

SANDY LOAM OVER RED CLAY ON CALCRETE

General Description: *Thin loamy sand to sandy loam over a coarsely structured red clay with a calcrete layer at moderately shallow depth*

Landform: Undulating rises.

Substrate: Sandy clay (weathering product of underlying gneissic basement rock), mantled by fine carbonates.

Vegetation: Mallee.



Type Site: Site No.: CY046
 Hundred: Cunningham
 Section: 134
 Sampling date: 16/05/2002
 1:50,000 mapsheet: 6429-2 (Ardrossan)
 Easting: 759150
 Northing: 6195950
 Annual rainfall: 415 mm average

Midslope of an undulating rise, 5% slope. Soft surface with 2-10% calcrete and quartzite fragments (20-60 mm) and minor ironstone nodules (6-20 mm).

Soil Description:

Depth (cm)	Description
0-10	Dark reddish brown friable massive light sandy loam with 2-10% quartz gravel (2-20 mm). Sharp to:
10-25	Red hard medium clay with weak very coarse prismatic structure, breaking to strong coarse angular blocky, and 2-10% quartz grit. Clear to:
25-35	Red very firm highly calcareous light clay with moderate medium subangular blocky structure, 20-50% carbonate nodules (2-20 mm) and 2-10% quartz grit. Clear to:
35-45	Moderately cemented laminar calcrete. Clear to:
45-80	Yellowish red very firm massive very highly calcareous light clay with 20-50% carbonate nodules (2-20 mm). Diffuse to:
80-120	Brown very firm massive very highly calcareous sandy light clay.



Classification: Sodic, Lithocalcic, Red Chromosol; medium, slightly gravelly, loamy / clayey, deep



Summary of Properties

Drainage: Moderately well to well drained. Water perches on top of the clayey subsoil for a few days, possibly up to a week, following heavy or prolonged rainfall.

Fertility: Inherent fertility is moderate, as indicated by the exchangeable cation data. Concentrations of all measured nutrient elements are adequate. Organic carbon levels are satisfactory for this soil type and rainfall.

pH: Neutral at the surface, alkaline with depth.

Rooting depth: 80 cm in pit but few roots below 35 cm.

Barriers to root growth:

Physical: The calcrete layer impedes root growth. Amount of growth below the calcrete depends on the degree of fracturing. The clayey subsoil is a minor impediment.

Chemical: There are no apparent chemical barriers.

Waterholding capacity: Approximately 50 mm in the rootzone.

Seedling emergence: Satisfactory.

Workability: Satisfactory, although quartzite and ironstone abrade equipment.

Erosion Potential:

Water: Moderate.

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)				Sum of cations cmol (+)/kg	Exchangeable Cations cmol(+)/kg				ESP
											Cu	Fe	Mn	Zn		Ca	Mg	Na	K	
Paddock	7.2	7.0	<1	0.18	nd	1.26	41	259	7.5	0.9	0.44	44	8.25	2.01	13	10.15	1.42	0.58	0.62	4.5
0-10	7.6	7.1	<1	0.21	nd	1.24	35	343	7.9	0.8	0.44	48	6.39	2.38	11	8.60	1.07	0.20	0.88	1.9
10-25	8.0	7.5	2	0.19	nd	0.83	19	532	5.1	1.7	0.46	24	2.77	0.41	23	18.58	3.04	0.24	1.38	1.0
25-35	8.6	8.0	7	0.21	nd	0.62	4	230	24.1	2.6	0.72	19	2.31	0.22	26	20.05	4.60	0.40	0.62	1.6
35-45	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
45-80	8.9	8.1	7	0.24	nd	0.32	3	192	52.1	3.0	0.59	13	2.16	0.15	18	11.31	5.81	0.74	0.49	4.0
80-120	9.2	8.2	7	0.50	nd	0.27	3	343	23.4	3.7	0.56	12	2.29	0.25	21	8.76	8.21	3.29	0.88	15.6

Note: Paddock sample bulked from cores (0-10 cm) taken around the pit.
Sum of cations (an estimate of 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 estimated CEC.

Further information: [DEWNR Soil and Land Program](#)

