

ROUTINE AGRICULTURAL SOIL ANALYSIS REPORT

Job No:	
No of Samples:	
Date Supplied:	
Supplied by:	

Sample ID:
Crop:
Client:

				Methods Used	Heavy Soil <i>e.g Clay</i>	Medium Soil <i>e.g Clay Loam</i>	Light Soil <i>e.g Loam</i>	Sandy Soil <i>e.g Loamy Sand</i>
Method	Nutrient	Units		Indicative guidelines only- refer Note 6				
Morgan 1	Calcium	Ca	mg/kg	Inhouse Method S10 - (Based on Morgan 1941)	1150	750	375	175
	Magnesium	Mg			160	105	60	25
	Potassium	K			113	75	60	50
	Phosphorus	P			15	12	10	5.0
Bray1 Colwell Bray2	Phosphorus	P	mg/kg	Rayment & Lyons 2011-9E2 Rayment & Lyons 2011-9B2 Bray & Kurtz 1945	45 ^{note 8}	30 ^{note 8}	24 ^{note 8}	20 ^{note 8}
					80	50	45	35
					90 ^{note 8}	60 ^{note 8}	48 ^{note 8}	40 ^{note 8}
KCl	Nitrate Nitrogen	N	mg/kg	Inhouse Method S37 - (Based on Rayment & Lyons-7C2)	15	13	10	10
	Ammonium Nitrogen				20	18	15	12
	Sulfur	S			10.0	8.0	8.0	7.0
1:5 Water	pH			Rayment & Lyons 2011-4A1	6.5	6.5	6.3	6.3
	Conductivity			Rayment & Lyons 2011-3A1	0.200	0.150	0.120	0.100
Calculation	Estimated Organic Matter	% OM		% C x 1.75	>5.5	>4.5	>3.5	>2.5
Ammonium Acetate + Calculations	Calcium	Ca	cmol ⁺ /Kg	Rayment & Lyons 2011-15D3	15.6	10.8	5.0	1.9
		kg/ha	6250		4300	2000	750	
	mg/kg	3125	2150		1000	375		
	Magnesium	Mg	cmol ⁺ /Kg		2.4	1.7	1.2	0.60
Potassium	K	kg/ha	580	400	290	150		
	mg/kg	290	200	145	75			
Sodium	Na	cmol ⁺ /Kg	0.60	0.50	0.40	0.30		
	kg/ha	470	380	300	200			
mg/kg	235	190	150	100				
KCl	Aluminium	Al	cmol ⁺ /Kg	Rayment & Lyons 2011-15G1	0.6	5	0.5	0.2
		kg/ha	108		90	81	27	
mg/kg	54	45	41		14			
Acidity Titration	Hydrogen	H ⁺	cmol ⁺ /Kg		0.6	5	0.5	0.2
kg/ha	12	10	9	3				
mg/kg	6	5	5	2				
Calculation	Effective Cation Exchange Capacity (ECEC)	cmol ⁺ /Kg		Rayment & Lyons 2011-15J1	20	14	7	4
Base Saturation Calculations	Calcium	Ca	%	Rayment & Lyons 2011-15M1	77	76	69	60
	Magnesium	Mg			12	12	16	20
	Potassium	K			3	4	5	8
	Sodium - ESP	Na			2	2	3	3
	Aluminium	Al			7	7	7	9
Hydrogen	H ⁺							
Calculation	Calcium / Magnesium Ratio	ratio		Rayment & Lyons 2011-15M1	6.4	6.3	4.3	3.0
DTPA	Zinc	Zn	mg/kg	Rayment & Lyons 2011-12A1	6.0	5.0	4.0	3.0
	Manganese	Mn			25	22	18	15
	Iron	Fe			25	22	18	15
	Copper	Cu			2.4	2.0	1.6	1.2
CaCl ₂	Boron	B	mg/kg	Rayment & Lyons 2011-12C2 Sauer et al. 2006	2.0	1.7	1.4	1.0
	Silicon	Si			50	45	40	35
LECO IR Analyser	Total Carbon	C	%	Rayment & Lyons 2011-6B2b	>3.1	>2.6	>2.0	>1.4
	Total Nitrogen	N	%	Rayment & Lyons 2011-7A5	>0.30	>0.25	>0.20	>0.15
Calculation	Carbon/ Nitrogen Ratio	ratio		Rayment & Lyons 2011-8A1	10-12	10-12	10-12	10-12
	Basic Texture			
	Basic Colour			
Calculation	Chloride Estimate	equiv. ppm		Conductivity x 680

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		Sample ID:		Methods Used	Heavy Soil	Medium Soil	Light Soil	Sandy Soil
		Crop:			e.g Clay	e.g Clay Loam	e.g Loam	e.g Loamy Sand
		Client:						
Method	Nutrient	Units			Indicative guidelines only- refer Note 6			
Total Acid Extractable	Calcium	Ca	mg/kg	Inhouse Method S6 - (Based on Rayment & Lyons - 17C1)	1,000 - 10,000 Ca			
	Magnesium	Mg			500 - 5,000 Mg			
	Potassium	K			200 - 2,000 K			
	Sodium	Na			100 - 500 Na			
	Sulfur	S			100 - 1,000 S			
Total Acid Extractable	Phosphorus	P	mg/kg		400 - 1,500 P			
Total Acid Extractable	Zinc	Zn	mg/kg		20 - 50 Zn			
	Manganese	Mn			200 - 2,000 Mn			
	Iron	Fe			1,000 - 50,000 Fe			
	Copper	Cu			20 - 50 Cu			
	Boron	B			2 - 50 B			
	Silicon	Si			1,000 - 3,000 Si			
	Aluminium	Al			2,000 - 50,000 Al			
Total Acid Extractable	Molybdenum	Mo	mg/kg		0.5 - 3 Mo			
	Cobalt	Co			5 - 50 Co			
	Selenium	Se			0.1 - 2.0 Se			
Total Acid Extractable	Cadmium	Cd	mg/kg		< 5 Cd			
	Lead	Pb			< 75 Pb			
	Arsenic	As			< 25 As			
	Chromium	Cr			<25 Cr			
	Nickel	Ni		<150 Ni				
	Mercury	Hg		< 3.75 Hg				
	Silver	Ag		.. Ag				

EAL Soil Testing Notes

- All results presented as a 40 °C oven dried weight. Soil sieved and lightly crushed to <2 mm
- Methods from Rayment and Lyons, 2011. *Soil Chemical Methods*
- Soluble Salts included in Exchangeable Cations - NO PRE-WASH
- 'Morgan 1 Extract' adapted from 'Science in Agriculture', 'Non-Toxic Farming' and Lamonte Soil Handbook.
- Guidelines for phosphorus have been reduced for Australian soils
- Indicative guidelines are based on 'Albrecht' and 'Reams' concepts
- Total Acid Extractable Nutrients indicate a store of nutrients
- Contaminant Guides based on 'Residential with gardens and accessible soil including childrens daycare centres, preschools, primary schools, town houses or villas' (NSW EPA 1998).
- Information relating to testing colour codes is available on Sheet 2 - "Understanding you soil results"

Calculations

- For conductivity 1 dS/m = 1 mS/cm = 1000 µS/cm
- 1 cmol⁺/Kg = 1 meq/100g; 1 Lb/Acre = 2 ppm (parts per million); kg/ha = 2.24 x ppm; mg/kg = ppm
- Conversions for 1 cmol⁺/Kg = 230 mg/Kg Sodium, 390 mg/Kg Potassium, 122 mg/Kg Magnesium, 200 mg/Kg Calcium
- Organic Matter = %C x 1.75
- Chloride Estimate = EC x 640 (most likely over-estimate)
- ECEC = sum of the exchangeable cations cmol⁺/Kg
- Base saturation calculations = (cation cmol⁺/Kg) /ECEC x 100
- Ca / Mg ratio from the exchangeable cmol⁺/Kg results

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