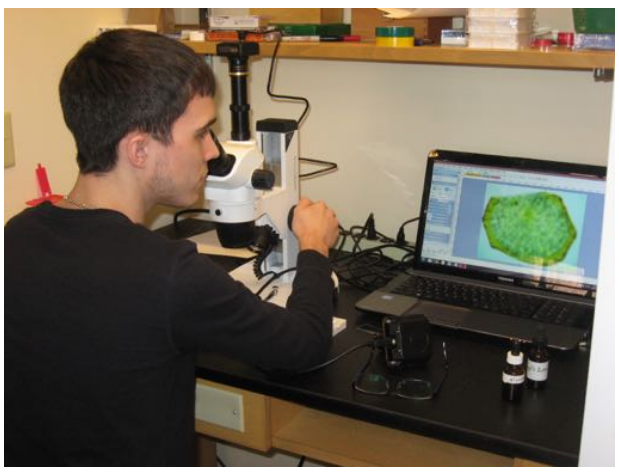
Effects of lime application on root starch content and growth of sugar maple trees

Tyler Wade d'Entremont, Sarah Adams, Phyllis Essex-Fraser,
Dr Anthony Tong, Dr. David N. Kristie

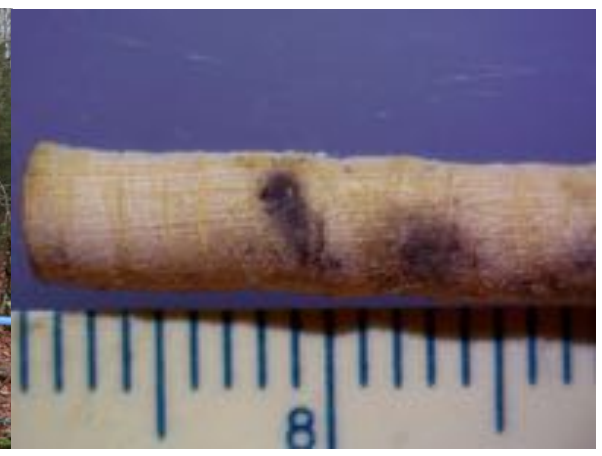
Liming – the application of calcium-rich materials - has been shown to mitigate soil acidification, and restore the vitality of sugar maple (*Acer saccharum*) stands. The current study, done in association with Hutchinson's Acres, is examining the effects of liming on sugar maple root starch content and tree growth with a view to a possible correlation between liming and the quantity and quality of maple syrup harvested.

- Samples of annual growth rings were collected using an increment borer
- Width of yearly growth rings was measured.

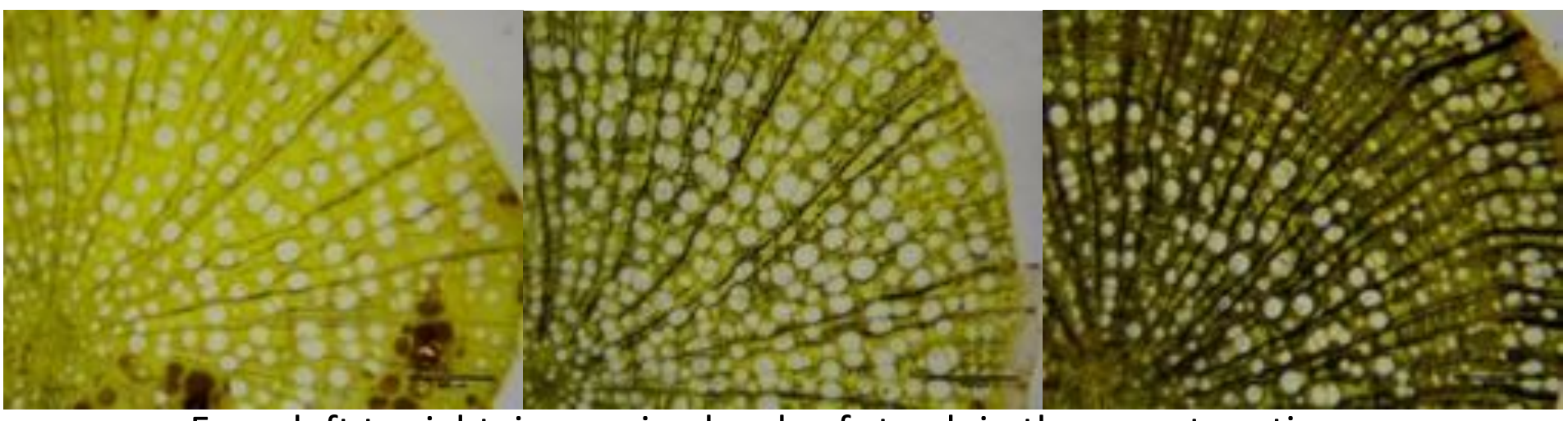


Methods

- Samples of roots from limed and unlimed sites were taken in December, before the soil was frozen, and when starch content in roots should be at its peak.
- Root samples were kept frozen until examined microscopically for starch content, or sent to Dr Tong's lab for chemical analysis of starch.



- Roots were sectioned with a hand-held microtome
- Sections were stained with Lugol's iodine, which stains starch purple
- Sections were observed under a stereomicroscope, and scored for starch content
- Sections were photographed for a digital record



From left to right, increasing levels of starch in three root sections.

For additional information contact David Kristie (david.kristie@acadiau.ca)