

SAND OVER SANDY CLAY

General Description: *Thick to medium bleached sand over a brown or red coarsely structured sandy clay, calcareous with depth*

Landform: Gently undulating plain.

Substrate: Coarse grained lagoonal sediments (Padthaway Formation), capped by windblown carbonates.

Vegetation: Mallee heath



Type Site: Site No.: MM087

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

Hundred: Jeffries

Annual rainfall: 465 mm

Sampling date: 1992

Landform: Rise on gently undulating plain

Surface: Loose with no stones

Soil Description:

Depth (cm)	Description
0-8	Very dark greyish brown loose loamy sand. Abrupt to:
8-20	Dark greyish brown loose sand. Clear to:
20-26	Very pale brown (bleached) loose sand. Sharp to:
26-39	Yellowish brown firm sandy clay with coarse columnar structure. Abrupt to:
39-52	Yellowish brown firm calcareous sandy clay with coarse columnar structure. Sharp to:
52-70	Pale yellow firm massive very highly calcareous sandy clay loam. Gradual to:
70-110	Yellow and light brown firm light sandy clay loam with 20-50% fine carbonate. Diffuse to:
110-210	Yellow and light brown firm light sandy clay loam with 20-50% soft carbonate. Gradual to:
210-240	Light brown and olive sandy loam with 10-20% fine carbonate.



Classification: Bleached-Sodic, Calcic, Brown Chromosol; medium, non-gravelly, sandy / clayey, deep

Summary of Properties

Drainage	Well drained. Soil never remains saturated for more than a few days.
Fertility	Inherent fertility is low, as indicated by the exchangeable cation data. Regular phosphorus applications are essential. Nitrogen levels depend on pasture legume condition. Zinc and copper deficiencies are likely (copper levels low at sampling site). Manganese may be needed for lupins. Organic carbon levels are adequate.
pH	Neutral to slightly acidic at the surface, alkaline with depth.
Rooting depth	52 cm in pit.
Barriers to root growth	
Physical:	Coarse to massive structure of subsoil and substrate prevents uniform root growth.
Chemical:	There are no chemical barriers to root growth, but low nutrient retention capacity limits development.
Water holding capacity	55 mm in root zone.
Seedling emergence:	May be reduced by water repellence in dry years.
Workability:	Loose / soft surface is easily worked.
Erosion Potential	
Water:	Low.
Wind:	Moderately low to 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	6.7	6.0	<1	0.04	0.27	1.0	5	82	<0.40	0.1	26	1.3	0.88	3.0	2.89	0.60	0.04	0.16	1.3
0-8	6.7	6.0	<1	0.04	0.35	1.2	5	93	<0.40	0.07	26	1.5	0.57	3.8	3.86	0.77	0.03	0.20	0.8
8-20	6.7	6.1	<1	0.03	0.22	0.7	3	68	<0.40	<0.05	34	0.49	<0.06	2.6	2.90	0.53	0.03	0.10	na
20-26	7.2	6.6	<1	0.02	0.2	0.2	2	57	<0.40	<0.05	22	0.11	0.17	1.7	1.43	0.33	0.04	0.29	na
26-39	7.7	6.9	<1	0.09	0.54	0.5	2	390	1.3	0.05	31	0.1	<0.06	16.0	10.37	2.51	0.33	0.94	2.1
39-52	8.3	7.5	3	0.15	0.57	0.3	<2	310	1.4	0.06	23	0.08	0.09	19.1	13.31	2.78	0.45	0.95	2.4
52-70	9.0	8.0	22	0.15	0.87	0.2	<2	210	2	0.10	6.9	0.15	0.09	8.2	7.74	1.43	0.37	0.52	4.5
70-110	9.1	8.1	9	0.18	1.4	<0.1	<2	180	1	2.8	3.8	0.08	0.10	7.8	6.87	1.62	0.55	0.48	7.1
110-210	9.3	8.2	18	0.17	1.57	<0.1	<2	120	0.6	0.56	2.1	0.1	0.08	4.8	4.68	1.36	0.40	0.31	8.3
210-240	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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.