

SANDY CLAY LOAM OVER DISPERSIVE RED CLAY

General Description: *Hard sandy loam to sandy clay loam abruptly overlying a coarsely structured dispersive red clay, calcareous with depth*

Landform: Plains with scattered depressions and stony rises, and limited areas of sandhills.

Substrate: Coarsely structured Blanchetown Clay equivalent, often thin over sandy clay to clayey sand (Parilla Sand equivalent).

Vegetation: Mallee



Type Site: Site No.: MM138

1:50,000 sheet: 6928 - 2 (Nobah)

Hundred: Mindarie

Annual rainfall: 300 mm

Sampling date: 22/02/99

Landform: Flat

Surface: Firm with 10-20% ironstone (20-60 mm)

Soil Description:

Depth (cm)	Description
0-5	Dark reddish brown firm massive fine sandy clay loam. Clear to:
5-21	Red very hard medium heavy clay with strong angular blocky structure and slickensides. Clear to:
21-34	Red very hard moderately calcareous medium heavy clay with strong angular blocky structure and slickensides. Clear to:
34-61	Red very hard medium heavy clay with strong coarse angular blocky structure and slickensides. Gradual to:
61-155	Light yellowish brown and red very hard massive sandy loam. Gradual to:
155-175	Light yellowish brown and red very hard massive sandy loam.



Classification: Vertic, Subnatric, Red Sodosol; thin, gravelly, clay loamy / clayey, moderate

Summary of Properties

Drainage	Moderately well to imperfectly drained. Water may perch on the subsoil clay for a week or so following heavy or prolonged rainfall.
Fertility	Inherent fertility is moderate, as indicated by the exchangeable cation data. Regular phosphorus applications are essential. Nitrogen levels depend on cropping history and legume status of pastures. Zinc and copper deficiencies occur occasionally. At the sampling site, phosphorus levels are low, but concentrations of other measured elements and organic carbon are satisfactory.
pH	Slightly alkaline at the surface, alkaline in the subsoil, and strongly acidic in the substrate.
Rooting depth	Not recorded, but estimate 34 cm.
Barriers to root growth	
Physical:	Poorly structured dispersive subsoil clay prevents optimum root distribution.
Chemical:	High sodicity and boron concentrations from 34 cm adversely affect root growth.
Water holding capacity	75 mm in root zone.
Seedling emergence:	Fair. Surface may seal over, preventing optimum establishment.
Workability:	Fair. Surface soil may shatter if worked too dry and puddle if worked too wet.
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	6.6	6.3	-	0.23	3.2	1.26	10	344	-	1.6	0.4	-	10.0	1.3	9.1	3.7	2.9	0.21	0.93	2.3
0-5	8.0	7.0	<0.1	0.17	1.6	1.28	18	486	-	1.7	0.4	-	7.0	0.7	10.8	3.5	2.7	0.22	0.97	2.0
5-21	8.3	7.6	0.1	0.48	3.1	0.71	2	206	-	5.2	0.4	-	2.8	0.3	22.1	7.4	8.2	2.5	0.68	11.3
21-34	8.9	8.0	4.4	1.11	7.2	0.66	1	210	-	13.3	0.8	-	0.8	0.2	28.3	10.4	13.7	6.6	0.59	23.3
34-61	8.7	8.1	0.4	1.21	7.9	0.54	3	257	-	17.6	0.8	-	1.0	0.2	29.7	7.8	13.3	10.0	0.91	33.7
61-155	6.7	6.6	0	0.49	3.2	0.13	1	116	-	2.7	0.4	-	0.2	0.1	7.7	0.96	2.6	1.9	0.29	24.7
155-175	5.3	4.4	0	0.38	5.3	0.13	1	111	-	2.2	0.4	-	0.1	0.2	6.8	0.44	2.1	1.8	0.28	26.5

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.