

THICK SAND OVER CLAY

General Description: *Thick to very thick sand over a brown, grey or red clay*

Landform: Undulating dunefield.

Substrate: Calcreted calcarenite of the Bridgewater Formation.

Vegetation: Eucalyptus leucoxylon woodland.



Type Site: Site No.: SE026

1:50,000 sheet: 6924-2 (Lucindale)

Hundred: Joyce

Annual rainfall: 610 mm

Sampling date: 15/06/94

Landform: Dune slope of 4%

Surface: Soft with no stones

Soil Description:

Depth (cm)	Description
0-15	Very dark grey soft single grain sand. Abrupt to:
15-45	Pink (bleached), yellowish brown and dark greyish brown soft single grain sand. Diffuse to:
45-68	Light yellowish brown, dark greyish brown and strong brown soft single grain sand with minor ironstone concretions and clayey lamellae. Sharp to:
68-108	Strong brown and red firm massive sandy light medium clay. Diffuse to:
108-140	Yellowish brown and red firm massive sandy light medium clay with minor ironstone concretions.
140-	Calcrete.



Classification: Bleached, Petrocalcic, Brown Chromosol; very thick, non-gravelly, sandy / clayey, deep

Summary of Properties

Drainage	Well drained. The soil rarely remains wet for more than a couple of days.
Fertility	Inherent fertility is low, as indicated by the exchangeable cation data. The topsoil has poor nutrient retention capacity, mostly provided by organic matter. Phosphorus, calcium and magnesium levels are low at the sampling site, although concentrations of the latter increase in the clayey subsoil. Deficiencies of zinc, copper and manganese can be expected (trace elements not measured).
pH	Neutral at the surface, slightly alkaline with depth.
Rooting depth	140 cm in pit.
Barriers to root growth	
Physical:	The clayey subsoil presents a slight barrier, but the calcrete is the major impediment to root growth.
Chemical:	There are no toxic barriers, but low nutrient status and retention capacity restrict root growth.
Water holding capacity	Approximately 120 mm in the root zone.
Seedling emergence:	Fair to satisfactory, depending on the degree of water repellence (not evident at the sampling site).
Workability:	Soft surface is easily worked.
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 -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	7.2	6.5	0	0.06	0.76	0.9	11	157	12.4	1.3	-	-	-	-	3.5	2.72	0.40	0.03	0.33	na
0-15	7.1	6.4	0	0.05	0.50	1.1	8	131	6.8	1.3	-	-	-	-	3.8	4.72	0.46	0.04	0.27	na
15-45	6.2	5.3	0	0.06	0.83	0.2	1	76	17.0	0.3	-	-	-	-	1.2	0.68	0.15	0.04	0.14	na
45-68	6.6	6.0	0	0.05	0.91	0.1	2	67	10.8	0.3	-	-	-	-	1.0	0.63	0.17	0.03	0.10	na
68-108	7.0	6.6	0	0.04	0.26	0.2	2	128	5.0	0.7	-	-	-	-	8.7	6.37	1.75	0.12	0.30	1.4
108-140	7.9	7.2	0	0.07	0.30	0.2	3	111	2.3	1.3	-	-	-	-	8.7	5.79	1.45	0.10	0.37	1.1

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