

## Optimal fertilizer application rates in container nursery crop production

Fertilizers are an important yet costly part of plant production and they can have either negative or positive environmental impacts depending on how they are applied.

Scientists at Vineland Research and Innovation Centre (Vineland) are determining the best nutrient rates, application methods, and timing for growing container nursery crops using different fertilizer types and growing substrates.

Dr. Youbin Zheng and his team are also developing a fertilizer guide for container nursery crop production to help growers maximize their profitability and minimize possible environmental impacts caused by nutrient runoff.

Optimal fertilizer rates for different types of container plants are being established through trials at three different sites.

At the Vineland campus, Zheng and his team are testing three treatments using conventional fertilizer and growing substrate, organic granular fertilizer and organic substrate, and liquid organic fertilizer for producing potted blueberry plants.

Potted blueberries are a new product that could help organic nursery growers broaden their markets and provide consumers with opportunities to grow their own fresh blueberries on their balconies or in their gardens.

Many nurseries grow flowering shrubs in five-gallon pots using a single fertilizer application that is incorporated directly into the growing medium.

Zheng's group is working with a commercial nursery to test two different types of commonly used nursery fertilizers – Polyon® and Multicote™ – that are top dressed on hydrangeas and hibiscus at different rates at the time the plants are in need of nutrients.

Results show both species flowering more and earlier when the rates are appropriate, making the plants more attractive to sell in garden centres.



Five-gallon hydrangeas top-dressed with Polyon controlled release fertilizer at an increasing rate from left to right.



Blueberry plants grown with increasing rates of organic granular fertilizer from left to right .



Spirea grown with increasing rates of fertilizer, left to right.

A trial with a second commercial nursery was focused on two additional fertilizer types, Osmocote® and Plantacote®, which were top dressed onto spirea and weigela at different rates.

In subsequent project years Zheng will add additional nursery container species to the trials evaluate different growing substrates, and develop fertilization protocols.

Data gathered by Zheng from Canadian trials in Canadian growing conditions can be used immediately by growers in their operations, but will also serve as a long-term resource in the development of best management practices for the industry.

## Why is this project important to the ornamental horticulture industry?

The optimal use of fertilizer in container nursery production will not only ensure better nutrient uptake and reduce potentially harmful run off, but also produce more vigorous and healthy plants that will be attractive to consumers, helping growers increase sales and market opportunities.



**For more information:**

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