

HARD SANDY CLAY LOAM OVER RED CLAY

General Description: *Hard setting red brown sandy to loamy surface overlying a reddish structured clay containing soft or rubbly carbonate with depth, formed in soft sandstone*

Landform: Slopes of undulating low hills

Substrate: Soft massive sandstone of Tertiary age

Vegetation:

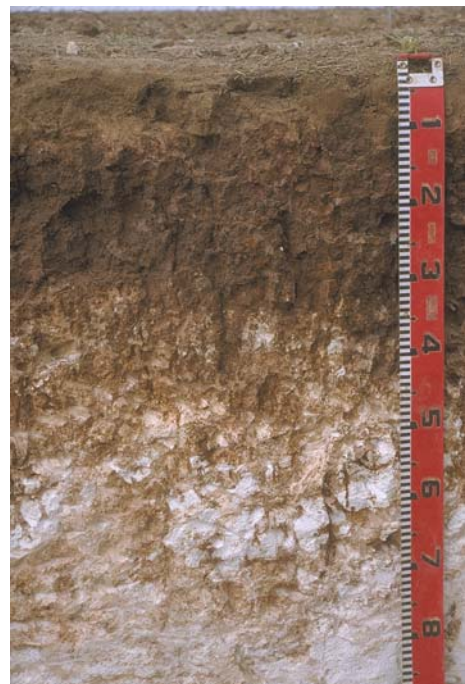


Type Site: Site No.: CM028

1:50,000 sheet:	6530-1 (Koolunga)	Hundred:	Hart
Annual rainfall:	450 mm	Sampling date:	13/05/93
Landform:	Upper slope of an undulating low hill, 8% slope		
Surface:	Hard setting with 2-10% quartz stones		

Soil Description:

Depth (cm)	Description
0-8	Dark reddish brown massive sandy clay loam. Abrupt to:
8-10	Reddish yellow massive sandy clay loam. Sharp to:
10-35	Dark reddish brown and red sandy medium clay with strong blocky structure. Clear to:
35-50	Dark reddish brown weakly structured moderately calcareous sandy medium clay with minor soft carbonate segregations and 10-20% sandstone fragments. Gradual to:
50-80	Red massive sandy light clay with more than 50% sandstone fragments. Gradual to:
80-170	White massive sandstone.



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

Summary of Properties

Drainage	The soil is well drained, although water perches on top of the clay subsoil after heavy or prolonged rainfall. The profile is unlikely however to remain wet for more than a few days in most seasons.
Fertility	The inherent fertility of the soil is moderate, as indicated by the exchangeable cation data. The clay subsoil has a high nutrient retention capacity, but most of the surface soil's capacity is associated with organic matter. Organic carbon is low at the sampling site (1.6% is desirable).
pH	Acidic at the surface, strongly alkaline with depth.
Rooting depth	70 cm at sampling site, but there are few roots below 50 cm.
Barriers to root growth	
Physical:	The high strength of both the surface and subsoil restricts root development, particularly at low moisture content. The depth to sandstone determines maximum rooting depth.
Chemical:	There are no apparent chemical barriers to root growth.
Water holding capacity	Approximately 85 mm in the rootzone, due to the relatively shallow depth over sandstone.
Seedling emergence	Moderate to poor, depending on the degree of hard setting and surface sealing. Sandier types with low organic matter are the most likely to present problems.
Workability	Fair. The poorly structured surface is liable to shatter if worked too dry and puddle if worked too wet. Gypsum will improve the soil's workability.
Erosion Potential	
Water:	Moderate, due to the slope and the high erodibility of this soil type.
Wind:	Low to moderately 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 -S 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	6.0	5.7	0	0.16	1.13	1.3	79	369	-	2.6	0.8	48	8.2	1.4	11.2	4.66	1.84	0.29	0.60	2.6
0-8	5.7	5.3	0	0.12	0.99	1.4	71	345	-	2.0	0.6	45	6.7	0.6	10.2	4.80	1.59	0.17	0.57	1.7
10-35	7.2	6.6	0	0.10	0.33	0.8	11	326	-	6.3	0.6	8	3.6	0.2	21.8	10.11	8.07	1.00	0.80	4.6
35-50	8.9	8.4	9.6	0.39	1.38	0.3	6	243	-	6.8	0.6	4	1.2	0.2	14.8	5.80	7.78	1.76	0.39	11.9
50-80	9.2	8.7	2.0	0.44	2.63	0.1	5	153	-	4.3	0.2	2	0.5	0.1	7.8	2.61	4.41	1.76	0.21	22.6

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.