

SHALLOW CLAY LOAM OVER BROWN CLAY ON CALCRETE

General Description: *Clay loam over a brown or grey clay on calcrete at shallow depth*

Landform: Gently undulating rises.

Substrate: Calcreted clay and limestone.

Vegetation: Red gum (*Eucalyptus camaldulensis*).



Type Site: Site No.: SE030

1:50,000 sheet:	6924-2 (Lucindale)	Hundred:	Joyce
Annual rainfall:	610 mm	Sampling date:	15/06/94
Landform:	Upper slope of gentle rise, 1% slope		
Surface:	Hard setting with no stones		

Soil Description:

<i>Depth (cm)</i>	<i>Description</i>
0-15	Dark brown soft massive fine sandy clay loam. Clear to:
15-25	Brown friable light clay with weak fine polyhedral structure. Sharp to:
25-45	Strongly cemented laminar calcrete pan. Clear to:
45-65	Brownish yellow weakly cemented laminar calcrete pan with 10-20% carbonate nodules (6-20 mm). Gradual to:
65-100	Brownish yellow weakly cemented laminar calcrete pan with 10-20% carbonate nodules (6-20 mm). Clear to:
100-140	Light grey uncemented laminar calcrete pan with 2-10% carbonate nodules (6-20 mm).



Classification: Haplic, Petrocalcic, Grey Kandosol; medium, non-gravelly, clay loamy / clayey, shallow

Summary of Properties

Drainage	Moderately well drained. The soil may remain wet for a week at a time following heavy or prolonged rainfall.
Fertility	Inherent fertility is moderate to high, as indicated by the exchangeable cation data. Clay content of the surface soil is sufficient to provide adequate nutrient retention capacity, and this is supplemented by high organic matter levels. Phosphorus and magnesium concentrations are low in the surface.
pH	Slightly alkaline at the surface, alkaline with depth.
Rooting depth	45 cm in pit, but few roots below 25 cm.
Barriers to root growth	
Physical:	The calcrete severely restricts deeper root growth.
Chemical:	There are no chemical barriers above the calcrete. Any root growth through the calcrete into softer layers is restricted by high carbonate content.
Water holding capacity	Approximately 50 mm in the root zone.
Seedling emergence:	Fair to satisfactory, depending on surface condition. If compacted and depleted of organic matter, emergence will be affected.
Workability:	Moderate to good, depending on the degree of compaction.
Erosion Potential	
Water:	Low.
Wind:	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	7.7	7.2	<0.1	0.18	0.75	3.4	20	192	8.1	1.4	-	-	-	-	23.2	17.83	1.57	0.20	0.89	0.9
0-15	7.8	7.3	0.6	0.18	0.62	2.4	12	115	6.0	1.0	-	-	-	-	20.7	16.55	0.94	0.17	0.61	0.8
15-25	8.1	7.5	0.1	0.17	0.59	1.3	7	147	3.9	0.9	-	-	-	-	22.5	18.76	0.85	0.19	0.68	0.8
25-45	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
45-65	8.5	7.8	62.7	0.22	1.49	0.3	2	184	3.9	1.0	-	-	-	-	12.7	11.18	1.78	0.16	0.68	1.3
65-100	8.7	7.8	56.0	0.19	1.30	0.1	3	227	5.7	0.9	-	-	-	-	11.4	8.52	2.50	0.23	0.70	2.0
100-140	9.0	8.0	53.2	0.22	1.15	0.1	4	244	9.8	0.9	-	-	-	-	14.8	8.19	4.29	1.55	0.76	10.5

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