

SANDY CLAY LOAM OVER POORLY STRUCTURED RED CLAY

General Description: *Medium thickness hard setting dark sandy loam to sandy clay loam overlying a red poorly structured sandy clay, grading to a coarsely structured heavy clay*

Landform: Swales and flats between low sand rises.

Substrate: Hard coarsely structured Hindmarsh (Blanchetown equivalent) Clay.

Vegetation:



Type Site:	Site No.:	CL050	1:50,000 mapsheet:	6628-4 (Gawler)
	Hundred:	Mudla Wirra	Easting:	282640
	Section:	868	Northing:	6171710
	Sampling date:	09/01/07	Annual rainfall:	425 mm average

Swale, hard setting surface, no stones.

Soil Description:

Depth (cm)	Description
0-11	Very dark greyish brown hard cloddy sandy clay loam. Abrupt to:
11-28	Red extremely hard sandy medium clay with weak coarse columnar, breaking to strong coarse angular blocky structure. Abrupt to:
28-50	Strong brown very hard highly calcareous sandy medium clay with weak coarse subangular blocky structure and 10-20% fine carbonate. Diffuse to:
50-85	Yellowish red very hard highly calcareous sandy medium heavy clay with weak coarse lenticular, breaking to moderate coarse subangular blocky structure, and 20-50% fine carbonate segregations. Diffuse to:
85-100	Red with occasional pale brown mottles, extremely hard medium heavy clay with weak coarse lenticular, breaking to moderate very coarse angular blocky structure and 10-20% fine carbonate segregations.



Classification: Sodic, Hypercalcic, Red Chromosol: medium, non-gravelly, clay loamy / clayey, moderate



Summary of Properties

Drainage: Moderately well drained. Water perches on top of the clayey subsoil for periods of a week or so following heavy or prolonged rainfall.

Fertility: Inherent fertility is high, as indicated by the exchangeable cation data. Levels of all tested nutrient elements are satisfactory at the sampling site. High clay content and adequate organic carbon levels provide ample nutrient retention capacity.

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

Rooting depth: 85 cm in sampling pit, but few roots below 50 cm.

Barriers to root growth:

Physical: The hard coarsely structured clayey subsoil confines roots to the surfaces of the aggregates, greatly reducing the efficiency of water use and nutrient uptake

Chemical: High pH and boron, and elevated sodicity combine to restrict rootzone depth for most crop and pasture species.

Waterholding capacity: Approximately 70 mm in the potential rootzone.

Seedling emergence: Moderate to slight restriction depending on degree of hard setting and sealing of surface.

Workability: The surface soil shatters if worked too dry, and puddles if worked too wet.

Erosion Potential:

Water: Low.

Wind: Low.

Laboratory Data

Depth cm	pH H ₂ O	pH CaCl ₂	CO ₃ %	EC 1:5 dS/m	ECe dS/m	Org.C %	Avail. P mg/kg	Avail. K mg/kg	Cl mg/kg	SO ₄ -S mg/kg	Boron mg/kg	React Fe mg/kg	Trace Elements mg/kg (EDTA)				Sum cations cmol (+)/kg	Exchangeable Cations cmol(+)/kg				Est. ESP
													Cu	Fe	Mn	Zn		Ca	Mg	Na	K	
0-11	7.2	6.8	0	0.14	0.78	1.59	61	455	25	7.2	1.7	492	2.06	99	57.2	1.52	21.6	13.1	7.05	0.33	1.16	1.5
11-28	8.5	7.7	0	0.13	0.56	0.49	4	190	14	2.9	1.8	477	1.17	55	29.2	0.27	21.2	13.6	6.68	0.38	0.54	1.8
28-50	9.4	8.4	18.6	0.24	0.91	0.29	3	120	76	6.0	5.0	334	1.11	11	1.96	0.15	25.9	13.8	10.2	1.58	0.35	6.1
50-85	9.9	8.7	18.6	0.54	1.70	0.15	2	175	189	21.3	13.4	275	0.66	10	1.09	0.10	27.2	8.32	13.4	4.99	0.48	18.4
85-100	10.1	9.0	7.7	0.66	1.95	0.09	2	247	232	50.8	24.0	310	0.57	12	1.35	0.09	27.8	4.54	12.7	9.76	0.73	35.2

Note: Sum of cations, in a neutral to alkaline soil, approximates the CEC (cation exchange capacity), 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, in this case estimated by the sum of cations.

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

