

by Patricia Kerr

Soil Compaction & Pollution Could be CAUSE OF TREE DEATH ALONG HIGHWAYS.....>

Researchers are calling into question a commonly held theory that highway trees are killed by salt and pollution

Researchers at Vineland Research and Innovation Centre, the Ontario Ministry of Transportation, Landscape Ontario & the Canadian Nursery and Landscape Association are working on a joint project that is calling into question the commonly held theory that highway trees are killed by salt and pollution. They are finding soil compaction and not pollutants is the biggest problem. The conditions are similar for many urban tree planting sites.

The broad concept of the study is if trees could be maintained along highways it would solve problems for many different groups. These include concerns as diverse as snow maintenance, urban tree canopy minimum standards and ensuring the trees are Ontario grown. However, the project is just getting established.

Soil testing was done throughout the first stage of the study.

Dr. Darby McGrath, Research Scientist, said, "Salt death is tricky because it looks like drought stress. We can be sure it isn't salt death because we were testing for salts continuously through the year and the levels have been low at the sites."

When the soil was examined at the study sites it was uniform and lacking in layering. There was little if any organic matter and it was in McGrath's word, "unnatural." The soil was compacted to the point it was "root limiting and sometimes root restricting".

"Moisture could get into the planting holes but the roots could not get out," said McGrath. Some of the sites were 60 years old and they still had no biomass. There was no humus layer developing."

The second stage of the study is examining what happens when the soil is disturbed. This is not digging a hole and stuffing in a tree as is traditional for highway trees rather they mechanically scraped the entire planting area to 36 inches deep and organic

matter was added at different levels from 50% down to 10%. The trees were then stuck in the holes and are to be given no further treatment for the year. The results won't be available until next year but the theory is lower levels of compost may be better as the root zone won't heat up to the same extent as happens with higher levels of organic matter decomposition.

The final stage for next year is to look at succession planting rather than planting trees as islands.

"Tree islands are not natural," said McGrath. "Trees are never in isolation. The whole community could be planted at once. This is not new. What I am doing is going back to the way it used to be."

McGrath's idea is similar to what was done in Sudbury when the highway expanded and mats of vegetation were successfully moved to replanting areas. Instead of mats, McGrath is testing to see which shrubs and companion plants can be planted with the trees to encourage development of a highway ecosystem.

McGrath's work is finding new audiences and she expects to start work in Alberta with the cities of Calgary, Edmonton and Red Deer and the Alberta Ministry of Transportation.

"It is really a cool project. You don't have a lot of challenges getting people excited about it. We have the space to increase the urban canopy and have a better overall quality of health," said McGrath.

McGrath is clear her ideas are not new. She is proving correct planting, as we did in bygone years, is still the best way to promote tree survival.

For more information, please visit www.vinelandresearch.com 