

SHALLOW CALCAREOUS SANDY LOAM OVER CALCRETE

General Description: *Calcareous sandy loam with variable rubble and slight clay increase with depth over calcrete at shallow depth*

Landform: Rises and flats in a gently undulating landscape

Substrate: Calcrete capped Blanchetown Clay.

Vegetation: Mallee



Type Site: Site No.: MM023

1:50,000 sheet:	6828-2 (Bandon)	Hundred:	Bowhill
Annual rainfall:	300 mm	Sampling date:	28/10/91
Landform:	Stony lower slope of an undulating rise		
Surface:	Soft with 10-20% calcrete stones, 20-200 mm		

Soil Description:

<i>Depth (cm)</i>	<i>Description</i>
0-13	Drift (brown loamy sand). Abrupt to:
13-20	Reddish brown soft sandy loam with minor calcrete fragments. Abrupt to:
20-30	Brown soft sandy loam. Abrupt to:
30-35	Brown very highly calcareous light sandy clay loam with more than 50% calcrete fragments (60-600 mm). Clear to:
35-70	Sheet calcrete. Clear to:
70-140	Reddish yellow very highly calcareous sandy clay loam with about 50% carbonate nodules (6-60 mm). Gradual to:
140-210	Yellowish red medium clay with moderate blocky structure and 20-50% fine calcareous segregations. Gradual to:
210-215	Red heavy clay with strong coarse angular blocky structure and slickensides.



Classification: Epibasic, Petrocalcic, Lithocalcic Calcarosol; medium, gravelly, loamy / loamy, very shallow

Summary of Properties

Drainage	Well drained. Soil never remains wet for more than a few days.
Fertility	Inherent fertility is low as indicated by the exchangeable cation data. Organic carbon levels are low and clay content is insufficient to supply adequate nutrient retention capacity. Phosphorus, nitrogen, copper and zinc deficiencies are likely. Data indicate that the two trace elements are deficient.
pH	Alkaline at the surface, strongly alkaline with depth
Rooting depth	35 cm in pit.
Barriers to root growth	
Physical:	The calcrete effectively prevents downward root growth.
Chemical:	High pH, sodicity and salinity from 57 cm would prevent further root growth, should some roots penetrate cracks in the calcrete.
Water holding capacity	20 mm in root zone.
Seedling emergence:	Slight limitations due to stoniness.
Workability:	Soft to firm surface is easily worked, but stones interfere with tillage and abrade implements. Cultivation continually brings stone to the surface.
Erosion Potential	
Water:	Low.
Wind:	Moderately low to 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	7.3	6.8	<1	0.07	0.39	0.7	21	210	<0.50	0.08	7.4	7.9	0.24	4.8	3.46	0.80	0.14	0.41	2.9
0-13	7.7	7.0	1	0.05	0.43	0.7	11	160	<0.50	0.08	6.1	5.9	0.09	4.4	3.49	0.80	0.14	0.31	3.2
13-20	8.2	7.4	<1	0.05	0.42	0.4	5	190	0.74	0.07	3.9	4.6	<0.06	5.0	3.97	0.92	0.17	0.39	3.4
20-30	8.7	7.8	2	0.09	0.47	0.3	<2	200	0.64	0.07	4.3	2.6	<0.06	6.3	4.80	1.22	0.24	0.48	3.8
30-35	8.9	8.0	6	0.16	0.91	0.6	5	150	0.77	0.17	7.9	2.9	<0.06	6.9	5.52	1.77	0.29	0.30	4.2
35-70	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
70-100	9.5	8.4	63	0.83	6.58	0.1	<2	220	1.7	0.19	2.4	0.78	<0.06	6.0	1.82	4.03	2.12	0.58	35.3
100-140	9.5	8.5	53	0.79	5.15	0.1	<2	210	1.0	0.21	3.6	0.93	<0.06	6.4	1.94	3.90	2.23	0.46	34.8
140-210	9.6	8.4	40	0.92	6.18	<0.1	<2	460	1.2	0.33	2.0	1.3	<0.06	11.3	1.15	6.50	4.17	1.10	36.9
210-215	9.0	8.0	1	0.85	4.36	<0.1	2	720	1.4	0.65	5.2	1.1	<0.06	20.2	0.31	9.53	7.98	1.55	39.5

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.