

SAND OVER RED CLAY

General Description: *Sandy surface soil sharply overlying a red poorly structured sandy clay, highly calcareous with depth*

Landform: Dunefields

Substrate: Highly calcareous clay (Crocker's Loess), at this site overlying Hindmarsh Clay

Vegetation: Mallee



Type Site: Site No.: CL029

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

Hundred: Mudla Wirra

Annual rainfall: 425 mm

Sampling date: 23/12/96

Landform: Side slope of low sand dune, 4% slope

Surface: Firm with no stone

Soil Description:

Depth (cm)	Description
0-8	Brown soft loamy sand with weak platy structure. Sharp to:
8-30	Red hard fine sandy medium clay with moderate very coarse prismatic breaking to subangular blocky structure. Clear to:
30-60	Orange highly calcareous weakly structured hard fine sandy light clay with 20-50% soft carbonate. Diffuse to:
60-120	Orange very highly calcareous weakly structured firm fine sandy medium clay with 20-50% soft carbonate. Gradual to:
120-145	Orange, red and yellow calcareous weakly structured hard fine sandy medium clay with 2-10% soft carbonate. Clear to:
145-200	Red and grey mottled medium heavy clay with strong very coarse blocky structure and 20-50% soft carbonate.



Classification: Sodic, Hypercalcic, Red Chromosol; thin, non-gravelly, sandy / clayey, deep

Summary of Properties

Drainage	Moderately well drained. Water will perch on the clayey subsoil for up to a week following prolonged rain.
Fertility	Natural fertility is low due to the sandy surface soil. Test results indicate that all nutrients are at satisfactory levels. Organic carbon levels are adequate considering the texture and rainfall.
pH	Slightly alkaline at the surface, strongly alkaline with depth.
Rooting depth	120 cm in pit but few roots below 60 cm.
Barriers to root growth	
Physical:	Hard, poorly structured clay subsoil impedes root development.
Chemical:	Toxic levels of boron, extreme pH and high sodicity from 60 cm limit root growth.
Water holding capacity	Approximately 60 mm in root zone.
Seedling emergence:	Good.
Workability:	Good.
Erosion Potential	
Water:	Moderately low. Soil is highly erodible, but run on potential is low.
Wind:	Moderate, due to the sandy surface.

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 -S mg/kg	Boron mg/kg	Trace Elements mg/kg (EDTA)				CEC cmol (+)/kg	Exchangeable Cations cmol(+)/kg				ESP
											Cu	Fe	Mn	Zn		Ca	Mg	Na	K	
Paddock	8.2	7.5	0	0.11	-	0.98	44	495	3.6	1.2	1.4	25	32	4.4	9.4	7.5	1.0	0.10	0.97	1.1
0-8	7.2	6.7	0	0.12	-	0.72	33	327	19	1.2	1.2	58	17	2.3	6.9	4.3	1.4	0.11	0.78	1.6
8-30	8.2	7.5	0	0.13	-	0.23	6	333	4.8	2.3	1.0	33	22	1.2	19.6	10.2	6.3	0.41	1.1	2.1
30-60	8.9	8.0	14	0.15	-	0.18	2	252	5.2	5.4	0.69	4.0	1.1	1.9	12.6	6.7	6.3	0.58	0.69	4.6
60-120	9.7	8.4	15	0.43	-	0.09	1	423	14	20	0.34	3.7	0.5	2.1	13.1	2.7	6.8	4.2	1.1	32.2
120-145	9.8	8.5	4	0.59	-	0.07	2	497	30	23	0.30	5.2	1.6	2.1	14.2	1.8	6.1	6.3	1.2	44.2
145-200	9.7	8.4	28	0.74	-	0.13	1	514	49	23	0.32	4.5	1.7	2.0	15.7	2.6	6.4	7.6	1.2	48.3

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.