

ALBRECHT AND REAMS SOIL ANALYSIS REPORT (Page 1 of 1)

2 soil samples supplied by Martin l'Ons on 25th August, 2003 - Lab Job No. JA1448

Block ID:				Sample 1 637229 East Side Overburden Fines	Sample 2 637228 West Side Overburden Fines	Desirable Level
				JA1448/1	JA1448/2	Heavy Soil
	Nutrient		Units			
Soluble Tests & Morgan Extract	Calcium	Ca	ppm	2457	1581	1150
	Magnesium	Mg	ppm	886	539	160
	Potassium	K	ppm	7	0	113
	Phosphorus (Morgan)	P	ppm	0.5	0.4	..
	Phosphorus (Bray 1)	P	ppm	8.1	7.6	45 ^{note 8}
Soluble Tests & Bray 2 Phosphorus Extract	Nitrate	N	ppm	0.4	0.5	15
	Ammonia	N	ppm	1.2	0.8	..
	Phosphorus (Bray 2)	P	ppm	84.6	112.8	90 ^{note 8}
	Sulphur	S	ppm	2	2	40
	pH (1:2 water)		units	8.37	8.18	6.5
	Conductivity (1:5 water)		µS/cm	378	60	200
	Organic Matter		%	0.53	0.48	5.5
Ammonium Acetate Equiv. Extract	Calcium	Ca	cmol ⁺ /Kg	34.46	24.88	15.6
	Magnesium	Mg	cmol ⁺ /Kg	19.16	11.19	2.4
	Potassium	K	cmol ⁺ /Kg	0.24	0.09	0.6
	Sodium	Na	cmol ⁺ /Kg	0.53	0.77	0.30
	Hydrogen	H ⁺	cmol ⁺ /Kg	0.00	0.00	1.2
	Aluminium	Al	cmol ⁺ /Kg	0.00	0.00	..
	Cation Exchange Capacity		cmol ⁺ /Kg	54.39	36.92	20.0
Percent Base Saturation	Calcium	Ca	%	63.4	67.4	77.0
	Magnesium	Mg	%	35.2	30.3	12.0
	Potassium	K	%	0.4	0.2	3.0
	Sodium	Na	%	1.0	2.1	1.5
	Hydrogen	H ⁺	%	0.0	0.0	6.5
	Aluminium	Al	%	0.0	0.0	..
	Calcium/ Magnesium Ratio		ratio	1.80	2.22	6.42
SMP	BUFFER pH		units	7.46	7.29	6.7
Micronutrients	Zinc	Zn	ppm	2.5	2.7	6.0
	Manganese	Mn	ppm	1.6	8.2	25
	Iron	Fe	ppm	13.7	35.3	25
	Copper	Cu	ppm	4.7	4.5	2.4
	Boron	B	ppm	0.38	0.22	2.0
Acid Extract	Molybdenum	Mo	ppm	0.44	2.77	2.0
	Cobalt	Co	ppm	14.2	37.7	40
	Selenium	Se	ppm	0.8	42.0	..
CaCl ₂ Extract	Aluminium	Al	ppm
	Silicon	Si	ppm	199	135	50
Total Nutrients	Total Carbon	C	%	0.31	0.27	..
	Total Nitrogen	N	%	0.07	0.08	..
	Carbon/ Nitrogen Ratio		ratio	4.4	3.4	10 to 12

Notes:

- 1: Cation Exchange Capacity = sum of the exchangeable Mg, Ca, Na, K, H and Al
- 2: Albrecht Methods from Rayment and Higgins, 1992. Australian Laboratory Handbook of Soil and Water Chemical Methods.
- 3: Reams available nutrient testing adapted from 'Science in Agriculture' and 'Non-Toxic Farming' and Lamonte Soil Handbook.
- 4: All results as dry weight: ppm = mg/Kg air dried soil sieved at 2mm (ie. lightly ground)
- 5: For conductivity 1 dS/m = 1 mS/cm = 1000 µS/cm
- 6: 1 cmol⁺/Kg = 1 meq/100g; 1 Lb/Acre = 1 Kg/Ha; 2 x ppm (parts per million) = kg/Ha
- 7: Conversions for 1 cmol⁺/Kg = 460 Kg/Hectare Sodium ; 780 Kg/Ha Potassium ; 240 Kg/Ha Magnesium ; 400 Kg/Ha Calcium.
- 8: Guideline values for phosphorus have reduced in accordance with Australian soils
- 9: Acid Extract is concentrated nitric acid digest of soil at ratio 1:5; soil:acid
- 10: Organic Matter = (%C Total Carbon - %C Carbonate Carbon) x 1.75

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FIGURE 5 SOIL TEST RESULTS FROM SCREENED OVERBURDEN FINES FROM BOTH THE EASTERN AND WESTERN SIDES OF THE SPUR AT MT SYLVIA.

ALBRECHT AND REAMS SOIL ANALYSIS REPORT (Page 1 of 1)

2 soil samples supplied by Martin IOs on 7th February, 2003 - Lab Job No. JA1168

Analysis requested by Martin.

				Block ID:	Sample #	Desirable Level Heavy Soil
				Crop:	637195	
				Client:	Basalt M ions	
				Units:	JA11682	
Nutrient						
Soluble Tests & Morgan Extract	Calcium	Ca	ppm	4027	1150	
	Magnesium	Mg	ppm	501	160	
	Potassium	K	ppm	1	113	
	Phosphorus (Morgan)	P	ppm	0.3	..	
	Phosphorus (Bray 1)	P	ppm	1.6	45 ^{note 8}	
Soluble Tests & Bray 2 Phosphorus Extract	Nitrate	N	ppm	1.5	15	
	Ammonia	N	ppm	0.9	..	
	Phosphorus (Bray 2)	P	ppm	12.8	90 ^{note 8}	
	Sulphur	S	ppm	28	40	
	pH (1:2 water)		units	7.45	6.5	
	Conductivity (1:5 water)		µS/cm	125	200	
Organic Matter			%	2.28	5.5	
Ammonium Acetate Equiv. Extract	Calcium	Ca	cmol ⁺ /Kg	56.26	15.6	
	Magnesium	Mg	cmol ⁺ /Kg	9.42	2.4	
	Potassium	K	cmol ⁺ /Kg	1.03	0.6	
	Sodium	Na	cmol ⁺ /Kg	0.34	0.30	
	Hydrogen	H+	cmol ⁺ /Kg	0.00	1.2	
	Aluminium	Al	cmol ⁺ /Kg	0.00		
Cation Exchange Capacity			cmol ⁺ /Kg	67.05	20.0	
Percent Base Saturation	Calcium	Ca	%	83.9	77.0	
	Magnesium	Mg	%	14.1	12.0	
	Potassium	K	%	1.5	3.0	
	Sodium	Na	%	0.5	1.5	
	Hydrogen	H+	%	0.0	6.5	
	Aluminium	Al	%	0.0		
Calcium/ Magnesium Ratio			ratio	5.97	6.42	
SMP	BUFFER pH		units	6.95	6.7	
Micronutrients	Zinc	Zn	ppm	5.3	6.0	
	Manganese	Mn	ppm	1.2	25	
	Iron	Fe	ppm	23.0	25	
	Copper	Cu	ppm	0.4	2.4	
	Boron	B	ppm	0.2	2.0	
Acid Extract	Molybdenum	Mo	ppm	0.06	2.0	
	Cobalt	Co	ppm	21.96	40	
	Selenium	Se	ppm	<0.05	..	
CaCl ₂ Extract	Aluminium	Al	ppm	
	Silicon	Si	ppm	295	50	
Total Nutrients	Total Carbon	C	%	1.30	..	
	Total Nitrogen	N	%	0.01	..	
	Carbon/ Nitrogen Ratio			ratio	130.4	10 to 12

PALAGONITE ANALYSIS

← High Ca %

Notes:

- 1: Cation Exchange Capacity = sum of the exchangeable Mg, Ca, Na, K, H and Al
- 2: Albrecht Methods from Rayment and Higgins, 1992. Australian Laboratory Handbook of Soil and Water Chemical Methods.
- 3: Reams available nutrient testing adapted from 'Science in Agriculture' and 'Non-Toxic Farming' and Lamonte Soil Handbook.
4. All results as dry weight; ppm = mg/Kg air dried soil sieved at 2mm (ie. not crushed)
5. For conductivity 1 dS/m = 1 mS/cm = 1000 µS/cm
6. 1 cmol⁺/Kg = 1 meq/100g; 1 Lb/Acre = 1 Kg/ Hectare (ie. Ha) = 2 ppm (parts per million)
7. Conversions for 1 cmol⁺/Kg = 460 Kg/Hectare Sodium ; 760 Kg/Ha Potassium ; 240 Kg/Ha Magnesium ; 400 Kg/Ha Calcium.
8. Guideline values for phosphorus have reduced in accordance with Australian soils
9. Acid Extract is concentrated nitric acid digest of soil at ratio 1:5; soil:acid

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