

SHALLOW CALCAREOUS SANDY LOAM OVER CALCRETE

General Description: *Calcareous sandy loam to sandy clay loam with variable rubble, over calcrete at shallow depth*

Landform: Stony rises on gently undulating plains and rises

Substrate: Calcrete capped Blanchetown Clay

Vegetation: Mallee



Type Site:	Site No.:	MM016	1:50,000 sheet:	6827-1 (Karoonda)
	Hundred:	Hooper	Easting:	393400
	Section:	66	Northing:	6102400
	Sampling date:	13/9/91	Annual rainfall:	360 mm

Stony slope (3%) of a gently undulating rise. Firm surface with more than 50% calcrete stones, 60-200 mm.

Soil Description:

<i>Depth (cm)</i>	<i>Description</i>
0-7	Dark brown highly calcareous light sandy clay loam with 20-50% calcrete fragments (60-200 mm). Abrupt to:
7-11	Brown very highly calcareous sandy clay loam with 10-20% calcrete fragments (60-200 mm). Sharp to:
11-67	Calcrete pan of more than 90% calcrete stones (60-600 mm) in light brown very highly calcareous sandy clay loam matrix. Sharp to:
67-103	Massive calcrete. Clear to:
103-155	Pale brown very highly calcareous sandy clay loam with 20-50% calcrete fragments. Clear to:
155-176	Red and olive mottled heavy clay with coarse lenticular structure. Abrupt to:
176-190	As above with gypsum crystals and fine carbonate segregations. Clear to:
190-200	Reddish brown and olive mottled heavy clay with coarse lenticular structure.



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

Summary of Properties

Drainage	Well drained. Soil never remains saturated for more than a few days.
Fertility	Inherent fertility is moderate, according to the exchangeable cation data. High organic matter levels and about 20% clay provide adequate retention capacity. Phosphorus concentration is marginal at the sampling site.
pH	Alkaline at the surface, strongly alkaline with depth.
Rooting depth	67 cm in pit.
Barriers to root growth	
Physical:	The calcrete pan is a severe limitation, and the rubble above it restricts water holding capacity.
Chemical:	High pH and sodicity from 11 cm.
Water holding capacity	15 mm in root zone.
Seedling emergence:	Slight limitation due to stoniness.
Workability:	Firm surface is easily worked, but stones abrade implements and stone is continually brought to the surface.
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	8.5	7.7	12.3	0.39	3.77	2.12	16	310	4.0	0.25	8.8	5.90	1.09	17.0	14.17	3.46	0.51	1.01	3.0
0-7	8.6	7.6	4.2	0.20	1.14	2.36	29	490	4.1	0.18	12.6	7.25	1.72	18.0	15.17	2.59	0.35	0.99	1.9
7-11	8.8	7.8	5.6	0.21	1.31	1.69	11	380	4.1	0.19	15.1	4.98	1.04	15.4	12.16	2.92	0.74	0.78	4.8
11-67	9.6	8.2	75.8	0.57	4.6	0.50	2.5	210	7.0	0.37	1.4	0.66	0.46	5.3	1.97	2.86	1.88	0.69	35.5
67-103	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
103-155	9.6	8.3	87.1	0.97	11.2	0.18	1.6	300	7.4	0.33	1.0	0.19	0.26	6.9	2.28	3.66	1.58	0.77	22.9
155-176	8.7	8.0	2.3	1.73	5.5	0.10	2.3	1100	58	1.13	4.1	0.60	0.82	43.3	0.63	16.69	21.18	3.65	48.9
176-190	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
190-200	5.7	5.5	0.7	2.19	7.5	0.26	1.5	920	20	0.25	6.2	0.03	0.25	32.2	0.35	8.78	18.06	2.07	56.1

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.