

SHALLOW SANDY LOAM OVER CALCRETE

General Description: *Sandy loam with abundant carbonate rubble in the subsurface over calcrete within 50 cm*

Landform: Gently undulating plains and rises.

Substrate: Calcreted Tertiary clay.

Vegetation: Mallee - dryland tea tree scrub



Type Site: Site No.: CY016

1:50,000 sheet: 6427-4 (Edithburgh)

Hundred: Melville

Annual rainfall: 420 mm

Sampling date: 10/12/92

Landform: Depression in plain

Surface: Hard setting with minor calcrete stone (20-60 mm). Water table at 120 cm.

Soil Description:

Depth (cm)	Description
0-10	Hard massive slightly calcareous fine sandy loam. Abrupt to:
10-25	Friable massive slightly calcareous light clay with more than 50% carbonate nodules (60-200 mm). Clear to:
25-40	Nodular calcrete. Clear to:
40-58	Friable massive very highly calcareous fine sandy clay loam with more than 50% calcrete fragments (20-60 mm). Clear to:
58-70	Laminar calcrete. Gradual to:
70-120	Firm very highly calcareous sandy light clay with weak coarse platy breaking to fine angular blocky structure. Clear to:
120-200	Firm very highly calcareous medium clay with moderate coarse subangular blocky breaking to fine angular blocky structure.



Classification: Haplic, Lithocalcic, Red Kandosol; medium, slightly gravelly, loamy / clayey, shallow

Summary of Properties

Drainage:	Moderately well drained. Soil rarely remains wet for more than a week at a time. Water table at 120 cm in pit at time of sampling.
Fertility	The soil's natural capacity to retain nutrients is moderate to high as indicated by the exchangeable cation data. Surface fertility relies on organic matter levels which are adequate, and on phosphorus levels which are adequate. Trace element and potassium concentrations are satisfactory.
pH	Neutral at the surface, alkaline at depth.
Rooting depth	Roots to 70 cm in pit, but few in calcrete layers.
Barriers to root growth	
Physical:	Calcrete layers act as a barrier to roots.
Chemical:	High pH and sodicity from 70 cm limit deeper growth, along with increased salinity from the water table.
Water holding capacity	Approximately 40 mm in the rootzone. Limited by calcrete and coarse fragments.
Seedling emergence:	Good to fair. Organic matter levels need to be maintained to preserve surface structure.
Workability:	Fair due to hard carbonate fragments which 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	SO ₄ 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	6.9	6.7	1	0.13	0.57	1.5	33	810	-	1.9	0.38	19	21	0.94	19.8	15.8	2.13	0.32	2.24	1.6
0-10	7.1	6.9	2	0.18	0.59	1.4	41	820	-	1.5	0.36	19	19	0.50	19.4	18.2	2.13	0.22	2.28	1.1
10-25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
25-40	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
40-58	8.7	8.0	44	0.32	1.22	1.1	4.4	430	-	8.6	0.70	13	0.61	0.22	14.9	10.4	3.30	1.65	0.87	11.1
58-70	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
70-120	9.1	8.6	72	1.95	9.52	0.07	<2.0	880	-	11.3	0.45	6.0	1.4	1.4	29.9	4.2	9.98	13.9	2.80	46.5
120-200	9.4	8.2	10	1.41	5.22	0.18	<2.0	540	-	6.3	0.35	3.4	1.1	0.10	9.4	2.6	3.40	5.22	1.04	55.5

Note: Paddock sample bulked from 20 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