M.N. Hunter*, W.J. Scattini*and M. Hickey** (2005) More efficient irrigation systems in the Queensland nursery industry. Environment Protection Agency (Queensland Government) Nursery and Garden Industry, Queensland.*Anova Solutions Pty Ltd;**Cedar Glen Nursery
33p Text, 13 figures, 12p of photos.

Abstract

In monitoring water use over 90 days in six irrigation systems (Overhead, Drip, Drip Mat™, LS Drain™, Aquamat™, and Anovamat™) with marigolds, duranta and fig, in a EPA/NGIQ sponsored experiment at the DPI &F Redlands Research Station, very large savings of 69 L/sqm/week (91-22 L) in irrigation water and reductions in run-off of 62 L/sqm/week (65-3L) were achieved with a change from Overhead to a combined overhead and sub-irrigation mat system (Anovamat™). Major reductions in nutrient loss were also achieved. An increase in fresh weights of marigold (34.6%), duranta (19.1%) and fig (43.9%) occurred over the 90 day experiment in the combined system. The comparison with two commercial pots and two innovative pot designs (1 L capacity) which do away with all the peripheral holes and many on the base of pots, increased growth in Overhead and Drip irrigation systems, as well as greatly reducing root escape in mat irrigation systems (Anovapot™ is now commercially available). These results were achieved in an interacting background of nutrient supply (3 and 7g/L Nutricote Black) and coir levels (20% and 80% of a bark medium).

Extracts from the Report:

Desired Project Outcomes

- Greater awareness and adoption of more efficient watering systems;
- increase in the use of closed irrigation systems with a resultant decline in the wastewater stream and environmental contamination;
- decrease in other environmental pollutants such as noise from sprinkler use;
- less water running to waste resulting in efficiencies of crop nutrition;
- more rapid plant growth-shorter time to sale resulting in enhanced profitability;
- minimising demand on a natural resource (water);
- awareness and adoption of ‘root escape-proofed’ pots resulting in more efficient nursery operation.

Future Research and Development

- Growers need to assess the value of combined overhead and/or drip irrigated mat systems in increasing growth while reducing water use and run-off.
- Determine the importance and management of 'soft' plants produced under wet mat systems.
- Assess the cost effectiveness over time of different mat systems for different growing systems (bedding plants, potted colour, trees and shrubs, etc.).
- Develop a commercial high water holding capacity mat system.
- Develop alga and weed proofed matting.
- Develop a sensor that indicates when a mat has been refilled to capacity.
- Develop a 'root escape' proofed pot that also minimises disease spread.

Full Report available from Nursery and Garden Industry, Queensland www.ngiq.asn.au