

## SHALLOW SALINE CLAY LOAM OVER CALCRETE

**General Description:** *Weakly structured saline sandy clay loam over calcrete at shallow depth, with a water table between 100 and 150 cm*

**Landform:** Gently undulating plain with extensive sandhills and sporadic saline depressions.

**Substrate:** Calcreted sandy limestone (Coomandook Formation).

**Vegetation:** Mallee.



**Type Site:** Site No.: MM116  
 1:50,000 sheet: 6827-3 (Moorlands)      Hundred: Roby  
 Annual rainfall: 410 mm      Sampling date: 01/04/93  
 Landform: Marginally saline flat  
 Surface: Soft with more than 50% calcrete stones (60-200 mm)

### Soil Description:

Depth (cm)	Description
0-8	Dark greyish brown firm fine sandy clay loam with weak granular structure and 20-50% calcrete fragments (60-200 mm). Abrupt to:
8-20	Dark brown massive firm fine sandy clay loam with 20-50% calcrete fragments (60-200 mm). Sharp to:
20-42	Laminar to nodular calcrete. Clear to:
42-55	Brown friable massive highly calcareous sandy clay loam with more than 50% calcrete fragments (200-600 mm). Abrupt to:
55-90	Light grey firm massive highly calcareous light sandy clay loam. Diffuse to:
90-125	Light grey friable massive highly calcareous sandy clay with 10-20% carbonate nodules.
125-	Water table.



**Classification:** Epihypersodic, Petrocalcic, Supracalcic Calcarosol; medium, very gravelly, clay loamy / clay loamy, very shallow

## Summary of Properties

<b>Drainage</b>	Imperfectly drained. Soil may remain wet for several weeks at a time due to the influence of the water table.
<b>Fertility</b>	Inherent fertility is moderate as indicated by the exchangeable cation data. Regular phosphorus applications are essential. Nitrogen required for grasses because legumes will not persist (salinity). Zinc and copper deficiencies are possible. Organic carbon levels are high.
<b>pH</b>	Alkaline at the surface, strongly alkaline with depth.
<b>Rooting depth</b>	55 cm in pit.
<b>Barriers to root growth</b>	
<b>Physical:</b>	The calcrete impedes root growth to some extent, but there is some penetration.
<b>Chemical:</b>	High pH, salinity and sodicity from 55 cm prevent deeper root growth. High surface boron is a summer phenomenon. Early winter rains will leach it away from germinating seeds.
<b>Water holding capacity</b>	Approximately 30 mm in the root zone.
<b>Seedling emergence:</b>	Satisfactory, provided that salt and boron have been leached. Otherwise fair to poor.
<b>Workability:</b>	Soft surface is easily worked, but soil is often wet and boggy during winter.
<b>Erosion Potential</b>	
<b>Water:</b>	Low.
<b>Wind:</b>	Low.

## Laboratory Data

Depth cm	pH H <sub>2</sub> O	pH CaCl <sub>2</sub>	CO <sub>3</sub> %	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	8.3	7.8	2	1.95	18.9	2.0	23	640	18	0.50	27	8.1	1.3	17.7	10.51	2.96	3.72	2.06	21.0
0-8	8.4	7.8	3	0.82	6.9	2.2	15	640	11	0.39	33	7.1	0.74	17.1	11.13	3.03	2.08	1.88	12.2
8-20	8.4	7.8	2	0.91	9.6	1.4	8	560	10	0.33	17	6.7	0.21	18.4	10.90	3.05	2.82	1.80	25.9
20-42	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
42-55	8.8	8.3	30	1.74	14.8	0.4	5	610	10	0.25	1.7	2.1	0.10	4.8	2.42	1.29	0.09	0.30	1.9
55-90	9.4	8.5	22	1.16	12.3	<0.1	2	440	6.4	0.11	1.5	0.80	0.14	6.4	3.12	1.29	3.05	1.17	47.7
90-125	9.3	8.5	23	1.61	13.3	<0.1	2	810	15	0.31	3.4	0.63	0.07	14.7	4.15	2.65	7.67	2.04	52.2

**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.