

INNOVATION for AGRICULTURE

Measuring soil health

Standard P, K, Mg, & pH

Standard index soil analysis

SOIL ANALYSIS REPORT

Laboratory Sample Reference	Field Details	Soil pH	Index			mg/L (Available)		
			P	K	Mg	P	K	Mg
12847712	1 3.3 hectares: Other Crop into Other Crop	6.3	3	2+	3	26.4	155	106
12847812	2 12.2 hectares: Other Crop into Other Crop	6.4	3	2+	3	28.6	162	107
12847912	3 2.5 hectares: Winter Wheat into Spring Wheat	6.8	3	3	2	31.2	272	93
12848012	4 6.0 hectares: Winter Wheat into Spring Wheat	6.5	3	3	2	29.0	262	96
12848112	5 2.0 hectares: Winter Wheat into Spring Wheat	7.3	3	2+	2	41.4	217	67
12848212	6 2.4 hectares: Other Crop into Other Crop	5.9	3	3	3	26.8	256	118

General fertilizer and crop recommendations that best represent those given are given on the following sheet. The analytical methods used are as described in DSRFA Reference Book 417. The color values are determined from the DSRFA Fertilizer Recommendations 1920W 8th Edition (Appendix 4).

Standard, macro, trace & base saturation soil analysis

Texture:	Sand 32%	Silt 48%	Clay 24%	Colour:
Electrical Conductivity (EC)	VERY LOW	LOW	HIGH	VERY HIGH
Phosphorus (ppm)	VERY LOW	LOW	HIGH	VERY HIGH
Potassium (ppm)	VERY LOW	LOW	HIGH	VERY HIGH
Magnesium (ppm)	VERY LOW	LOW	HIGH	VERY HIGH
Calcium (ppm)	VERY LOW	LOW	HIGH	VERY HIGH
Iron (ppm)	VERY LOW	LOW	HIGH	VERY HIGH
Zinc (ppm)	VERY LOW	LOW	HIGH	VERY HIGH
Copper (ppm)	VERY LOW	LOW	HIGH	VERY HIGH
Manganese (ppm)	VERY LOW	LOW	HIGH	VERY HIGH
Base Saturation (%)	VERY LOW	LOW	HIGH	VERY HIGH
CEC (meq/100g)	VERY LOW	LOW	HIGH	VERY HIGH
Ca (meq/100g)	VERY LOW	LOW	HIGH	VERY HIGH
Mg (meq/100g)	VERY LOW	LOW	HIGH	VERY HIGH
K (meq/100g)	VERY LOW	LOW	HIGH	VERY HIGH
Na (meq/100g)	VERY LOW	LOW	HIGH	VERY HIGH
Cl (meq/100g)	VERY LOW	LOW	HIGH	VERY HIGH
SO4 (meq/100g)	VERY LOW	LOW	HIGH	VERY HIGH
NO3 (meq/100g)	VERY LOW	LOW	HIGH	VERY HIGH
CO3 (meq/100g)	VERY LOW	LOW	HIGH	VERY HIGH
HCO3 (meq/100g)	VERY LOW	LOW	HIGH	VERY HIGH
Organic Matter (%)	VERY LOW	LOW	HIGH	VERY HIGH
Total Nitrogen (%)	VERY LOW	LOW	HIGH	VERY HIGH
Total Phosphorus (%)	VERY LOW	LOW	HIGH	VERY HIGH
Total Potassium (%)	VERY LOW	LOW	HIGH	VERY HIGH
Total Calcium (%)	VERY LOW	LOW	HIGH	VERY HIGH
Total Magnesium (%)	VERY LOW	LOW	HIGH	VERY HIGH
Total Iron (%)	VERY LOW	LOW	HIGH	VERY HIGH
Total Zinc (%)	VERY LOW	LOW	HIGH	VERY HIGH
Total Copper (%)	VERY LOW	LOW	HIGH	VERY HIGH
Total Manganese (%)	VERY LOW	LOW	HIGH	VERY HIGH
Total Sodium (%)	VERY LOW	LOW	HIGH	VERY HIGH
Total Chloride (%)	VERY LOW	LOW	HIGH	VERY HIGH
Total Sulfate (%)	VERY LOW	LOW	HIGH	VERY HIGH
Total Nitrate (%)	VERY LOW	LOW	HIGH	VERY HIGH
Total Bicarbonate (%)	VERY LOW	LOW	HIGH	VERY HIGH
Total Carbonate (%)	VERY LOW	LOW	HIGH	VERY HIGH
Total Organic Carbon (%)	VERY LOW	LOW	HIGH	VERY HIGH
Total Nitrogen (%)	VERY LOW	LOW	HIGH	VERY HIGH
Total Phosphorus (%)	VERY LOW	LOW	HIGH	VERY HIGH
Total Potassium (%)	VERY LOW	LOW	HIGH	VERY HIGH
Total Calcium (%)	VERY LOW	LOW	HIGH	VERY HIGH
Total Magnesium (%)	VERY LOW	LOW	HIGH	VERY HIGH
Total Iron (%)	VERY LOW	LOW	HIGH	VERY HIGH
Total Zinc (%)	VERY LOW	LOW	HIGH	VERY HIGH
Total Copper (%)	VERY LOW	LOW	HIGH	VERY HIGH
Total Manganese (%)	VERY LOW	LOW	HIGH	VERY HIGH
Total Sodium (%)	VERY LOW	LOW	HIGH	VERY HIGH
Total Chloride (%)	VERY LOW	LOW	HIGH	VERY HIGH
Total Sulfate (%)	VERY LOW	LOW	HIGH	VERY HIGH
Total Nitrate (%)	VERY LOW	LOW	HIGH	VERY HIGH
Total Bicarbonate (%)	VERY LOW	LOW	HIGH	VERY HIGH
Total Carbonate (%)	VERY LOW	LOW	HIGH	VERY HIGH

Biological analysis

Client: Soil Association
07 April

Order: Green Fields

Soil Bioactivity Report

Parameter	Value	Unit	Target Range
Respiration (CO2)	1.2	g CO2-C/m2/h	0.5 - 2.0
Enzyme Activity (N)	1.5	mg N/m2/h	0.5 - 2.5
Enzyme Activity (P)	1.8	mg P/m2/h	0.5 - 2.5
Enzyme Activity (K)	2.0	mg K/m2/h	0.5 - 2.5
Enzyme Activity (Mg)	2.2	mg Mg/m2/h	0.5 - 2.5
Enzyme Activity (Ca)	2.5	mg Ca/m2/h	0.5 - 2.5
Enzyme Activity (Fe)	2.8	mg Fe/m2/h	0.5 - 2.5
Enzyme Activity (Zn)	3.0	mg Zn/m2/h	0.5 - 2.5
Enzyme Activity (Cu)	3.2	mg Cu/m2/h	0.5 - 2.5
Enzyme Activity (Mn)	3.5	mg Mn/m2/h	0.5 - 2.5
Enzyme Activity (Na)	3.8	mg Na/m2/h	0.5 - 2.5
Enzyme Activity (Cl)	4.0	mg Cl/m2/h	0.5 - 2.5
Enzyme Activity (SO4)	4.2	mg SO4/m2/h	0.5 - 2.5
Enzyme Activity (NO3)	4.5	mg NO3/m2/h	0.5 - 2.5
Enzyme Activity (HCO3)	4.8	mg HCO3/m2/h	0.5 - 2.5
Enzyme Activity (CO3)	5.0	mg CO3/m2/h	0.5 - 2.5

Respiration test

LAB CO₂ BURST

FIELD CO₂ BURST

www.solvita.com

Soil DNA analysis

Relative distribution of sequences in the nematode dataset within different nematode orders

Relative Distribution

Sample IDs: F1, F2, F3, F4, F5, F6, F7, F8, F9, F10, F11, F12, F13, F14, F15, F16, F17, F18, F19, F20, F21, F22

Legend:

- Acanthocephala
- Acaridida
- Chromadorida
- Diplogasterida
- Rhabditida
- Tylenchida
- Dorylaimida
- Enopliida
- Mermithida
- Mononchiida
- Unclassified

Soil sample: https://biomedcentral.com/articles/doi/10.1186/s12918-014-0016-4

On-farm proxies for biological activity

The first image shows a person's hands sowing seeds into the soil. The second image shows a tea bag filled with soil, used as a proxy for microbial activity. The third image is a diagram of soil layers with 'Oatmeal' added to the top layer, and worms shown burrowing through the layers.



Penetrometer

Measuring sub-surface compaction

The image shows a penetrometer tool, which is used to measure soil compaction. On the right, a person is shown using the tool in the field to measure the resistance of the soil to penetration.



Conclusions

- Soil testing can help you monitor how your management practices are impacting soil health
- Testing the health of your soil means more than testing the nutrient status of your soils (the standard M, P, K, pH test)
- Think about where, how, & when you sample – be consistent
- Use the results to inform future management decisions

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