A&L CANNABIS & HEMP NEWSLETTER FEB 2021

IN THIS ISSUE

The Importance of Soil, Media & Plant Nutrient Testing

Soil and media tests are valuable agronomic resources if they are taken properly and interpreted correctly.

Plant nutrition and the interactions that occur between plants and soil are extraordinarily complex mechanisms. There are multiple biotic and abiotic process affecting the overall growth of the plant.

There are 17 essential elements involved in plant nutrition. Three that are supplied naturally, that we have little control over and 14 that are supplied by soil or fertilizer applications.

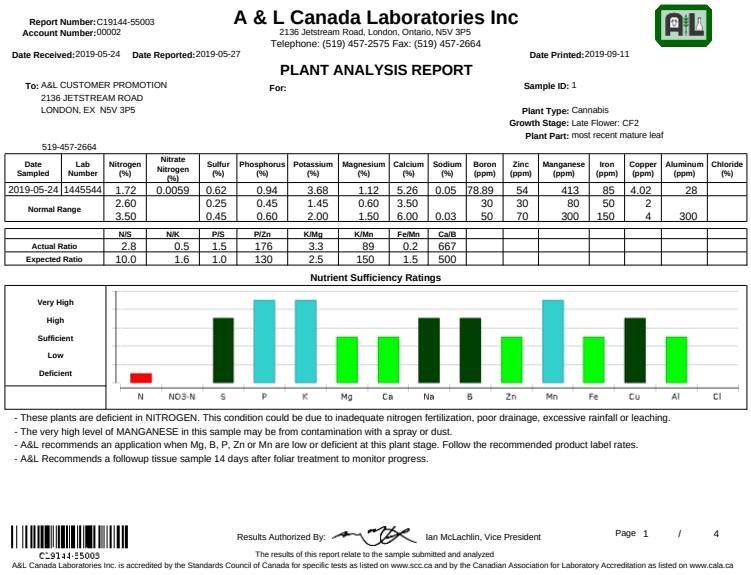
Therefore, it is important when interpreting soil or media analysis and designing a fertility program to keep balanced nutrition and proper placement of these nutrients in mind.

A good fertility program begins with determining how much of each nutrient is needed for optimum plant growth and how much will be removed by the harvest per unit of production.

The amount removed by a harvest should always be returned to the soil to maintain soil fertility. Nutrient imbalances can be corrected by gradually reducing excess nutrients through “draw down” or by adding additional complimentary nutrients (ie: adding sulfur to correct for a high N:S ratio). With the aid of historical field information such as soil reports, yeild and topography maps, as well as spectral imaging from UAVs and satelites, soil optimum nutrient levels can be established. Following the identification of crop requirements, crop nutrient removal and soil optimum levels, producers can then make educated and fiscal decisions on how to apply and adjust nutrients.

Plant tissue analysis is also a critical tool when growing a crop to ensure hidden hungers do not go unnoticed and crop potentials are maximized.

One of the more important factors affecting crop quality and yield is the nutrient status within the plant. Nutrient status is an “unseen” factor in plant growth, except when imbalances become so severe that visual symptoms occur. The goal of plant tissue analysis is to accurately diagnose deficiencies prior to a loss in crop potential and adjust fertility programs for the next season.



Report Number: C19144-55003
Account Number: 00002

A & L Canada Laboratories Inc
2136 Jetstream Road, London, Ontario, N5V 3P5
Telephone: (519) 457-2575 Fax: (519) 457-2664

Date Received: 2019-05-24 **Date Reported:** 2019-05-27 **Date Printed:** 2019-09-11

PLANT ANALYSIS REPORT

To: A&L CUSTOMER PROMOTION
2136 JETSTREAM ROAD
LONDON, EX N5V 3P5

For:

Sample ID: 1
Plant Type: Cannabis
Growth Stage: Late Flower: CF2
Plant Part: most recent mature leaf

519-457-2664

Date Sampled	Lab Number	Nitrogen (%)	Nitrate Nitrogen (%)	Sulfur (%)	Phosphorus (%)	Potassium (%)	Magnesium (%)	Calcium (%)	Sodium (%)	Boron (ppm)	Zinc (ppm)	Manganese (ppm)	Iron (ppm)	Copper (ppm)	Aluminum (ppm)	Chloride (%)
2019-05-24	1445544	1.72	0.0059	0.62	0.94	3.68	1.12	5.26	0.05	78.89	54	413	85	4.02	28	
Normal Range		2.60 3.50		0.25 0.45	0.45 0.60	1.45 2.00	0.60 1.50	3.50 6.00	0.03	30 50	30 70	80 300	50 150	2 4	300	

	N/S	N/K	P/S	P/Zn	K/Mg	K/Mn	Fe/Mn	Ca/B
Actual Ratio	2.8	0.5	1.5	176	3.3	89	0.2	667
Expected Ratio	10.0	1.6	1.0	130	2.5	150	1.5	500

Nutrient Sufficiency Ratings

- These plants are deficient in NITROGEN. This condition could be due to inadequate nitrogen fertilization, poor drainage, excessive rainfall or leaching.
- The very high level of MANGANESE in this sample may be from contamination with a spray or dust.
- A&L recommends an application when Mg, B, P, Zn or Mn are low or deficient at this plant stage. Follow the recommended product label rates.
- A&L Recommends a followup tissue sample 14 days after foliar treatment to monitor progress.

C19144-55003

Results Authorized By: Ian McLachlin, Vice President

Page 1 / 4

The results of this report relate to the sample submitted and analyzed
A&L Canada Laboratories Inc. is accredited by the Standards Council of Canada for specific tests as listed on www.scc.ca and by the Canadian Association for Laboratory Accreditation as listed on www.cala.ca

Soil, media and plant tissue analysis are critical tools to measure and manage crop nutrition and ensure production goals are achieved

A&L WORKSHOPS VIA ZOOM – FEB/MARCH 2021

A&L Soil Fertility Workshops Online for 2021

Join us in February and March as A&L Canada Laboratories moves its winter Soil Fertility Workshops online with a new format – weekly sessions:

- Each webinar will be held on Thursday and will be 1 ½ hours long, beginning at 1:30 pm EST.
- Greg Patterson, CCA and Founder of A&L Canada Laboratories Inc., will be leading the workshops
- CEUs will be offered in Crop Management for Certified Crop Advisers
- Registration is required with a nominal fee of $40 CAD for this event*
- For full workshop descriptions click here to learn more
- SPECIAL OFFER**:** register and attend all 7 sessions and receive 3 sessions at no cost*

**the registration fee for 3 sessions ($120 CAD) will be refunded (via PayPal) to the attendee upon completion of all 7-week sessions of the A&L Soil Fertility Workshops.*

Register today! **Learn more: https://www.alcanada.com/content/news/index?nid=61**

Field-Deployable Molecular Assay Available from A&L for Detection of Hop Latent Viroid (HLVd)

AmplifyRP® isothermal chemistry for HLVd and AmpliFire® portable fluorometer from Agdia are available for purchase from A&L Canada Laboratories:

AmplifyRP XRT for HLVd

- Real-time isothermal amplification kit
- 48 reactions
- *NOTE: This assay requires a fluorometer to work properly*

Product #: XCS 76500/0048
Cost: $811.20 CAD

Portable Fluorometer

- AmpliFire Isothermal Fluorometer

Cost $12,083.50 CAD

Total Assay Time: Less than 30 minutes when used with the AmpliFire as a real-time assay.
To order, or for more information, contact the A&L office at clientcarecannabis@alcanada.com

Learn more about these Agdia products for HLVd:
https://www.alcanada.com/pdf/technical/cannabis/Portable%20Testing%20for%20HLVd%20with%20Fluorometer.pdf

Agdia has been a leading provider of plant pathogen diagnostics since 1981. A&L Canada Laboratories is the exclusive distributor of Agdia products in Canada. A full range of Agdia products for in-field diagnostics is available online through the A&L Canada website at: https://www.alcanada.com/content/products/agdia-store.

"Hop Latent Viroid in cannabis is a very serious and costly issue causing stunting, malformation or chlorosis of leaves, brittle stems, and reduction in yields. Additionally, cuttings taken from symptomatic plants for clonal propagation is cause for reduced rooting success rate," said Dr, Keri Wang, Microbiology Laboratories Director, Senior Scientist, A&L Canada Laboratories Inc. HLVd is primarily spread through mechanical transmission, meaning it can be easily controlled when using best practices for cleanliness in your grow rooms.

A&L offers Hop Latent Viroid (HLVd) testing to their Cannabis Disease Diagnostics Services: https://www.alcanada.com/content/solutions/cannabis-analysis?title=Disease%20Diagnostics .A&L understands how important it is to get quality results back quickly and the HLVd test

Credit Card Payments - New Options Now Available!

More flexibility in how to pay....

For Existing Account Holders	For Non-Account Holders
Credit card payments can now be made online -- simply visit www.alcanada.com, click on the payment tab and follow the instructions *Please allow 24 hours from receiving a new invoice for it to appear on our website*	Credit card payments can be made by calling A&L 519-457-2575 Ext 202

- A&L Canada Laboratories is now able keep credit card information on file through Moneris for quicker processing.
- Safe and secure storage of credit card information allows for the rapid authorization of payments along with the immediate release of reports as soon as they are complete.

Moneris

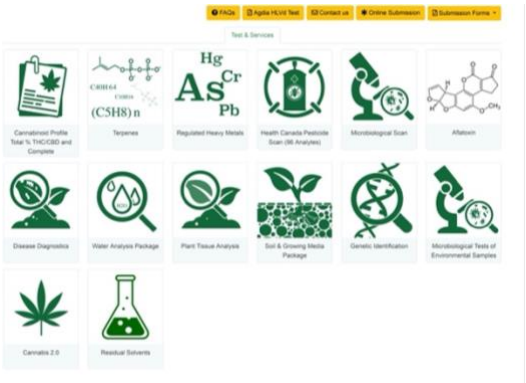
Please send an email to ardept@alcanada.com to request the Credit Card Authorization form to get set-up.

Website Updates – www.alcannabislabs.com

We have recently made updates to make it easier to find A&L Cannabis Soil2Oil services. Use our quick access URL to view: www.alcannabislabs.com

You will also find

- Submission Forms:
  - > Cannabis Chain of Custody
  - > Cannabis Greenhouse Media
  - > Cannabis Greenhouse Water
  - > Cannabis Chain of Custody for Disease Testing
  - > Soil Sample Analysis
  - > Cannabis Plant Tissue Nutrient Analysis Chain of Custody
  - > Cannabis Plant Tissue Nutrient Analysis PMP



- LINK to Online Submission
- FAQs for A&L Cannabis
- Agdia HLVd Testing Products (A&L is the Canadian distributor)
- LINK to Quickly Email Customer Service at clientcarecannabis@alcanada.com

Cannabinoid Testing Packages

The new comprehensive cannabinoid packages are available:
https://www.alcanada.com/content/solutions/cannabis-analysis?title=Cannabinoid%20Profile

ANALYSIS	CODE	AMOUNT	TAT
Total % THC/CBD Cannabinoid Profile *Non-Lot Release + Hemp***** - **HPLC -** Total % THC total % CBD **Not for concentrates** **Moisture is recommended for Potency & Terpene tests for proper results**	CANTOTMM	3g	3 days
Complete Cannabinoid Profile (16) – HPLC- CBCA, CBC, CBL, CBD, CBDA, CBDV, CBDVA, CBG, CBGA, CBN, CBNA, Delta-8 THC, Delta-9 THC, Delta-9 THCA, THCV, THCVA **Moisture is Recommended for Potency & Terpenes tests for proper THC results*	THCCBDMM	3g	3 days

EXPANDED Terpenes Library *Reports Now Include Total Terpene Percentage*

A&L Canada Laboratories has further expanded the library of Terpenes available for testing. As the industry develops to further differentiate products based on quality parameters such as terpenes, this expanded capability supports clients in their effort to distinguish their product and brand profile. View the Terpenes:
https://www.alcanada.com/content/solutions/cannabis-analysis?title=Terpenes

ANALYSIS	CODE	AMOUNT	TAT
Terpene Profile (38) including total terpene % **GCFID** - alpha-Bisabolol, alpha-cedrene, alpha-Humulene, alpha-Phellandrene, alpha-Pinene, alpha-Terpinene, alpha-Terpineol, beta-Caryophyllene, beta-Myrcene, beta-Ocimene, beta-Pinene, Borneol, Camphene, Camphor, Caryophyllene oxide, Cedrol, cis-Nerolidol, d-Limonene, delta-3-Carene, Eucalyptol, Fenchol, Fenchone, gamma-Terpinene, Geraniol, Geranyl acetate, Guaiol, Isoborneol, Isopulegol, Linalool, Menthol, NEROL, p-Cymene, Pulegone, Sabinene, Sabinene hydrate, Terpinolene, trans-Nerolidol, Valencene *(If there are additional Terpenes which are of interest to clients, A&L is more than willing to include those for customized analysis)* **Moisture is Recommended for Potency & Terpenes tests for proper THC results**	TERPENESMM	7g	3 days
Moisture (Loss of Drying) ** Recommended for Potency & Terpenes tests **	MOISTMM	2g	3 days

R&D Licence from Health Canada

A&L Canada Laboratories has now received a research license from Health Canada for cannabis. This new license coincides with the arrival of new state-of-the-art laboratory and growth chamber equipment at A&L. This will allow A&L to better support clients in the undertaking of research projects related to their cannabis production system.

The scope of research capabilities to be offered includes:

- Agronomy
- Production
- Quality Parameters
- Genetic Analysis of the Cannabis Plant

Please contact our company representatives if you wish to explore a research project for your operation

A&L Cannabis Labs Contact Information

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

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QUICK LINK A&L Cannabis: www.alcannabislabs.com