SHALLOW CALCAREOUS SANDY LOAM OVER CALCRETE

General Description: *Calcareous sandy loam with variable rubble over sheet or rubbly calcrete at shallow depth*

Landform: Flat to gently undulating plains.

Substrate: Calcreted calcarenite of the Bridgewater Formation

Vegetation: Mallee

Type Site:

Site No.:	MM071	1:50,000 mapsheet:	6827-3 (Moorlands)
Hundred:	Roby	Easting:	378250
Section:	2	Northing:	6083850
Sampling date:	1992	Annual rainfall:	385 mm average

Low rise. Firm surface with 10-20% calcrete stone (60-200 mm).

Soil Description:

Depth (cm)	*Description*
0-11	Dark greyish brown soft sandy loam with 2-10% calcrete fragments (60-200 mm). Clear to:
11-22	Brown highly calcareous soft sandy loam with 2-10% calcrete fragments (60-200 mm). Clear to:
22-60	Rubbly calcrete pan with very pale brown very highly calcareous light sandy clay loam between the calcrete fragments. Clear to:
60-80	As above with manganese segregations. Sharp to:
80-95	Rubbly calcrete. Clear to:
95-140	Very pale brown very highly calcareous sandy clay loam with 2-10% calcrete nodules (6-20 mm) and manganese segregations. Diffuse to:
140-200	As above with less than 2% calcrete nodules.

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

Summary of Properties

Drainage: Well drained. Soil is never saturated for more than a few days.

Fertility: Inherent fertility is moderately low to low, as indicated by the exchangeable cation data. Regular phosphorus and nitrogen applications are essential; zinc and copper deficiencies can be expected, although levels are adequate at sampling site. Manganese may be required for cereals. Organic carbon levels are satisfactory.

pH: Alkaline at the surface, strongly alkaline at depth.

Rooting depth: 80 cm in pit.

Barriers to root growth:

Physical: Calcrete severely restricts downward root extension, although a few roots penetrate between the rubble.

Chemical: No barriers above the calcrete, although low nutrient retention capacity limits growth.

Waterholding capacity: 70 mm in rootzone.

Seedling emergence: Slight limitation due to stoniness.

Workability: Soft / firm surface is easily worked, but stones interfere with and abrade equipment.

Erosion Potential:

Water: Low.

Wind: Low to moderately low.

Laboratory Data

Depth cm	pH H_2O	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	8.1	7.3	1	0.12	0.69	1.2	15	270	1.4	0.25	-	7.2	0.68	7.4	7.05	0.92	0.05	0.72	0.7
0-11	7.6	7.1	<1	0.12	0.77	1.4	33	28	1	0.22	-	6.8	0.83	7.9	7.11	0.94	0.06	0.75	0.8
11-22	8.6	7.9	6	0.09	0.48	0.3	25	220	0.95	0.19	-	1.9	0.12	4.7	5.66	0.69	0.07	0.62	1.5
22-60	8.7	8.0	35	0.12	0.54	0.5	7	110	1.5	0.7	-	1	0.15	3.5	5.33	0.84	0.13	0.28	3.7
60-80	9.0	8.0	37	0.10	0.53	0.4	5	100	1.3	0.56	-	1	0.11	3.8	4.18	1.21	0.12	0.27	3.2
80-95	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	
95-140	9.5	8.3	40	0.25	1.75	0.1	<2	190	3.2	0.35	-	0.69	0.08	2.3	1.07	2.30	0.73	0.54	na
140-200	9.5	8.4	28	0.28	2.05	<0.1	<2	200	2.3	0.26	-	0.54	<0.06	2.1	1.01	1.66	0.73	0.50	na

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.

Further information: DEWNR Soil and Land Program