



Nursery & Garden Industry
Queensland



“These changes can take time, so plan for the future and have a long term plan. You have to be willing to make a change and work through the issues with new systems”

Angela Fowell

30.11.2018

Ibrox Park Nursery Water savings from irrigation scheduling

Ibrox Park Nursery is located at Burbank in the eastern suburbs of Brisbane, and offers a wide range of plants and services to commercial landscape customers, produced from nearly 3 ha of growing area by a staff of 23 .

As part of the Rural Water Use Efficiency Irrigation Futures (RWUE-IF) project Katie Harris general manager, and Angela Fowell production manager had an Irrigation Drainage and Energy Management Plan (IDEMP) developed for Ibrox Park Nursery. This document contained a wide range of site specific information related to irrigation and drainage,

and formulated into a prioritised action plan. In the second phase of the RWUE-IF project, specific items were selected from the IDEMP action plan, and these high priority items were implemented. In addition to making the identified changes, a record was kept on the productivity and efficiency parameters of the business to allow the effect of the changes made on profitability and efficiency to be measured.

In the IDEMP it was identified that the business had poor water security , with the potential for water supply to be as little as 10% of available water in a dry year.



Ibrox Park Nursery

Saving water with irrigation scheduling



This was another driver for implementing measures that would reduce water use.

As a result of having been involved in the IDEMP process, a number of changes have been made to the system to improve water use efficiency. The first area to be changed was the water supply system. The first change to the system was the installation of a variable frequency drive pump set, which provided better pressure control, reduced breakages in the system and enabled appropriate pressures to be delivered to each irrigation zone.

A new Netafim NMC Pro irrigation controller was then installed, and this was linked to the irrigation system to monitor water flows. This gave an added level of security, as it enabled the controller to send alarms when a potential fault was identified in the system e.g. low flow if a station didn't operate. To enable all of the functions on the irrigation controller to operate correctly, data on flow rates and operating pressures for each zone had to be input into the controller. This process involved measuring operating pressures and inputting this data into the controller. This process also highlighted some of the differences within the system, such as the time taken for laterals to fill in areas where spray stakes were used.

The initial data input into the irrigation controller highlighted that some irrigation zones required the layout to be redesigned. The changes made resulted in better use of water delivered to irrigation zones where spray stakes and some of the sprinkler irrigation zones were used.

Once the physical changes had been made to the system, there was a period of testing where observations were made on how the system was operating. Adjustments were made and trialled to establish the optimum management of the system, and to understand the new equipment and how it performed. It was during this process that the use of pulse irrigation was used to a greater extent than previously, as it was found this resulted in a more even moisture level in the containers, and minimised stress in the hotter parts of the day.

*“ Monitor your water savings
so you feel a sense of
achievement when your
changes have been made and
given you a result ”
Angela Fowell 30.11.2018*

Ibrox Park Nursery Saving water with irrigation scheduling



The particular change that was focussed on in the second phase of the RWUE-IF project was irrigation scheduling, as it was agreed this would be the action that would give the best outcome for the time and capital spent. The recent installation of the new irrigation controller was another factor considered in deciding to focus on irrigation scheduling. The features available on this controller enabled frequent changes to be made without the need to consider the pumping capacity of the system as much.



One of the reasons why irrigation scheduling was chosen was the minimal capital expenditure required. The ability of the irrigation controller to be controlled remotely made managing the system easier, but it was the decisions on the irrigation scheduling (how often and how long) that required fine tuning.

Monthly records of water use are kept by Angela, and this allowed comparisons to be made across time and enabled excessive water use to be identified and investigated. This is also a useful tool in identifying the effect different weather conditions may have on irrigation scheduling and water use.



The process used for deciding irrigation schedules was to closely follow the current and predicted weather forecasts, then change the run times to

“We check our irrigation times daily, and monitor past and predicted weather conditions and crop water levels when making decisions on appropriate irrigation schedules ”

Angela Fowell 30/11/18



Ibrox Park Nursery

match the anticipated water use of the crop. This is a challenge in a business with a diverse range of product and different irrigation types, but is achieved by daily monitoring of each irrigation zone and making the required adjustments. As this is essentially a new irrigation system it took time to understand how the system performs in different weather conditions and crop types. Installing the new irrigation controller has resulted in greater flexibility by allowing the system to run for a longer period during the day, resulting in longer irrigation windows being available.

While the reduction in costs related to the changes in irrigation scheduling were relatively modest (\$106/annum or 5.2% reduction) there was a reduction in water use of 1.94 ML/annum increasing the water security of the business. As the amount of production didn't change, but the water use reduced, this resulted in an increase in productivity of \$4487/ML and an overall \$157,000/annum increase in productivity.

Katie and Angela are very pleased with the outcome of the changes made to irrigation scheduling, as it was a relatively small change to produce a significant change in the bottom line. To improve the usability of the system there are plans to implement the remote control functionality of the system via a tablet or phone. The next major change in the overall irrigation system is to focus on the redesign of the irrigation layouts in the growing areas to improve uniformity and irrigation efficiency.



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