SANDY LOAM OVER RED CLAY/CLAY LOAM ON CALCRETE

General Description: *Sandy loam to loam over a well structured red clay with a calcrete pan shallower than 50 cm*

Landform: Gently undulating plain.

Substrate: Calcrete capped clay with hard calcified lenses (Padthaway Formation).

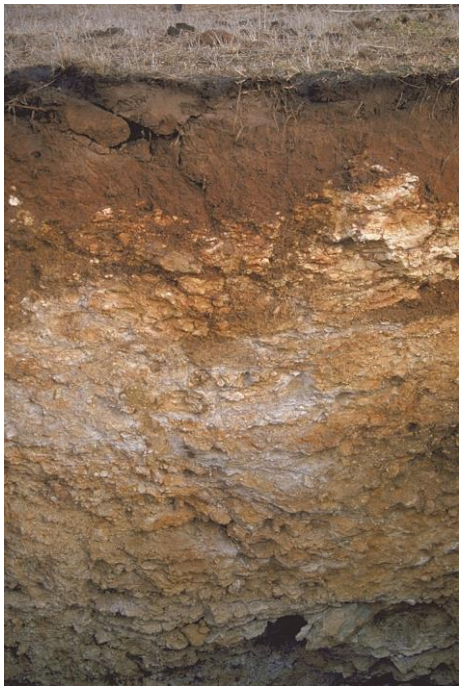
Vegetation: Red gum (Euc. camaldulensis) woodland.

Type Site:

Site No.:	SE025A	1:50,000 mapsheet:	6924-2 (Lucindale)
Hundred:	Joyce	Easting:	444450
Section:	-	Northing:	5908190
Sampling date:	14/06/1994 (A) 21/11/2007 (B)	Annual rainfall:	595 mm average

Crest of low rise on plain, 1% slope. Hard setting surface with no stones. Site SE025B is about 40 m from the original SE025A site, adjacent to the fenceline (for convenience as a training site). Whilst the upper profiles differ (profile A is texture contrast, and B is gradational), the most significant differences between the profiles are in the chemistry. These differences may be attributable to the proximity of site B to the road.

Soil Description:



Depth (cm)	*Description*
0-10	Dark brown soft massive fine sandy loam. Clear to:
10-30	Brown friable single grain fine sand. Abrupt to:
30-45	Yellowish red firm fine sandy light medium clay with strong polyhedral structure. Sharp to:
45-61	Very hard laminar calcrete pan. Sharp to:
61-70	Strong brown firm medium heavy clay with strong polyhedral structure and 2-10% calcrete fragments. Sharp to:
70-200	Very hard laminar calcrete pan.
	Karst depressions occur immediately below the upper calcrete layer.

Classification: Haplic, Petrocalcic, Red Chromosol; thick, non-gravelly, loamy / clayey, moderate

Summary of Properties

Drainage: Well drained. The soil rarely remains wet for more than a couple of days.

Fertility: Inherent fertility is moderately low, as indicated by the exchangeable cation data. Nutrient retention capacity is satisfactory in the surface layer and high in the subsoil, but the 10-30 cm layer has poor capacity due to low clay and organic matter content. The most noteworthy feature of the analysis is the very low magnesium concentration.

pH: Neutral at the surface, alkaline with depth.

Rooting depth: Not recorded. Estimate 45 cm, with occasional roots penetrating the calcrete.

Barriers to root growth:

Physical: The calcrete severely restricts deeper root growth.

Chemical: There are no chemical barriers other than the low nutrient status / retention capacity of the subsurface layer (10-30 cm).

Waterholding capacity: Approximately 50 mm in the rootzone.

Seedling emergence: Satisfactory.

Workability: Fair to good, depending on the degree to which the surface has compacted or set hard.

Erosion Potential:

Water: Low.

Wind: Low.

Laboratory Data

Depth cm	pH H_2O	pH $CaC1_2$	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	7.1	6.9	0	0.11	0.53	2.7	46	266	7.1	1.6	-	-	-	-	13.6	9.19	0.84	0.09	0.56	0.7
0-10	7.0	6.6	0	0.08	0.41	3.0	6	279	4.3	2.0	-	-	-	-	11.5	8.96	0.85	0.10	0.68	0.9
10-30	7.9	7.2	0.1	0.10	0.62	0.5	2	109	3.2	0.7	-	-	-	-	3.9	2.98	0.27	0.04	0.18	1.0
30-45	7.9	7.3	0.4	0.17	0.50	1.0	2	723	3.5	1.5	-	-	-	-	25.8	18.84	1.78	0.20	2.38	0.8
45-61	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
61-70	8.4	7.7	12.1	0.15	0.32	0.5	2	624	2.2	1.4	-	-	-	-	28.5	23.22	3.85	0.38	2.92	1.3
70-110	8.8	7.9	61.8	0.15	0.48	0.4	1	409	2.7	2.0	-	-	-	-	10.2	7.01	2.55	0.56	1.00	5.5
60-80 *	8.3	7.6	1.3	0.21	0.51	0.7	1	684	2.6	1.7	-	-	-	-	28.6	17.89	5.79	2.46	2.33	8.6

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
* Sample from adjacent karst depression.

Further information: DEWNR Soil and Land Program