



A&L Canada
Laboratories Inc.

Agricultural Testing & Production Expertise

SEPTEMBER 2022 NEWSLETTER

IN THIS ISSUE

- **BUSINESS NEWS: A&L and Deveron Update**
- **Feature Article: THE IMPORTANCE OF POST-HARVEST SITE SPECIFIC SAMPLING**
- **TerraSiteRX Overview & SOIL SAMPLING FAQs**
- **COMPARATIVE ANALYSIS: Bulk, Zone, and Site Specific Soil Sampling Programs**
- **Upcoming Events & Contact Information**

BUSINESS NEWS

A&L AND DEVERON

In April 2021, A&L and Deveron formed a new joint venture company and acquired the assets of Woods End Laboratories. This joint venture and acquisition created a new turn-key soil health platform for the US agricultural market. In May of this year, Deveron invested further into A&L to continue the partnership and bring information technology to farmers across North America.

How does this partnership support the Agricultural community?

“The future of agriculture requires more information to help farmers produce great crops in an ecologically sustainable way. Since A & L opened its doors, providing information to make the best decisions has always been the focus. We have done research and development on just about every crop in the market and used this information to build viable and value-add commercially driven recommendations for our customers. We know that soil health is going to be an ever-increasing topic for agriculture producers, and we think that Deveron will be a great partner to help distribute our world-class recommendations to their customers helping create a truly independent and unbiased leader in North America.”

Greg Patterson, CEO & Founder, A&L Canada



DEVERON SERVICES

SOIL COLLECTION:

- Service available across Canada and US mid-west
- Rapid turnaround times from collection to analysis
- Shipping provided from collection locations directly to A&L
- A&L Certified collection specialists

TISSUE SAMPLING:

- Service available across Southern Ontario
- 24-hour guarantee from collection to lab
- Shipments in temperature-controlled environments
- A&L Certified collection specialists

DRONE DATA COLLECTION:

- Service available across Canada
- Multispectral, Thermal, RGB capabilities
- 48-hour turnaround time from capture to data delivery

FEATURE ARTICLE

THE IMPORTANCE OF POST-HARVEST SITE SPECIFIC SAMPLING

“Don’t Guess, Soil Test”

Just as we think we have worn out this phrase, it takes on new meaning as input costs reach record levels and continue to fluctuate. More than ever, planning is the key factor in securing a healthy return on investment.



Post-harvest sampling provides a great opportunity to establish yield potential for the future crop. Fall is an ideal time to develop fertilizer strategies. It is also an ideal window to make lime applications and to build up potassium (K) and magnesium (Mg) levels in the soil. Of the different methods available for soil testing, site specific sampling provides the most insight and visibility on the information collected.

Basing applications of lime and fertilizer on site specific sampling is the most accurate way to ensure that there

is enough fertilizer available to support crop growth and limit unnecessary over-application of lime and fertilizer.

Site Specific Sampling

A site-specific soil sampling program takes the guess work out of field variability. In the short term, profit is increased by improving yields on areas that were being under fertilized, while saving input costs on areas of good fertility. Increased yields with lower input costs results in increase profit per acre. The more variable the fields, the greater the profit potential will be.

Longer-term profit potential can be achieved by using the geo-referenced sample sites to monitor nutrient levels over time. From there, we can further analyze the data using an online precision agriculture platform.

TerraSiteRX Online Platform

A&L Canada Laboratories Inc. developed this online platform to provide a simple, yet effective way for ag retailers, farmers, and consultants to analyze farm data and provide a visual representation of field variability.

OTHER BENEFITS TO SITE SPECIFIC SAMPLING

1. Farmers benefit through greater profits and improved efficiency of all inputs. Properly managing soil variability instead of ignoring it means more profit. Higher yields from the acres that were being under fertilized and optimizing costs from other acres translate into profit potential. The more variable the fields, the greater the profit potential will be. The starting point is with a comprehensive soil analysis that will provide the visibility of field variability.
2. A&L and university lead research has shown that for corn, 2.5-acre grids only require an increase in yield of 0.3 bushels per acre over four years to pay the cost of sampling, 1-acre grids require an increase in yield of 0.65 bushels per acre over four years, and 0.5-acre grids require an increase in yield of 0.60 bushels per acre over six years.



TerraSiteRx™ ANALYTICS PLATFORM

www.TerraSiteRx.com

TerraSiteRx™ is a data analysis platform that integrates a range of farm data sets with A&L proprietary soil maps to deliver a more in-depth understanding of your field operations throughout the growing seasons, no matter the crop.

The TerraSiteRx™ Analytics platform uses field research driven algorithms, including Crop Health (MNDVI), Plant Count, Stress Map, Crop Injury, Biomass Estimation and Targeted Soil Sampling, to derive various field and crop biophysical conditions.

TerraSiteRx™ SOIL MAPS for Soil Analysis & Interpretative Fertility Maps

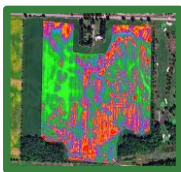
SITE-SPECIFIC SOIL SAMPLING AND ANALYSIS

- Over 30 information layers; includes both critical macro and micronutrient levels, as well as key soil metrics
- Easy to interpret - built in colour coded interpretation
- Basis for field management actions; such as variable prescriptions of lime to adjust pH, or variable rate potassium prescriptions in the fall



TerraSiteRx™ ALGORITHMS to Interpret Remote Imaging

REQUIRES
UAV IMAGERY

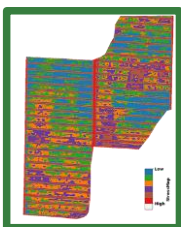


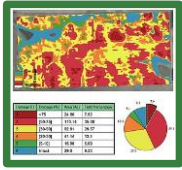
CROP HEALTH REPORT – MNDVI

- The Crop Health Report through MNDVI (Modified Normalized Difference Vegetation Index) is based on A&L's interpretation of the traditional NDVI. This analysis is applicable to all crop types
- This analysis provides a better interpretation of NDVI values and highlights the crop variability across your fields
- This report provides an indication of overall crop dynamics and can trigger in-field inspections for pest infestation and nutrient deficiencies
- In-field operations can then be triggered to optimize crop productivity in season

CROP STRESS

- Map highlighting stress areas across the crop – for use in Corn and Wheat
- Support in-field investigation / area specific scouting
- Decision making tool on additional input investment (i.e. fertility, crop protection)
- Decision tool on re-planting (i.e. winter wheat)





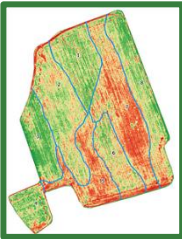
CROP DAMAGE - HAIL

- Spatial map confirming degree of crop damage in hail
- Assessment Provided
- Efficient verification of injury for insurance or settlement purposes



PLANT STAND COUNT / PLANT DENSITY

- Accurately determine the number of plants or to measure the relative plant density in a given crop
- You will receive a spatial map to demonstrate the total plants in an area of interest
- Efficient count for seed production / breeding operations
- Decision making tool on additional input investment (i.e. fertility)
- Decision tool on re-planting (i.e. winter wheat)



BIOMASS TARGETED ZONE SAMPLING

- In-season biomass estimation combined with targeted soil sampling
- Decision making tool on in-season input investment - Fertility application
- Alignment to zone and site specific soil sampling protocols for fertility and seeding rate prescriptions, 4R Nutrient Management and soil remediation

*TerraSiteRx™ enhances farm data collection, analysis, and interpretation.
“TerraSiteRx™ is unique due to A&L’s interpretive soil mapping.”*

www.TerraSiteRX.com

CONTACT US FOR A DEMO TODAY!

info@terrasiterx.com

A&L Canada Laboratories



SOIL SAMPLING FAQs



FAQs	SOIL SAMPLES	Nematodes in SOIL
<p>How do I take a sample?</p> <p>For more information please consult the Soil Sampling Guide on our website</p> <p>www.alcanada.com</p>	<ul style="list-style-type: none"> • Take 10 to 20 soil cores or shovel scoops from a depth of 0-6 inches and mix in a plastic bucket • Empty bucket into A&L provided soil bag and fill to sample line • Different depths are sometimes needed depending on the crop and nutrient to be analyzed • Label bag and submission sheet with desired sample name 	<ul style="list-style-type: none"> • Collect 10 to 20 cores from a depth of 0-6 inches • Dump cores into a bucket and mix thoroughly • Place two cups of mixed soil in a soil sampling bag or plastic zippered bag and label with permanent marker • Label bag clearly with “nematode analysis” • Store in a cool, dark place until shipped to soil lab (nematode soils must remain damp and cannot dry out)
<p>How much do I need?</p>	<ul style="list-style-type: none"> • Approximately 2 cups • For additional analysis – such as texture or VitTellus Soil Health – please fill the bag (about 4 cups) 	
<p>How do I send a sample?</p>	<ul style="list-style-type: none"> • Please label all bags and containers with grower information and sample ID • Paperwork should be included with all samples • Submission paperwork can be found on www.alcanada.com • Samples can be dropped off Monday to Friday 8 am to 5 pm – after hours, samples can be placed in the shed located between buildings (next to the receiving door) • Samples can also be shipped via courier to: 2136 Jetstream Rd, London, ON N5V 3P5 	
<p>Do I need to do anything special to the sample for shipping?</p>	<ul style="list-style-type: none"> • Soils can be left to air dry (unless you are sampling for nematodes) • Wet samples can be placed in Ziplock bags along with the submission sheets to preserve labels and paperwork 	<ul style="list-style-type: none"> • Nematode soils should be kept moist • Coolers and ice packs can be used to reduce evaporation during shipping
<p>How long will it take to get my results?</p>	<ul style="list-style-type: none"> • Standard soil analysis is completed within 3 business days of the lab receiving the sample(s) 	
<p>How can I access my previous tests?</p>	<ul style="list-style-type: none"> • Results are sent to email contacts on file for the account submitting the sample • Use your account number to access previous results through the DataWeb • Recommendations can also be changed on the DataWeb 	

www.ALCanada.com

COMPARATIVE ANALYSIS

Bulk, Zone, and Site Specific Soil Sampling Programs

	BULK OR COMPOSITE	ZONE OR POLYGON BASED	SITE SPECIFIC OR GRID / SMART GRID
OVERVIEW	<ul style="list-style-type: none"> The traditional method for sampling soils but is considered imprecise because it does not adequately account for differences in soil variability Involves taking samples in a random pattern across a field (avoiding problem soil areas) and blending them into one 'average' sample 	<ul style="list-style-type: none"> Zone sampling divides a field into smaller production areas based on utilizing other map/data layers (such as yield or biomass (NDVI) imagery) to create these zones This approach assumes that soil variability within a field can be easily identified Sampling points are geo-referenced so changes can be tracked over time 	<ul style="list-style-type: none"> For grid sampling, the field is divided into small areas or blocks of equal size and a sample location within each block is sampled to a georeferenced point Typical grid sizes range from 0.5-acre blocks to 5-acre blocks, with 2.5-acre blocks being a standard unit for analysis In general, the smaller the sampling unit, the greater the accuracy Results may then be used to determine the fertilizer application rate(s), or they may be entered into a mapping program that uses geo-statistics to draw fertilizer application boundaries
MOST APPROPRIATE	<ul style="list-style-type: none"> For smaller fields / blocks that have been uniformly cropped in the recent past and have little natural variation Used where a single fertilizer recommendation will be applied across a field 	<ul style="list-style-type: none"> Primary focus is on mobile nutrients because relative levels of a mobile nutrient are frequently related to fixed soil properties Relatively low rates of fertilizer have been applied in recent years There is no history of manure application History of the field is known and can be used to divide the field into smaller units 	<ul style="list-style-type: none"> Use when non-mobile nutrients are the primary concern (e.g. phosphorus) Soil test levels in the field range from very high to very low with substantial acres in both categories There is a history of manure use For use when small fields have been merged into large The field history is not known
PROS	<ul style="list-style-type: none"> Relatively inexpensive 	<ul style="list-style-type: none"> Lower sampling costs than grid sampling; a more accurate judgment / nutrient recommendation is made when multiple data layers are used in the analysis 	<ul style="list-style-type: none"> More intensive soil sampling often provides a different picture of a field than do conventional sampling procedures Ability to georeference samples and track nutrient change over time Ability to scale down to really identify infield variability For use with A&L's TerraSiteRx Data Analytics Platform www.TerraSiteRx.com
CONS	<ul style="list-style-type: none"> No info. about nutrient variability 	<ul style="list-style-type: none"> May still overlook nutrient variability within zones, zone creation dependent on clear differences in biomass or yield data 	<ul style="list-style-type: none"> Time and cost to sample is higher than other methods, but can provide significant return on investment (ROI) when applying prescription / variable rate inputs such as fertilizer

Upcoming Industry Events

Come visit the A&L Canada Labs team at any of these events in fall & winter 2022!

CANADIAN GREENHOUSE CONFERENCE

October 5 – 6, 2022 – Niagara Falls, Ontario

<https://www.canadiangreenhouseconference.com/>



CANADIAN WESTERN AGRIBITION

Nov 28 – Dec 3, 2022 – Regina, Saskatchewan

<https://www.agribition.com/>



A&L Canada Labs Contact Information

For general inquiries, please email: alcanadalabs@alcanada.com

A&L Canada Laboratories Main Office

2136 Jetstream Road
London, Ontario N5V 3P5

Tel: 519-457-2575 · Toll Free: 1-855-837-8347
Main website: www.alcanada.com

Julie Mollard Manager Client Services

Email: jmollard@alcanada.com
Tel. 519-457-2575 ext. 223

Beth Wood Agronomist

Email: bwood@alcanada.com
Tel: 519-457-2575 ext. 252

A&L LABS AGRICULTURE REPRESENTATIVES ACROSS CANADA

BC + CENTRAL AB
Ken Galloway
kgalloway@alcanada.com

NORTH AB + NORTH BC
Norm Dueck
ndueck@alcanada.com

SOUTH SK + MB
Jill Debenham
jdebenham@alcanada.com

QUEBEC
Katherine Murray
kmurray@alcanada.com

MARITIMES
Holland Cahill
hcahill@alcanada.com

SOUTH AB + NORTH CENTRAL SK
Noah Bertholet
nbertholet@alcanada.com

CENTRAL + EAST ON
Chris Meier
cmeier@alcanada.com

SOUTHWEST ON
Mike Folkard
mfolkard@alcanada.com

CLIENT SUPPORT
Andrew Mickle
andrew@alcanada.com

TerraSiteRx[®] PRECISION AG

UNITED STATES
Kelsie Meyer
kmeyer@alcanada.com