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Interim Report on the Effects of Wood Ash Addition On Sugar Maple Sap Yields

Over the long-term, adding ash to Muskoka sugar bushes should help sap production as trees become stronger, healthier and bigger. After all, bigger trees produce more sap.

But what about over the short term? To test for potential risks as well as the benefits on sap production over the short-term, non-industrial wood ash (NIWA) was collected from Muskoka residents and applied to plots in a sugar maple stand at Camp Big Canoe, east of Bracebridge at a single dose of 6 tonnes/ha (2.4 tonnes per acre). The added ash was about 30% calcium by weight, enough to replace all the calcium lost to acid rain and importantly, metal levels were low and did not exceed provincial limits. We tapped 12 mature sugar maple trees on both the ashed plots and the non-ashed control plots for two spring seasons.

One year following ash application, things looked promising. Soil acidity declined and the nutrient cations calcium, magnesium and potassium increased in the surface soils. Metal levels also increased in the surface soil but not in deeper soil layers. The sap story was initially exciting. One year after treatment, there was twice the sap yield in the treatment plots compared with non-ashed controls and the sap was just as sweet, so this wasn't just a dilution effect.

However, this was a transitory signal; there was no differences in quantity or sweetness of sap two years after ash additions between control and ash-treated trees. On the plus side, while ash additions increase metal levels in the surface soil, nutrient, and metal levels in the sap during the two tapping seasons did not change greatly or in a consistent way. In addition, potassium which is the most mobile nutrient that trees require increased in sugar maple leaves.

In summary, although ash application may influence sap yield in the very short-term, it is unlikely to alter the chemistry of sugar maple sap. This result provides more evidence that residential wood ash is a viable soil amendment that will enhance soil fertility in sugar bushes, and the health and growth of sugar maple is likely to improve over the long term.

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