TREES

GROWING TREES THAT LAST

Ontario innovation helps with costly problem for municipalities and growers

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There is no denying the benefits of planting trees. From giving off oxygen we need to breathe and providing shade and habitat, to beautification, reducing erosion and pollution, and minimizing storm water runoff, trees add tremendous value to our landscapes.

Many municipalities have very active planting programs — it's estimated, for example, that the City of Toronto plants about 90,000 trees and shrubs annually — and Ontario's 50 Million Tree Program was created to plant 50 million trees across the province by 2025.

WHY IT MATTERS

It's estimated that the cost to municipalities in the Greater Toronto Area to replace a young tree that has died lies at around $800 — extra costs they can ill afford.

Unfortunately, many of these newly planted trees don't make it past their early years, toppling over in wind storms, succumbing to drought, or lacking the vigour to make it through harsh winters. The reason for that, say industry experts, is inadequate root structure, a problem that starts right at propagation.

A partnership between Vineland Research and Innovation Centre and Kingsville-based A.M.A. Horticulture has resulted in a plant propagation system that addresses this costly problem.

"Root defect problem is such a big problem in the landscape industry — growers have to warranty trees, trees are planted by a municipality or subdivision and in less than three years, they have to replace dying trees," says A.M.A. managing director Rick Bradt. "They're spending a lot of money for trees to die. If you plant 10,000 trees per year and you have to replace 10 to 20 per cent of them, the financial loss is real."

Bradt first came across the problem in California, where many of A.M.A.'s customers are in the fruit and nut tree propagation business and growers were having a hard time with trees blowing over when they were laden down with nuts. Many of the affected trees had small root balls with little lateral development to help give them needed stability.

The RootSmart tray developed by A.M.A. to allow lateral root growth. PHOTOS: A.M.A.

Black Cherry tree roots not limited in lateral growth by plastic containers.

An ideal tree root system has lateral roots that are radially-oriented around the tree's trunk. This helps anchor the tree in the ground and lets it access water and nutrients from the soil. The solid-sided containers widely used in tree propagation, however, prevent the roots from developing outward, making it harder for the tree to establish and sustain itself once it is planted.

In 2013, Bradt was introduced to nursery and landscape research scientist Darby McGrath at Vineland Research and Innovation Centre (Vineland), who had also been seeking a solution to the root development issue.

Their combined efforts have resulted in RootSmart, a trademarked and patented wallless, bottomless propagation system that promotes ideal root structure during the early stages of container plant production.

"It's a fully exposed system that avoids contact points between the substrate and the plastic walls — where plastic touches substrate, a root can hide and become misdirected," explains McGrath. "A lot of benefit in particular is with species with aggressive tap roots, but it provides a lot of benefit across many different species."

Seedlings propagated in the RootSmart system are more robust and growers are reporting a shorter production cycle, according to McGrath. Long term impacts on tree establishment are still being tracked, but early results are encouraging.

Grower response has been positive, although according to A.M.A.'s sales manager Craig Willett, the biggest hurdle to getting them interested at the onset is the increased cost compared to conventional systems — and once a nursery is established with a specific propagation system, making a switch isn't simple.

"It takes a few (growers) to start and it can be a bit of challenge to convince them to spend 30 cents instead of 10 cents, but once they understand it, they get it," Willett says.

"We have a lot of trials going on; the concept is so new and different that there's no grower who will just jump in, but we do now have growers increasing their production in RootSmart in their second year, so that's a positive sign for us," adds Bradt.

To help growers incorporate RootSmart into their operations, A.M.A. and Vineland have developed a guide that includes selecting proper growing media, watering tips, production cycle timing, and how to transition seedlings to containers and in-field planting.

In addition to trees, the system also works well on strawberries and grapes, and trials are now underway with hemp and cannabis growers.

The RootSmart tray is made in Hamilton with predominantly recycled materials and can be recycled after three to five uses. It's available directly from A.M.A.