

## SANDY LOAM OVER POORLY STRUCTURED RED CLAY

**General Description:** *Sandy loam over coarsely structured dispersive red clay, calcareous with depth*

**Landform:** Outwash fans

**Substrate:** Medium textured alluvium (Pooraka Formation) capped by fine Woorinen Formation carbonates

**Vegetation:** Mallee



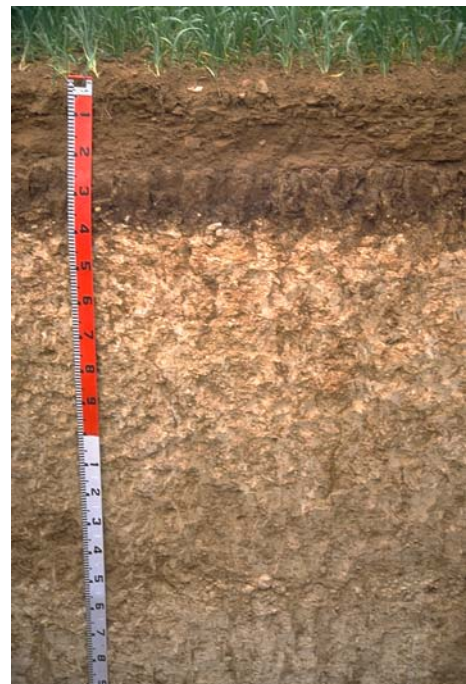
**Type Site:** Site No.: MP006

1:50,000 sheet:	6728-1 (Cambrai)	Hundred:	Jellicoe
Annual rainfall:	350 mm	Sampling date:	31/07/92
Landform:	Flat at foot of outwash fan, 0% slope		
Surface:	Firm with no stones		

### Soil Description:

<i>Depth (cm)</i>	<i>Description</i>
0-10	Red soft (cultivated) fine sandy loam with 2-10% quartz and sandstone gravel. Sharp to:
10-24	Red hard massive fine sandy loam with 2-10% quartz and sandstone gravel. Sharp to:
24-38	Red hard light clay with very coarse columnar structure. Abrupt to:
38-80	Yellowish red firm massive highly calcareous fine sandy light clay. Gradual to:
80-120	Light brown hard massive highly calcareous fine sandy clay loam. Gradual to:
120-150	Brown hard massive highly calcareous fine sandy clay loam. Clear to:
150-200	Brown hard massive highly calcareous clay loam.

Up to 10% quartz / sandstone gravel throughout.



**Classification:** Hypercalcic, Hypernatric, Red Sodosol; medium, slightly gravelly, loamy / clayey, deep

## Summary of Properties

**Drainage** Moderately well drained. Water will perch on the sodic clay subsoil for up to a week following heavy or prolonged rainfall.

**Fertility** Natural fertility is moderate, as indicated by the exchangeable cation data. Concentrations of all measured nutrient elements are adequate at the sampling site. Organic carbon levels are satisfactory.

**pH** Alkaline at the surface, strongly alkaline with depth.

**Rooting depth** 80 cm in pit, but few roots below the surface layers.

### Barriers to root growth

**Physical:** The hard dispersive clay subsoil prevents uniform root distribution, and therefore reduces water use efficiency.

**Chemical:** Very high pH, boron and sodicity from 38 cm severely restrict root growth.

**Water holding capacity** Approximately 45 mm in the root zone.

**Seedling emergence:** Fair - these soils have a tendency to surface sealing and hard setting which impairs even establishment.

**Workability:** Fair to good. Moisture range for effective working is somewhat limited.

### Erosion Potential

**Water:** Low (flat ground).

**Wind:** Moderately low.

## Laboratory Data

Depth cm	pH H <sub>2</sub> O	pH CaCl <sub>2</sub>	CO <sub>3</sub> %	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	8.2	7.8	0.3	0.19	0.91	1.27	60	990	3.0	0.7	4.0	7.3	1.0	11.8	6.91	1.76	0.26	1.96	2.2
0-10	8.1	7.7	0.4	0.16	0.82	1.20	62	710	2.6	0.7	4.7	7.9	1.1	9.2	6.63	1.91	0.26	1.47	2.8
10-24	8.3	7.8	<0.1	0.11	0.63	0.54	13	520	2.0	0.7	2.6	5.6	0.4	8.9	6.25	1.68	0.30	1.04	3.4
24-38	8.8	8.0	<0.1	0.22	1.24	0.51	<5	450	8.2	1.1	8.1	2.2	0.3	15.0	8.07	4.77	1.84	1.09	12.3
38-80	9.7	8.6	31.8	0.84	4.44	0.36	<5	460	20.2	1.4	6.2	1.2	0.2	11.1	2.51	5.54	6.57	1.04	59.2
80-120	9.9	8.5	23.7	0.57	3.63	0.28	<5	410	10.2	2.3	4.1	1.1	0.2	8.3	1.91	3.40	5.09	0.78	61.3
120-150	9.9	8.4	16.2	0.61	3.21	0.11	<5	420	9.4	0.8	4.4	1.1	0.2	7.8	1.84	3.30	4.89	0.79	62.7
150-200	9.8	8.2	39.0	0.68	3.43	0.27	<5	410	9.6	0.7	5.5	0.7	0.2	6.6	1.68	3.04	4.61	0.76	70.0

**Note:** Paddock sample bulked from 20 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.