

SANDY LOAM OVER POORLY STRUCTURED RED CLAY

General Description: *Thin sandy loam over coarsely structured dispersive red clay, calcareous with depth*

Landform: Broad plains

Substrate: Pleistocene age Blanchetown Clay equivalent

Vegetation: Mallee



Type Site: Site No.: MM037

1:50,000 sheet: 7027-1 (Prinpun Bore)

Hundred: Pinnaroo

Annual rainfall: 340 mm

Sampling date: 21/11/91

Landform: Flat

Surface: Firm with no stones

Soil Description:

Depth (cm)	Description
0-9	Reddish brown firm sandy loam. Abrupt to:
9-15	Reddish brown firm fine sandy clay loam with coarse angular blocky structure. Abrupt to:
15-23	Yellowish red highly calcareous light clay with coarse angular blocky structure. Clear to:
23-45	Yellowish red very highly calcareous massive medium clay. Gradual to:
45-76	Yellowish red very highly calcareous massive medium clay. Diffuse to:
76-120	Yellowish red and light grey highly calcareous heavy clay with coarse prismatic structure. Diffuse to:
120-170	As above, but slightly calcareous. Diffuse to:
170-190	As above, but non calcareous.



Classification: Hypercalcic, Mesonatric, Red Sodosol; thin, non-gravelly, loamy / clayey, moderate

Summary of Properties

Drainage	Moderately well drained. Water will perch on the clay for a week or so following heavy or prolonged rainfall.
Fertility	Inherent fertility is moderate as indicated by the exchangeable cation data. Although all measured nutrient elements are in adequate supply at the sampling site, regular fertilizer applications are necessary to avoid deficiencies of nitrogen, phosphorus, zinc and copper. Organic carbon values are low at the site.
pH	Neutral at the surface, strongly alkaline with depth.
Rooting depth	76 cm in pit, but few roots below 45 cm.
Barriers to root growth	
Physical:	The dense dispersive subsoil inhibits uniform root growth.
Chemical:	High pH, sodicity and boron from 45 cm restrict root development.
Water holding capacity	70 mm in root zone.
Seedling emergence:	Slight limitation due to sealing surface.
Workability:	Fair. Surface soil will puddle if worked too wet and shatter if worked too dry.
Erosion Potential	
Water:	Low.
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	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	8.2	7.3	0.6	0.18	1.00	0.77	24	500	2.8	0.36	5.3	6.2	0.88	9.6	8.53	2.86	0.21	1.23	2.2
0-9	6.7	6.4	<0.1	0.11	0.76	0.85	27	460	2.7	0.42	11	12	2.2	8.2	6.87	2.75	0.23	1.24	2.8
9-15	8.4	7.5	3.1	0.17	0.78	0.56	7.7	460	3.6	0.64	12	4.7	0.30	14.3	11.68	5.03	0.21	1.22	1.5
15-23	8.7	7.9	8.3	0.17	0.56	0.55	2.3	330	6.0	0.93	11	1.6	0.18	17.1	13.70	7.12	0.51	0.98	3.0
23-45	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
45-76	9.6	8.3	29	0.73	4.6	0.19	2.1	370	29	1.5	8.5	0.72	0.12	16.0	2.61	7.16	5.96	0.95	37.3
76-120	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
120-170	8.9	7.9	1.3	1.20	7.93	0.09	<2.0	560	59	0.91	6.9	0.39	0.10	25.1	1.55	10.19	9.87	1.43	39.3
170-190	6.5	6.1	<0.1	1.07	7.38	0.12	<2.0	490	25	0.76	13	0.11	0.16	22.5	0.91	9.90	8.78	1.27	39.0

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.