

AGRICULTURAL SOIL ANALYSIS REPORT

1 sample supplied by JR Richards & Sons Pty Ltd on 4/08/2022 . Lab Job No.N1340
 Analysis requested by Indika Kelasekara. Your Job: Irrigation Area - Molong ORF
 15-19 Brickworks Lane SOUTH GRAFTON NSW 2461

		Sample 1	Heavy Soil	Medium Soil	Light Soil	Sandy Soil
Sample ID:		Irrigation Area - Molong ORF				
Crop:		Soil				
Client:		Indika Kelasekara	Clay	Clay Loam	Loam	Loamy Sand
Parameter	Method reference	N1340/1	Indicative guidelines - refer to Notes 6 and 8			
Soluble Calcium (mg/kg)		677	1150	750	375	175
Soluble Magnesium (mg/kg)	**Inhouse S10 - Morgan 1	138	160	105	60	25
Soluble Potassium (mg/kg)		200	113	75	60	50
Soluble Phosphorus (mg/kg)		2.1	15	12	10	5.0
Phosphorus (mg/kg P)	**Rayment & Lyons 2011 - 9E2 (Bray 1)	2.4	45 ^{note B}	30 ^{note B}	24 ^{note B}	20 ^{note B}
	**Rayment & Lyons 2011 - 9B2 (Colwell)	8.9	80	50	45	35
	**Inhouse S3A (Bray 2)	3.7	90 ^{note B}	60 ^{note B}	48 ^{note B}	40 ^{note B}
Nitrate Nitrogen (mg/kg N)		1.5	15	13	10	10
Ammonium Nitrogen (mg/kg N)	**Inhouse S37 (KCl)	3.7	20	18	15	12
Sulfur (mg/kg S)		5.9	10.0	8.0	8.0	7.0
pH	Rayment & Lyons 2011 - 4A1 (1:5 Water)	6.4	6.5	6.5	6.3	6.3
Electrical Conductivity (dS/m)	Rayment & Lyons 2011 - 3A1 (1:5 Water)	0.063	0.200	0.150	0.120	0.100
Estimated Organic Matter (% OM)	**Calculation: Total Carbon x 1.75	2.6	> 5.5	>4.5	> 3.5	> 2.5
Exchangeable Calcium	(cmol./kg)	6.6	15.6	10.8	5.0	1.9
	(kg/ha)	2,960	7000	4816	2240	840
	(mg/kg)	1,321	3125	2150	1000	375
Exchangeable Magnesium	(cmol./kg)	1.7	2.4	1.7	1.2	0.60
	(kg/ha)	466	650	448	325	168
	(mg/kg)	208	290	200	145	75
Exchangeable Potassium	(cmol./kg)	1.5	0.60	0.50	0.40	0.30
	(kg/ha)	1,313	526	426	336	224
	(mg/kg)	586	235	190	150	100
Exchangeable Sodium	(cmol./kg)	0.14	0.3	0.26	0.22	0.11
	(kg/ha)	72	155	134	113	57
	(mg/kg)	32	69	60	51	25
Exchangeable Aluminium	(cmol./kg)	0.02	0.6	0.5	0.4	0.2
	(kg/ha)	4.0	121	101	73	30
	(mg/kg)	1.8	54	45	32	14
Exchangeable Hydrogen	(cmol./kg)	0.15	0.6	0.5	0.4	0.2
	(kg/ha)	3.4	13	11	8	3
	(mg/kg)	1.5	6	5	4	2
Effective Cation Exchange Capacity (CEC) (cmol./kg)	**Calculation: Sum of Ca,Mg,K,Na,Al,H (cmol./kg)	10	20.1	14.3	7.8	3.3
Calcium (%)		65	77.6	75.7	65.6	57.4
Magnesium (%)		17	11.9	11.9	15.7	18.1
Potassium (%)		15	3.0	3.5	5.2	9.1
Sodium - ESP (%)	**Base Saturation Calculations - Cation cmol./kg / CEC x 100	1.4	1.5	1.8	2.9	3.3
Aluminium (%)		0.19	6.0	7.1	10.5	12.1
Hydrogen (%)		1.5				
Calcium/Magnesium Ratio	**Calculation: Calcium / Magnesium (cmol./kg)	3.9	6.5	6.4	4.2	3.2

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Parameter	Method reference	N1340/1	Sample 1	Heavy Soil	Medium Soil	Light Soil	Sandy Soil
			Irrigation Area - Molong ORF	Clay	Clay Loam	Loam	Loamy Sand
Zinc (mg/kg)		0.73		6.0	5.0	4.0	3.0
Manganese (mg/kg)	Rayment & Lyons 2011 - 12A1 (DTPA)	185		25	22	18	15
Iron (mg/kg)		72		25	22	18	15
Copper (mg/kg)		3.1		2.4	2.0	1.6	1.2
Boron (mg/kg)	**Rayment & Lyons 2011 - 12C2 (Hot CaCl ₂)	0.95		2.0	1.7	1.4	1.0
Silicon (mg/kg Si)	**Inhouse S11 (Hot CaCl ₂)	57		50	45	40	35
Total Carbon (%)	Inhouse S4a (LECO Trumac Analyser)	1.5		> 3.1	> 2.6	> 2.0	> 1.4
Total Nitrogen (%)		0.12		> 0.30	> 0.25	> 0.20	> 0.15
Carbon/Nitrogen Ratio	**Calculation: Total Carbon/Total Nitrogen	12		10-12	10-12	10-12	10-12
Basic Texture	**Inhouse S65	Clay		..	..	..	..
Basic Colour		Brownish		..	..	..	..
Chloride Estimate (equiv. mg/kg)	**Calculation: Electrical Conductivity x 640	40		..	..	..	..
Total Phosphorus (mg/kg)	Rayment & Lyons 2011 - 17C1 Aqua Regia	307		400-1500 P			
Chloride (mg/kg)	**Rayment & Lyons 2011 - 5A3a	<1		..			
Total Organic Carbon (%)	LECO Trumac Analyser - Inhouse S15b	1.5		< 0.5 (Very Low); 0.5-1.5 (Low); 1.5-2.5 (Medium); 2.5-5.0 (High); > 5.0 (Very High)			
Moisture Content (%)	**Inhouse S2 (105°C)	19.0		..			

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 - Australasia*. CSIRO Publishing: Collingwood.
- Soluble Salts included in Exchangeable Cations - NO PRE-WASH (unless requested).
- 'Morgan 1 Extract' adapted from 'Science in Agriculture', 'Non-Toxic Farming' and LaMotte 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.
- National Environmental Protection (Assessment of Site Contamination) Measure 2013, Schedule B(1) - Guideline on Investigation Levels for Soil and Groundwater. Table 5-A Background Ranges.
- Information relating to testing colour codes is available on sheet 2 - 'Understanding your agricultural soil results'.
- Conversions for 1 cmol/kg = 230 mg/kg Sodium, 390 mg/kg Potassium, 122 mg/kg Magnesium, 200 mg/kg Calcium
- Conversions to kg/ha = mg/kg x 2.24
- The chloride calculation of Cl mg/L = EC x 640 is considered an estimate, and most likely an over-estimate
- ** NATA accreditation does not cover the performance of this service.
- Analysis conducted between sample arrival date and reporting date.
- This report is not to be reproduced except in full. Results only relate to the item tested.
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- This report was issued on 12/08/2022.

Quality Checked: Kris Saville
 Agricultural Co-Ordinator

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