam shape	Width (W) X	Length (L) X	Factor X	Depth (D) X	Reduction factor =	Volume M^3 ÷	1000 = Volume ML
Gully and triangular			See Fig 1 *		0.22		
Rectangular and square			1		0.45		
Round and Oval			0.8		0.45		

Table 1: Small dam volume calculator

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IRRIGATION FUTURES
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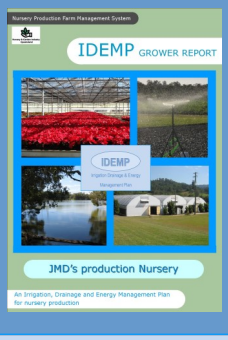

IDEMP
Irrigation Drainage & Energy Management Plan

Nursery & Garden Industry Queensland

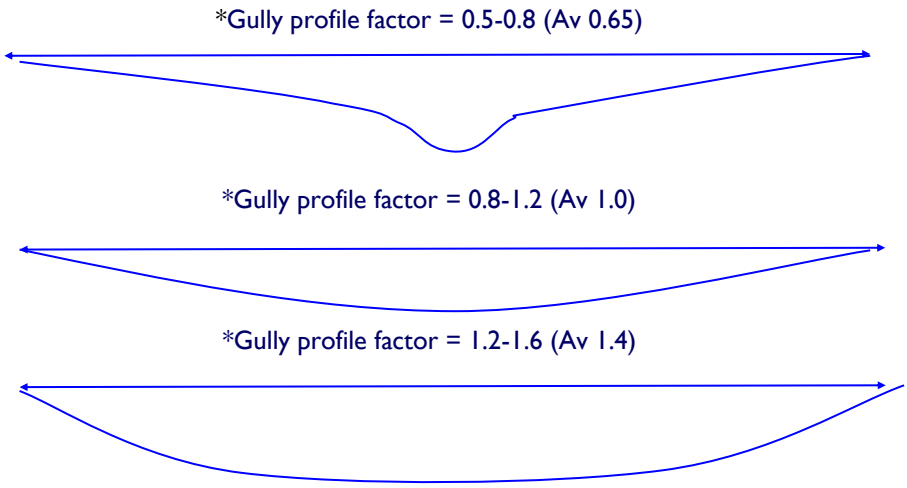

Figure 1: Gully dam profile factors

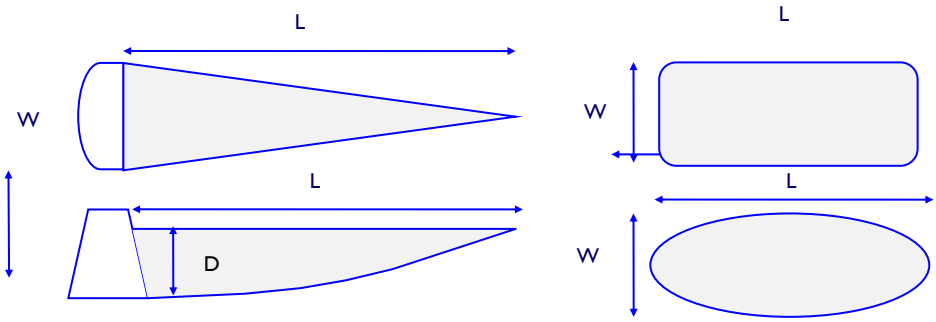

Figure 2: Dam shapes and measurements

In the Pipeline for September/ October 2014

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

- Lockyer Valley - IDEMP audits- Steve
- Contacting and sending surveys to businesses who have registered interest in having an IDEMP completed
- Producing a video on coir growing media.
- Technical articles for the Leaflet magazine.