

SAND OVER DISPERSIVE RED CLAY

General Description: *Medium thickness sand with a bleached A2 layer, abruptly overlying a coarsely structured dispersive red clay, calcareous with depth*

Landform: Flats between very gently sloping rises.

Substrate: Pleistocene age heavy clay (Blanchetown Clay equivalent).

Vegetation: Mallee



Type Site: Site No.: MM035

1:50,000 sheet: 7027-4 (Karte)

Hundred: Bews

Annual rainfall: 345 mm

Sampling date: 20/11/91

Landform: Flat

Surface: Loose to soft with no stones

Soil Description:

Depth (cm)	Description
0-9	Dark greyish brown soft loamy sand. Abrupt to:
9-18	Brown soft loamy sand. Clear to:
18-23	Bleached soft sand. Sharp to:
23-38	Yellowish red and yellowish brown hard sandy clay with coarse columnar structure. Gradual to:
38-54	Red and yellowish brown hard medium clay with coarse columnar structure and minor fine carbonate. Gradual to:
54-135	Yellowish red and brownish yellow massive calcareous sandy clay with 10-20% carbonate nodules. Diffuse to:
135-165	Red and pale brown heavy clay with coarse prismatic structure. Diffuse to:
165-190	Red and pale brown heavy clay with coarse prismatic structure.



Classification: Hypercalcic, Mottled-Hypernatric, Red Sodosol; medium, non-gravelly, sandy / clayey, deep

Summary of Properties

Drainage	Moderately well drained. Water perches on the clayey subsoil for a week or so following heavy or prolonged rain.
Fertility	Inherent fertility is low, as indicated by the exchangeable cation data. Although the subsoil has high nutrient retention capacity, the sandy surface soil does not, and deficiencies of phosphorus, nitrogen, zinc, copper and occasionally manganese are likely without regular fertilizer application. Organic matter levels are satisfactory.
pH	Slightly acidic at the surface, strongly alkaline with depth.
Rooting depth	75 cm in pit, but few roots below 54 cm.
Barriers to root growth	
Physical:	The dispersive clayey subsoil impedes uniform root development.
Chemical:	High pH, sodicity and boron at shallow depth restrict root growth.
Water holding capacity	100 mm in root zone.
Seedling emergence:	Satisfactory, but can be reduced by water repellence in dry years.
Workability:	Loose / soft surface is easily worked.
Erosion Potential	
Water:	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	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	6.1	6.1	<0.1	0.09	0.71	1.0	23	210	1.6	0.11	31	4.6	1.1	3.0	2.8	0.83	0.16	0.38	na
0-9	6.2	6.0	<0.1	0.09	0.69	0.84	24	270	1.7	0.13	25	3.5	1.4	2.7	2.5	0.87	0.22	0.28	na
9-18	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
18-23	6.7	6.1	<0.1	0.06	0.63	0.19	5.1	170	0.8	0.05	8.9	0.21	0.09	1.7	0.90	0.39	0.22	0.13	na
23-38	8.8	7.2	1.5	0.22	1.83	0.29	2.8	470	7.7	0.16	22	0.16	0.09	13.2	3.7	7.28	4.5	1.0	34.1
38-54	9.3	8.1	4.9	0.78	4.20	0.26	2.4	640	20	0.42	8.9	0.22	0.11	28.6	4.6	10.4	9.7	1.9	33.9
54-90	9.6	8.2	32	0.95	6.22	0.17	<2.0	450	17	0.40	3.7	0.11	0.07	18.8	2.9	6.4	7.6	1.3	40.4
90-135	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
135-165	7.9	7.2	1.3	1.3	7.81	0.10	<2.0	480	12	0.65	8.6	0.18	0.07	18.4	1.1	9.3	10.1	1.2	54.9

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.