

THICK SAND OVER SANDY CLAY

General Description: *Thick bleached sand, organically darkened at the surface, over a brown coarsely structured sandy clay, calcareous with depth*

Landform: Gently undulating plains with frequent jumbled sandhills.

Substrate: Coarse textured lagoonal sediments (Padthaway Formation), capped by windblown calcareous materials.

Vegetation: Mallee heath



Type Site: Site No.: MM089

1:50,000 sheet: Binnie (6826-4)

Hundred: Jeffries

Annual rainfall: 465 mm

Sampling date: 1992

Landform: Flat between sandhills

Surface: Soft with no stones

Soil Description:

Depth (cm)	Description
0-15	Dark greyish brown loose loamy sand. Clear to:
15-30	Brown loose sand. Gradual to:
30-55	Very pale brown (bleached) loose sand. Clear to:
55-65	Brownish yellow loose sand. Sharp to:
65-85	Orange hard sandy clay with coarse columnar structure. Gradual to:
85-110	Yellowish brown and pale olive mottled hard massive sandy clay with minor fine carbonate segregations. Diffuse to:
110-165	Brownish yellow and pale olive massive firm sandy loam with minor fine carbonate segregations. Diffuse to:
165-210	Yellowish brown and pale olive massive hard light sandy clay loam with minor fine carbonate segregations.



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

Summary of Properties

Drainage	Rapidly drained. Soil rarely remains wet for more than a few hours.
Fertility	Inherent fertility is low, as indicated by the exchangeable cation data. Nutrient storage capacity of the surface is low and although the subsoil has some retention capacity, it is deep. Regular phosphorus applications are essential. Nitrogen content depends on condition of pasture legumes. Zinc and copper deficiencies are likely, and manganese is often required by lupins. Organic carbon levels are satisfactory at the sampling site.
pH	Acidic at the surface, alkaline with depth.
Rooting depth	85 cm in pit.
Barriers to root growth	
Physical:	The hard subsoil and substrate restrict root proliferation.
Chemical:	There are no chemical barriers other than low nutrient status and retention capacity.
Water holding capacity	75 mm in root zone.
Seedling emergence:	Affected by water repellence in dry years.
Workability:	Soft / loose surface is easily worked.
Erosion Potential	
Water:	Low.
Wind:	Moderate

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	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	5.8	5.4	<1	0.03	0.17	1.1	8.6	160	0.4	-	-	-	-	3.1	3.36	0.59	0.23	0.11	na
0-15	5.8	5.4	<1	0.03	0.16	0.87	8.0	240	0.4	-	-	-	-	2.8	2.92	0.51	0.20	0.12	na
15-30	6.1	5.8	<1	0.02	0.13	0.21	9.4	130	0.4	-	-	-	-	1.4	1.09	0.23	0.19	0.07	na
30-55	6.4	6.0	<1	0.02	0.10	0.06	6.0	350	0.3	-	-	-	-	1.4	0.73	0.19	0.24	0.08	na
55-65	6.8	6.5	<1	0.02	0.16	0.04	5.1	86	0.2	-	-	-	-	1.3	0.82	0.25	0.20	0.09	na
65-85	7.1	6.5	<1	0.06	0.17	0.12	2.6	880	1.3	-	-	-	-	8.5	5.46	3.41	0.42	0.66	4.9
85-110	8.2	7.8	1	0.15	0.37	0.06	<2.0	480	1.8	-	-	-	-	8.7	4.98	3.09	0.45	0.52	5.2
110-165	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
165-210	8.4	7.9	1	0.12	0.32	0.03	<2.0	490	0.7	-	-	-	-	6.6	4.14	1.96	0.41	0.30	6.2

Note: Paddock sample bulked from 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.