

SANDY LOAM OVER POORLY STRUCTURED BROWN CLAY

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

Landform: Flat plains.

Substrate: Coarsely structured red clay of Pleistocene age (Blanchetown Clay equivalent)

Vegetation: Mallee



Type Site: Site No.: MM040

1:50,000 sheet: 6927-2 (Parrakie)

Hundred: Cotton

Annual rainfall: 390 mm

Sampling date: 26/11/91

Landform: Flat

Surface: Hard setting with no stones

Soil Description:

Depth (cm)	Description
0-8	Dark brown hard fine sandy loam with platy structure. Sharp to:
8-11	Brown massive fine sandy loam. Abrupt to:
11-20	Brown hard highly calcareous light clay with strong coarse prismatic structure. Clear to:
20-60	Orange very highly calcareous light clay with weak coarse prismatic structure. Diffuse to:
60-90	Yellowish red and light grey hard heavy clay with strong coarse angular blocky structure and 20-50% fine carbonate. Diffuse to:
90-170	Red and light grey hard heavy clay with strong coarse angular blocky structure and 2-10% fine carbonate.



Classification: Hypercalcic, Subnatric, Brown Sodosol; medium, non-gravelly, loamy / clayey, moderate

Summary of Properties

Drainage	Moderately well drained. Water perches on the clayey subsoil for a week or so after heavy or prolonged rainfall.
Fertility	Inherent fertility is moderate to high as indicated by the exchangeable cation data. However, regular phosphorus, nitrogen, zinc and copper applications are required to maintain productivity. Zinc and copper are marginally deficient at the sampling site. Organic carbon levels are adequate.
pH	Alkaline at the surface, strongly alkaline with depth.
Rooting depth	60 cm in pit.
Barriers to root growth	
Physical:	The dense dispersive subsoil reduces root proliferation.
Chemical:	High pH, boron and sodicity from 60 cm limit further root growth.
Water holding capacity	95 mm in root zone.
Seedling emergence:	Slight limitation due to tendency for surface soil to seal and set hard.
Workability:	Fair. Poorly structured surface soil has a limited moisture range for effective working.
Erosion Potential	
Water:	Low.
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	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	8.7	8.0	2.3	0.22	1.26	1.1	30	480	3.5	0.27	4.4	2.8	0.52	18.3	12.08	3.58	0.36	1.30	2.0
0-8	7.8	7.2	0.3	0.14	0.64	1.3	32	590	3.3	0.23	6.8	8.6	0.71	13.8	10.78	2.00	0.14	1.49	1.0
8-11	8.0	7.1	0.9	0.12	0.40	0.94	6.4	520	2.8	0.23	5.3	5.0	0.19	13.6	10.86	2.22	0.12	1.33	0.9
11-20	8.6	7.0	14	0.16	0.44	0.97	2.9	500	3.1	0.57	10	2.5	0.15	27.4	19.55	6.73	0.31	1.58	1.1
20-60	9.3	7.4	25	0.42	1.41	0.36	3.9	340	12	1.2	5.7	1.0	0.07	27.8	10.54	13.30	4.72	1.13	17.0
60-90	9.4	7.9	22	1.42	4.44	0.17	4.1	550	39	1.4	8.3	0.48	1.3	34.5	4.25	16.34	15.36	1.76	44.5
90-130	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
130-170	8.9	8.0	1.5	1.80	7.74	0.12	1.8	560	39	0.91	16	0.94	0.13	31.1	3.30	14.00	14.18	1.71	45.6

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.