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**Welcome to our Spring Newsletter. As always, we hope you find the content informative and timely. We welcome any comments or suggestions for future issues. Thank you for your business and we wish you a safe and productive year.**

## SOIL NITRATE TESTING

Use of the pre-side dress nitrogen test (PSNT) continues to increase, driven by increased N fertilizer prices and more intensive nutrient management practices. With input costs for corn production at an all time high and grain prices also increasing, why wouldn't a grower want to minimize the amount of fertilizer required to grow corn and yet improve returns? Nitrogen is the most elusive nutrient to manage and, when deficient, will significantly limit yield potential to a point that profits are lost. Having the right amount of nitrogen available at the right time is essential to achieving profitability.

A corn plant uses around 10% of the nitrogen it needs during the first three weeks of growth. Then, during the next five weeks (V4 to V18), it needs to take up 65% of its total seasonal nitrogen requirement. If nitrogen supply is limited during this period, yield and profits will suffer.

Taking a pre-side dress nitrate test (PSNT) at the V4-V5 stage indicates how much nitrogen is available in the soil from cover crops, legumes, applied manure and other sources.

Timing is very important; samples should be taken five to ten days before side dressing to allow time to collect the sample, have it analyzed and receive the results. Samples taken too early will not be as accurate because nitrogen is continually released (mineralized) in the spring as the soil warms. A&L Canada analyzes PSNT samples and reports results the next business day after receipt.

PSNT soil samples should represent no more than 20 acres. The sampled area should be consistent for past crop, soil types and manure applications. Probe the soil 12 inches deep, taking 15 to 20 cores per field. Avoid probing through the starter band. If fields have significantly differing soil types or drainage patterns, sample these areas separately.

## HERBICIDE SPRAY DRIFT: Documentation & Diagnosis

Herbicides can damage non-target plants (those not intended to be treated) when the compound comes in contact with these plants through drift, root uptake, or volatilization. Symptoms of herbicide damage are varied but can be in the form of leaf burn, cupped or twisted growth, and faded or light leaf colour.

Most areas don't have many days of ideal spraying conditions, but contract obligations still need to be met. Knowing what to do if you suspect spray drift will provide the best possible sample for the laboratory confirmation, as well as demonstrate professionalism in the Ag industry.

In the course of doing what they're supposed to do – kill weeds, herbicides are degraded into simpler compounds (metabolites) which further break down into naturally occurring elements such as carbon, hydrogen, oxygen, etc. Timing is critical when collecting plant samples for herbicide analysis. Herbicides can be metabolized rapidly by plants, drastically reducing the possibility of detecting even trace levels of the parent compound. Spray drift incidents of growth regulators are a good example of this problem, since they are active at such low levels. By the time leaf symptoms have developed, most of the parent compound has metabolized.

Another factor governing herbicide injury levels of plant tissue is the growth rate of the crop. If the plant's growth has been suppressed due to cold wet conditions, the effects of the herbicide will also be suppressed. Once growing conditions improve, herbicide injury symptoms may dramatically appear.

***If spray drift is suspected, collect a tissue sample immediately and freeze it.*** This will essentially shut down plant metabolism, preserving any material that may have drifted onto the plant tissue. Crop symptoms in the field can then be observed and the samples analyzed if crop growth is impaired or yield loss occurs.

When collecting plant tissue samples, collect the portion of the plant most dramatically displaying symptoms, or the portion that would have received the highest level of the drift. Collect enough plant material to fill a quart size plastic bag, seal the bag and freeze it. Also collect a sample from an area not affected by the suspected spray drift to aid in the interpretation of test results.

Once collected, plant tissue samples must be frozen and remain frozen until they arrive at the lab. Should you decide to submit samples for analysis, pack the samples in an insulated cooler and cover them with **dry ice**. In order to assure the samples arrive in good condition, they should be shipped to the lab using an overnight courier. In order to validate proper sample handling, we recommend accompanying the samples with a chain of custody document. These are available from the laboratory or on our website.

## Feed and Livestock Management Division News

A&L Canada for over 20 years as part of their full service agricultural testing has offered livestock analytical services as part of our core business. This analytical service besides the regular feed testing, also includes the testing of feeds for mycotoxins, water for livestock suitability and most recently full microbiological analysis. Our feed business pioneered rapid wet chemistry results and continues to expand with the addition of a new state of the art NIR feed analyzer. Our livestock service was built on quality analysis, and turn around to maximize feed efficiency and performance. We have also consulted and customized our feed packages to reflect the changes in the ever changing feed industry. Of note one of our unique customized feed analysis packages, is a specialized horse forage package for horses that have Cushing disease, a sugar metabolism related problem. This equine feed package has successfully aided veterinarians in dietary treatment and control of this serious animal health disease. For those of you who market feed to the small, but important equine industry, feel free to contact our lab for more information on this specialized horse feed test.

### New NIR Test Packages

TEST PACKAGES		
<b>FN1</b> – Basic Feed Package (NIRA)	Moisture, Crude Protein	
<b>FN2</b> – Forage & Silage Package (NIRA)	DM, Moisture, Crude Protein, SP, ADF-CP, UIP, ADF, NDF, Ca, P, Mg, K, Na, S, Cl, Lignin, Fat, Ash, Starch, Lysine, Methionine, Calculated Values: TDN, NEL, NEM, NEG, RFV, NSC Reported on a "As Fed and Dry Weight Basis"	
<b>FN4</b> - Silages Receive Lactic and Acetic Acid		
<b>FN3</b> – TMR (NIRA)	DM, Moisture, Crude Protein, SP, ADF, NDF, Lignin, Starch, NFC, Fat, Ash, TDN, NEL, NEM, NEG, ME, DE	
<b>FN5</b> -Substitute for Wet Chemistry (all NIRA Nutrients / Minerals)	Ca, P, Mg, K, Na, Cu, Mn, Zn, Fe, Mo	
<b>FN6</b> -Substitute for Wet Chemistry (Macro NIRA Nutrients/ Minerals)	Ca, P, Mg, K, Na, S	
<b>FN7</b> -Add Mircos to NIRA Package (Wet Chemistry)	Cu, Mn, Zn, Fe, Mo	

# A & L CANADA LABORATORIES INC.

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## FEED SAMPLE INFORMATION SHEET NIRA

<b>SUBMITTED BY:</b>			<b>CLIENT/GROWER:</b>		
Address:			Address:		
City:	Prov:	Postal Code:	City:	Prov:	Postal Code:
Phone:		Fax:	Phone:		Fax:
Email:			Email:		
Account #:			Grower Code: Farm:		

SAMPLE ID	DNS no.	TEST PACKAGES (PLEASE SELECT ONE)							Forage Silage	
		FN1	FN2	FN3	FN5	FN6	FN7	Optional Analysis		
									<input type="checkbox"/>	<input type="checkbox"/>
									<input type="checkbox"/>	<input type="checkbox"/>
									<input type="checkbox"/>	<input type="checkbox"/>
									<input type="checkbox"/>	<input type="checkbox"/>

TEST PACKAGES	
<b>FN1</b> – Basic Feed Package (NIRA)	Moisture, Crude Protein
<b>FN2</b> – Forage & Silage Package (NIRA)	DM, Moisture, Crude Protein, SP, ADF-CP, UIP, ADF, NDF, Ca, P, Mg, K, Na, S, Cl, Lignin, Fat, Ash, Starch, Lysine, Methionine, Calculated Values: TDN, NEL, NEM, NEG, RFV, NSC Reported on a "As Fed and Dry Weight Basis"
<b>FN4</b> - Silages Receive Lactic and Acetic Acid	
<b>FN3</b> – TMR (NIRA)	DM, Moisture, Crude Protein, SP, ADF, NDF, Lignin, Starch, NFC, Fat, Ash, TDN, NEL, NEM, NEG, ME, DE
<b>FN5</b> -Substitute for Wet Chemistry (all NIRA Nutrients / Minerals)	Ca, P, Mg, K, Na, Cu, Mn, Zn, Fe, Mo
<b>FN6</b> -Substitute for Wet Chemistry (Macro NIRA Nutrients/ Minerals)	Ca, P, Mg, K, Na, S
<b>FN7</b> -Add Micros to NIRA Package (Wet Chemistry)	Cu, Mn, Zn, Fe, Mo

OPTIONAL ANALYSIS	
<b>A</b>	NDFD 24hr
<b>B</b>	NDFD 48hr
<b>C</b>	NDFD 72hr
<b>D</b>	Selenium
<b>E</b>	Sugar + Starch (reported as NSC)
<b>F</b>	Starch
<b>G</b>	Nitrate
<b>H</b>	Ph

Please fax a copy to:

Please email a copy to:

## Manure Testing

In response to the surge in fertilizer prices, many producers are re-evaluating their manure management practices to ensure maximum nutrient utilization. To assist in this, our manure report now features an available nitrogen calculation as determined under normal temperature and normal moisture conditions. In addition, specific calculations to "fine tune" for application in a wet or dry, warm or cool environment. Can still be found on the reverse side of our report.

REPORT NO.  
ACCOUNT NO.

## A & L CANADA LABORATORIES INC.

2136 Jetstream Road, London, ON, N5V 3P5 (519) 457-2575 (519) 457-2664



TO:

FOR:

ATTN:

### MANURE ANALYSIS

LAB NUMBER:  
SAMPLE ID:

DATE RECEIVED: 4/22/2008  
DATE REPORTED: 8/27/2008

PAGE: 4

PARAMETER	ANALYSIS RESULT		POUNDS PER 1,000 GAL	ESTIMATED AVAILABILITY PER 1,000 GAL
Sulfur	1111 ppm			
Dry Matter	11.3 %			
Nitrogen (Total)	0.71 %		70.5	
NH4-N	0.44 %		44.4	
Phosphorus (Total)	0.21 %			
Phosphate (P as P2O5) **	0.48 %		47.9	19.2
Potassium (Total)	0.47 %			
Potash (K as K2O) **	0.56 %		56.2	50.6
Organic Matter *	8.9 %			

Application Rate (gal/ac)	Available Nitrogen PER 1,000 GAL							Not Incorporated			Late Fall Applied
	Nitrogen incorporated 1 Day	Nitrogen incorporated 2 Day	Nitrogen incorporated 3 Day	Nitrogen incorporated 4 Day	Nitrogen incorporated 5 day	Injected	Spring	Summer	Early Fall		
1000	38.52	36.50	37.29	31.88	29.64	49.52	20.32	27.42	34.08	38.52	
2000	77.04	72.60	74.58	63.72	59.28	99.04	40.64	54.85	68.16	77.04	
3000	115.56	108.90	111.87	95.58	88.93	148.56	60.96	82.27	102.24	115.56	
4000	154.08	145.20	149.16	127.45	118.57	198.47	81.28	109.69	136.33	154.08	
5000	192.60	181.51	174.47	159.31	148.21	248.09	101.60	137.12	170.41	192.60	

\* Organic Matter is reported on an as is basis.

\*\* Available nutrients are reported on a total basis.

Only a portion of nutrients will be available the year of application.

Calculation is based on average fert soil moisture cond. Detailed Available N nitrogen calculation (including poultry and biosolids) on reverse side.

A&L Canada Laboratories accredited to Ontario's Council of Canada (CCAL) and OMAF.

## Using Plant Analysis to Monitor Crop Requirements In Season

Plant tissue analysis is generally known as a tool for diagnosis of nutrient deficiencies. Unfortunately, crop yield can already be affected by the time visual symptoms of nutrient deficiencies are present. Monitoring nutrient concentrations on a regular basis throughout the growing season provides multiple opportunities to evaluate the plant's nutritional condition to predict and "head off" nutrient deficiencies or identify "Hidden Hungers" that rob our crops of yield and quality. However, it is also an excellent tool to monitor and fine-tune crop nutrient supply during the growing season. For this reason we have developed our Plant Monitoring Program,(PMP)

This type of monitoring of the nutrient status of traditionally high-value vegetable and fruit crops with plant tissue analysis is common. With current commodity and fertilizer prices, plant tissue monitoring has a greater economic potential to help fine-tune fertilizer nutrient programs for row crops, as long as a good soil testing and fertility program is already in place.

Analyzing a plant tissue sample provides an evaluation of a crop's nutrient status at the time the sample is taken. Soil physical and fertility status as well as weather conditions the crop has experienced up to the time of sampling may have influenced plant nutrient levels. However, a plant tissue analysis cannot be used to reliably predict whether nutrient supply and uptake will be adequate after the sample is taken. A plant's nutrient demand changes quickly in season as it goes from one stage of growth to another. A plant that was sufficient in the vegetative stage may become deficient in a nutrient as it transitions into the reproductive stage.

Crop demand also will change nutrient requirements year-to-year and field-to-field. A crop that has set up to produce huge yield potential may run out of nutrient supply simply because of the demand that it places on the soil and the soils ability to supply certain nutrients. A monitoring program will predict this and allow the grower to respond to that nutrient before it becomes yield limiting. In some years a soil may not have the potential to finish those huge crops.

A plant analysis monitoring program involves taking samples at multiple times during the growing season and accurately identifying the stage of growth so that we can match it to our data base of ranges. Individual tests results are evaluated for deficiencies, but particularly for nutrient trends over time. One nutrient may initially be sufficient, then trend low due to availability or demand that the crop is putting on the soil reserves.

If a nutrient need is identified, the corresponding question is whether an in-season application will effectively and economically correct the problem. If a correction is going to be effective it has to happen early in season and it must happen before the nutrient reaches critical thresholds. Once an element reaches these critical thresholds it is difficult to get a response. Keep in mind when using a monitoring program your largest crop will run out of nutrients the quickest. A poor or low tissue test does not always mean a poor crop; it usually means there is a lot of demand on nutrient supply because the crop is using the nutrients. In other words your best crop may have the poorest tissue test. Just make sure you identify this and respond with correctives before it is too late.

# PMP Program

A plant analysis-monitoring program can help identify nutrient management needs and opportunities throughout the season before they become yield and quality limiting. However, just as important, it can be a confirmation that a good soil fertility program is in place and that little adjustment is needed.

## Example:

Report Number:  
Account Number:

## A & L Canada Laboratories Inc

2136 Jetstream Road, London, Ontario, N5V 3P5  
Telephone: (519) 457-2575 Fax: (519) 457-2664



### PLANT ANALYSIS MONITORING REPORT

To:

For:

Sample ID:

Grower Code:

Plant Type:

Field:

Plant Part:

Variety:

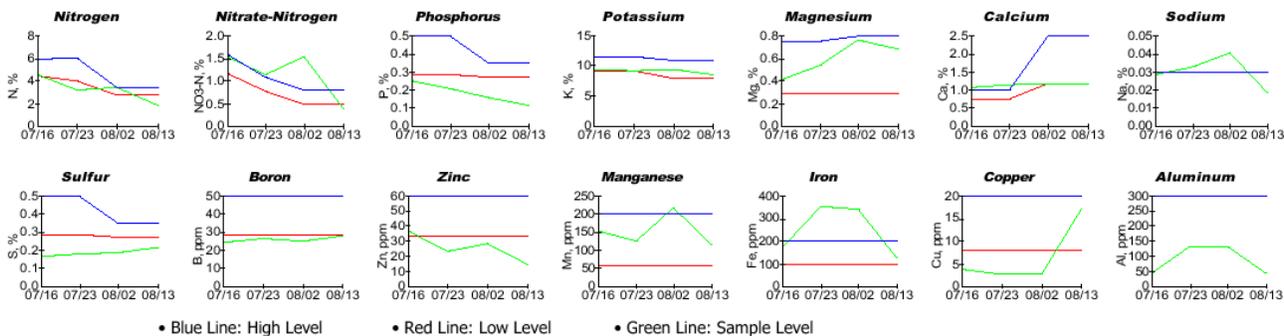
PMID:

Date Received:

Date Reported:

Page: 1

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 (%)
07/16	199562	4.59	1.55	0.17	0.26	9.51	0.42	1.07	0.03	25	37	156	173	4	46	
07/23	208662	3.26	1.15	0.18	0.21	9.16	0.54	1.16	0.03	27	23	128	355	3	136	
08/02	220556	3.42	1.54	0.19	0.16	9.51	0.77	1.20	0.04	25	29	220	344	3	136	
08/13	227586	1.88	0.38	0.22	0.12	8.60	0.68	1.20	0.02	28	15	114	129	17	43	
<b>Normal Range</b>		2.79	0.49	0.27	0.27	8.00	0.29	1.20		29	34	60	99	8	300	
<b>(Most Recent Sample)</b>		3.50	0.80	0.35	0.35	11.00	0.80	2.50	0.03	50	60	200	200	20	300	



## Go Electronic - Save a Tree!

The majority of our customers are now receiving soil report data via PDF only. If you are still receiving a paper copy and want to do your part to help the environment and help us keep your costs down, please advise that you wish to go to "paperless" and soil information will be automatically emailed to you when released from our laboratory. Send us an email with your account number and let us know that you want to go paperless.

With the increasing number of soil submissions are being made threw our DataWeb. These user-friendly and time saving on-line submissions eliminate the legibility issues that can accompany manual, hand-written forms. Feel free to contact Jackie at ex 225 for a brief telephone tutorial that will introduce you to this process.

accompany manual, hand-written forms.

<b>A &amp; L CANADA LABORATORIES, INC.</b> 2136 Jetstream Road - London, Ontario N5V 3P5 - Phone 519-457-2575 - Fax 519-457-2664		
<b>SOIL SAMPLE SUBMITTAL FORM</b>		Page 1 Printed on 29/SEP/2008
Reference:	00047-7	
		
FROM Soil Stewardship Group	Grower Name: Jeff Smith Grower Code: 1244 Farm: Home Field: East Address:	
Fax To: E-mail To:	Phone:	
Additional Information:		
Sample ID	Lab Number (Office Use)	Requested Tests Recommendations Requested
1		S1B, S2, Zn, Mn
2		S1B, S2, Zn, Mn
3		S1B, S2, Zn, Mn
4		S1B, S2, Zn, Mn
5		S1B, S2, Zn, Mn
6		S1B, S2, Zn, Mn
7		S1B, S2, Zn, Mn
8		S1B, S2, Zn, Mn
9		S1B, S2, Zn, Mn
10		S1B, S2, Zn, Mn