



Soil2Oil™
A&L CANNABIS LABS

A&L Canada Laboratories Inc.

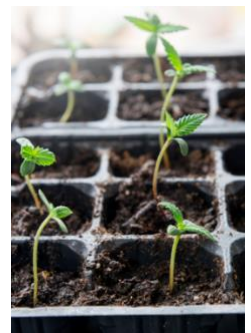
A&L CANNABIS & HEMP NEWSLETTER – JULY 2020

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Services: Sex ID - Male/Female Genetic Testing

Our DNA based technology identifies cannabis gender at the seedling stage when true leaves come out. A simple sampling method – just take one leaf in a zip-lock bag saves labour for sample preparation and avoids potential contamination between samples. Results are available in 1-2 business days after we receive the sample, to help growers manage the limited resources, space and labor more efficiently.



NEW VitTellus BioSM Soil Health Test Available

A next generation soil test quantifies soil microbial populations which contribute to soil health and improved crop productivity

LONDON, ONTARIO — July 7, 2020 — A&L Canada Laboratories Inc. announced today the launch of **VitTellus BioSM**, a new soil health test for the agriculture industry that quantifies soil microbial populations which support improved soil health and greater crop productivity.

VitTellus BioSM is a new analysis which complements the VitTellus[®] Soil Health test, a diagnostic used to make more informed decisions on application of nutrients, managing and improving soil health. Traditional soil tests measure the chemical properties of soil, and that is helpful. But soil is a living, dynamic and continually changing ecosystem requiring a more holistic approach to determining optimal and sustainable management practices. By digging deeper into the physical and biological interactions we can make improved agronomic recommendations for higher yields and great profit. The VitTellus[®] Soil Health Test & VitTellus BioSM are available to assist clients in this deeper assessment of soil parameters.

Two Tests Together in One New Package: VitTellus BioSM Soil Health Package

The VitTellus BioSM Soil Health Package is an analytical package providing the **VitTellus[®] Soil Health Test** PLUS the new VitTellus BioSM microbial test which quantifies the levels of functional soil microbes associated with improved soil health and crop yield. VitTellus BioSM utilizes selective carbon sources to measure the concentration of specific functional microbial groups within a soil sample which research has shown have known beneficial functionality, ie. Nitrogen fixation. Optimal ranges of these functional microbes are provided and, along with the soil chemistry metrics, will allow you to implement farm management strategies to increase favorable soil microbe populations.

Information on the **VitTellus[®] Soil Health Test & VitTellus BioSM** can be accessed through the [VitTellus website](#).

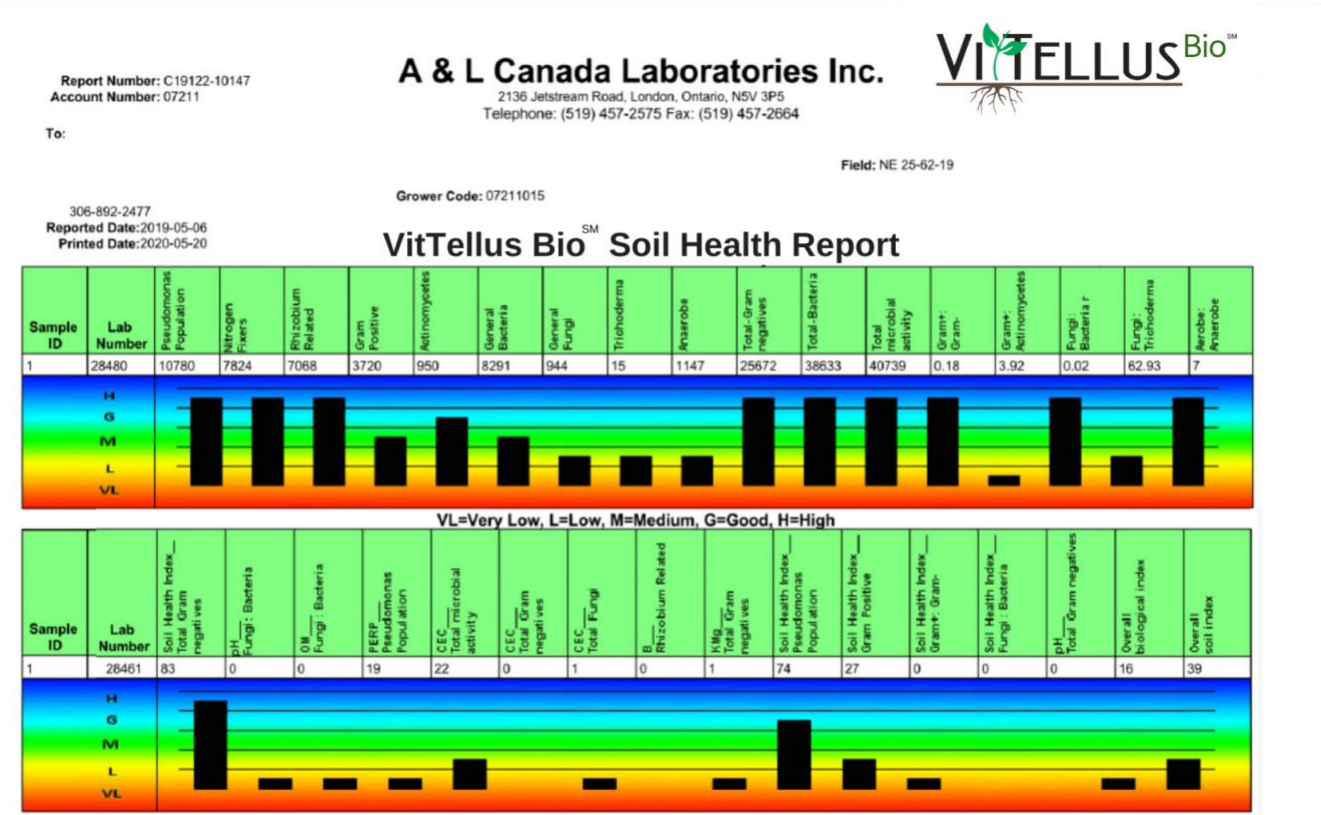
“**VitTellus BioSM Soil Health** is the next logical step in understanding soil health and the biological drivers of productivity. This analysis allows clients to understand their current soil microbial populations and take concrete actions to cultivate microbes which support healthier soils, stronger plants and greater returns for the farmer, and society. This is a worthwhile, long view endeavor, we strongly encourage farmers to truly get to know their soils for their longstanding success,” said Greg Patterson, CCA, Founder and CEO of A&L. “We are proud of all the research and development work coming out of A&L Canada Laboratories and are committed and passionate about sharing our knowledge for the advancement of the industry.”

“A deeper understanding of the factors impacting on the biotic components of ecosystem stability is key for the sustainability and productivity of agriculture,” stated Nevin McDougall, President and CCO of A&L Canada Laboratories. “The research A&L has been conducting over

the last 35 years, and with the launch of the biologicals research division 10 years ago, is bringing products to market that benefit the sustainability of the agriculture industry, and we are deeply committed to continue the investment in bringing next-generation products to the marketplace.”

The VitTellus BioSM Soil Health Package Components:

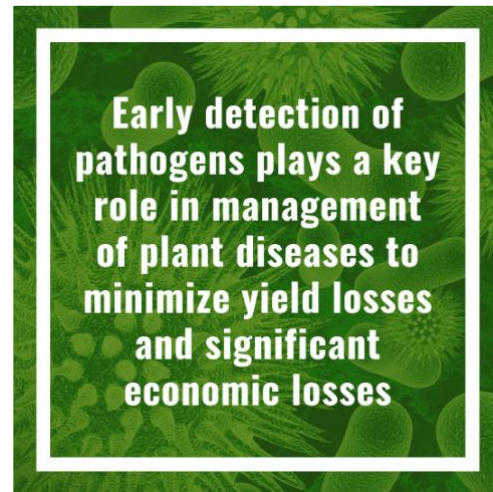
- A complete VitTellus[®] Soil Health Test and Report
- A complete VitTellus BioSM Soil Health Report with analysis results and optimal ranges
- Technical support
- Online portal for access to reports
- Live expert customer support



[Click here](#) to learn more about the VitTellus BioSM Soil Health Test. Additional soil health tests are also available. For more information please visit our website www.vittellus.com or call us toll free 1-855-837-8347. You can follow us on Twitter at [@VitTellus](https://twitter.com/VitTellus).

Cannabis Disease Diagnostics

The occurrence and severity of plant diseases depend on the load of pathogens, environmental conditions and the level of plant resistance, represented as the disease triangle. Plant diseases could be severe under the favorable environmental conditions when plant variety is susceptible, and pathogen presents. Since environmental conditions and plant variety are normally defined in commercial greenhouses, the load of pathogens is the critical factor determining the severity of plant diseases. Therefore, early detection of pathogens plays a key role in management of plant diseases to minimize yield losses and significant economic losses.



Plant virus diseases cannot be controlled by the application of pesticides in the field or greenhouses. Incineration of infected plants once virus identified is the only means to eliminate the source of the virus to stop the spread of virus diseases since most viruses are transmitted by either vector organisms or mechanical transmission. It has been reported that alfalfa mosaic virus (AMV), arabis mosaic virus (ArMV), cucumber mosaic virus (CMV), and tobacco mosaic virus (TMV) are associated with cannabis virus diseases. A&L has identified tobacco streak virus (TSV) and tomato bushy stunt virus in cannabis plants. Recently hop latent viroid (HLVd) and lettuce chlorosis virus (LCV) have been reported as new threats to cannabis production causing significant yield losses. A&L is proud of providing tests for all these viruses.



PHOTO CREDIT: Hadad, L.; Luria, N.; Smith, E.; Sela, N.; Lachman, O.; Dombrovsky, A. Lettuce Chlorosis Virus Disease: A New Threat to Cannabis Production. *Viruses* **2019**, 11, 802.

MEET THE TEAM: Richard Robbins, BSc, CCA



RICHARD ROBBINS
Crop Production
Cannabis and Agriculture

Richard Robbins has worked with A&L Canada for close to four years. He provides agronomy customer support and quality assurance. He also aids in the generation of new reference material and aggregate data interpretation.

Richard's curiosity has been peaked by A&L's cannabis research. He has been working closely with our team to gain insight on cannabis nutrition. Due to cannabis only recently becoming a commercial crop, there is lots to be learned about growing medias, fertigation solutions, and plant tissue nutrient concentrations.

Richard has a Bachelor of Science degree with honours in Environmental Science from the University of Windsor. After graduating, he gained valuable in-field experience crop scouting and soil sampling while working with an independent agronomist in Southwestern Ontario. He next worked as a field technician with the University of Guelph's School of Environmental Science where he worked studying greenhouse gas emissions from agriculture and the effects soil health has on greenhouse gas emissions and water quality.

Richard has recently received his Certified Crop Advisor (CCA) accreditation. Learn more about the CCA program at www.ccaontario.com.

Please do not hesitate to contact Richard if you have any questions regarding A&L's services.



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Join

us on:



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The A&L Cannabis Leaf Nutrient Analysis Webinar Recording Is Available on YouTube

A simple, effective tool for understanding and optimizing hemp & cannabis crop nutrition is Plant Analysis. To help you get started, the A&L Canada Laboratories' Webinar CANNABIS LEAF NUTRIENT ANALYSIS (recorded May 14, 2020) is available on the A&L Cannabis Labs YouTube Channel https://www.youtube.com/watch?v=TcmDKAkRB_4&feature=youtu.be



This webinar covers:

- Why Leaf Tissue Testing is Important
- How to sample / Cannabis Growth Stage Reference Ranges / Sample Preparation
- Submitting a Sample and A&L's Cannabis Online Submission (COS)
- A&L's PMP [Plant Monitoring Program]
- Understanding Your Report
- Q&A session

Resources:

- Cannabis Leaf Tissue Testing Sampling Process - Handy Guide (PDF) <https://www.alcanada.com/pdf/AL%20Cannabis%20Tissue%20Testing%20Sample%20Process%20April%202020.pdf>
- Article: Characterization of Nutrient Disorders of Cannabis sativa <https://www.mdpi.com/2076-3417/9/20/4432/htm>

Presenters:

- Brian Coutts, Strategy & Business Development Manager, Food & Pharma, A&L Cannabis Labs
- Richard Robbins, Crop Production, A&L Canada Laboratories Inc.
- Ian McLachlin, Vice-President, A&L Canada Laboratories Inc.

Email clientcarecannabis@alcanada.com if you have any questions!

Upcoming Events

In light of the global COVID-19 pandemic which concerns us all, some industry trade events have been postponed and rescheduled, or cancelled.

This is our most up-to-date list:

- [Grow Opportunity - Virtual Grower Day](#) Aug 19
- [GROWING Summit](#) – Digital Live Stream Aug 24-25
- [C-45 Quality Summit 2020 – Digital](#) Sept 16-17
- [Canadian Greenhouse Virtual Conference](#) Oct 7-8
- [Canadian Hemp Trade Alliance](#) Nov 12-13, Toronto
- [Lift & Co](#) Nov 22-24, Toronto
- [GrowUp Conference](#) May 31 - June 2, 2021, Victoria, BC
- [GrowUp Conference](#) Sept 1-3 2021, Niagara Falls, ON



A&L Cannabis Labs Contact Information

For Cannabis or Hemp related questions, please email: clientcarecannabis@alcanada.com

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A&L Cannabis Labs Social Media

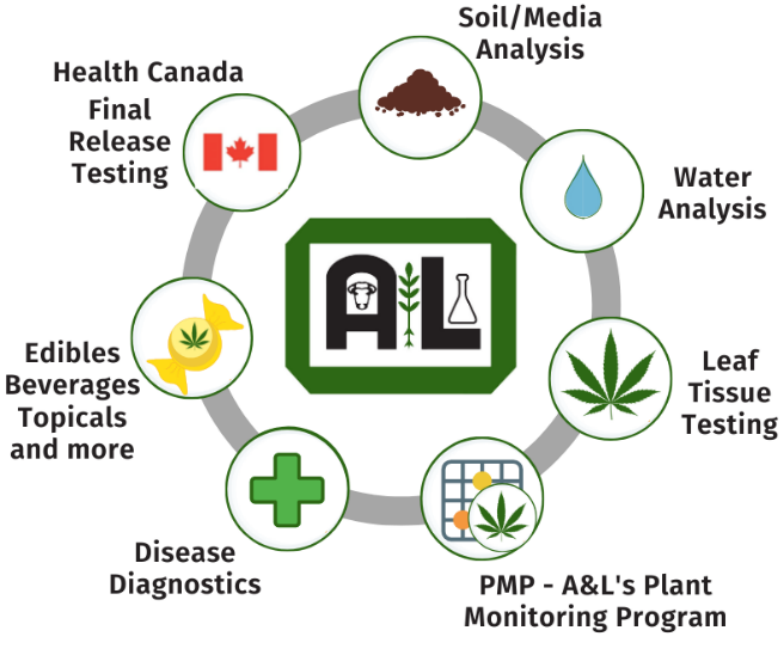
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Full-Service Cannabis Laboratory



Health Canada
Final Release Testing

Soil/Media Analysis

Water Analysis

Leaf Tissue Testing

PMP - A&L's Plant Monitoring Program

Disease Diagnostics

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