

SANDY LOAM OVER POORLY STRUCTURED RED CLAY

General Description: *Hard setting brown sandy surface with a pale coloured A2 horizon, sharply overlying a red, yellow and brown mottled columnar structured clay subsoil, calcareous with depth*

Landform: Lower slopes and valley flats

Substrate: Sandy clay to clay alluvium

Vegetation: Peppermint box woodland



Type Site: Site No.: CM013

1:50,000 sheet: 6630-2 (Apoinga)

Hundred:

Saddleworth

Annual rainfall: 450 mm

Sampling date:

14/02/92

Landform: Lower slope of an undulating rise, 2% slope

Surface: Hard setting with no stones

Soil Description:

Depth (cm)	Description
0-12	Dark brown massive hard sandy loam. Sharp to:
12-15	Light brown massive hard loamy sand with 2-10% quartz gravel. Sharp to:
15-55	Yellowish red and grey brown mottled heavy clay with very coarse columnar structure. Gradual to:
55-120	Yellowish red and brown mottled highly calcareous light clay with moderate angular blocky structure and minor hard carbonate nodules. Gradual to:
120-160	Yellowish red moderately calcareous medium clay.



Classification: Calcic, Mottled-Mesonatric, Red Sodosol; medium, non-gravelly, loamy/clayey, very deep

Summary of Properties

Drainage The soil is imperfectly drained due to the sodic clay subsoil at shallow depth acting as a barrier to water movement. Water is likely to perch on top of the clay for a week to several weeks at a time.

Fertility The natural fertility of the surface soil is low because of its low clay and organic matter content, and marginal acidity. However the subsoil has a high nutrient retention capacity. Phosphorus levels at the sampling site are high.

pH Acidic at the surface, strongly alkaline with depth.

Rooting depth 95 cm in pit.

Barriers to root growth

Physical: The tough sodic clay subsoil and waterlogging on the top of the clay restrict root growth.

Chemical: High pH and sodicity in the 55-120 cm layer prevent roots from penetrating deeper than 95 cm.

Water holding capacity 100 mm in root zone, but not all is available due to poor root distribution.

Seedling emergence Fair to poor due to poor structure of surface soil and tendency to seal over.

Workability Fair to poor. The surface has a very narrow moisture range for effective working due to its poor stability and high density.

Erosion Potential

Water: Moderate. The soil is highly erodible, but the slope is gentle.

Wind: Moderately 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 (DTPA)				CEC cmol (+)/kg	Exchangeable Cations cmol(+)/kg				ESP	Ext Al mg/kg
											Cu	Fe	Mn	Zn		Ca	Mg	Na	K		
Paddock	6.1	4.7	0	0.04	0.4	0.98	47	150	-	-	0.57	166	7.8	0.49	4.6	2.50	0.69	0.19	0.38	4.1	1.0
0-12	6.1	4.8	0	0.04	0.5	0.92	68	170	-	-	0.40	151	4.7	0.40	4.6	2.60	0.66	0.20	0.36	4.3	1.0
12-15	6.8	5.2	1.0	0.04		0.43	12	100	-	-	0.47	67.0	2.3	0.19	3.4	1.94	0.83	0.38	0.25	11.2	0.5
15-55	9.0	7.9	2.5	0.34	1.4	0.24	3	330	-	8.0	0.92	5.2	1.4	0.07	20.0	5.61	9.95	4.34	1.18	21.7	-
55-120	9.5	8.2	3.8	0.56	3.1	0.09	1	240	-	7.3	0.50	3.8	0.4	0.07	15.5	3.66	8.22	4.82	0.80	31.1	-
120-160	9.6	8.1	1.8	0.45	2.8	0.09	2	150	-	4.9	0.36	4.2	0.3	0.09	11.8	2.77	5.92	4.15	0.60	35.2	-

Note: Paddock sample bulked from 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.