

LOAMY SAND OVER DISPERSIVE BROWN CLAY (Wharminda soil)

General Description: *Sand to light sandy loam over a coarsely structured dispersive brown or red clay, calcareous with depth*

Landform: Gently undulating plain with sandhills.

Substrate: Tertiary clay.

Vegetation: Mallee.



Type Site: Site No.: EE135

1:50,000 sheet: 6130-2 (Verran)

Hundred: Roberts

Annual rainfall: 365 mm

Sampling date: 07/04/95

Landform: Gentle slope between sandhills, 3% slope

Surface: Loose with no stones

Soil Description:

Depth (cm)	Description
0-7	Brown loose sandy loam. Abrupt to:
7-13	Brown (bleached dry) soft loamy sand. Abrupt to:
13-20	Light yellowish brown very hard medium clay with very coarse prismatic structure. Abrupt to:
20-26	Light brown soft slightly calcareous medium clay with more than 50% calcrete fragments (20-60 mm). Clear to:
26-50	Pink very hard massive very highly calcareous clay loam. Clear to:
50-100	Brown and grey friable very highly calcareous sandy clay loam with weak subangular blocky structure. Clear to:
100-160	Light grey friable highly calcareous medium clay with 10-20% calcrete fragments (60-200 mm). Clear to:
160-200	Red and grey friable medium clay with strong angular blocky structure.



Classification: Lithocalcic, Hypernatric, Yellow Sodosol; medium, non-gravelly, loamy / clayey, deep

Summary of Properties

- Drainage** Imperfectly drained. Water may perch on the clayey subsoil for several weeks following heavy or prolonged rainfall.
- Fertility** Inherent fertility is low, as indicated by the exchangeable cation data. Clay content at the surface is low, so nutrient retention capacity is sub-optimal. Phosphorus applications are required regularly - levels are adequate at the sampling site. Deficiencies of copper, zinc and manganese may also occur from time to time. Concentrations are marginal. Organic carbon levels are favourable.
- pH** Neutral at the surface, strongly alkaline with depth.
- Rooting depth** 200 cm in pit, but few roots below 26 cm.
- Barriers to root growth**
- Physical:** The dispersive clayey subsoil reduces root densities, but does not prevent root growth.
- Chemical:** Very high pH and sodicity from 26 cm retard deeper root growth.
- Water holding capacity** Approximately 30 mm in the root zone.
- Seedling emergence:** Satisfactory except in dry seasons when water repellence is a problem.
- Workability:** Loose surface is easily worked.
- Erosion Potential**
- Water:** Moderately 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	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	
0-7	6.9	6.5	0	0.06	0.60	1.3	28	169	9	0.8	0.2	21	3.0	0.5	4.2	3.81	0.88	0.13	0.21	3.1
7-13	7.5	6.9	0	0.06	0.66	0.7	14	132	6	0.8	0.1	13	1.8	0.3	3.4	2.81	0.71	0.17	0.18	5.0
13-20	9.4	8.4	2	0.36	2.74	0.3	6	554	12	7.1	0.2	24	1.2	0.2	15.3	5.29	6.40	3.27	1.45	21.4
20-26	9.7	8.6	23	0.58	3.07	0.7	6	631	27	10.9	0.7	26	1.1	0.2	16.6	5.30	7.86	5.05	1.66	12.3
26-50	10.1	8.8	18	0.69	3.36	0.1	<4	51	47	15.0	0.7	8	0.6	0.1	10.3	2.19	5.08	5.56	1.39	54.0
50-100	10.0	9.1	2	0.75	4.76	0.1	<4	485	83	14.5	0.4	4	0.3	0.1	9.5	1.06	3.74	5.05	1.08	53.2
100-160	9.7	8.7	43	1.22	6.56	0.1	<4	690	146	13.6	0.5	12	2.2	0.3	11.9	2.34	5.82	4.92	1.67	45.8
160-200	9.3	8.5	2	1.29	6.85	<0.1	<4	903	149	20.7	0.7	12	2.5	0.2	18.1	2.12	7.12	8.08	2.38	44.6

Note: 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