

Innovation

Roadside trees face the worst of all growing conditions

Two experimental test locations mimic roadside conditions in order to improve survivability



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Niagara Region - Trees and shrubs growing next to busy roads and highways need a special kind of resilience to thrive.

In addition to handling Canada's cold winter and hot summer climate, they have to be able to survive without after-planting care or irrigation, which means landscapers have to select species very carefully.

To better understand how to create urban plantings that mimic natural systems when it comes to retaining moisture, root shading, and protection from environmental stresses, nursery and landscape experts at Vineland Research and Innovation Centre have designed two experimental test planting sites.

One is located at its Vineland campus and the other in the Niagara Region at Fifty Road and the northbound side of the Queen Elizabeth Way.

"We have a rather narrow focus on areas where no one will visit for after-planting care, which is very important because there is often no budget or there is an access challenge for trees and shrubs planted along highways or arterial roads," explains Dr. Darby McGrath, nursery and landscape research scientist at Vineland. "We've had a lot of interest from municipalities and government transportation officials in this work."

Key to their project is looking for solutions that are viable both from an ecological and environmental standpoint, she adds. This means working with materials and equipment easily available in Ontario.

This particular project builds on previous work lead by Landscape Ontario and involves developing recommendations for soil remediation as well as how to build an ecological environment that can withstand lack of water, tolerate pollution, and handle road salt spray.

Each site boasts eight different tree species, including Freeman Maple Autumn Blaze®, Kentucky Coffee Tree, River Birch Cully, Triumph Elm, Glenleven Linden, Common

Hackberry, Trembling Aspen and Silver Maple; and three shrub types: Grey Dogwood, Nannyberry and Common Ninebark.

Not only do researchers want to identify which trees are most resilient, but they also want to understand which companion species are best for each other, and how shrubs contribute to biomass cycling, leaf litter, and soil recovery.

"Preliminary results from our first year have shown us that not all trees classified as urban-tolerant are actually suitable for planting in unmaintained sites," McGrath says. "Nursery stock size is also an important consideration for transplant survival, particularly in areas where weed competition is high and

moisture content is variable."

A similar project is also underway in Alberta, and Vineland is hoping to add a demonstration site along the Veterans' Memorial Parkway in London, Ontario this fall.

Work on the project will continue for another two years and will culminate in the development of a manual that will include tree lists, soil best management practices and a tool to help transportation officials, municipalities, and landscape contractors calculate recommended practices based on soil and site conditions.

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Research identifies healthier trees for greener Ontario highways

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