

SHALLOW SANDY LOAM OVER CALCRETE

General Description: *Loamy sand to sandy clay loam, shallow over calcrete*

Landform: Gently undulating plains with occasional sandhills and low stony rises.

Substrate: Calcareous coarse grained aeolianite, capped by a calcrete pan (Bridgewater Formation)

Vegetation: Mallee heath



Type Site: Site No.: MM090
1:50,000 sheet: 6826-4 (Binnie) Hundred: Jeffries
Annual rainfall: 465 mm Sampling date: 1992
Landform: Crest of low rise
Surface: Soft with 2-10% calcrete stones (50-200 mm)

Soil Description:

Depth (cm)	Description
0-8	Very dark greyish brown soft loamy sand. Clear to:
8-22	Yellowish brown soft sand with 25% inclusions of brown calcareous sandy clay loam. Abrupt to:
22-32	Calcrete pan comprising cemented rubble fragments. Clear to:
32-90	White very highly calcareous hard massive calcareous sandy clay loam with 20-50% calcrete nodules. Gradual to:
90-142	Light grey soft sand. Gradual to:
142-195	White highly calcareous firm massive calcareous light sandy clay loam. Gradual to:
195-220	Pale yellow very highly calcareous friable massive light sandy clay loam.



Classification: Basic, Petrocalcic, Leptic Tenosol; thin, slightly gravelly, sandy / sandy, very shallow

Summary of Properties

Drainage	Rapidly drained. Soil rarely remains saturated for more than a few hours.
Fertility	Inherent fertility is low, as indicated by the exchangeable cation data. Regular phosphorus additions are essential. Nitrogen levels depend on condition of pasture legumes. Zinc and copper deficiencies are likely and manganese may be required by cereals. Organic carbon levels at sampling site are low.
pH	Slightly alkaline at the surface, more strongly alkaline at depth.
Rooting depth	22 cm in pit.
Barriers to root growth	
Physical:	The calcrete severely restricts root development.
Chemical:	There are no chemical barriers until the pH exceeds 9.2 (water), at 90 cm.
Water holding capacity	15 mm in root zone.
Seedling emergence:	Slight restriction due to water repellence in some seasons.
Workability:	Soft surface is easily worked, but stones can interfere with and abrade equipment.
Erosion Potential	
Water:	Low.
Wind:	Moderately 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	7.7	7.2	<1	0.09	0.45	0.67	5.1	410	0.4	-	-	-	-	4.4	3.76	0.41	0.19	0.16	4.3
0-8	7.7	7.3	<1	0.08	0.42	0.69	7.2	240	0.4	-	-	-	-	5.0	4.40	0.46	0.06	0.15	1.2
8-22	8.0	7.5	<1	0.09	0.33	0.58	2.2	180	0.4	-	-	-	-	5.0	4.53	0.52	0.05	0.13	1.0
22-32	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
32-60	8.9	8.1	17	0.11	0.42	0.12	<2.0	300	0.7	-	-	-	-	2.6	3.23	0.59	0.13	0.16	na
60-90	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
90-142	9.4	8.7	<1	0.12	0.67	<0.01	<2.0	190	0.3	-	-	-	-	2.0	1.55	0.85	0.27	0.10	na
142-195	9.1	8.2	19	0.11	0.51	0.06	<2.0	260	0.4	-	-	-	-	2.1	2.27	0.87	0.12	0.10	na
195-220	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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.