

LOAMY SAND OVER RED SANDY CLAY LOAM

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

- Landform:** Plains with scattered depressions and stony rises, and limited areas of sandhills.
- Substrate:** Hard, massive sandy to sandy clay sediments (Parilla Sand equivalent).
- Vegetation:** Mallee.



Type Site: Site No.: MM139

1:50,000 sheet:	6928 - 2 (Nobah)	Hundred:	Mindarie
Annual rainfall:	300 mm	Sampling date:	22/02/99
Landform:	Flat		
Surface:	Firm with no stones		

Soil Description:

Depth (cm)	Description
0-15	Reddish brown soft loamy sand. Abrupt to:
15-23	Brown soft light loamy sand. Sharp to:
23-55	Orange very hard sandy clay loam with coarse columnar structure. Clear to:
55-80	Reddish yellow hard very highly calcareous sandy light clay with moderate coarse subangular blocky structure and 20-50% fine carbonate segregations. Clear to:
80-185	Reddish yellow friable moderately calcareous massive sandy loam.



Classification: Sodic, Calcic, Brown Chromosol; medium, non-gravelly, sandy / clay loamy, moderate

Summary of Properties

Drainage	Imperfectly drained. Water can perch on the clayey subsoil for a week or more following heavy or prolonged rainfall.
Fertility	Inherent fertility is low, as indicated by the exchangeable cation data. The sandy surface soil has little nutrient retention capacity, so regular phosphorus applications are essential. Nitrogen levels depend on cropping history and legume status of pastures. Zinc and copper deficiencies are common. Phosphorus and zinc (and possibly sulphur, although not tested) appear to be deficient at the sampling site. Organic carbon levels are low.
pH	Slightly acidic at the surface, strongly alkaline with depth.
Rooting depth	Not recorded. Estimate 55 cm in pit.
Barriers to root growth	
Physical:	The dispersive sodic clay layer from 55 cm restricts root growth to surfaces of aggregates.
Chemical:	No chemical barriers shallower than 80 cm where pH and sodicity become too high for significant root growth.
Water holding capacity	Approximately 65 mm in the potential root zone.
Seedling emergence:	Satisfactory, although water repellence is a problem in dry seasons.
Workability:	Soft to firm 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	6.7	6.5	-	0.11	1.5	0.60	9	267	-	0.9	0.4	-	7.7	0.4	5.0	1.9	1.0	< 0.1	0.58	2.0
0-15	6.9	6.9	-	0.11	1.5	0.60	13	298	-	1.2	0.4	-	7.0	1.2	5.0	2.0	1.1	< 0.1	0.59	2.0
15-23	6.3	6.5	-	0.03	0.4	0.17	9	60	-	0.5	0.3	-	1.5	0.2	3.2	1.2	0.67	< 0.1	0.13	3.1
23-55	7.4	7.0	< 0.1	0.27	1.7	0.21	1	173	-	1.4	0.3	-	1.1	0.1	12.9	3.8	6.4	0.67	0.53	5.2
55-80	9.1	8.2	5.6	0.48	4.5	0.15	1	128	-	3.4	0.3	-	0.3	0.1	12.6	3.1	8.1	2.5	0.33	19.8
80-185	9.4	8.5	1.0	0.42	5.9	0.06	1	117	-	3.6	0.4	-	0.1	0.1	8.8	1.6	5.5	4.1	0.27	46.6

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.