

ACIDIC SANDY LOAM OVER RED CLAY ON ROCK

General Description: *Hard massive and gravelly acidic sandy loam abruptly overlying a coarsely structured red clay forming in micaceous basement rock*

Landform: Upper slopes of undulating to rolling low hills

Substrate: Micaceous basement rock, mainly schists and phyllites

Vegetation: Blue gum woodland



Type Site: Site No.: CH121

1:50,000 sheet:	6628-2 (Onkaparinga)	Hundred:	Talunga
Annual rainfall:	675 mm	Sampling date:	28/08/99
Landform:	Upper slope in rolling low hills, 14% slope		
Surface:	Firm with occasional surface ironstone and quartz stones		

Soil Description:

<i>Depth (cm)</i>	<i>Description</i>
0-10	Dark brown firm sandy loam with weak granular structure and 2-10% quartz grit. Clear to:
10-25	Reddish brown (bleached when dry) massive light sandy loam with 10-20% quartz gravel and grit. Abrupt to:
25-50	Red hard medium clay with coarse subangular blocky structure breaking to medium angular blocky. Diffuse to:
50-75	Red, orange and reddish yellow firm silty light clay with weak coarse lenticular structure and 20-50% soft weathering phyllite. Diffuse to:
75-100	Red and orange firm silty light clay with weak coarse lenticular structure and more than 50% soft weathering phyllite. Gradual to:
100-150	Weathering phyllite.



Classification: Bleached, Mesotrophic, Red Chromosol; medium, slightly gravelly, loamy / clayey, deep

Summary of Properties

Drainage Well drained. Water will perch on the clay, but saturation is unlikely to last for more than a day or so.

Fertility Natural fertility is low (as indicated by the low exchangeable cation values in subsoil). However, surface nutrient retention capacity is high due to favourable organic matter levels. Data suggest possible copper deficiency.

pH: Acidic throughout, but not strongly so. Periodic liming is required.

Rooting depth Good root growth to 100 cm.

Barriers to root growth

Physical: Firm coarsely structured clayey subsoil restricts even root proliferation.

Chemical: High aluminium in 10-25 cm layer (lime required).

Water holding capacity Approximately 130 mm in root zone (high).

Seedling emergence: Good, provided that surface condition is maintained (high organic carbon levels). Reduction in organic matter will lead to hard setting.

Workability: Good.

Erosion Potential

Water: Moderately high due to the slope of the land.

Wind: Low.

Laboratory Data

Depth cm	pH H ₂ O	pH CaCl ₂	CO 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	Exch Al mg/kg
											Cu	Fe	Mn	Zn		Ca	Mg	Na	K		
Paddock	6.3	5.5	0	0.08	-	3.4	39	236	15	1.2	0.90	206	18	2.16	9.6	8.1	1.2	<0.1	0.35	<1	-
0-10	6.4	5.6	0	0.07	-	3.9	20	204	9.4	1.2	0.96	147	18	2.4	11.5	9.7	1.4	<0.1	0.31	<1	-
10-25	5.9	4.8	0	0.03	-	0.9	6	131	3.0	0.8	0.37	57	2.8	0.34	4.8	2.4	0.57	<0.1	0.13	na	10.3
25-50	6.0	5.0	0	0.04	-	0.5	2	270	2.9	1.0	0.17	90	0.48	0.17	5.8	2.8	1.0	0.11	0.43	1.9	0.9
50-75	6.3	5.4	0	0.05	-	0.4	3	184	5.7	0.8	0.21	29	0.36	0.15	5.7	2.3	1.8	0.14	0.23	2.5	-
75-100	6.4	5.5	0	0.05	-	0.3	3	139	10.8	0.8	0.24	24	0.41	0.16	4.5	1.8	1.9	0.15	0.11	3.3	-

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.