## GREENHOUSE GROWERS WORKOO MANAGE WATER Spring 2017

## Pasteurization: a key component to greenhouse nutrient recirculation

Cucumbers are one of the three main greenhouse vegetable crops grown in Leamington. When walking through one particular greenhouse in Leamington you can see that things are done a little differently.

This family greenhouse operation started in 1963 and has changed a lot over the last half century. In 1963, the nutrient water that was not used by the plants was just left to drip onto the ground with no thought to the loss of this valuable resource. The owners wanted to do better and over the years have strived for 100% recycling of their facility's leach water. By 2012, the farm had grown to 25 acres and had accomplished their goal of completely recycling their water.

The owners are proud of the system but also recognizes that cucumber production is more tolerant than other crops because they have four crops a year. This means that the salts in the leach



water do not have the time to build up in the storage tanks, which can be a significant problem for yearlong crops like tomatoes and peppers. This farm also staggers their crops so there are plants of different ages in the greenhouse. The grower can take the excess water from newer crops, which are more sensitive to pests and diseases, and apply it to the older crop which is a bit tougher. This way he can reuse all of the excess water without the worry of impacting plant growth.









However, what makes this greenhouse special is how they sterilize their leach water. Most facilities use UV or ozone treatment, but these systems tend to breakdown quite often. This cucumber greenhouse chose to use a less popular, but more reliable pasteurization system.

The process of pasteurization uses heat and time to steri-

lize the water.

One of the con-





cerns with this technology is that the water temperature rises a couple degrees after it has been pasteurized, but cucumber plants aren't as sensitive to heat as other vegetable crops, so the system works well even in the summer.

A heat exchanger on each system captures the heat from the pasteurized water and preheats the water coming in

to be pasteurized. The pasteurized and incoming water move past each other in separate channels. The heat from the pasteurized water warms the cooler, incoming water before it goes through the pasteurizer, reducing the amount of energy to sterilize the water. The grower says the pasteurization system works for them. It's relatively simple and effective, but it's not for every growing system.

This family-run cucumber greenhouse chose to use different equipment but meets the same goal to keep drinking water clean and the environment healthy.

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 <u>www.FarmFoodCareON.org</u>



Photos: Farm & Food Care



Water Smart Farming Project







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