

CALCAREOUS SANDY LOAM OVER CLAY

General Description: *Calcareous sandy loam becoming more clayey, calcareous and rubbly with depth, over clayey substrate within 120 cm*

Landform: Dunefields of closely spaced parallel sandhills, with broader flats and narrow depressions.

Substrate: Coarsely structured heavy clay (Blanchetown Clay equivalent).

Vegetation: Mallee.



Type Site: Site No.: MM145

1:50,000 sheet: 6928 - 1 (Caliph)

Hundred: Allen

Annual rainfall: 290 mm

Sampling date: 23/02/99

Landform: Depression

Surface: Soft with 10-20% calcrete (20-60 mm)

Soil Description:

Depth (cm)	Description
0-14	Reddish brown soft highly calcareous fine sandy loam with platy structure. Clear to:
14-24	Yellowish red firm massive highly calcareous fine sandy loam. Clear to:
24-48	Yellowish red soft massive very highly calcareous fine sandy loam with more than 50% Class III C carbonate nodules. Clear to:
48-95	Orange firm massive very highly calcareous fine sandy clay loam with more than 50% fine carbonate segregations. Abrupt to:
95-135	Orange very hard very highly calcareous heavy clay with coarse prismatic structure and 20-50% fine carbonate segregations. Gradual to:
135-170	Olive, yellowish brown and red mottled very hard highly calcareous heavy clay with coarse prismatic structure.



Classification: Epihypersodic, Regolith, Lithocalcic Calcarosol; medium, gravelly, loamy / clay loamy, moderate

Summary of Properties

Drainage Well drained. Soil never remains saturated for more than a day or so following heavy or prolonged rainfall.

Fertility Inherent fertility is moderate, as indicated by the exchangeable cation data. Nutrient retention capacity is high, although free carbonate throughout reduces availability of some elements. Regular phosphorus applications are essential (levels are low at sampling site). Nitrogen levels depend on cropping history and pasture legume status. Occasional copper and zinc deficiencies may occur (zinc levels are marginal). Organic carbon concentrations are satisfactory.

pH Alkaline at the surface, strongly alkaline with depth.

Rooting depth Not recorded. Estimate 48 cm in pit, although some roots may grow deeper.

Barriers to root growth

Physical: There are no physical barriers, although rubble reduces potential rooting volume.

Chemical: High sodicity from 48 cm impedes deeper growth.

Water holding capacity Approximately 50 mm in the potential root zone.

Seedling emergence: Satisfactory.

Workability: Soft to firm surface is easily worked.

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	SO ₄ -S 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	7.8	8.2	0.22	1.5	1.36	10	559	-	1.6	0.3	-	5.8	0.4	13.8	13.6	1.5	< 0.1	1.7	0.7
0-14	8.3	7.7	10	0.18	1.7	1.37	10	587	-	1.4	0.4	-	5.4	0.5	12.0	13.0	1.5	< 0.1	1.6	0.8
14-24	8.4	7.8	12	0.21	2.0	0.80	3	250	-	1.4	0.3	-	3.4	0.2	12.9	13.7	2.0	0.41	0.77	3.0
24-48	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
48-95	9.1	8.2	52	1.64	15.6	0.29	1	247	-	12.8	0.6	-	0.7	0.1	7.7	2.3	4.7	4.0	0.65	52.0
95-135	9.7	8.6	35	1.14	10.8	0.11	1	373	-	13.8	0.4	-	0.4	0.1	13.1	1.6	6.0	6.9	0.75	52.7
135-170	8.1	7.2	0.1	1.31	8.5	0.23	1	391	-	4.3	0.3	-	0.4	0.1	24.0	0.94	7.6	10.2	0.81	42.5

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.