

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.:	SE025B	1:50,000 mapsheet:	6924-2 (Lucindale)
	Hundred:	Joyce	Easting:	444480
	Section:	-	Northing:	5908170
	Sampling date:	21/11/2007 (B)	Annual rainfall:	595 mm average
		14/06/1994 (A)		

Crest of low rise on plain, 1% slope. Firm 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:

<i>Depth (cm)</i>	<i>Description</i>
0-9	Dark brown friable sandy loam with moderate granular structure. Clear to:
9-12	Dark reddish brown friable massive light sandy clay loam. Clear to:
12-22	Red firm sandy clay loam with weak coarse subangular blocky structure and dark reddish grey pore infills. Abrupt to:
22-70	Massive calcrete pan. Gradual to:
70-150	Semi hard carbonate with very hard calcite lenses.



Classification: Sodic, Petrocalcic, Red Kandosol; thin, non-gravelly, loamy / clay loamy, very shallow



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, but drops in the sandy subsurface layer of the texture contrast profile (A), increasing sharply in the high clay subsoil. The gradational profile (B) maintains similar capacity throughout.
- pH:** Neutral at the surface, alkaline with depth. High surface pH in site B attributable to contamination from road.
- Rooting depth:** Most root growth occurs above the calcrete layer, but growth in fractures is significant.
- Barriers to root growth:**
- Physical:** The calcrete severely restricts deeper root growth.
- Waterholding capacity:** Approximately 35 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:** Low for both water and wind.

Laboratory Data

This site only sampled above the calcrete layer.

Depth cm	pH H ₂ O	pH CaCl ₂	CO ₃ %	EC 1:5 dS/m	ECe dS/m	Org.C %	Avail. P mg/kg	Avail. K mg/kg	Cl mg/kg	SO ₄ -S mg/kg	Boron mg/kg	Trace Elements mg/kg (EDTA)				Sum cations cmol (+)/kg	Exchangeable Cations cmol(+)/kg				Est. ESP
												Cu	Fe	Mn	Zn		Ca	Mg	Na	K	
0-9	8.2	7.5	0	0.13	0.82	2.44	14	130	44	7.5	0.9	1.25	200	27.4	2.54	14.5	11.4	1.89	0.91	0.29	6.3
9-12	7.4	6.8	0	0.09	0.70	2.27	9	148	42	5.4	0.9	1.39	276	23.1	1.88	12.1	9.25	1.38	1.09	0.34	9.0
12-22	7.6	7.2	0	0.22	2.10	0.78	6	91	224	25.1	0.9	0.57	44	11.4	0.59	11.5	8.16	1.11	1.94	0.24	16.9
22-70	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
70-150	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Note: Sum of cations, in a neutral to alkaline soil, approximates the CEC (cation exchange capacity), 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, in this case estimated by the sum of cations.

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

