

SANDY CLAY LOAM OVER DISPERSIVE RED CLAY

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

Landform: Gently undulating plains with extensive low to moderate jumbled sandhills.

Substrate: Coarsely structured heavy clay (Blanchetown Clay equivalent) overlying massive sandy clay (Parilla Sand equivalent).

Vegetation: Mallee



Type Site: Site No.: MM134

1:50,000 sheet: 6927-2 (Parrakie)

Hundred: Cotton

Annual rainfall: 375 mm

Sampling date: 23/05/96

Landform: Swale

Surface: Hard with minor ironstone (20-200 mm)

Soil Description:

Depth (cm)	Description
0-9	Brown firm fine sandy light clay with coarse platy structure. Abrupt to:
9-18	Yellowish red hard fine sandy medium clay with strong polyhedral structure. Clear to:
18-45	Reddish yellow and light yellowish brown very hard, very highly calcareous medium clay with moderate polyhedral structure and 20-50% fine carbonate segregations. Gradual to:
45-90	Reddish yellow, orange and light yellowish brown very hard, very highly calcareous heavy clay with coarse blocky structure and 20-50% fine carbonate. Gradual to:
90-165	Reddish yellow and light yellowish brown very hard heavy clay with coarse prismatic structure. Gradual to:
165-200	Orange, red and olive yellow very hard sandy light clay with coarse subangular blocky structure.



Classification: Mottled-Sodic, Hypercalcic, Red Dermosol; thin, non-gravelly, clayey / clayey, moderate

Summary of Properties

Drainage Moderately well drained. Water perches on the clayey subsoil for a week or so at a time following heavy or prolonged rain.

Fertility Inherent fertility is high as indicated by the exchangeable cation data. However, phosphorus and nitrogen deficiencies are widespread - P levels are good at the sampling site. Occasional zinc and copper deficiencies are also likely, and both appear to be deficient at the sampling site. Organic carbon levels are satisfactory.

pH Slightly alkaline at the surface, alkaline with depth.

Rooting depth 90 cm in pit, but few roots below 45 cm.

Barriers to root growth

Physical: The hard dispersive clayey subsoil and substrate restrict uniform root growth.

Chemical: High sodicity from 45 cm and high boron levels from 90 cm contribute to poor root growth conditions.

Water holding capacity Approximately 80 mm in root zone.

Seedling emergence: Limitation due to hard setting and dispersive surface in places.

Workability: Fair due to tendency to hard setting - limited opportunities for cultivation without damaging the soil.

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	7.7	7.3	0.1	0.16	1.17	1.4	27	611	7	2.9	0.13	18	2.62	0.37	20.8	12.82	5.03	0.31	1.75	1.5
0-9	7.5	7.1	<0.1	0.11	0.90	1.7	42	686	5	2.9	-	-	-	-	20.6	11.55	4.78	0.19	1.85	0.9
9-18	8.4	7.9	0.9	0.17	0.58	0.6	<4	608	3	3.9	-	-	-	-	26.2	13.68	9.24	0.68	1.72	2.6
18-45	9.2	8.4	13.8	0.41	1.51	0.4	<4	427	13	7.7	-	-	-	-	18.1	7.50	12.52	3.07	1.26	17.0
45-90	9.2	8.5	8.7	1.04	5.59	0.2	<4	532	88	10.7	-	-	-	-	18.5	4.59	11.70	6.02	1.37	32.5
90-165	8.1	7.8	<0.1	1.76	7.30	0.1	<4	584	159	18.1	-	-	-	-	26.1	4.24	12.39	7.27	1.58	27.9
165-200	5.4	5.2	0	1.88	10.29	0.1	<4	287	175	8.4	-	-	-	-	12.8	2.41	6.67	3.36	0.65	26.2

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.