LUCAS
Lakehead University Center for
Analytical Services

Extension Bulletin

ATRC | FoReST | LEVTEK | LUEL | LUIL | LUGEN | LUMINX | LUNE | LUWSTL | PALEO-DNA | LUMCS

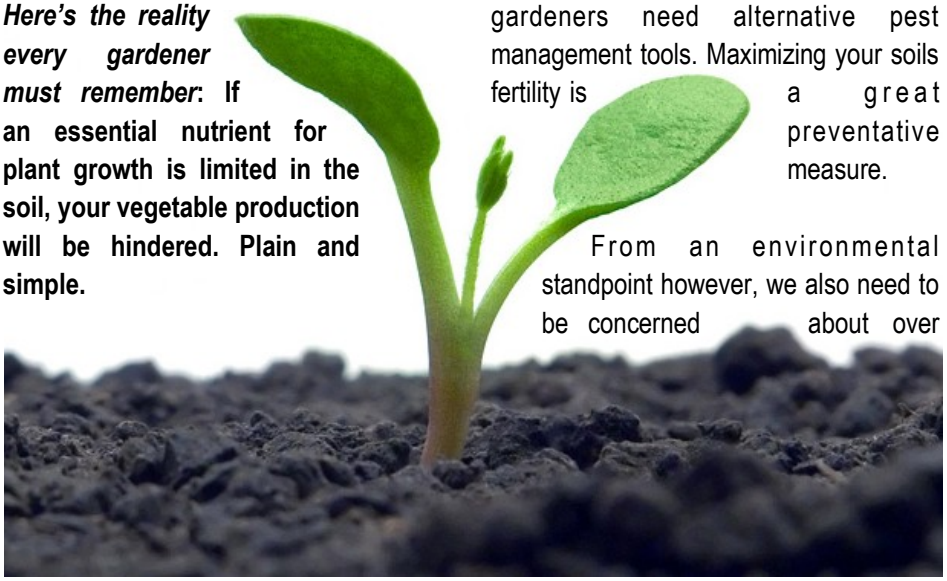
Don't Treat Your Soil Like Dirt: *Why you should test your garden soil*

By Joel Symonds, FoReST Laboratory Manager and Analyst

There is nothing quite like the satisfaction of sinking your teeth into a juicy, fresh off the vine, organically grown tomato from your own backyard. And knowing how much work went into producing that delectable delight makes it taste even better.

However, many gardeners in the North, can agree it's extremely challenging and at times even frustrating, to grow vegetables in our short growing season. Once spring finally arrives, after the last frost has passed, we're naturally eager to get our seeds into the ground as soon as possible, but we often forget to think about what's in our soil. We mistakenly figure everything should be fine. It was last year, right?

***Here's the reality every gardener must remember*: If an essential nutrient for plant growth is limited in the soil, your vegetable production will be hindered. Plain and simple.**



Plants actually require up to 17 different elements to grow and remain healthy; with the three most familiar being nitrogen (N), phosphorous (P), and potassium (K). Poor growth and vegetable production will likely happen if any of these three nutrients are below a crop's critical level. Other soil properties such as acidity (pH), total salts, and percent organic matter are also very important as they either affect the soil's ability to hold nutrients or the plant's ability to uptake the nutrients from the soil.

If your plant's health is poor, not only will its growth and vegetable production be reduced, but its natural abilities to fight insect and disease attacks will also be compromised. With the newly implemented pesticide ban in Ontario, gardeners need alternative pest management tools. Maximizing your soils fertility is a great preventative measure.

From an environmental standpoint however, we also need to be concerned about over applying fertilizers which can be washed away by rainfall, contaminating our streams, rivers and lakes. Applying too much fertilizer can also be harmful, since it can dehydrate or "burn" your plant's roots and foliar tissues. Today's eco-friendly gardener is very interested, applying just the right amount of organic fertilizers; not too little but not too much.

Soil testing is a quick, easy, and affordable way to ensure that your garden vegetables are getting the right amount of nutrients they need for optimum, healthy growth. Although home soil test kits can be purchased from many garden centres, their accuracy is questionable and they fail to provide any interpretation of the results.

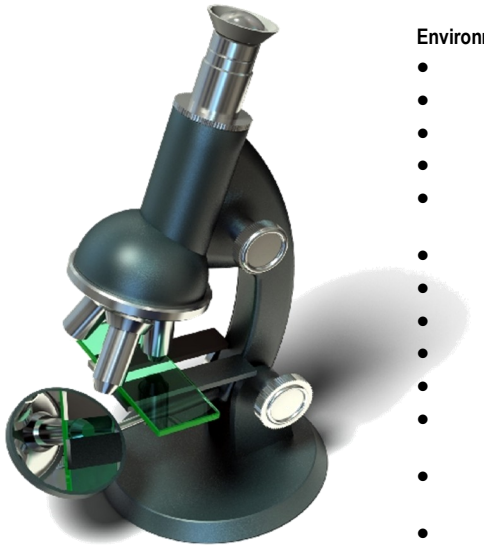
Soil testing laboratories provide highly accurate results and include crop-specific fertilizer recommendations as part of their soil testing package. Based on your soil test results, these recommendations clearly state if your soil needs a boost of N, P, or K and if so, exactly how much fertilizer is needed (either chemical or organic).

Testing can make you an even better gardener. Contact LUCAS at 807-343-8590 for more information about this service. Don't treat your soil like dirt. Test your soil.

Extension Bulletin

LUCAS provides various analytical services.

At Lakehead University's Centre for Analytical Services we meet your analytical needs with accurate and fast service. The broad multi-disciplinary expertise and state of the art analytical equipment at Lakehead can provide you with many testing services, all under one roof. The list below includes many of the services we provide.



Biomass Characterization

- Biofuels calorie testing
- Biomass Chemical Characteristics
- Biomass Physical Characteristics

Customized Analytical Services

DNA testing

- Ancestry
- Archaeological
- Forensic human genetic identification
- Paternity and relationship
- Plant and animal
- Training

Environmental testing

- Aquatic sediments
- Aquatic toxicity (LC 50)
- Barrier remediation technologies testing
- Contaminant sources tracing
- Experimental and computer modeling of water-rock reactions
- Heavy metal contaminants in soils
- Inorganic contaminants in soils
- Piezometers (Installation and monitoring)
- Plant or animal tissue toxicity (mercury, etc.)
- Precipitates
- Mercury and methylmercury (total) in water, tissue, soil, sediment
- Mineralogical and geochemical characterization of mine waste materials
- Water sample (nutrients, metals, pH, conductivity, etc.)

Fuels Characterization

- Biofuels calorie testing
- Fuel oil calorie testing
- Fuel oil specifications

Materials Testing (Construction)

- Chloride in concrete
- Building materials

Materials Characterization

- Air Sensitive Samples (X-ray diffraction)
- Contaminants & corrosion detection
- Crystalline inorganic solids (granular, fine-crystalline, microcrystalline)
- Particle sizing and elemental composition
- Polymers
- Metallurgical products and by-products
- Non-crystalline inorganic solids
- High tech and strategic metals

Mineralogical Services

- Assessment of geological samples
- Clay and zeolite analysis
- Experimental Services
- Fluid inclusion analysis
- Particle characterization of assay grinds using digital image analysis.
- Separations (e.g., heavy liquids)
- Thin section preparation

Molecular synthesis and Analysis

- Aqueous silicon chemistry
- Chemical characterization
- Fabrication of thin films
- Molecular modeling
- Nanostructured materials synthesis

Soils Testing

- Agricultural soils testing with OMAFRA nutrient recommendations
- Forest nutrient analysis
- Garden soils testing with OMAFRA nutrient recommendations
- Heavy metal contaminants in soils
- Industrial contaminants and deposits
- Inorganic contaminants in soils
- Soils mineralogy

Wood Science Testing

- Abrasion testing of flooring and other surfaces
- Wood structural mapping (X-ray)
- Wood chip analysis
- Wood mechanical and physical properties

For more information about technical expertise and services available through **LUCAS**, contact:
Al MacKenzie
807-343-8853
al.mackenzie@lakeheadu.ca

LUCAS
Lakehead
UNIVERSITY