

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 mapsheet:	6630-2 (Apoinga)
	Hundred:	Saddleworth	Easting:	302300
	Section:	48	Northing:	6235950
	Sampling date:	14/02/92	Annual rainfall:	550 mm average

Lower slope of an undulating rise. Hard setting surface, slope 2%.

Soil Description:

<i>Depth (cm)</i>	<i>Description</i>
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.

Waterholding capacity: 100 mm in rootzone, 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 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.

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

