

LOAMY SAND OVER DISPERSIVE BROWN SANDY CLAY

General Description: *Loamy sand over a coarsely structured dispersive brown mottled sandy clay, calcareous with depth*

Landform: Very gently undulating plains.

Substrate: Pleistocene / Tertiary age clay, capped by about 60 cm windblown calcareous sandy clay.

Vegetation: Eucalyptus foecunda mallee



Type Site: Site No.: MM049

1:50,000 sheet:	7027-3 (Lameroo)	Hundred:	Day
Annual rainfall:	390 mm	Sampling date:	27/07/92
Landform:	Flat		
Surface:	Soft with no stones		

Soil Description:

<i>Depth (cm)</i>	<i>Description</i>
0-9	Reddish brown loose loamy sand. Sharp to:
9-13	Red soft loamy sand. Sharp to:
13-24	Yellowish red firm sandy clay loam with coarse columnar structure. Clear to:
24-34	Yellowish brown and yellowish red firm sandy light clay with moderate blocky structure. Gradual to:
34-78	Brownish yellow and pale brown firm massive moderately calcareous sandy light clay with 10-20% carbonate fragments. Clear to:
78-98	Light grey, brownish yellow and reddish yellow firm massive sandy light clay. Sharp to:
98-140	Light grey and orange hard medium heavy clay with coarse prismatic structure. Diffuse to:
140-180	Light grey and red hard medium heavy clay with coarse prismatic structure.



Classification: Calcic, Mottled-Hypernatric, Brown Sodosol; medium, non-gravelly, sandy / clayey, shallow

Summary of Properties

Drainage Moderately well to imperfectly drained. Water perches on the clayey subsoil keeping the soil saturated for a week or more following heavy or prolonged rainfall.

Fertility Inherent fertility is moderately low as indicated by the exchangeable cation data. Phosphorus and nitrogen are regularly deficient, and the soil is prone to copper and zinc deficiencies as well. Only copper appears to be deficient at the sampling site (N not tested). Organic carbon levels are marginally low.

pH Neutral at the surface, strongly alkaline with depth.

Rooting depth 78 cm in pit, but few roots below 24 cm.

Barriers to root growth

Physical: The dispersive dense subsoil clay impedes root growth, which is concentrated in the spaces between the columns.

Chemical: High pH and moderate salinity from 34 cm and high sodicity from 24 cm affect root development.

Water holding capacity Approximately 40 mm in the potential root zone.

Seedling emergence: Satisfactory.

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	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	7.8	7.3	<0.1	0.09	0.37	0.89	26	250	1.1	0.2	10.3	2.9	0.8	6.0	4.3	1.3	0.14	0.44	2.3
0-9	6.7	6.3	-	0.05	0.16	0.69	17	140	0.6	0.1	13.1	4.5	0.8	3.9	3.5	0.7	0.12	0.17	3.1
9-13	7.2	6.4	<0.1	0.05	0.18	0.39	9	160	0.6	0.2	9.0	1.5	0.2	3.5	2.9	1.0	0.25	0.29	7.1
13-24	8.3	7.2	<0.1	0.13	0.75	0.41	<5	390	1.7	0.2	15.7	0.2	0.2	13.7	3.9	5.8	1.97	0.72	14.4
24-34	9.0	8.3	0.5	0.48	1.98	0.31	<5	570	5.0	0.5	31.4	0.5	0.3	21.4	5.0	13.3	5.65	1.45	26.4
34-78	9.7	8.8	3.1	0.77	5.12	0.13	<5	400	4.8	0.3	7.3	0.2	0.3	12.7	1.3	6.9	4.48	0.72	35.3
78-98	8.7	7.9	<0.1	0.67	5.40	0.02	<5	330	3.0	0.3	5.3	0.1	0.2	10.1	0.4	6.6	4.56	0.71	45.1
98-140	5.5	4.9	-	1.62	7.69	0.17	<5	630	3.9	0.8	29.9	0.1	0.3	27.4	0.4	14.7	9.93	1.76	36.2
140-180	5.2	4.7	-	1.81	8.29	0.13	<5	670	4.4	0.8	24.4	0.1	0.3	30.7	0.2	15.8	10.94	1.91	35.6

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.