

SANDY LOAM OVER RED CLAY

General Description: *Sandy to sandy loam surface soil overlying a red coarsely structured clayey subsoil with abundant soft to rubbly carbonate, grading to a clayey deep subsoil*

Landform: Flats and outwash fans

Substrate: Coarsely structured Pleistocene age clay with secondary carbonate segregations

Vegetation: Mallee box



Type Site: Site No.: CL027

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

Hundred: Mudla Wirra

Annual rainfall: 425 mm

Sampling date: 23/12/96

Landform: Lower slope of very gently inclined alluvial fan, 0% slope

Surface: Soft with no stones

Soil Description:

Depth (cm)	Description
0-14	Dark reddish brown firm light sandy loam with weak coarse platy structure (weak plough pans). Abrupt to:
14-22	Reddish brown very firm massive loamy sand. Sharp to:
22-44	Red very firm medium clay with weak coarse prismatic breaking to strong coarse polyhedral structure. Abrupt to:
44-75	Red very highly calcareous firm massive light medium clay with 20-50% carbonate nodules. Gradual to:
75-135	Reddish yellow very highly calcareous friable massive medium clay with more than 50% soft carbonate segregations. Diffuse to:
135-190	Yellowish red and yellowish brown mottled highly calcareous medium clay with moderate coarse blocky structure and 20-50% soft carbonate segregations.



Classification: Sodic, Supracalcic, Red Chromosol; medium, non-gravelly, loamy / clayey, deep

Summary of Properties

Drainage Moderately well drained. Water will perch on the surface of the clay for up to a week following prolonged rain.

Fertility Natural fertility is moderate due to the low clay content of the surface soil. However the subsoil has good nutrient retention characteristics. Test results indicate satisfactory levels of nutrients with the possible exception of copper

pH Alkaline at the surface (probably due to road dust), grading to strongly alkaline with depth.

Rooting depth Few roots below 75 cm.

Barriers to root growth

Physical: The coarsely structured clay subsoil prevents optimal root proliferation. Plough pan in the surface horizon will also affect development of roots in young plants.

Chemical: Very high pH and high boron levels from 75 cm restrict root growth beyond that depth.

Water holding capacity Approximately 80 mm in the root zone.

Seedling emergence: Good.

Workability: Good.

Erosion Potential

Water: Low.

Wind: Moderately low, 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	7.2	0	0.11	-	1.20	62	515	6.4	1.7	1.7	46	97	3.4	12.5	8.5	1.4	0.15	1.03	1.2
0-14	8.2	7.5	0	0.10	-	0.86	34	363	3.2	1.6	1.3	24	66	2.0	11.2	8.9	1.3	0.13	0.90	1.2
14-22	7.8	7.0	0	0.04	-	0.23	9	152	1.4	1.4	0.6	21	14	0.5	8.4	6.1	0.8	0.17	0.28	2.0
22-44	8.2	7.4	0	0.06	-	0.27	7	213	2.3	2.1	1.6	37	71	0.7	20.9	12.5	4.5	0.53	0.56	2.5
44-75	9.2	8.1	46	0.16	-	0.13	4	175	5.1	5.8	0.9	4.8	2.5	1.3	13.3	5.8	5.7	1.2	0.45	9.0
75-135	9.9	8.5	59	0.63	-	0.06	4	314	30.6	16.1	0.4	1.2	0.9	1.1	10.2	1.4	3.5	6.6	0.68	64.3
135-190	9.7	8.4	29	0.84	-	<0.05	2	399	103	12.2	0.3	2.5	1.3	0.0	14.0	2.6	4.8	6.2	0.90	44.2

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.