

We are unable to supply this entire article because the publisher requires payment of a copyright fee. You may be able to obtain a copy from your local library, or from various commercial document delivery services.

From Forest Nursery Notes, Winter 2011

201. © How to better model your irrigation system. Danelon, M. International Plant Propagators' Society, combined proceedings, 2009, 59:98-100. 2010.

How to Better Model Your Irrigation System[®]

Michael Danelon

Nursery and Garden Industry NSW & ACT, 344-348 Annangrove Road, PO Box 3013, Rouse Hill, NSW 2155 Australia

Email: michael@ngina.com.au

INTRODUCTION

As water reforms impact catchment areas, water users are now required to detail how efficiently they are using this limited resource. For many, water use efficiency is an area often neglected as the initial design and implementation of a system is all they have to demonstrate the theoretical performance rather than documented irrigation performance post system installation.

To meet water reform requirements, it is important for nurseries to carry out regular water audits so the information required is at hand and any shortcomings can be rectified. An audit not only considers the physical elements but how water is managed within a nursery.

This paper looks at how an irrigation system could be audited to determine its water usage. The information has been extrapolated from the Nursery and Garden Industry Australia (NGIA) Waterwork training workshops, which are available to the nursery and garden industry across the Nursery and Garden Industry State and Territory Associations.

WATER AUDIT

To commence with an audit you need to consider the following key areas:

- Water sources
- Water quality
- Operational requirements
- Irrigation system
- System hydraulics
- Drainage, recycling and management

Water Sources. A nursery may rely upon several sources of water to meet its irrigation needs:

- Catchment (surface storages from property or buildings)
- Extraction (rivers, groundwater)
- Potable (water authority)
- Recycling (occurring onsite or via treated tertiary water)

In all of these cases it is important to consider the limiting factors which may include:

- The certainty of rainfall to generate sufficient storage capacity.
- Size of the storage to capture the frequency of rainfall events.
- Certainty of extracting water (recharge, licence).
- Cost of reuse or recycling versus improved water self security.

Water Quality. Without water fit for purpose to meet the range of plants grown in a nursery there is likely to be compromises made in the capacity to produce plants.