

SAND OVER RED SANDY CLAY

General Description: *Thick sand to light sandy loam over a red sandy clay loam to sandy clay, calcareous with depth*

Landform: Gently undulating plain with low to moderate jumbled sandhills.

Substrate: Coarse grained Tertiary sediments (Parilla Sand equivalent).

Vegetation: Mallee



Type Site: Site No.: MM129

1:50,000 sheet: 7028-2 (Peebinga)

Hundred: Peebinga

Annual rainfall: 320 mm

Sampling date: 22/05/96

Landform: Swale

Surface: Loose with no stones

Soil Description:

Depth (cm)	Description
0-12	Brown loose loamy sand (recent drift). Sharp to:

12-50	Dark brown soft sandy loam. Gradual to:
50-80	Yellowish red soft sandy loam. Clear to:
80-110	Yellowish red hard massive very highly calcareous fine sandy light clay with 20-50% carbonate rubble. Gradual to:
110-195	Orange and reddish yellow friable massive very highly calcareous coarse sandy loam.



Classification: Supracalcic, Subnatric, Red Sodosol; very thick, non-gravelly, loamy / clayey, moderate

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 (P) applications are essential. Nitrogen deficiency is widespread. Copper (Cu) and zinc (Zn) deficiencies are also likely. Levels of P, Cu and Zn, as well as sulphur are low at the sampling site. Organic carbon concentrations are adequate.
- pH** Neutral to slightly alkaline at the surface, strongly alkaline with depth.
- Rooting depth** 110 cm (including drift) in pit, but few roots below 50 cm.
- Barriers to root growth**
- Physical:** There are no physical barriers.
 - Chemical:** pH and sodicity are high in the substrate, but this layer is deeper than 100 cm, and out of the main potential root zone. Low nutrient retention and supply capacity is the main reason for poor root growth.
- Water holding capacity** Approximately 80 mm in the root zone.
- Seedling emergence:** Satisfactory, although water repellence may reduce establishment in dry seasons.
- Workability:** 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	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	6.8	6.2		0.04	0.33	0.8	8	148	4	0.5	0.01	25	5.74	0.35	3.8	3.82	0.61	0.13	0.23	3.6
0-12	8.0	7.2	<0.1	0.03	0.26	0.6	<4	220	2	0.7	-	-	-	-	6.1	5.17	0.68	0.12	0.36	2.0
12-50	6.8	6.3		0.04	0.34	0.8	7	187	3	0.5	-	-	-	-	4.1	3.87	0.62	0.14	0.29	3.3
50-80	8.7	8.1	0.1	0.08	0.32	0.3	<4	208	2	0.8	-	-	-	-	6.8	5.06	1.71	0.15	0.30	2.2
80-110	9.2	8.4	2.2	0.15	0.47	0.3	<4	381	2	1.5	-	-	-	-	10.4	5.54	4.86	1.09	0.83	10.5
110-195	10.0	9.0	2.6	0.41	1.71	0.1	<4	332	13	8.0	-	-	-	-	6.3	1.25	3.21	2.82	0.56	44.9

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.