



Soil2Oil™
A&L CANNABIS LABS

A&L Canada Laboratories Inc. March 2020 Newsletter

A&L CANNABIS & HEMP NEWSLETTER – MARCH 2020

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NUTRASOURCE ENTERS INTO STRATEGIC ALLIANCE WITH A&L

A&L Canada has been providing end-to-end supply chain analytical services - from fertilizers, soil/media, plant tissue during the growing stages, disease diagnostics and the Health Canada testing for clients across Canada for over four years.

A&L CANADA AND NUTRASOURCE STRATEGIC ALLIANCE

A&L is integrating with Nutrasource to meet the additional needs of clients in the areas of non-gmo and allergen testing, sensory evaluation, vape hardware, and liquid fill testing nutrition, amongst others!



- Nutrasource has also established the International Cannabinoid Analysis Program (ICAP) as a third-party certification for cannabis and hemp products, verifying THC compliance and improving the safety profile of vape products

nutrasource
Pharmaceutical and Nutraceutical Services


- Nutrasource has extensive expertise and global experience in regulatory affairs, clinical trials, claims substantiation, product testing, and launching safe, effective, and high-quality health products for their clients
- This new relationship with Nutrasource will leverage their 18 years of industry experience, having tested more than 20,000 plant- and marine-based product SKUs worldwide since 2002
- Nutrasource will engage A&L's cannabis and hemp analytical services - A&L Canada has a team of 120+ lab and service personnel who operate in over 30K sq. ft of laboratory facilities - as part of a larger portfolio of services offered to their clients

**THIRD-PARTY CERTIFICATIONS FOR
CBD PRODUCTS**

Are you giving consumers a reason to choose your CBD product over the rest? You should.

With new cannabinoid products hitting the shelves everyday, it's crucial to clearly communicate your commitment to quality, safety, and transparency to consumers in 2020.

Two certifications that are beneficial for CBD products are ICAP and IGEN.



<0.20% THC Compliance



Non-GMO

The International Cannabinoid Analysis Program (ICAP) is a third-party certification program for CBD ingredients and finished products. It is designed to increase confidence and improve decision making for consumers in the cannabis product market. ICAP tests cannabis, hemp, and their extracts or derivative products with appropriate methods to ensure they contain <0.20% delta-9-tetrahydrocannabinol (Δ-9-THC). This THC limit is less than what is outlined in the 2018 Farm Bill (<0.30% THC) to satisfy THC compliance in more regions around the world.

IGEN stands for the International Genetically Modified Organism (GMO) Evaluation and Notification Program. Its aim is to verify label claims about the presence of GMOs in products and ingredients.

- A&L Canada Laboratories Cannabis and Hemp Analytical Services offer the most comprehensive analytical services in the shortest time. To find out more, contact Brian Coutts at bcoutts@alcanada.com

CANNABIS MARKET TRENDS – PLANT TISSUE ANALYSIS

CANNABIS TISSUE ANALYSIS SUMMATION FROM SEPTEMBER 2019 TO MARCH 2020

Aggregate data of hundreds of cannabis plant tissue samples reveals some insightful trends. These trends could be impactful to delivering a high quality and productive grow.

Early Vegetative CV1 (crop code 880)

- 39% of samples were low to deficient in phosphorus
- 54% of samples were low to deficient in calcium
- 39% of samples were low to deficient in magnesium
- 53% of samples were low to deficient in manganese
- 68% of samples were low to deficient in boron

Pre-Flower CV2 (crop code 881)

- 36% of samples were low to deficient in phosphorus
- 46% of samples were low to deficient in calcium
- 46% of samples were low to deficient in magnesium
- 31% of samples were low to deficient in manganese
- 68% of samples were low to deficient in boron

Mature Non-Flowering CVMAT (crop code 885)

- 91% of samples were low to deficient in calcium
- 65% of samples were low to deficient in magnesium
- 47% of samples were low to deficient in boron

Early Flower CF1 (crop code 882)

- 49% of samples were low to deficient in calcium
- 31% of samples were low to deficient in magnesium

Late Flower CF2 (crop code 883)

- 31% of samples were low to deficient in nitrogen

Harvest CF3 (crop code 884)

- 48% of samples were low to deficient in nitrogen

It is apparent that calcium, magnesium and boron are deficient in the tissue of early non-flowering cannabis stages.

Let's recall that calcium is important in the stabilization of the cell walls. Calcium pectate in cell walls forms a physical barrier to disease entry. Adequate levels of calcium have been shown to increase quality by reducing physiological disorders. Calcium plays a small role in the activation of a few enzymes and the detoxifying of metabolic acids. Calcium is not mobile in the plant and cannot be translocated from older tissues.

Magnesium has several roles in plant growth and development. Magnesium is the fundamental component of chlorophyll, which supports plants ability to absorb sunlight. Magnesium also acts as a carrier for phosphorus in plants and is essential for phosphate metabolism. It is used during cell division and protein formation as well as the activation of several enzyme systems. Lastly it is an essential component for plant respiration.

Boron is used with calcium in cell wall synthesis and is essential for creating new plant cells and thereby plant growth. Other roles include nitrogen metabolism, the formation of certain proteins, the regulation of hormone levels and the transportation of potassium to stomata, which helps regulate internal water balance. Boron also help translocate sugars and carbohydrates. A boron deficiency causes a reduction of exudates and sugars from plant roots, which in turn can reduce the attraction and colonization of mycorrhizal fungi in the root zone.

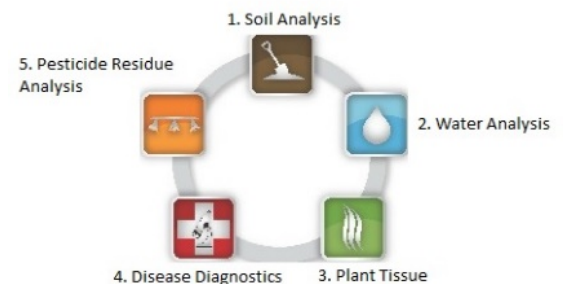
The earlier a nutrient deficiency is detected the greater the success of correcting the deficiency before it hinders quality and yield. A&L's plant monitoring programs can detect deficiencies before visual symptoms occur. A&L can also export plant tissue data in excel formats for quality assurance specialists at licensed producers. Contact the lab today for information on our plant monitoring program or go to our website for more detailed information at <https://www.alcanada.com/content/solutions/cannabis-analysis>.

MAXIMIZE GROW QUALITY WITH A PLANT MONITORING PROGRAM (PMP)

Now that you understand how plant tissue analysis can identify nutrient challenges in-season, why not aim for maximum yield and optimum quality with A&L's Plant Monitoring Program (PMP)?

Rather than one-off plant tissue tests, PMP can track your grow's nutrient status as it affects quality and yield.

Getting started is easy. Select the grow you want to monitor and enroll in PMP. There's no cost to enroll – fees only apply to the tests you order. Track your cannabis and hemp through A&L's Plant Monitoring Program.



For more information, go to:
<https://www.alcanada.com/content/references/pdf-content?pid=Plant%20Monitoring%20Program>



A&L'S FULL SUITE OF SERVICES & INDUSTRY LEADING TAT

About A&L

We are an innovative, research driven technology company focused on sustainable development. Through leading expertise, modern laboratory facilities and strong customer focus, A&L serves a wide range of industries including Agriculture, Environmental, Food & Pharma -- globally. In Agriculture, A&L provides comprehensive analytical services for soil, plant tissue, feed, fertilizer, and water. A&L's services also include production recommendations, remote sensing and precision agriculture capabilities.

A&L Biologicals Inc. focuses on research and development of biological compounds for use in agricultural production systems. The A&L Environmental division provides organic and inorganic chemistry and general chemistry using state of the art technology and methodology. For Food & Pharma, A&L provides analytical services for plant tissue, water, media and finished product cannabis & hemp.

A&L's services also include disease diagnostics, genetic analysis, production recommendations, and Plant Monitoring Program. The company operates three world class analytical laboratories (30,000 square feet) serving clients throughout Canada, the U.S. and Internationally.

- A Health Canada approved cannabis testing lab – for 4 years and deal with many Licensed Producers across Canada
- Certifications include SCC, GLP, ISO/IEC 17025, CFIA and are the largest environmental / agricultural lab in Canada / Northern USA
- A&L Canada has been in business as an analytical lab for 35 years testing and researching soil, food, water, fertilizers, biologicals and environmental microbiology

What Sets Us Apart?

TAT = TURN AROUND TIME
3 to 5 days
for most cannabis analysis
packages



- Cannabis Online Submission -
COS system allows clients to quickly select the tests they require then print the page and ship product to A&L – it's that easy..... then your data – Certificate of Analysis are stored on our data web for quick and convenient use eliminating you to store/ manage them – Pick from custom report and C of A templates
- We have partnered with **Niagara College** and their cannabis grower technician program; they are using our software and tissue sampling programs to educate their students and be ready for career opportunities in the industry
- A&L Canada's inhouse IT company has successfully developed production software for the greenhouse business many years ago and have now extended this capability for cannabis production. It is a full Seed-to-Sale Platform. See the software link ALCannTrace.com – on Twitter at [@ALCannTrace](https://twitter.com/ALCannTrace) -- all lab reports and QA documents can be managed from the software
- Our in-house software research & development team is working with major imagery and sensor platforms and developing algorithms for indoor and outdoor grow systems -- this system will pick up changes in the plant and give you the metric's needed to treat the potential nutrient, insect or disease issue to prevent further loss
- We are truly different than a standard pharmaceutical lab (they only do the Health Canada required testing) – A&L provides a full suite of services from testing fertilizers, soil/media, plant tissue during the growing stages, disease diagnostics and the Health Canada testing to top it off, start to finish
- If you are ever in London, Ontario we would be more than happy to give you a tour of our facilities
- For more information visit our website www.ALCannabisLabs.com

ALCANTRACE™
SEED-TO-SALE SOFTWARE

Software Built On 35 years of A&L Labs Plant Science Expertise

FOR THE CANNABIS INDUSTRY

ALCANTRACE MODULES	GROW MODULE	INVENTORY MANAGEMENT SYSTEM
IN-HOUSE QA DATA MANAGEMENT	DOCUMENT MANAGEMENT	POST-HARVEST CANNABIS INVENTORY

- MONITOR • TRACK • MANAGE • REPORT
ALL-IN-ONE crop production and traceability management in one solution
- FLEXIBLE & CUSTOMIZABLE
CUSTOMIZABLE to meet the needs of your growing operation
- TRUSTED PARTNER AND SUPPORT
HANDS-ON support from a leading technology services partner with trusted cannabis industry experience and proven capabilities
- A&L CANNABIS LABS YOUR ANALYTICAL EXPERTS
PARTNER WITH A&L Canada Laboratories From R&D, cultivation & disease diagnostics to final Health Canada testing... A&L is the leading Complete Cannabis Lab

www.ALCannTrace.com @ALCannTrace

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WELCOME DARYL PATTERSON TO HIS NEW ROLE

Customer Service & Marketing Lead, Food & Pharma



DARYL PATTERSON

Daryl Patterson will assume the newly created role of Customer Service & Marketing Lead, Food & Pharma, A&L Canada Laboratories. In this new role, Daryl will help serve the technical and service needs of our Food & Pharma clients - to provide technical support for cultivators and extractors.

Once we begin with outdoor grow and hemp production Daryl will take the lead on field support and the precision ag component that will go with this.

Daryl brings an extensive understanding of plant and biological sciences from over 11 years of experience with the laboratory analytical services for A&L; both for agricultural analysis and, for the past four years, for cannabis. Daryl has worked with A&L Labs clients to solve production issues and implement planning and monitoring programs. He has a Bachelor of Applied Science degree from the Western University, London, Ontario, Canada and is a Certified Crop Advisor (CCA).

“With the new demands of the cannabis industry I am committed to ensuring producers have the knowledge and technology at their disposal to deliver better production results and yields,” said Daryl Patterson.

“A&L has aggressively invested in research and development for cannabis and we are seeing heightening demand for technical knowledge and precision agriculture services. I look forward to having Darryl transition into the field and working with Brian Coutts, Strategy and Business Development Manager, Food and Pharma, to take A&L to the next level with our cannabis industry clients,” said Nevin McDougall, President and CCO of A&L Canada Laboratories. “We encourage you to reach out to Daryl for your production inquiries.”

DARYL PATTERSON
Customer Service & Marketing Lead, Food & Pharma
A&L Canada Laboratories, Inc.

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A&L CANADA LABORATORIES ANNOUNCES FACILITIES AND STAFFING EXPANSIONS

A&L opening new laboratory and have expanded facilities providing new capacity for increased customer service and future growth

A&L Canada Laboratories Inc., an innovative leader in analytical services and technologies, is pleased to announce the addition of new 4000 sq. ft facility to increase services and capabilities to clients in the area of precision agriculture and core analytical testing services. This investment complements the recent acquisition of analytical equipment and increased staffing - 17 new staff including a PhD Plant Pathologist - to meet the growing diagnostic demands of clients.

A&L will now operate 3 laboratory facilities with over 30,000 sq. ft. of laboratory and office space to better serve client needs today and for the future. The company also conducts agronomic and production research on cooperating customer farms, greenhouses, grow operations and universities across Canada.

Additionally, A&L recently installed a walk-in Biora Plant Growth Chamber to support the testing needs of the industry. The Plant Growth Chamber provides the control and repeatability needed to efficiently sustain precise conditions for superior testing and research.



"We take great pride in being the largest agriculture and cannabis analytical laboratory in the country," said Nevin McDougall, President & Chief Commercial Officer, at A&L Laboratories. "We have earned this leadership position by not only best-in-class service, reporting and analysis to our customers but expanding our cannabis analytics and expertise. Research is a priority and this state-of-the-art research Growth Chamber helps us solve production challenges and fine-tune recommendations."

"We are happy to continue to invest in our people and leading-edge lab capabilities to support the success of our clients across North America and globally," said Greg Patterson, CEO of A&L Canada Laboratories. "These additional resources help us to deliver services to all industry sectors to support their growth into the future."

NEW FERTILIZER ANALYSIS PACKAGE AVAILABLE - SPECIFIC FOR THE CANNABIS INDUSTRY

With the rapid increase of new fertilizer products available for the cannabis industry, the need for a more tailored analysis to suit the industry has been identified.

A&L Canada Laboratories is pleased to provide a new fertilizer analysis package which provides the following to clients:

- Total available and soluble nutrients
- Total nutrient content

This new analysis combines our A1 and A8 analytical packages:

- A1 - Total Nitrogen, total phosphorus, total potassium
- A8 - Available Phosphorus, Soluble Potash (C.F.I.A. required analysis)

The new analysis code is A18 and cost per sample will be \$140.00.

This package will be well suited to meet Canadian CFIA nutrient standards and for clients requiring total content analysis.

PURCHASE ORDER FEATURE IN COS

To facilitate ease of submitting payment, please take note of the various payment options we offer:

- 1) E-Transfers
- 2) Credit Card Payments
- 3) Wire or Electronic Fund Transfer

If you pay by PO # please be advised that your staff is entering the PO # in the COS system (Cannabis Online Submission) and will then carry through to billing.

Create Submission

Cannabis QC Analysis
 Nutrient Plant Tissue Analysis
 Disease / DNA Analysis
 PO #:
Please Enter the Number of items:

Item #	Sample ID	Date Sampled	Sample Type	Strain (Optional)	Quantity (gram)	Tests	Additional Tests	Growth Stage (Plant tissue only)	PMID (PMP test only)
1	<i>Sample Identificati</i>	yyyy-mm-dd	--- Select 1 ▾	<i>Strains</i>	<i>Quan</i>	None selected ▾	<i>Additional</i>	--- Select ▾	<i>PMID</i>

[Create Submission](#)

UPCOMING EVENTS

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

This is our most up-to-date list:

Growing Summit – Postponed until a later date

www.growingsummit.com

Kelowna, British Columbia

C-45 Quality Summit

May 12 - 14th, 2020

www.c45association.com

Fredericton, New Brunswick



Lift & Co

May 28th - 31st, 2020

<https://liftexpo.ca/toronto19/>

Toronto, Ontario



Grower Day

June 16 – 17th, 2020

<https://www.greenhousecanada.com/grower-day/>

St. Catharines, Ontario



O'Cannabiz Conference & Expo – New date

October 27-29, 2020

www.ocannabiz.com

Toronto, Ontario



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Instagram @ALCannabisLabs <https://www.instagram.com/alcannabislabs/>

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