

ACIDIC SANDY LOAM OVER RED CLAY ON ROCK

General Description: *Hard setting moderately thick loamy surface soil, overlying a bright red clay subsoil grading to kaolinized micaceous siltstone*

Landform: Slopes of undulating to rolling low hills of the north eastern Mount Lofty Ranges

Substrate: Weathering, often kaolinized, micaceous siltstone of the Tappanappa Formation

Vegetation: Woodland of blue gum and sheoak



Type Site: Site No.: CH032

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

Hundred:

Tungkillo

Annual rainfall: 600 mm

Sampling date:

12/01/93

Landform: Upper slope of undulating low hill, 5% slope

Surface: Hard setting with no stones

Soil Description:

Depth (cm)	Description
0-10	Very dark grey massive fine sandy loam. Clear to:
10-20	Very pale brown massive fine sandy loam with 2-10% quartz gravel. Abrupt to:
20-30	Red and light brown light clay with strong coarse prismatic, breaking to polyhedral, structure. Clear to:
30-55	Red medium clay with strong polyhedral structure. Gradual to:
55-80	Yellow and red silty clay loam with moderate polyhedral structure. Diffuse to:
80-140	Yellowish red massive silty loam (highly weathered rock). Gradual to:
140-150	Weathered metasiltstone.



Classification: Bleached, Eutrophic, Red Chromosol; medium, non-gravelly, loamy / clayey, deep

Summary of Properties

Drainage Moderately well drained. Water held up by the tight clay subsoil may saturate soil for a week or so.

Fertility The inherent fertility of the soil is moderately low, as indicated by the exchangeable cation data. Acidification will further reduce the soil's capacity to retain nutrients. The proportions of calcium, magnesium and potassium are satisfactory, but absolute amounts are possibly inadequate. Phosphorus and copper levels are marginal.

pH Slightly acidic at surface, acidic in clay layers, and slightly acidic at base. Lime is required for correction of the problem.

Rooting depth 110 cm in pit, but few roots below 55 cm.

Barriers to root growth

Physical: Hard soil, particularly as it is drying, affects root growth.

Chemical: Low fertility.

Water holding capacity 130 mm, but some is effectively unavailable because of low plant root densities.

Seedling emergence Good to fair. Surface will set hard and seal over if organic matter levels are low.

Workability Fair, due to generally poor surface soil structure. Structure decline leads to a narrowing of the moisture range for effective working.

Erosion Potential

Water: Moderate, due to the 5% 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 (EDTA)				CEC cmol (+)/kg	Exchangeable Cations cmol(+)/kg				ESP
											Cu	Fe	Mn	Zn		Ca	Mg	Na	K	
Paddock	6.0	5.5	0	0.05	0.29	1.7	15	130	-	0.5	1.61	184	15.2	12.6	5.3	4.32	1.39	0.07	0.22	1.3
0-10	6.4	6.0	0	0.04	0.34	1.5	12	94	-	0.6	-	-	-	-	6.2	5.33	1.85	0.06	0.14	1.0
10-20	5.7	5.0	0	0.02	0.12	0.42	5	63	-	0.4	-	-	-	-	2.2	1.27	0.68	0.02	0.03	0.9
20-30	5.8	5.3	0	0.06	0.15	0.32	3	140	-	1.6	-	-	-	-	7.5	3.87	2.42	0.15	0.31	2.0
30-55	6.3	5.9	0	0.08	0.12	0.17	3	150	-	2.3	-	-	-	-	8.7	4.07	3.88	0.27	0.31	3.1
55-80	6.3	5.9	0	0.07	0.12	0.13	2	110	-	1.9	-	-	-	-	6.1	2.55	3.23	0.30	0.17	4.9
80-140	6.6	5.9	0	0.09	0.22	0.06	2	55	-	1.2	-	-	-	-	5.1	1.14	2.92	0.84	0.04	16.5

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.