

GRADATIONAL RED LOAM ON ROCK

General Description: *Hard setting loamy surface, with an ironstone gravelly A2 horizon, overlying a red and pale grey coarsely structured clayey subsoil grading to kaolinitic micaceous siltstone.*

Landform: Upper slopes of rolling low hills of the north eastern Mount Lofty Ranges

Substrate: Kaolinized meta-siltstones of the Kanmantoo Group

Vegetation: Woodland of blue gum and sheoak



Type Site: Site No.: CH033

1:50,000 sheet: 6728-3 (Tepko)

Hundred:

Tungkillo

Annual rainfall: 600 mm

Sampling date:

12/01/93

Landform: Upper slope of rolling low hills, slope 15%

Surface: Hard setting with minor ironstone

Soil Description:

Depth (cm)	Description
0-10	Dark brown massive fine sandy loam. Clear to:
10-20	Pink massive fine sandy clay loam with 10-20% ironstone and quartz gravel. Abrupt to:
20-35	Yellowish red light clay with strong coarse prismatic structure. Gradual to:
35-60	Red and light grey mottled medium clay with moderate coarse prismatic structure. Diffuse to:
60-90	Yellowish red, red and grey massive silty clay loam. Diffuse to:
90-150	Reddish yellow and yellow massive silty loam (kaolinitic weathering metasiltstone).



Classification: Bleached, Mesotrophic, Red Dermosol; medium, non-gravelly, loamy / clayey, moderate

Summary of Properties

Drainage	The soil is well drained. The profile is unlikely to remain wet for more than a few days.
Fertility	Inherent fertility is moderately low, as indicated by the low exchangeable cation values. This is due to the high degree of weathering and associated development of kaolin-rich clay minerals. Fertility depends on preventing acidification and associated cation leaching and iron mobilization. Phosphorus and magnesium levels are low.
pH	Acidic at the surface, neutral with depth. Dolomite is required for pH correction.
Rooting depth	100 cm in pit.
Barriers to root growth	
Physical:	Poor surface structure and high clay strength may impede root development.
Chemical:	Low natural fertility (i.e. low capacity to retain nutrients) is the principal limitation to root growth.
Water holding capacity	120 mm in pit.
Seedling emergence	Good to fair, depending on the degree of hard setting and surface sealing, which will increase with decreasing organic matter content.
Workability	Good to fair, depending on surface organic matter status.
Erosion Potential	
Water:	Moderately high, due to the 15% slope.
Wind:	Low.

Laboratory Data

Depth cm	pH H ₂ O	pH CaCl ₂	CaCO ₃ %	EC1:5 dS/m	ECe dS/m	Org.C %	Avail. P mg/kg	Avail. K mg/kg	SO ₄ -S mg/kg	Boron mg/kg	Trace Elements mg/kg (DTPA)				CEC cmol (+)/kg	Exchangeable Cations cmol(+)/kg				ESP
											Cu	Fe	Mn	Zn		Ca	Mg	Na	K	
Paddock	5.3	4.7	0	0.07	0.34	3.4	10	220	-	1.2	1.87	332	31.1	8.77	10.1	6.16	1.22	0.14	0.49	1.4
0-10	5.4	4.7	0	0.06	0.22	3.2	16	300	-	1.2	-	-	-	-	10.5	6.61	1.15	0.12	0.61	1.1
10-20	5.9	5.2	0	0.04	0.13	0.73	6	240	-	1.1	-	-	-	-	5.4	3.63	0.88	0.13	0.42	2.4
20-35	6.4	5.8	0	0.06	0.13	0.35	3	290	-	2.2	-	-	-	-	6.1	3.32	2.33	0.18	0.59	3.0
35-60	6.5	5.9	0	0.08	0.15	0.34	7	290	-	2.4	-	-	-	-	5.7	3.04	2.83	0.25	0.56	4.4
60-90	6.7	6.0	0	0.08	0.22	0.17	<2	140	-	2.0	-	-	-	-	4.6	1.68	2.71	0.26	0.15	5.6
90-150	7.3	6.7	0	0.09	0.32	0.07	4	78	-	0.7	-	-	-	-	2.0	0.75	1.59	0.23	0.04	11.5

Note: Paddock sample bulked from 20 cores (0-10 cm) taken around the pit.

CEC (cation exchange capacity) is 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.