

SANDY LOAM OVER POORLY STRUCTURED BROWN CLAY

General Description: *Sandy loam over coarsely structured dispersive brown mottled clay, calcareous with depth*

Landform: Gently undulating plains.

Substrate: Hard coarsely structured clay of Pleistocene age (Blanchetown equivalent).

Vegetation: Mallee



Type Site: Site No.: MM041

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

Hundred: Allenby

Annual rainfall: 400 mm

Sampling date: 29/11/91

Landform: Flat

Surface: Firm with no stones

Soil Description:

Depth (cm)	Description
0-8	Dark brown firm sandy loam. Abrupt to:
8-15	Light brown firm loamy sand. Sharp to:
15-35	Brown and pale brown mottled sandy clay with coarse columnar structure. Diffuse to:
35-80	Reddish yellow massive very highly calcareous light clay. Diffuse to:
80-120	Light brownish grey very highly calcareous medium clay with weak coarse angular blocky structure. Diffuse to:
120-175	Pale brown highly calcareous medium clay with moderate coarse angular blocky structure. Diffuse to:
175-190	Brown and olive grey mottled medium heavy clay with moderate coarse angular blocky structure.



Classification: Hypercalcic, Mottled-Hypernatric, Brown Sodosol; medium, non-gravelly, loamy / clayey, deep

Summary of Properties

Drainage	Imperfectly drained. Water perches on the clayey subsoil for up to several weeks following heavy or prolonged rainfall.
Fertility	Inherent fertility is moderately low as indicated by the exchangeable cation data. Deficiencies of phosphorus, nitrogen, zinc and copper can be expected - the latter two are marginally deficient at the sampling site. Increased organic matter will improve nutrient retention capacity - organic carbon level is low at sampling site.
pH	Acidic at the surface, strongly alkaline at depth.
Rooting depth	60 cm in pit.
Barriers to root growth	
Physical:	The dense dispersive subsoil restricts root growth and reduces water use efficiency.
Chemical:	High pH, boron and sodicity levels from 15 cm impede root growth.
Water holding capacity	90 mm in root zone.
Seedling emergence:	Slight limitation due to poor surface structure and waterlogging in wet seasons.
Workability:	Fair. Restricted moisture range over which soil can be safely worked.
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	6.6	6.4	<0.1	0.13	1.73	0.82	32	300	2.0	0.21	29	5.1	0.47	4.6	3.98	1.44	0.36	0.59	7.8
0-8	5.8	5.4	0.7	0.09	1.04	0.85	26	260	1.7	0.24	60	6.5	0.49	4.0	3.22	0.92	0.17	0.53	4.3
8-15	6.4	5.9	<0.1	0.06	0.66	0.19	6.7	80	1.7	0.09	16	1.6	0.13	2.1	1.45	0.54	0.27	0.14	na
15-35	9.3	7.8	1.3	0.44	2.46	0.21	2.8	500	21	0.36	24	0.68	0.10	14.7	3.89	7.43	4.87	1.18	33.1
35-60	9.5	8.3	13	1.02	5.94	0.18	<2.0	670	27	1.2	18	0.82	0.11	20.9	3.93	7.83	10.79	1.81	51.6
60-80	9.5	8.3	21	1.16	8.44	0.15	<2.0	570	19	0.88	15	0.59	0.11	20.3	3.22	5.54	9.52	1.36	46.9
80-120	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
120-175	9.3	8.3	19	1.47	11.09	0.10	<2.0	620	21	0.89	15	0.80	0.11	16.2	2.92	7.77	10.49	1.54	64.8

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.