



VitTellus Soil Health

"Healthy Soils, Greater Profit"



A & L Canada Laboratories supports farmers and crop consultants to improve soil health through research, information, soil management recommendations and education.

Traditional soil tests measure the physical and chemical properties of soil, and that is valuable, but soil is a living, dynamic and continually changing ecosystem and requires a more holistic approach with a microbiological component for a more complete soil assessment. By digging deeper into the physical, chemical and biological interactions we can make improved agronomic recommendations for higher yields and greater profit. The biological composition of the soil reflects the presence of disease suppressing and bio-stimulating microorganisms in the rhizosphere.

The A & L Research agronomy team has developed and launched **VitTellusSM Soil Health** which is the next generation soil health test and recommendation package to help farmers and crop consultants make more informed decisions on their application of nutrients and on managing and improving their soil.

VitTellus Soil Health Components

- VitTellus Soil Health Report + Index
- Solvita CO2 Test results
- Standard Soil Fertility test results
- A & L Crop Recommendations
- Online Portal Access for Reports
- Live Expert Customer Support

The VitTellus Soil Health Index is a result of our agronomic algorithm developed by A & L Research and is a scale 0 to 60.

The VitTellusSM Soil Health test is available worldwide and can be accessed through the website at www.VitTellus.com

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A & L Canada Laboratories Inc.

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



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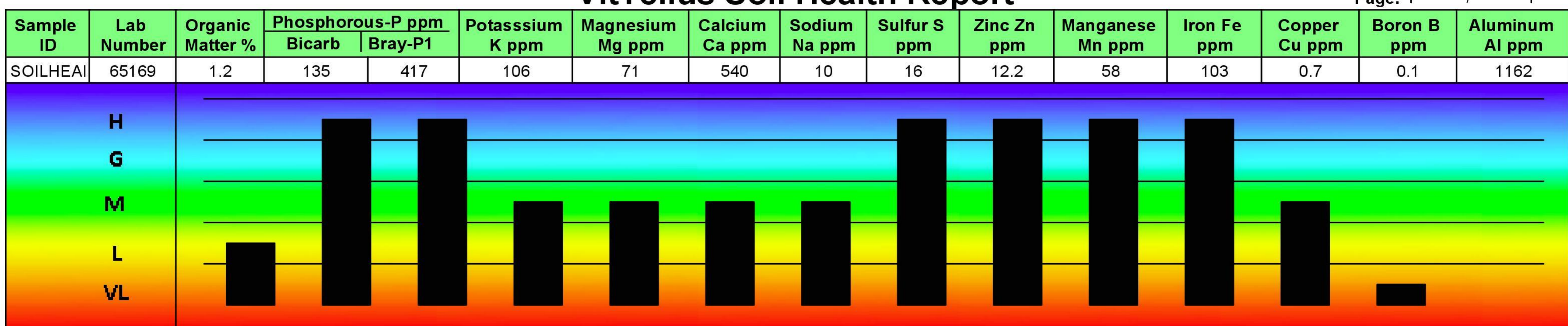
For:

Farm:

Reported Date:2018-06-11
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VitTellus Soil Health Report

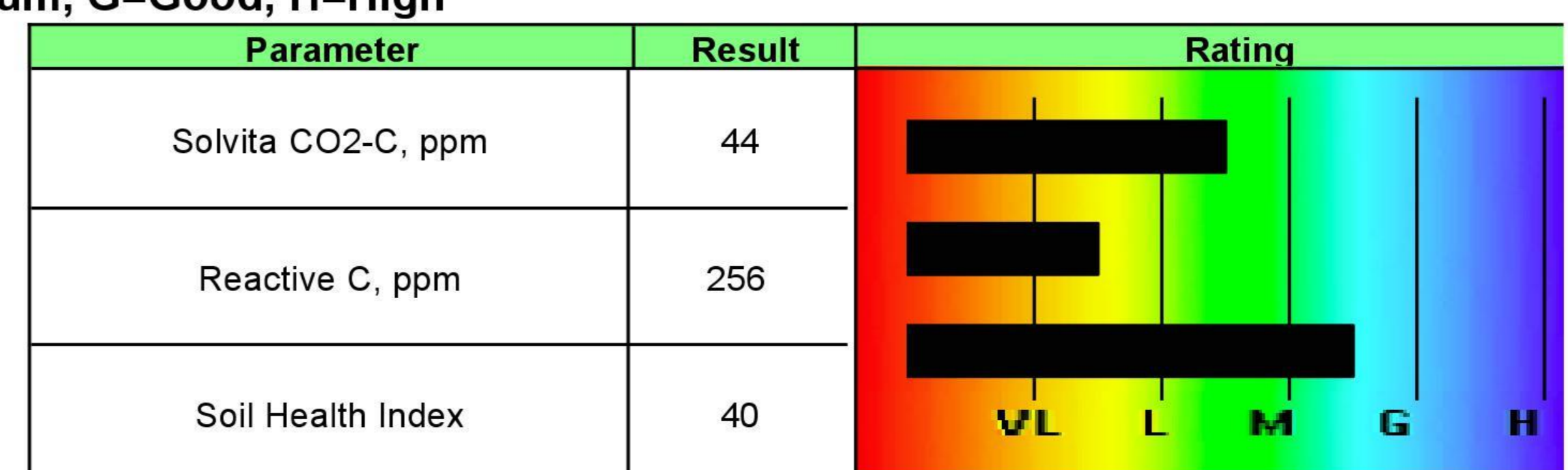
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VL=Very Low, L=Low, M=Medium, G=Good, H=High

Parameter	Result	Optimum Level
CEC, meq/100g	4.8	
K/Mg Ratio	0.46	0.25-0.35
GFI	78	G
%K	5.7	4-6
%Mg	12.3	10-20
%Ca	56.3	65-72
%H	24.8	5-15
%Na	0.9	<1

Parameter	Result	Rating
pH	6	M
Buffer pH	6.9	
EC, ms/cm	0.26	VL
Saturation %P	46	H
Saturation % Al	2.2	MT
Nitrate-N, ppm	13	M
Chloride, ppm	17	M
PMN, ppm	30	



The results of this report relate to the sample submitted and analyzed.
No guarantee or warranty concerning crop performance is made by A & L.
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

Results Authorized By: Ian McLachlin, Vice President



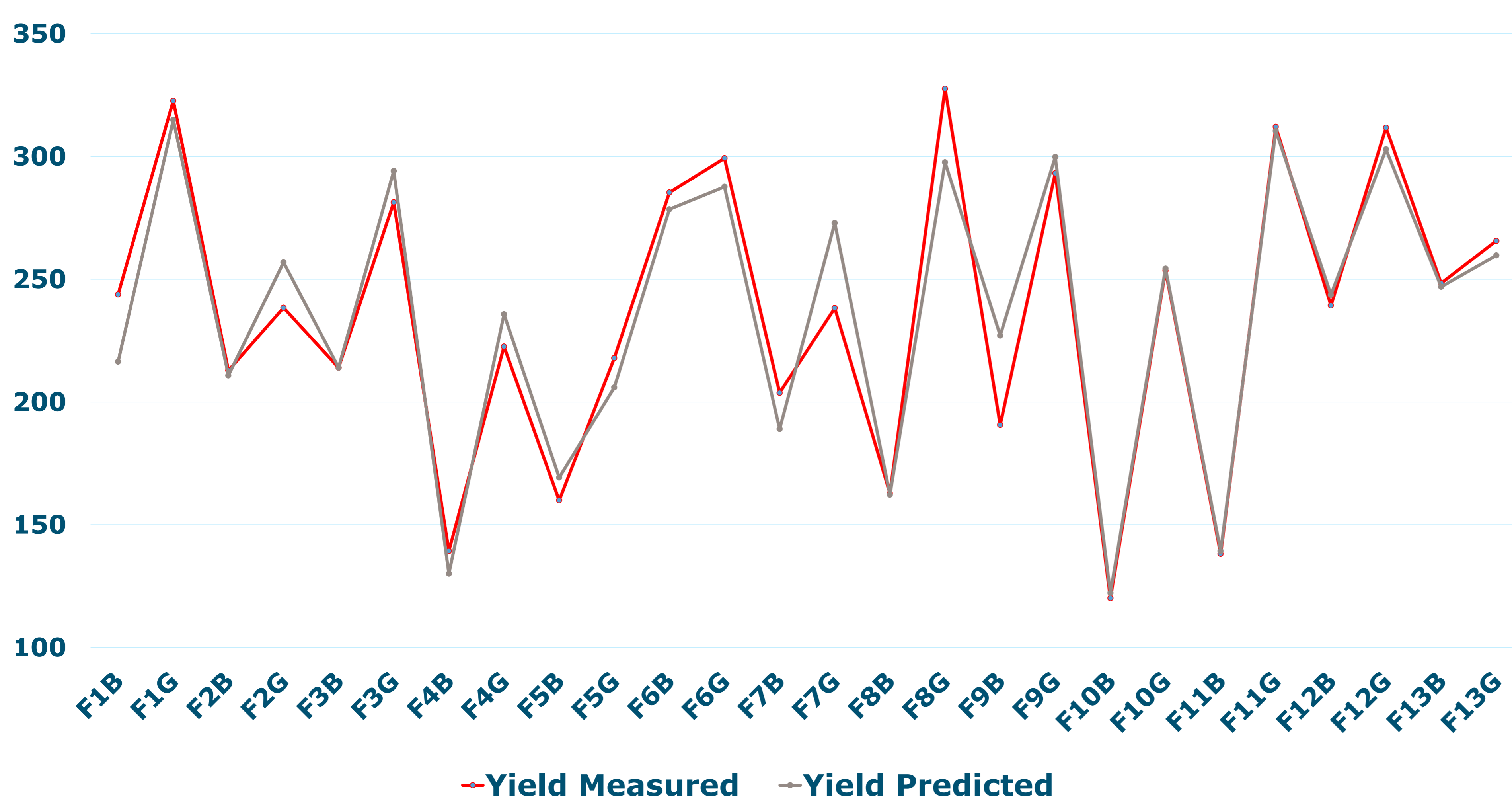
For more information or to submit an order for VitTellusSM Soil Health please contact us or visit our website www.VitTellus.com

A & L Canada Laboratories, Inc. • www.alcanada.com • 1-855-837-8347 • alcanadalabs@alcanada.com

VitTellusSM Soil Health Research

- A & L has conducted eight years of research focused on identifying and understanding the complex soil microbiological-plant relationship and how it influences nutrient availability/utilization, crop productivity and yields.
- VitTellus Soil Health analyses compares the presence and abundance of key microbes and the associated plant health parameters in the soil.
- In soils with a low VitTellus health index, plant and nutrient levels don't support optimum microbiological levels resulting in lower nutrient utilization efficiency and lower yields.
- In high VitTellus health index soils, plant and nutrient levels support greater microbiological activity. Plants nurture beneficial microbes increasing nutrient uptake efficiency. With all nutrients in balance you get healthier plants and higher yields.

VitTellus Soil Health Index and Relationship to Yields Yield Predicted vs Yield Measured Using 337 Factors



Factors used in the prediction model

- 1 GFI-RS
- 2 % K Saturation -RS
- 3 NO₃-N (ppm)-RS
- 4 %P Saturation-RS
- 5 K/Mg-RS
- 6 pH-RS
- 7 CEC -RS
- 8 Na-RS
- 9 Mg-RS
- 10 srffA-RS
- 11 Nif H-R
- 12 phzF-R
- 13 fenD-R
- 14 hcnA-R
- 15 phl D-RS
- 16 Gram positives-S
- 17 Total fungal FCU-S
- 18 Rhizobium-S
- 19 Pseudomonas-S
- 20 N fixers-S
- 21 Total bac counts-S

The chart shows A & L Research's VitTellus algorithm with 337 factors - which accurately predicts the crop yields based on the biological, physical and balanced nutrient levels. The brown bar is the harvested yields and the red bar is the yields predicted by the VitTellus test factors. These two yield results have a high correlation of 93%.

On farm research conducted by A & L shows that soils with a higher health index have improved nutrient utilization of up to 40%, resulting in higher yields and greater profit.

For more information on the research case studies and scientific paper visit www.VitTellus.com.

VitTellus Soil Health Test measures the presence of both disease suppressing and plant stimulating microorganisms.

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.

