

SAND OVER RED SANDY CLAY LOAM

General Description: *Thick sand with a bleached A2 layer, overlying a red light sandy clay loam to sandy light clay, highly calcareous with depth*

Landform: Slopes and crests of low sand dunes.

Substrate: Highly calcareous medium to coarse grained windblown deposits (Woorinen Formation).

Vegetation:



Type Site: Site No.: CL051

1:50,000 sheet: 6628-4 (Gawler)

Hundred: Mudla Wirra

Annual rainfall: 425 mm

Sampling date: 09/01/07

Landform: Upper slope of low sand dune, 8% slope.

Surface: Loose with no stones.

Soil Description:

Depth (cm)	Description
0-15	Dark greyish brown loose light loamy sand. Clear to:
15-36	Very pale brown (bleached) loose sand. Sharp to:
36-60	Yellowish red, reddish yellow and brownish yellow firm light sandy clay loam with weak very coarse prismatic structure. Sharp to:
60-75	Reddish yellow firm very highly calcareous massive light sandy clay loam with 20-50% carbonate nodules (20-200 mm), 20-50% fine carbonate segregations, and capped by a weak laminar calcrete pan. Clear to:
75-100	Reddish yellow very highly calcareous hard sandy loam (semi hard carbonate), capped by a weak laminar pan.



Classification: Bleached, Supracalcic, Red Chromosol; thick, non-gravelly, sandy / clay loamy, moderate

Summary of Properties

Drainage: Well drained. The soil is rarely saturated for more than a day or so following heavy or prolonged rainfall.

Fertility: Inherent fertility is low, as indicated by the exchangeable cation data. Levels of copper, zinc and sulphur are marginal to low. Low clay and organic carbon contents provide little nutrient retention capacity.

pH: Slightly acidic at the surface, alkaline with depth.

Rooting depth: 75 cm in sampling pit.

Barriers to root growth

Physical: The calcrete pan capping the highly calcareous subsolum material restricts root growth, and the massive semi-hard carbonate from 75 cm prevents deeper root growth (at least of annual plants).

Chemical: There are no apparent chemical barriers. Low nutrient retention capacity is the most significant chemical feature of the soil.

Water holding capacity: Approximately 70 mm in the potential root zone.

Seedling emergence: Satisfactory, except in seasons of water repellence.

Workability: The sandy surface is easily worked.

Erosion Potential

Water: Moderately low.

Wind: Moderate.

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	
0-15	6.3	5.4	0	0.06	0.40	0.60	25	134	14	6.2	1.0	280	0.49	61	5.64	0.82	4.3	2.90	1.05	0.08	0.31	1.8
15-36	7.1	6.5	0	0.03	0.24	0.14	11	46	7	1.9	0.5	392	0.29	98	1.28	0.15	2.5	2.04	0.32	0.05	0.12	na
36-60	7.7	7.1	0	0.04	0.32	0.15	4	199	8	2.3	1.8	614	0.53	31	2.48	0.05	9.9	6.84	2.31	0.18	0.54	1.8
60-75	8.9	8.1	25.0	0.13	0.69	0.39	3	137	14	5.4	3.1	442	0.80	14	0.68	0.09	18.0	14.1	3.13	0.32	0.38	1.8
75-100	9.1	8.2	33.3	0.11	0.43	0.20	2	136	6	5.7	3.5	160	0.34	9	0.48	0.23	16.4	12.4	3.33	0.27	0.39	1.6

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.