

THICK SANDY LOAM OVER CLAY - VOLCANIC INFLUENCE

General Description: *Thick grey sandy loam with a bleached subsurface on dark clay, yellowish with depth, formed over older volcanic influenced material. Upper profile darkened by more recent volcanic ash.*

Landform: Very gently undulating plain.

Substrate: Old lakebed? clay mixed with volcanic ash of Pleistocene age.

Vegetation:



Type Site: Site No.: SE172
 Hundred: Young
 Section:
 Sampling date: 04/01/2013
 1:50,000 mapsheet: 7022-4 (Kalangadoo)
 Easting: 466250
 Northing: 5827030
 Annual rainfall: 760 mm average

Midslope on very gently undulating plain, 1% slope. Firm surface with no stones.

Soil Description:

Depth (cm)	Description
0-20	Dark greyish brown firm weakly granular sandy loam. Gradual to:
20-40	Light grey (bleached when dry) firm massive sandy loam. Clear to:
40-60	Very dark greyish brown firm massive light sandy clay loam. Clear to:
60-80	Very dark greyish brown hard medium clay with weak coarse columnar structure. Gradual to:
80-100	Yellowish brown and strong brown mottled hard sandy light medium clay with moderate subangular blocky structure. Gradual to:
100-150	Pale brown and yellowish brown mottled hard massive sandy light medium clay.



Classification: Mottled, Eutrophic, Black Chromosol; thick, non-gravelly, loamy / clayey, deep



Summary of Properties

Drainage: Well drained. No part of the profile is likely to remain wet for more than a day or two at a time following heavy or prolonged rainfall.

Fertility: Inherent fertility is moderately low, as indicated by the exchangeable cation data. The sandy surface soil with favourable levels of organic matter has satisfactory nutrient retention capacity, but subsurface layers have less capacity. There are good reserves of macro nutrients in the clay subsoil. Test data indicate marginal phosphorus and potassium levels.

pH: Acidic at the surface, neutral at depth.

Rooting depth: Not recorded – estimate that most root growth occurs in the upper 80 cm.

Barriers to root growth:

Physical: The clayey subsoil presents a marginal barrier to root growth.

Chemical: Low pH and associated aluminium toxicity, and loss of nutrient retention capacity, affect root growth in the upper 80 cm.

Waterholding capacity: Approximately 105 mm in the estimated potential rootzone.

Seedling emergence: Satisfactory.

Workability: The sandy loam surface soil is readily worked.

Erosion Potential

Water: Low.

Wind: Low.

Laboratory Data

Depth cm	pH H ₂ O	pH CaCl ₂	Ext. Al mg/kg	EC 1:5 dS/m	Cl mg/kg	Org.C %	NO ₃ + NH ₄ mg/kg	Avail. P mg/kg	PBI	Avail. K mg/kg	SO ₄ -S mg/kg	Boron mg/kg	Trace elements mg/kg (DTPA)				Sum cations cmol (+)/kg	Exchangeable cations cmol(+)/kg				ESP
													Cu	Fe	Mn	Zn		Ca	Mg	Na	K	
Paddock	5.6	4.7	NR	0.087	39	3.62	20	41	153	63	10.6	0.5	1.46	399	34.3	2.07	9.2	7.23	1.56	0.23	0.16	2.5
0-20	5.9	5.1	1.1	0.087	37	2.61	31	23	105	128	8.0	0.5	0.95	386	22.8	1.76	10.7	8.09	1.93	0.32	0.33	3.0
20-40	5.9	5.1	0.83	0.031	2	0.93	9	11	595	63	1.7	0.3	0.93	229	4.25	0.56	5.1	3.84	0.86	0.21	0.16	4.1
40-60	6.0	5.0	0.58	0.019	< 1	0.51	5	5	45	34	1.0	0.3	0.69	140	0.45	0.06	3.6	2.61	0.77	0.13	0.07	3.6
60-80	6.2	5.2	0.42	0.048	6	0.33	2	< 2	225	108	4.5	0.6	1.35	77	0.04	0.18	17.3	8.37	8.07	0.61	0.28	3.5
80-100	6.7	5.7	0.20	0.059	23	0.52	4	4	229	137	5.3	0.5	0.87	51	0.37	0.21	23.9	10.7	11.8	0.99	0.35	4.1
100-150	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Note: Paddock sample bulked from cores (0-10 cm) taken around the pit.

Sum of cations, in a neutral to alkaline soil, approximates the CEC (cation exchange capacity), a measure of the soil's capacity to store and release major nutrient elements.

ESP (exchangeable sodium percentage) is derived by dividing the exchangeable sodium value by the CEC, in this case estimated by the sum of cations.

Further information: [DEWNR Soil and Land Program](#)

