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Come and visit us at the Outdoor Farm Show, Sept. 15th-17th.

Nutrient Management On Ongoing Challenge

An ongoing question that growers ask, especially in challenging economic times, is which fertilizer nutrient can they can reduce and not limit their yields. There is not a uniform answer because many factors interact on a field-by-field basis.

Probably a better question to ask is which input will provide the greatest return on investment. A crop's yield potential is governed by its most limiting input, whether it is a particular nutrient, weather, or soil condition. For example, adding more phosphorus will not increase yield if potassium is deficient or if the soil is compacted. Before even considering which nutrient will maximize profits, environmental factors need to be addressed, such as "Is the field adequately tilled and have compaction issues been corrected?"

The critical level for a nutrient is usually defined as the level at which 95% of maximum yield is expected. There may be areas in a field where the maximum yield expectation is only 80 bu/ac of corn, so applying a flat rate of nitrogen or other nutrient across the entire field may not return a profit, and would most likely increase expenses. Saving expense in known problem areas allows resources to be used in more productive areas. A current soil test is essential to knowing the soil nutrient status. Information from a soil test provides an inventory of the soil nutrient status.

Using GPS for soil sampling and mapping to obtain a "**Soil Audit**" can identify production limitations. Once the "**Soil Audit**" has identified these limitations, tools such as variable rate application of fertilizer can be utilized, so that lime and nutrients are positioned in the right place and at the right amount.

Soil pH is the fertility parameter which has the greatest impact on nutrients, because plant availability of several nutrients is dependent on pH. Liming soils to an appropriate pH level is the best investment a grower can make toward making nutrients already in the soil available to crops.

For corn, adequate nitrogen at the right time is essential. For fields with a recent application of manure, a pre-side dress nitrate test (PSNT) will be beneficial. With the high cost of nitrogen a small application rate reduction could pay substantial dividends. Also addressing Potassium and Magnesium needs in a field will also increase Nitrogen use efficiency by the crop. Again, a crop's yield potential depends on its most limiting factor, so cutting back on nitrogen where poor soil conditions exist may make good economic sense.

Phosphorus is the macronutrient needed in the smallest quantity. However, it is also the nutrient that is present in soil solution at the lowest concentration. This means that a plant's root system needs to be well developed so it can

find and absorb adequate phosphorus throughout the growing season. This is one of the reasons why phosphorus is applied as a starter fertilizer.

Managing a soil's fertility for the best economic return is a balancing act of supplying the most limiting nutrient(s) in the right amount. As a nutrient becomes adequate through fertilization, another nutrient may be removed in higher amounts due to higher crop yield. In situations where more than one nutrient is limiting it makes sense to supply adequate amounts of these nutrients, trying to at least achieve a reasonable economic return.

Fall is here and so is the Soil Testing Season!

We all know that profitable crop production depends upon applying enough fertilizer to meet the requirements of the crop while taking full advantage of the nutrients already present in the soil. Since soils vary widely in their fertility levels, so does the amount of fertilizer required. Soil analysis is the tool that enables us to predict the optimum fertilizer rates for a specific crop in a specific field. (It's a wonder we don't do more of it!) Soil analysis also assists in diagnosing problem areas and monitoring nutrient levels. The number of samples required to characterize a field depends upon the type of farm and type of crop grown.

Taking Samples

In fields containing more than one soil type, sample each type individually. Sample problem areas separately. Avoid sampling: areas close to gravel or paved roads since dust will influence soil test values, dead furrows, on highly eroded knolls, or where organic waste or lime has been piled, since samples will not be representative of the field.

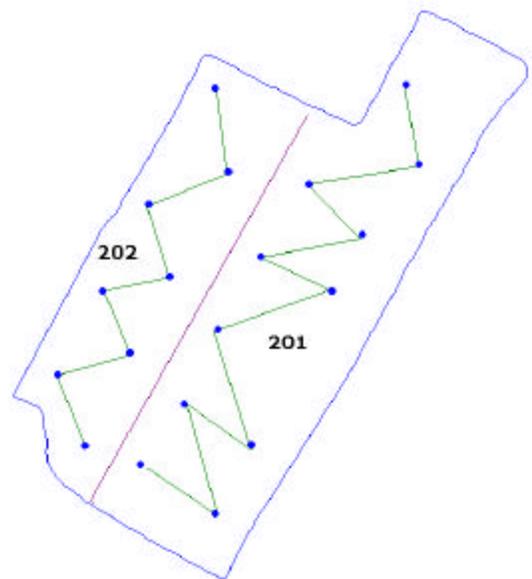
If you are interested specifically in any of these areas, take a separate sample. Where a particular fertility problem occurs, you should sample the area each year until the problem is corrected. Sample the good areas of the field separately from the poor areas. Sampling every three years is enough for most soils. It may be necessary to sample sandy soils more frequently, as nutrient levels may change rapidly. This is particularly true with crops that remove large quantities of potassium such as tomatoes, silage corn and alfalfa.

Samples should be taken to a depth of six inches regardless of the tillage system.

Sampling Strategies

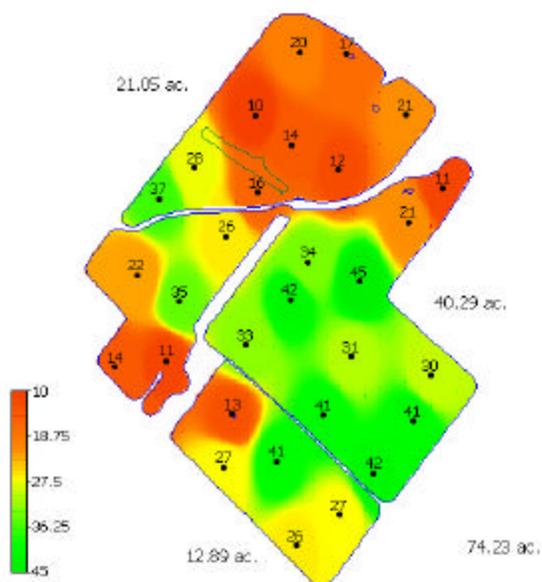
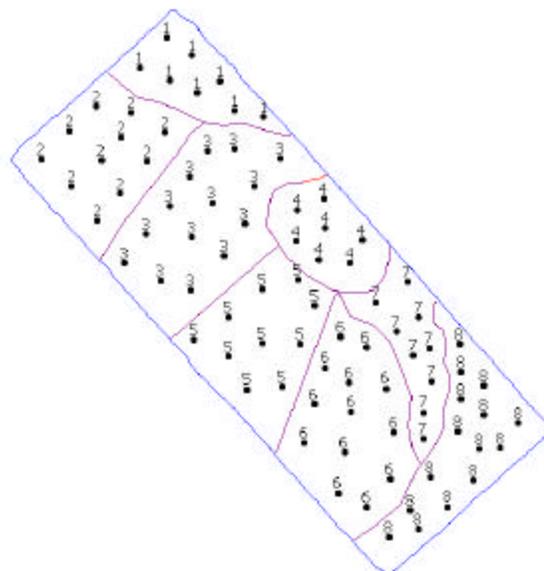
Composite Samples

The most common strategy is to take one composite sample for every twenty-five acres or less. The number of cores in each composite sample should be at least 20, no matter how small the area. This approach can be appropriate where the value of the crop is low or where there is little variability in soil type or fertility. Results are based on the average of the sampled area. The strategy is cost effective but may miss or mask spots that need attention. Sample in a "Z" or zigzag pattern as illustrated. *



Zone (Smart) Sampling

Zone sampling provides a more accurate representation of the field than composite sampling. This is because areas of similar characteristics are identified and sampled accordingly. Soil type, topography, yield maps and/ or satellite imagery can be used to define zones. This approach has some of the advantages of site-specific sampling but at a reduced cost.



Site-Specific Sampling

As the name implies, sampling is based on specific sites in the field. The goal of this approach is to identify as much variability as possible with the intent of enabling a heightened level of management. Site-specific sampling provides the most accurate representation of a field and, for this reason, is most commonly used in higher value crops where quality as well as yield is desirable. This approach is also well suited to fields where a great degree of soil variability exists. Problem areas can be easily pin-pointed for corrective action.

"Top Ten" Essentials of Sample Submissions

Samples submitted to us represent a significant time and labour investment on your part. Below is a list of important considerations when sending samples to us. Following these will help assure your samples arrive in good condition and that we can efficiently process them.

1. Use appropriate sample containers. Soil samples in paper or zip-lock bags may open and be lost in shipment. Contact us and we can provide you with the correct packaging.
2. Send a sample that is representative of the area you are testing. Very small and extremely large volumes of samples may affect the analysis results.
3. Clearly mark all sample containers with the sample identification. Make sure all containers are closed and securely fastened. If a sample will spill.....it will.
4. Ensure the sample submittal form lists all sample information, reference information, tests required and any special information. Manual and bar-coded submittal forms can be obtained on-line at www.alcanada.com or by contacting the laboratory.
5. Pack your box carefully. Using the sample submittal form as your packing order can help you identify when a sample is missing before you ship the box. Be sure to include the sample submittal form before sealing the box.
6. Use a shipping box that's the right size. Small samples packed in large boxes can bounce around and be damaged in shipment. Pack open spaces with crumpled newspaper.
7. Use a shipping box that's rated for the weight that you're shipping. We have received boxes that have broken apart from the weight of the samples.
8. Avoid shipping over-weight sample boxes. Protect your back – and ours.
9. Make sure your return address is on the shipping box - even if it's on the inside of the box flaps. This can help determine who to contact in case of a problem.
10. If you are shipping samples in multiple boxes, mark the boxes 1 of 3, 2 of 3, 3 of 3... this helps our technicians sort out your boxes, and will help determine if a box is missing in shipment.

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.

Submission Forms

With the increasing number of soil submissions are being made through 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.

A & L CANADA LABORATORIES, INC.
2135 Jamboree Road - London, Ontario N6V 3P5 - Phone 519-457-2675 - Fax 519-457-2684

SOIL SAMPLE SUBMITTAL FORM

Reference: 09047.7



FROM: Soil Stewardship Group

Grower Name: Jeff Smith
Grower Code: 1244
Farm: Home
Field: East
Address:

Fax To:
E-mail To:

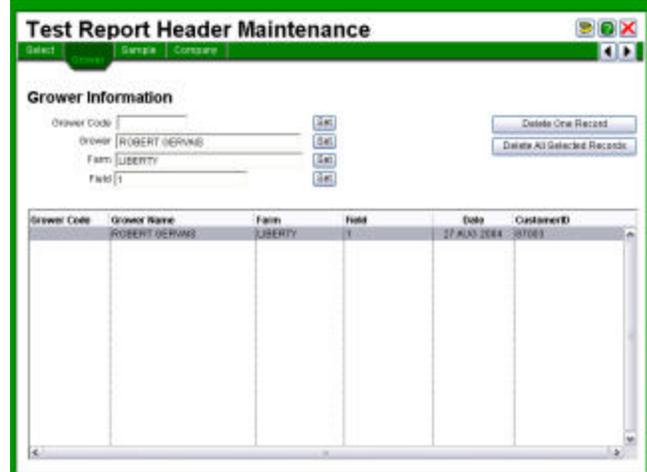
Additional Information:

AL
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Printed on 29/SEP/2008

Sample ID	Lab Number (Other Use)	Requested Tests
1		S10, S2, Zn, Mn
2		S10, S2, Zn, Mn
3		S10, S2, Zn, Mn
4		S10, S2, Zn, Mn
5		S10, S2, Zn, Mn
6		S10, S2, Zn, Mn
7		S10, S2, Zn, Mn
8		S10, S2, Zn, Mn
9		S10, S2, Zn, Mn
10		S10, S2, Zn, Mn

On-Line Editing

Report information, with the exception of the soil data, can be edited on-line to correct or accommodate changes in grower, farm, field and sample identification. Once made, these changes are maintained in the data warehouse and will be displayed each time the information is retrieved for viewing.



On-Line Report Formats

There are a number of reporting formats to choose from on-line. Choose the PDF format that best fits your needs. Print and/or E-mail these to your customers if you wish. The reports can even be customized with your company logo! Also, with the accessibility of our on-line system, many customers have advised that they prefer to receive their information on-line only and have requested us to discontinue mailing and faxing their reports. Please advise us if this would be preferable to you as well.

Report Number: 003300-011
Account Number: 07002

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Top: W.D. Thompson & Sons
122 George St
Royal Oakville
Burlington, ON N9P 1
Attn: Rex Wally
Fax: 519-476-1235

Sample Reported: 1 NOV 2003
Sample Number: 11
Lab Number: 17025

For Field Grower: 519-555
Crop To:

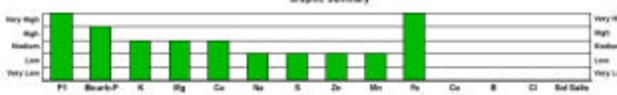
Grower Code: 21024
Farm: New Scotland
Field: 102



SOIL TEST REPORT

Organic Matter	Phosphorus - P ppm	Blank	Potassium - K ppm	Magnesium - Mg ppm	Calcium - Ca ppm	Sulfur - S ppm	pH	CEC meq/100g	%N	Percent Base Saturation	%Mg	%Ca	%K	%S
1.8	71	81	121	185	1840	16	7.7	11.2	2.8	14.3	52.2	0.0		
0.8														
2.8	99									0.10	10			

Graphic Summary



SOIL FERTILITY RECOMMENDATIONS (below)

Crop	Yield Goal	Previous Crop	Liming	N	P2O5	K2O	Mg	Ca	S	Zn	B	Fe	Cu	Mn
3	Corn	180	Soil tests	215	40	190	5							

Printed on 7/02/2004 One test is returned to a number of tests in addition to soil tests. We guarantee or warrant concerning crop performance is made by A&L.
A&L Canada is a subsidiary owned by the following owners of Canada: C&L and C&L Inc. Multiple Samples - Paid

Technical Bulletins and Guides

Our on-line library of technical bulletins keeps on growing. A wealth of agronomic information exists on our web-site and we welcome you to access the guides available

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FEED SAMPLE INFORMATION SHEET NIRA

SUBMITTED BY:			CLIENT/GROWER:		
Address:			Address:		
City:		Prov:	City:		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	
FN1 - Basic Feed Package (NIRA)	Moisture, Crude Protein
FN2 - 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"
FN4 - Silages Receive Lacto and Acetic Acid	
FN3 - TMR (NIRA)	DM, Moisture, Crude Protein, SP, ADF, NDF, Lignin, Starch, NFC, Fat, Ash, TDN, NEL, NEM, NEG, ME, DE
FN5 - Substitute for Wet Chemistry (all NIRA Nutrients / Minerals)	Ca, P, Mg, K, Na, Cu, Mn, Zn, Fe, Mo
FN6 - Substitute for Wet Chemistry (Macro NIRA Nutrients / Minerals)	Ca, P, Mg, K, Na, S
FN7 - Add Micros to NIRA Package (Wet Chemistry)	Cu, Mn, Zn, Fe, Mo

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

Please fax a copy to:

Please email a copy to:

Feed analysis is a crucial part of animal agriculture production on a modern farm. A&L Canada has the tools and services to meet quality production needs. We offer a full line of test packages using a modern fully equipped state of the art laboratory. Our feed analysis division also has the ability to design specific and comprehensive packages and tests to meet your needs. This customization of your animals diet allows for more accurate formulations, which in turn leads to better production efficiency. Our laboratory options include both wet chemistry and NIR (Near Infrared Spectroscopy) to determine the feeds nutrition, digestibility, and mineral content. Our test packages also cover analysis of mixer accuracy, mycotoxins and microbiology in feeds.

Meet the Staff



Daryl Patterson –Daryl has been with A&L for one year. Graduating from UWO with a degree in biology and coming from a lab background made him a natural fit. Before joining A&L Daryl worked for a farm supply retailer. Daryl is responsible for technical services relating to A&L and SSG (Soil Stewardship Group).



Chris Roelands – Coming from a farm and as a graduate of the University of Guelph Chris brings a wealth of agricultural knowledge to A&L. Previously, he worked in the animal feed industry. Joined A&L Canada Labs in July focusing on the feed industry but will also have service and support roles in other areas of the business.

