

GREENHOUSE GROWERS WORK TO MANAGE WATER:

Spring 2017

Waldan Gardens Optimizes Water Use on Flowers

Water sterilization and resilient plants make for an efficient water recirculation system at Waldan Gardens – a five acre greenhouse farm in Wainfleet, Ontario, growing seasonal plants, kalanchoe and calandiva flowers. The farm has been in operation since 1999, getting its start from Dan Newhouse when he was 21 years old.



Like the majority of greenhouse farms, Newhouse's crops are grown using irrigation. At Waldan Gardens, flowers grow in pots that are positioned on watering troughs. The water flows by gravity down the slightly-angled trough system past the pots, with the plants absorbing the solution through the openings in the bottom of the pots as the water goes by. Whatever is not absorbed is collected into a central holding system for re-use. This is important because irrigation water often contains nutrients like phosphorous, which could cause eutrophication or algal blooms if released to waterways.



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They have been effectively recirculating irrigation water at this operation since day one because of limited water availability. However, sanitation is required to reduce the risk that recycled water could move plant diseases or pathogens around the greenhouse. Re-using irrigation water is not as simple as collecting, adjusting and feeding it back into the system. Sanitation is required, and Newhouse says they use two different methods: copper ionization and chlorine dioxide.



With copper ionization, a copper filament releases positively charged copper ions into the water. Ions bind to bacteria and viruses – which are negatively charged – and destroy them, thereby sterilizing the water without leaving residues. Chlorine dioxide works by oxidizing (breaking apart) bacteria and viruses and can also sterilize water—both are residue free.

“We use the recycled water on our more mature plants since they can handle it better. It allows us to treat for pathogens at specific thresholds rather than all the time,” says Newhouse. The younger plants get rainwater from the roof that is collected in a separate cistern and adjusted to

meet their tender growing needs before being fed into the recirculation system.

Because growing flowers also involves quite a bit of washing – floors, planting line, and so on – Newhouse designed his greenhouses in such a way that wash water can also be easily collected, and recycled. Indeed, all excess water used on the farm, whether through irrigation or washing, is recycled and captured in a closed loop system.

“We are pretty comfortable when it comes to optimizing our opportunities for water recirculation, and we are always running tests to see if we can further reduce how much water and fertilizer we need,” says Newhouse. *“We made good production decisions that happened to be great environmental decisions.”*

Farm & Food Care Ontario’s Water Smart program is designed to help growers better understand how and where they use water. By having better information, growers are often able to reduce their water use, cut costs and generally find lower cost treatment systems. For more information visit www.FarmFoodCareON.org



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