

CALCAREOUS CLAY

General Description: *Calcareous clay loam to light clay becoming more clayey and calcareous with depth*

Landform: Undulating rises with intervening flats and irregular sandhills

Substrate: Clayey outwash sediments.

Vegetation: Mallee.

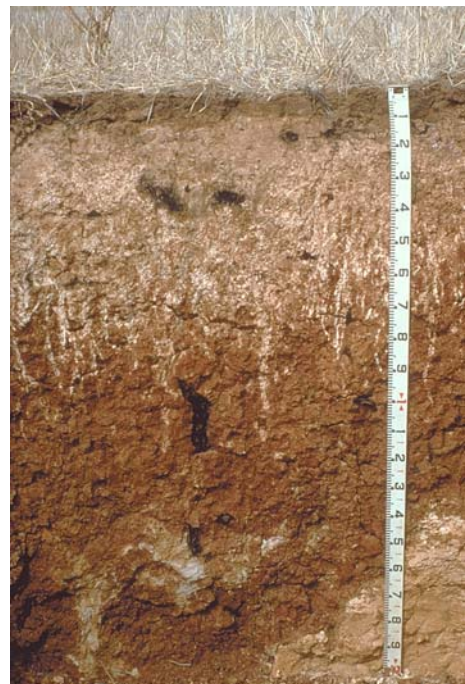


Type Site: Site No.: MM102

1:50,000 sheet:	6926-3 (Tintinara)	Hundred:	Lewis
Annual rainfall:	455 mm	Sampling date:	09/03/93
Landform:	Swale		
Surface:	Firm with no stone		

Soil Description:

<i>Depth (cm)</i>	<i>Description</i>
0-9	Dark reddish brown hard calcareous sandy clay with strong crumb structure. Abrupt to:
9-18	Reddish brown hard very highly calcareous sandy clay with weak angular blocky structure. Abrupt to:
18-40	Yellowish red hard very highly calcareous medium clay with weak coarse prismatic structure. Clear to:
40-60	Yellowish red and olive grey hard very highly calcareous medium clay with coarse angular blocky structure. Gradual to:
60-110	Red and olive grey hard medium clay with strong coarse angular blocky structure and 2-10% pockets of fine carbonate. Diffuse to:
110-200	Red and olive grey hard calcareous medium heavy clay with strong coarse angular blocky structure. Abrupt to:
200-220	Nodular calcrete in a sandy clay loam matrix.



Classification: Epihypersodic, Pedal, Calcic Calcarosol; thin, non-gravelly, clayey / clayey, moderate

Summary of Properties

Drainage Moderately well drained. Soil may remain saturated for up to a week following heavy or prolonged rainfall.

Fertility Inherent fertility is high, as indicated by the exchangeable cation data. Although nutrient retention capacity is high, regular phosphorus applications are necessary, and free carbonate may tie up zinc, copper and manganese. Organic carbon levels are satisfactory at the sampling site.

pH Alkaline at the surface, strongly alkaline with depth.

Rooting depth 40 cm in pit.

Barriers to root growth

Physical: The hard clayey subsoil layers restrict uniform root growth.

Chemical: High pH, sodicity and boron from 40 cm prevent deeper root growth.

Water holding capacity 65 mm in root zone.

Seedling emergence: Slight limitation due to surface waterlogging and tendency to set hard.

Workability: Fair workability - becomes intractable when wet.

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	7.8	7.1	<1	0.19	1.35	1.5	20	420	2.2	0.38	-	10	0.30	20.7	12.95	4.10	0.48	1.14	2.3
0-9	8.2	7.7	3	0.21	1.04	1.7	16	570	3.3	0.33	-	7.2	0.26	25.7	17.76	5.00	0.19	1.57	0.7
9-18	8.7	8.1	14	0.19	0.8	1.0	5	590	4.3	0.27	-	4.4	0.08	26.6	15.51	8.62	0.62	1.69	2.3
18-40	9.4	8.4	15	0.34	0.78	0.3	3	750	9.1	0.18	-	2.2	<0.06	24.0	8.09	10.63	3.65	1.92	15.2
40-60	9.6	8.5	13	0.61	0.91	0.2	<2	900	17	0.20	-	1.5	<0.06	28.2	6.25	11.33	8.05	2.35	29.0
60-110	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
110-150	8.7	8.1	8	1.83	9.45	0.1	<2	900	16	0.31	-	1.2	<0.06	35.9	8.89	14.67	10.32	2.47	28.7
150-200	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
200-220	8.8	8.4	78	2.16	22.9	<0.1	<2	260	4.3	0.17	-	0.81	<0.06	5.4	3.29	3.32	1.93	0.57	35.7

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.