SANDY LOAM OVER POORLY STRUCTURED BROWN CLAY

General Description: *Firm sandy loam over a coarsely structured dispersive brown sandy clay, calcareous with depth*

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

Substrate: Coarsely structured reddish heavy clay (Blanchetown Clay equivalent).

Vegetation: Mallee

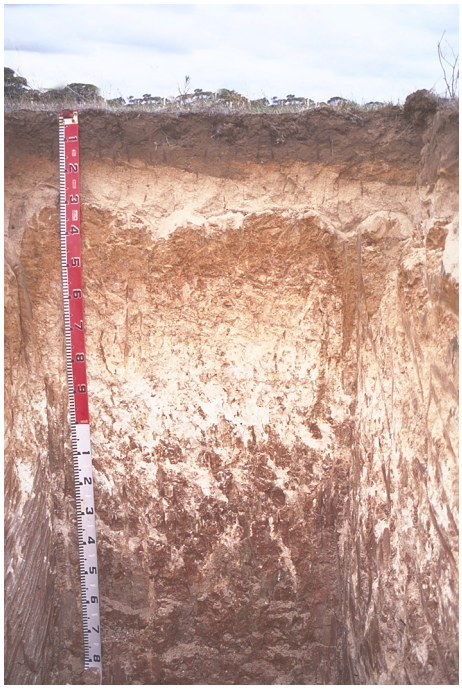
Type Site:

Site No.:	MM124	1:50,000 mapsheet:	6927-2 (Parrakie)
Hundred:	Cotton	Easting:	448170
Section:	31	Northing:	6082030
Sampling date:	23/05/1996	Annual rainfall:	375 mm average

Lower dune slope. Firm surface with no stones.

Soil Description:

Depth (cm)	*Description*
0-16	Brown firm massive sandy loam. Abrupt to:
16-30	Pale brown soft loamy sand. Sharp to:
30-55	Light yellowish brown and orange very hard sandy light clay with coarse columnar structure. Clear to:
55-85	Reddish yellow very hard, very highly calcareous light medium clay with moderate subangular blocky structure and 20-50% fine carbonate segregations. Clear to:
85-125	Yellowish red and light brownish grey very hard very highly calcareous heavy clay with strong coarse angular blocky structure and 20-50% fine carbonate. Diffuse to:
125-190	Yellowish red and light brownish grey very hard moderately calcareous heavy clay with strong coarse prismatic structure.



Classification: Hypercalcic, Mottled-Mesonatric, Yellow Sodosol; medium, non-gravelly, loamy/clayey, moderate

Summary of Properties

Drainage: Moderately well to imperfectly drained. Water perches on the clayey subsoil - saturation may persist for a week or more following heavy or prolonged rainfall.

Fertility: Inherent fertility is moderately low as indicated by the exchangeable cation data. Deficiencies of phosphorus, nitrogen, zinc and copper can be expected - the latter two are marginally deficient at the sampling site. Organic carbon level is adequate at sampling site.

pH: Neutral at the surface, strongly alkaline at depth.

Rooting depth: 85 cm in pit, but few roots below 30 cm.

Barriers to root growth:

Physical: The dense dispersive subsoil restricts root growth and reduces water use efficiency.

Chemical: High pH and sodicity from 55 cm impede root growth.

Waterholding capacity: Approximately 50 mm in rootzone.

Seedling emergence: Slight limitation due to poor surface structure and waterlogging in wet seasons.

Workability: Fair. Restricted moisture range over which soil can be safely worked.

Erosion Potential:

Water: Low.

Wind: Low.

Laboratory Data

Depth cm	pH H_2O	pH $CaCl_2$	CO_3 %	EC1:5 dS/m	ECe dS/m	Org.C %	Avail. P mg/kg	Avail. K mg/kg	SO_4 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	7.4	7.0	<0.1	0.10	0.97	1.1	23	376	4	1.4	0.19	12	4.31	0.44	9.4	6.43	1.42	0.27	1.12	2.9
0-16	7.7	7.0	<0.1	0.05	0.37	0.9	16	315	3	1.2	-	-	-	-	8.2	5.87	1.06	0.16	0.74	2.0
16-30	7.8	7.1	<0.1	0.02	0.12	0.1	5	82	1	0.3	-	-	-	-	2.1	1.38	0.25	0.15	0.11	7.3
30-55	9.2	8.4	0.3	0.22	0.58	0.1	<4	177	2	2.7	-	-	-	-	13.7	5.42	5.47	2.19	0.38	16.0
55-85	9.9	8.7	23.4	0.53	0.95	0.2	<4	241	13	10.2	-	-	-	-	14.6	2.44	7.97	5.44	0.54	37.2
85-125	9.9	8.9	25.0	0.76	1.80	<0.1	<4	312	28	11.0	-	-	-	-	17.5	1.49	9.36	8.41	0.86	48.0
125-190	9.5	8.9	0.7	1.01	3.00	<0.1	<4	388	94	16.7	-	-	-	-	22.8	1.18	10.47	9.19	1.13	40.3

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.

Further information: DEWNR Soil and Land Program