A&L CANNABIS & HEMP NEWSLETTER JUNE 2021

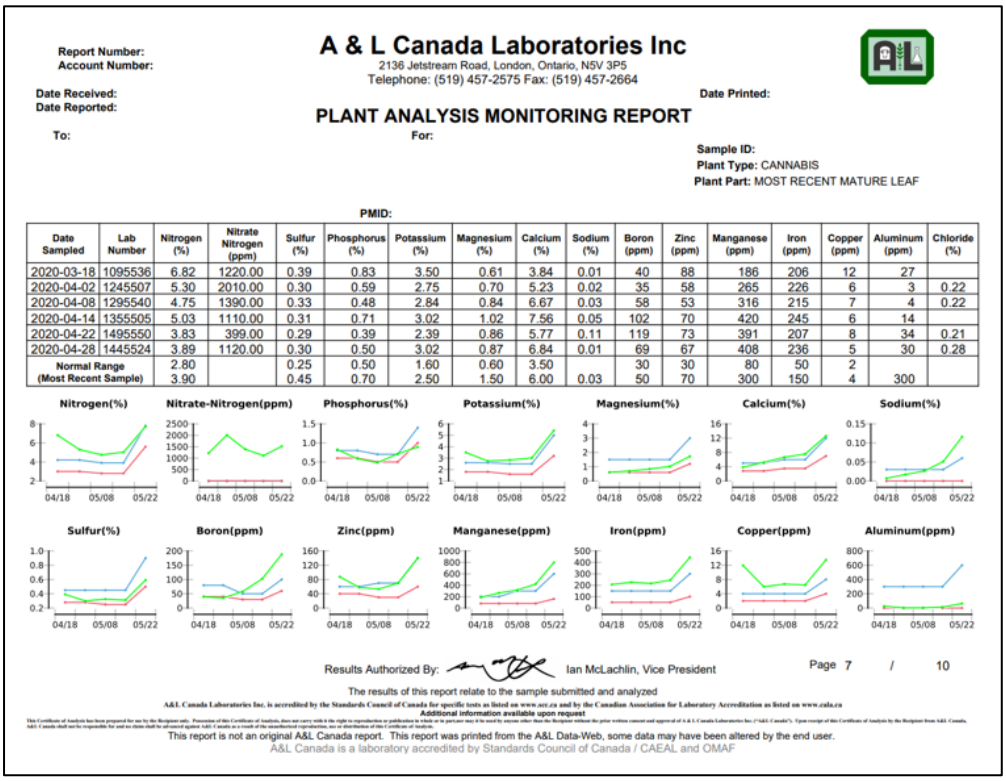
IN THIS ISSUE

Getting familiar with A&L's PMP - Plant Monitoring Program

Plant tissue analysis is a nutrient management tool that is a very effective way to monitor and optimise your cannabis nutrient regime for each growth stage

A&L's Plant Monitoring Program (PMP) – Free to Enroll:

1. Evaluate your grow plans and select the crop to be monitored
2. Enroll your crop by completing and submitting a Cannabis Plant Tissue Nutrient Analysis PMP Enrollment Form – go to www.alcannabislabs.com and click on "Submission Forms"
3. A unique Plant Monitoring ID (PMID) is assigned
4. Plant samples are to be submitted with a PMP Submission Form – go to www.alcannabislabs.com and click on "Submission Forms"
5. Sample analyses are reported on an A&L PMP Report



Report Number:
Account Number:

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

Date Received:
Date Reported:
Date Printed:

PLANT ANALYSIS MONITORING REPORT

To:
For:

Sample ID:
Plant Type: CANNABIS
Plant Part: MOST RECENT MATURE LEAF

PMID:

Date Sampled	Lab Number	Nitrogen (%)	Nitrate Nitrogen (ppm)	Sulfur (%)	Phosphorus (%)	Potassium (%)	Magnesium (%)	Calcium (%)	Sodium (%)	Boron (ppm)	Zinc (ppm)	Manganese (ppm)	Iron (ppm)	Copper (ppm)	Aluminum (ppm)	Chloride (%)
2020-03-18	1095536	6.82	1220.00	0.39	0.83	3.50	0.61	3.84	0.01	40	88	186	206	12	27	
2020-04-02	1245507	5.30	2010.00	0.30	0.59	2.75	0.70	5.23	0.02	35	58	265	226	6	3	0.22
2020-04-08	1295540	4.75	1390.00	0.33	0.48	2.84	0.84	6.67	0.03	58	53	316	215	7	4	0.22
2020-04-14	1355505	5.03	1110.00	0.31	0.71	3.02	1.02	7.56	0.05	102	70	420	245	6	14	
2020-04-22	1495550	3.83	399.00	0.29	0.39	2.39	0.86	5.77	0.11	119	73	391	207	8	34	0.21
2020-04-28	1445524	3.89	1120.00	0.30	0.50	3.02	0.87	6.84	0.01	69	67	408	236	5	30	0.28
Normal Range (Most Recent Sample)		2.80 3.90		0.25 0.45	0.50 0.70	1.60 2.50	0.60 1.50	3.50 6.00	0.03	30 50	30 70	80 300	50 150	2 4	300	

Nitrogen(%) | Nitrate-Nitrogen(ppm) | Phosphorus(%) | Potassium(%) | Magnesium(%) | Calcium(%) | Sodium(%)

Sulfur(%) | Boron(ppm) | Zinc(ppm) | Manganese(ppm) | Iron(ppm) | Copper(ppm) | Aluminum(ppm)

Results Authorized By: Ian McLachlin, Vice President

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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
Additional information available upon request

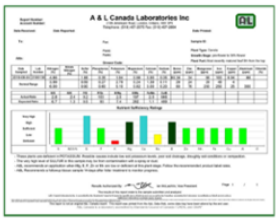
This report is not an original A&L Canada report. This report was printed from the A&L Data-Web, some data may have been altered by the end user.
A&L Canada is a laboratory accredited by Standards Council of Canada / CAEAL and OMAF

CANNABIS TISSUE TESTING SAMPLING

ORDER tissue bags
clientcarecannabis@alcanada.com
1-855-837-8347

1 Supplies

- Submission sheets
- A permanent marker for labeling
- Sanitized scissors, trimming sheers or a scalpel if the technician would prefer
- An A&L sample collection bag or a brown paper bag (no plastic bags)
- Flags if the location is to be resampled later



2 Conditions/Method

- Locate a representative area (different strains should be sampled separately as well as plants under different growing conditions)
- Flag and note the sampling area as to be able to return later
- Record required information including cannabis growth stages on the submission form
- With a sample bag, clean hands and/or sanitized tools collect the most recently mature leaves (typically 3 to 5 leaves down from the growing tip) from 15-30 plants
- 10 to 20 grams of wet leaf tissue is required for analysis
- Be sure to take samples at the same time of day and during similar conditions if following up with another sample later
- Avoid irregularities or take separate samples from the irregular areas
- If a poor area is being investigated for deficiencies take a sample from a good area along with your poor area to compare results

3 Sample Preparation

- If samples have dirt, debris, foliar sprays or other contaminates, they should be washed or wiped off with cool distilled, or unmineralized water and phosphate-free detergent (dirty samples will cause a potential bias in the lab results)
- Allow samples to air dry in a clean area free from contamination
- Complete plant tissue submission sheets listing each individual sample
- Place samples (that are in sample bags) and sheets

4 Ship to A&L Labs

- Send samples & information sheets via courier to: A&L Laboratories, 2136 Jetstream Road, London, ON N5V 3P5
- Samples can also be dropped off at the A&L Canada Laboratories office at the same address
- It is important that samples are sent to the lab quickly to ensure the leaves do not begin to decompose

5 A&L Reports

- Cannabis leaf tissue analysis reports turnaround time (TAT) is next day from the lab receiving the samples
- Once your results are finished you will be emailed a copy of your analysis or you can also log on to the A&L DataWeb to view your report online

Soil2Oil™ A&L CANNABIS LABS

For more information on A&L's Plant Tissue Testing Services visit www.alcannabislabs.com

SOIL TESTING AND OUTDOOR GROW PLANNING

Are you ready? There is still time to soil sample in preparation for your cannabis or hemp crop.

Important factors you should have data on are Heavy Metals, Pesticides, Soil Fertility and Soil Health.

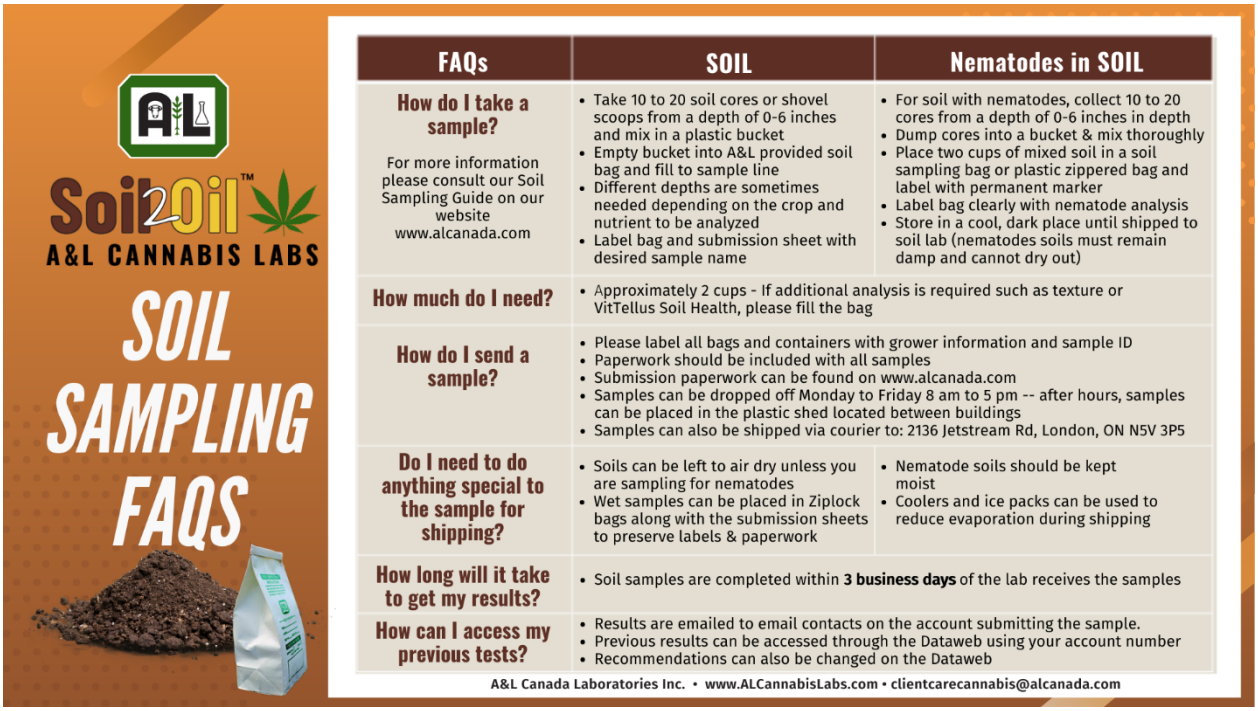
HEALTHY SOIL
HAPPY PLANTS

This will help you plan the important decisions you have to make.

Most important in growing any crop outdoor that you have control over are

1. Drainage
2. Soil PH
3. Soil Type and past cropping decisions
4. Fertility levels
5. Genetics

Let us help you do your due diligence. For assistance in soil sampling and analysis, contact A&L Cannabis Labs at clientcarecannabis@alcanada.com;



FAQs	SOIL	Nematodes in SOIL
How do I take a sample? For more information please consult our Soil Sampling Guide on our website www.alcanada.com	• 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	• For soil with nematodes, collect 10 to 20 cores from a depth of 0-6 inches in depth • Dump cores into a bucket & 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 (nematodes soils must remain damp and cannot dry out)
How much do I need?	• Approximately 2 cups - If additional analysis is required such as texture or VitTellus Soil Health, please fill the bag	
How do I send a sample?	• 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 plastic shed located between buildings • Samples can also be shipped via courier to: 2136 Jetstream Rd, London, ON N5V 3P5	
Do I need to do anything special to the sample for shipping?	• 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 & paperwork	• Nematode soils should be kept moist • Coolers and ice packs can be used to reduce evaporation during shipping
How long will it take to get my results?	• Soil samples are completed within **3 business days** of the lab receives the samples	
How can I access my previous tests?	• Results are emailed to email contacts on the account submitting the sample. • Previous results can be accessed through the Dataweb using your account number • Recommendations can also be changed on the Dataweb	

A&L Canada Laboratories Inc. • www.ALCannabisLabs.com • clientcarecannabis@alcanada.com

CANNABIS PRODUCTION WORKSHOP VIDEOS

A&L and Hawthorne held a complimentary webinar "Unlock Your Plant's Potential" highlighting best management practices for production of Cannabis

If you would like to watch the webinar again, or missed it the first time, please click on the attached links to view on the A&L YouTube channel.

PLANT NUTRIENT TESTING - Importance, Method, Timing, Results, Interpretation
Greg Patterson, CEO and Certified Crop Advisor (CCA), *A&L Canada Laboratories Inc.*
https://youtu.be/1hHJ-uc7VGQ

MEDIA AND WATER MANAGEMENT - Importance, Best Management Practices
Jean Pierre Fortin, Technical Sales Support, *The Hawthorne™ Gardening Company*
https://youtu.be/eU1vvaQevQI

LIGHTING - Light Distribution & Type, Spectrum Optimization, Heat Loads, ROI
Brandon Robinson, Technical Service Engineer, *The Hawthorne™ Gardening Company*
https://youtu.be/2tYCY2ziMd8

If you have questions or are interested in more information, please visit:
www.alcanada.com
www.hawthornegc.com/
www.hawthornegc.ca/
https://fafardpro.ca/en/growers/products/cannabis/

DISEASE DIAGNOSTICS

HOP LATENT VIROID (HLVd); Positive detection rate of 25%

Review of all cannabis samples analysed by A&L in the past 12 months indicates very high prevalence of Hop Latent Viroid (HLVd). Over thousands of samples analysed from across Canada, a positive rate of over 25% for HLVd has been confirmed in samples tested for this viroid. This high incidence rate reinforces the need to assess plants for disease early in the growth cycle so preventative measures can be taken.

A&L's Cannabis Disease Diagnostics Services provides testing services for Hop Latent Viroid (HLVd) – and we understand how important it is to get quality results back quickly. For HLVD testing, **results are available in 3 business days**.

A&L Canada Laboratories has been providing Plant Disease Diagnostics (PDD) for over thirty years in row, horticultural and greenhouse crops. A&L offers complete pest diagnosis and services for the detection of plant pathogens including fungi, bacteria, viruses, and nematodes in association with plant tissues, soils, composts and water. Our expert team use many different technologies for our customers to meet their rigorous testing requirements.

A&L's Disease Diagnostics team works closely with each customer, from researchers to diagnosticians and growers, both in the greenhouse and field, to provide their results in the most cost effective and rapid way while maintaining customer confidentiality.

To learn more about Plant Disease Diagnostics (PDD), visit the A&L Plant Disease Diagnostics website at www.pdd.alcanada.com, or email clientcarecannabis@alcanada.com.

PATHOGEN TEST: Hop Latent Viroid

CODE: BVHLVD
AMOUNT: 0.5-1 grams
TAT: 3 days

"Hop Latent Viroid in cannabis is a very serious and costly issue causing stunting, malformation or chlorosis of leaves, brittle stems, and reduction in yield and THC content. Additionally, cuttings taken from the infected plants for clonal propagation is cause for reduced rooting success rate."

- 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 clean starting materials and best practices for cleanliness in your growth rooms.

DISEASE DIAGNOSTICS: NEXT GENERATION SEQUENCING

To further support the expansion of A&L Canada Laboratories diagnostic capabilities, the Disease Diagnostics Lab has acquired additional gene sequencing technology. This will assist in virus and viroid detection as well as many other genomic services clients might need. The new instrumentation will also improve A&L Canada Laboratories industry leading turnaround times in disease diagnostics. This service will be available to clients in the upcoming weeks. Services which will be made available to clients include:

1. Complete plant disease diagnosis to identify all pathogens including fungi, bacteria, viruses, and viroids, etc. presenting in cannabis tissues (leaves, flowers, roots etc.). Since cannabis diseases have not been well studied, many diseases remain unknown.
2. Identification of microbial community presenting in cannabis products. This can help clients deal with various inquiries when microbials exceed limits.
3. Identification of all microbials presenting in growth media, water, and contact surfaces.
4. Cannabis genome sequencing to identify the variety or compare varieties.
5. Genome sequencing of molds or bacteria.
6. Soil microbial community study for soil health research.

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

Quick URL

www.alcannabislabs.com

NEW: Faster 3-day TAT with the 3M™ Petrifilm™ Rapid Yeast and Mold Test

With the fast pace of the Cannabis industry, License Holders (LH) are always looking for ways to speed up lab turnaround times (TAT). Typically, a lot release set of testing including microbiological testing cannot be completed in less than 5 days using traditional plating techniques, because of Yeast and Mold (Y&M) testing requiring 5 days of incubation time. However, A&L has a new solution for LH's looking to speed up this testing to 3 days.

3M™ Petrifilm™ Rapid Yeast and Mold Count Plate is a sample ready culture medium that contains an indicator system to allow analysts to read the Y&M in 3 days. 3M Petrifilms™ are widely used and accepted in the Health Canada food method, and A&L has used them for years in their food accredited laboratory and previously validated the test on Cannabis.

Recent activity:

- 3M™ conducted in house validation on Dried Cannabis, Gummies and Cannabis Oil
- June 4, 2021, AOAC International approved 3M™ Petrifilm™ Y&M and 3M Petrifilm Rapid Y&M for Cannabis https://www.aoac.org/news/aoac-announces-six-test-kits-approved-for-enumeration-of-yeast-and-molds-in-cannabis/
- A&L has completed recent validation of 3M™ Petrifilm™ Rapid Y&M on dried cannabis, cannabis oil, cannabis extracts, cannabis topicals

One concern with deviation from USP/EP method has been comparison of results to meet the USP/EP limits. Other nonstandard methods such as qPCR have shown to give conflicting and variable results when compared to traditional USP/EP plating methods.

3M™ Petrifilm™ give very comparable results to USP/EP as the methodologies of culturing as well as enumerating are very similar. In addition, the same low detection limit of 10 cfu can also be achieved as the plating method, which is required for oral or inhalation standards. The laboratory procedures are similar so requesting the Rapid Y&M method can be applied to any package and will not increase the cost of analysis.

If interested, please inquire with A&L today by contacting customer service clientcarecannabis@alcanada.com

Upcoming Industry Events

Cannabis Expo Montreal
September 14 - 15, 2021 – Montreal, Quebec
https://www.cannabisexpomontreal.com

Grow Up Conference & Expo
October 5 - 7, 2021 – Niagara Falls, Ontario
https://growupconference.com

Canadian Hemp Conference 2021 – Virtual
November 16 - 18, 2021
https://www.hemptrade.ca

Lift & Co. Expo
November 18 - 21, 2021 – Toronto, Ontario
https://liftexpo.ca

A&L Cannabis Labs Contact Information

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

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Tel: 519-457-2575 · Toll Free: 1-855-837-8347

A&L Canada Laboratories Main Website:
www.alcanada.com

CANNABIS QUICK LINK: www.alcannabislabs.com

A&L Canada Laboratories will be closed on July 1st, 2021 for Canada Day
The lab will return to normal hours Friday, July 2nd, 2021