

NEWS

Build a better pot, grow a better tree

Legacy project leads to root research

BY PAT KERR

A legacy planting project in southern Ontario is producing data, and new products, to help current and future tree workers support the growth of healthier trees. Often poor tree survival rates have been attributed to poor watering but the solution is not that simple. It is time to consider root imprinting and root deformities that can start during the first year after germination.

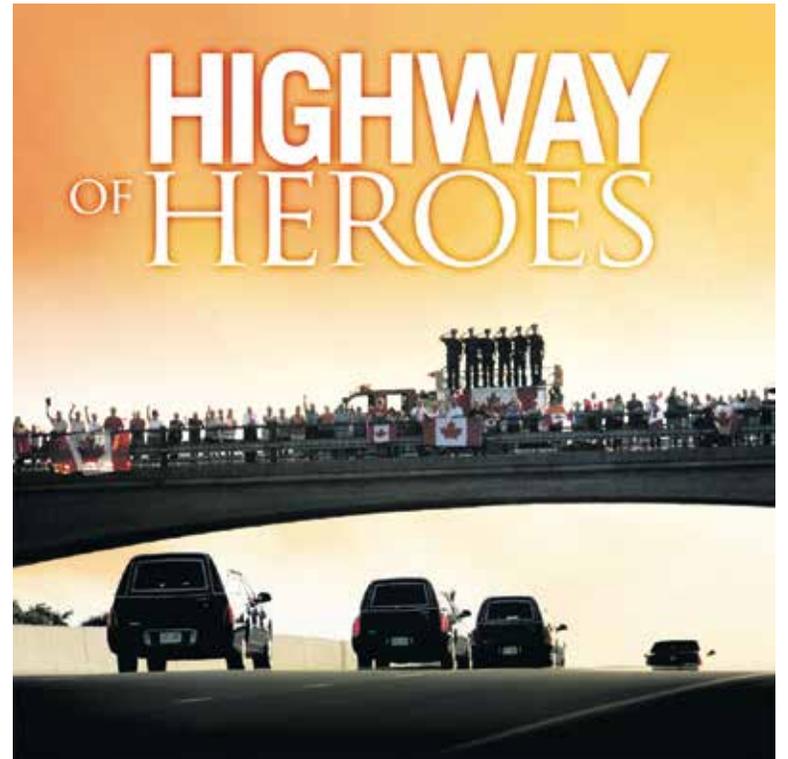
Darby McGrath a Research Scientist with Vineland Research and Innovation Centre, is working on the Highway of Heroes project in southern Ontario. This living tribute project started in 2007, when a 170-kilometre portion of the highway stretching from CFB Trenton to the Don Valley Parkway (and later Keele Street) in Toronto was designated the Highway of Heroes, reflecting its use as the route for funeral convoys carrying fallen Canadian Forces service men and women from CFB Trenton to the coroner's office in Toronto. The planting concept is to produce a living memorial for each of our 117,000 fallen soldiers since Confederation.

"We are setting up trees for failure."

Susanne Hanna, president of the Ontario Horticultural Society said Ontario's gardeners are so committed to the project they donated \$27K to support the Highway of Heroes Living Tribute project in southern Ontario.

"Living" is the key concern as planting in the compacted and salt sprayed soils of Canada's major highways where upkeep and maintenance is a challenge does not promote longevity of trees. Over the last three years, researchers with Vineland Research and Innovation Centre worked to understand the problems and find solutions. As part of the project, they are developing a computer tool which allows users to input the soil conditions and site characteristics and they will be provided with a selection of the most appropriate trees for their specific location.

However, in 2013 McGrath noted that root deformities that are related to early development in



Challenges of planting trees along the Highway of Heroes project has led researchers to develop a better potting system.

starting pots do not self-correct even after careful planting.

"We are setting up trees for failure," said McGrath in a telephone interview. "The imprinting holds the shape of the container. You have likely seen nursery plants that when you lift them out of the pot they hold the pot shape. When we plant trees with deformed roots in compacted urban soils we increase the mortality rates. When you start with a deformed root, it is passed along in the root ball as the pots are upsized to the finished product."

McGrath explained, it is not cost effective to manually prune every tree at each stage. The group is working to develop new planting containers for the nursery industry that will encourage optimum root development through air pruning. Air pruning is done by exposing the root tips to dry air. The apical or apex cells at the tip of the root dehydrate. This stimulates the growth of secondary roots that then branch out from within the growth medium.

She said, "We want to increase the root mass with a lot of branching without any circling of tap roots. This is the result of minimal contact with plastic and maximum air exposure. We want shorter well-branched roots. I was told, 'if you can grow red oak we are interested,' so that is what I am working with."

The current prototype is in the patent process so they are not allowed at this stage to release specific details or photographs of the entire potting system but they do expect release to be in the spring of 2017 and she compares the concept to the Jiffy Pots used in horticulture.

McGrath expects drying will be an issue and suggests nurseries adjust their watering regimen. She is also working to develop a range of substrates (growth mediums) that will be compatible as the current substrates were designed for use in a potting system with drainage holes.

"If you don't get it right at stage one, it will be passed along. In a heavy wind storm anchorage is a real problem. Down the road root deformities will show up."



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