

SANDY LOAM OVER DISPERSIVE BROWN CLAY

General Description: *Medium thickness sandy loam with a paler coloured and sandier A2 layer, over a coarsely structured dispersive brown or grey clay, calcareous with depth*

Landform: Level lacustrine plain.

Substrate: Padthaway Formation clay capped by rubbly carbonate.

Vegetation: Eucalyptus camaldulensis woodland.



Type Site: Site No.: SE028

1:50,000 sheet:	6924-2 (Lucindale)	Hundred:	Joyce
Annual rainfall:	610 mm	Sampling date:	15/06/94
Landform:	Drainage depression		
Surface:	Hard setting with no stones. Water table at 145 cm, but rising to within 50 cm of the surface later in the season.		

Soil Description:

Depth (cm)	Description
0-12	Very dark brown friable massive sandy loam. Clear to:
12-18	Brown and yellowish brown soft massive fine sand with 2-10% ironstone concretions (6-20 mm). Sharp to:
18-40	Light olive brown and yellowish brown mottled firm fine sandy medium heavy clay with strong coarse prismatic breaking to fine polyhedral structure. Gradual to:
40-80	Light olive brown and yellowish brown mottled very hard moderately calcareous fine sandy medium clay with strong coarse prismatic breaking to fine polyhedral structure, and 20-50% carbonate concretions (20-60 mm). Gradual to:
80-120	Greenish grey and yellowish brown hard highly calcareous fine sandy medium clay with 20-50% carbonate nodules (20-60 mm).
120-150	Greenish grey and yellowish brown hard highly calcareous fine sandy medium clay with water table at 145 cm.



Classification: Supracalcic, Mottled-Subnatric, Brown Sodosol; medium, non-gravelly, loamy / clayey, deep

Summary of Properties

- Drainage** Poorly drained. The dispersive clayey subsoil perches water for several weeks at a time following heavy or prolonged rainfall, whilst shallow groundwater saturates the lower part of the profile for several months in most years.
- Fertility** Inherent fertility is moderately low, as indicated by the exchangeable cation capacity. High organic matter levels boost surface soil nutrient retention capacity which falls in the subsurface layer, and increases again in the clayey subsoil. Phosphorus levels are low, and all nutrients are deficient in the 12-18 cm layer. Trace elements (copper, zinc and manganese) are likely to be deficient below the surface.
- pH** Neutral in the surface, alkaline in the subsoil.
- Rooting depth** 80 cm in pit, but few roots below 40 cm.
- Barriers to root growth**
- Physical:** The dispersive clayey subsoil restricts root growth - roots are confined to aggregate surfaces.
 - Chemical:** High sodicity from 40 cm limits root growth.
- Water holding capacity** Approximately 55 mm in the root zone.
- Seedling emergence:** Fair to satisfactory, depending on surface compaction.
- Workability:** Fair to good.
- Erosion Potential**
- Water:** Low.
 - Wind:** 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	6.2	5.3	0	0.08	0.45	3.4	19	139	4.0	2.6	-	-	-	-	7.9	5.44	0.75	0.06	0.33	na
0-12	7.6	6.9	0	0.14	0.57	2.4	15	398	4.7	1.9	-	-	-	-	11.1	7.90	1.00	0.12	1.28	na
12-18	8.5	7.8	0	0.09	0.32	0.3	3	101	2.5	1.0	-	-	-	-	3.3	2.83	0.44	0.10	0.26	na
18-40	8.6	7.9	0.2	0.31	1.67	0.5	4	193	16.9	1.5	-	-	-	-	20.2	13.42	3.30	1.92	0.83	9.5
40-80	9.0	8.0	47.1	0.62	4.10	0.1	2	352	54.0	4.2	-	-	-	-	18.3	7.89	6.10	4.61	1.21	25.2
80-120	8.9	8.1	31.9	0.75	4.81	0.2	2	311	68.6	2.9	-	-	-	-	17.0	5.41	8.06	4.10	0.97	24.1
120-150	8.6	8.0	35.0	1.11	7.19	0.2	2	316	106	1.8	-	-	-	-	18.8	6.35	9.52	4.50	0.97	23.9

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