SAND OVER POORLY STRUCTURED BROWN CLAY

General Description: *Bleached sand over a coarsely structured dispersive brown clay, calcareous with depth*

Landform: Gently undulating plains.

Substrate: Pleistocene age Blanchetown Clay equivalent, thin over ironstone gravelly sandy clay.

Vegetation: Mallee

Type Site: Site No.: MM039

1:50,000 sheet:	6927-2 (Parrakie)	Hundred:	Cotton
Annual rainfall:	390 mm	Sampling date:	29/11/91
Landform:	Flat on gently undulating plain		
Surface:	Soft with no stones		

Soil Description:

Depth (cm)	*Description*
0-9	Very dark greyish brown soft single grain loamy sand. Abrupt to:
9-13	Dark greyish brown soft loamy sand. Abrupt to:
13-18	Brown massive clayey sand. Abrupt to:
18-21	Bleached soft loamy sand. Sharp to:
21-35	Orange and yellowish brown hard sandy light clay with coarse columnar structure. Diffuse to:
35-53	Orange and pale brown hard highly calcareous light clay with coarse columnar structure. Diffuse to:
53-100	Reddish yellow highly calcareous sandy clay loam with 20-50% carbonate nodules. Diffuse to:
100-160	Red and pale brown hard medium clay with coarse angular blocky structure. Diffuse to:
160-190	Red and yellow massive sandy clay with more than 50% ironstone nodules. Diffuse to:
190-200	Red and yellow massive sandy clay loam.

Classification: Supracalcic, Mottled-Subnatric, Brown 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 rainfall.

Fertility Inherent fertility is low as indicated by the exchangeable cation data. Although the subsoil has high nutrient retention capacity, the low clay and low organic matter surface soil does not. Although levels are satisfactory at the sampling site, there is potential for phosphorus, nitrogen, zinc, copper and manganese deficiencies.

pH Slightly acidic at the surface, strongly alkaline at depth.

Rooting depth 53 cm in pit.

Barriers to root growth

Physical: Dense dispersive clayey subsoil restricts optimal root distribution.

Chemical: High pH, boron and sodicity from 53 cm inhibits further root growth.

Water holding capacity 70 mm in root zone.

Seedling emergence: Satisfactory but can be affected by water repellence in dry seasons.

Workability: Loose to soft surface is easily worked.

Erosion Potential

Water: Low.

Wind: Moderate.

Laboratory Data

Depth cm	pH H_2O	pH $CaC1_2$	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	6.2	5.8	<0.1	0.11	0.85	0.81	29	190	1.4	0.30	20	4.4	0.55	5.3	3.97	1.38	0.12	0.48	2.3
0-9	6.0	6.0	0.5	0.08	0.50	1.0	31	200	1.6	0.27	36	5.1	1.3	5.0	3.37	1.11	0.08	0.48	1.6
9-13	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
13-18	6.3	5.6	<0.1	0.08	0.43	0.49	24	170	1.3	0.25	12	4.5	0.15	4.7	3.92	1.22	0.07	0.46	1.5
18-21	6.5	6.2	<0.1	0.05	0.26	0.09	7.0	31	0.88	0.08	2.7	0.45	0.09	2.6	1.06	0.3	0.06	0.11	na
21-35	8.8	7.0	1.6	0.21	0.55	0.23	6.4	230	6.4	0.22	21	0.38	0.10	18.1	9.56	6.43	0.88	0.86	4.9
35-53	9.2	7.3	14	0.32	0.78	0.28	5.7	380	12	0.53	15	1.1	0.05	21.0	9.64	8.54	3.27	1.20	15.6
53-100	9.7	7.6	37	0.75	3.98	0.21	5.7	550	27	1.1	13	0.65	0.06	17.5	2.36	6.86	9.53	1.44	54.5
100-160	9.1	8.3	1.6	1.51	5.26	0.12	1.8	790	44	1.1	12	0.68	0.04	31.2	1.34	13.38	15.83	2.14	50.7

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.