

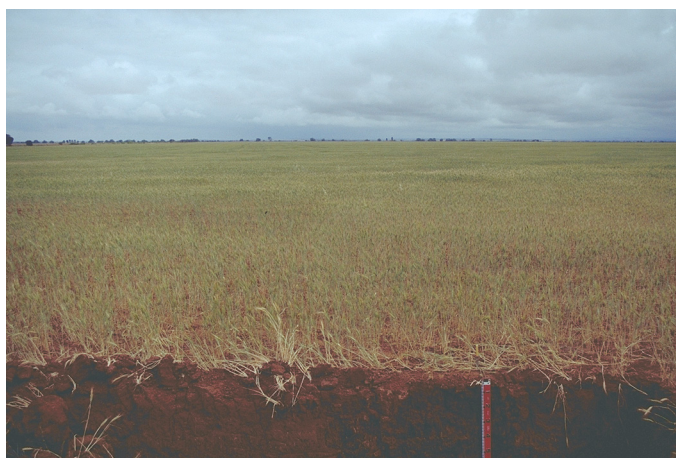
HARD LOAM OVER SODIC RED CLAY

General Description: *Hard setting loamy surface abruptly overlying a coarsely structured red clay, calcareous with depth*

Landform: Gently sloping pediments and plains

Substrate: Well structured red alluvial clay with minor carbonate accumulations

Vegetation:



Type Site:	Site No.:	CU047	1:50,000 mapsheet:	6532-1 (Willowie)
	Hundred:	Willowie	Easting:	249350
	Section:	106	Northing:	6379550
	Sampling date:	02/11/1994	Annual rainfall:	340 mm average

Level plain (0.5% slope) with a hard setting surface and minor quartzite stones.

Soil Description:

<i>Depth (cm)</i>	<i>Description</i>
0-10	Dark reddish brown massive hard fine sandy clay loam. Abrupt to:
10-20	Red hard medium clay with strong very coarse prismatic structure (breaking to strong polyhedral). Abrupt to:
20-45	Red firm highly calcareous medium clay with strong very coarse prismatic structure (breaking to strong polyhedral) and 2-10% soft carbonate. Gradual to:
45-80	Red firm highly calcareous medium clay with strong coarse prismatic structure and 2-10% soft carbonate. Gradual to:
80-160	Red very firm highly calcareous medium clay with strong coarse lenticular structure, slickensides and 2-10% soft carbonate.



Classification: Calcic, Subnatric, Red Sodosol; medium, non-gravelly, clay loamy / clayey, moderate



Summary of Properties

Drainage:	The high clay content and high sodicity indicate low permeability. The soil is moderately well drained, but after prolonged rainfall waterlogging would be expected.
Fertility:	High natural fertility as indicated by the cation data - due to high clay content. Organic carbon (a measure of nitrogen retention) could be marginally higher. Measured elements are all at satisfactory levels.
pH:	Alkaline at the surface, strongly alkaline with depth.
Rooting depth:	125 cm in pit, but few roots below 80 cm.
Barriers to root growth:	
Physical:	Tight sodic subsoil clay prevents even root distribution.
Chemical:	High exchangeable sodium (ESP) and pH from 45 cm.
Waterholding capacity:	Approximately 100 mm (high)
Seedling emergence:	Fair to good. Surface tends to seal over, especially at low organic matter levels.
Workability:	Fair. Narrow moisture range for effective working.
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 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	8.0	7.2	0	0.11	0.59	1.0	21	727	-	1.1	1.38	5	16.9	3.15	20.0	14.39	3.32	0.14	2.26	0.7
0-10	8.1	7.3	0	0.08	0.58	0.9	19	585	-	0.9	1.24	4	11.7	0.96	17.8	12.82	3.00	0.22	1.78	1.2
10-20	8.4	7.7	0.1	0.13	0.48	0.5	<4	434	-	1.5	1.85	5	5.02	0.27	25.5	17.25	7.72	2.96	0.88	11.6
20-45	9.1	8.0	6.3	0.23	0.73	0.6	<4	175	-	2.4	2.10	5	4.33	0.26	26.2	17.45	8.03	2.96	0.81	11.3
45-80	9.2	8.2	5.7	0.74	4.23	0.4	11	175	-	5.6	1.49	6	3.05	0.24	25.5	11.79	8.88	7.07	0.86	27.7
80-160	8.7	8.1	2.4	1.62	10.95	0.2	16	252	-	8.6	1.32	5	1.50	0.26	26.6	12.06	9.47	7.72	1.11	29.0

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.

Further information: [DEWNR Soil and Land Program](#)

