

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 mapsheet:	Binnie (6826-4)
	Hundred:	Jeffries	Easting:	370450
	Section:	31	Northing:	6044500
	Sampling date:	1992	Annual rainfall:	470 mm average

Flat between sandhills, soft surface, no stones.

Soil Description:

<i>Depth (cm)</i>	<i>Description</i>
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.
Waterholding capacity:	75 mm in rootzone.
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.

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

