

GRADATIONAL RED CLAY LOAM

General Description: *Well structured dark reddish brown clay loam to light clay overlying a very coarsely structured red heavy clay containing soft carbonate segregations with depth*

Landform: Gently to moderately sloping alluvial fans.

Substrate: Reddish clayey sediments with variable colluvial gravel

Vegetation:

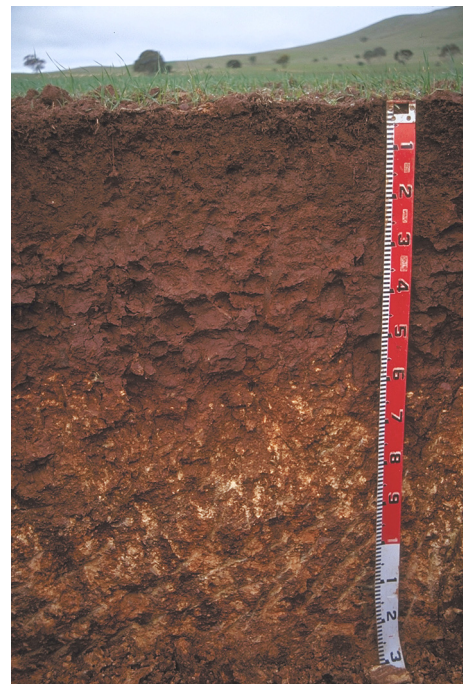


Type Site:	Site No.:	CM051	1:50,000 mapsheet:	6630-1 (Burra)
	Hundred:	Kingston	Easting:	303150
	Section:	274	Northing:	6290250
	Sampling date:	02/08/94	Annual rainfall:	450 mm average

Midslope of a moderately inclined alluvial fan, slope 4%. Firm surface with minor quartz and shale gravel

Soil Description:

Depth (cm)	Description
0-10	Dark reddish brown clay loam with moderate granular structure. Abrupt to:
10-23	Dark reddish brown medium clay with strong fine polyhedral structure and 2-10% shale gravel. Abrupt to:
23-60	Dark reddish brown very firm heavy clay with strong very coarse prismatic structure and minor quartz gravel. Gradual to:
60-90	Red very firm medium heavy clay with strong blocky structure, 20-50% soft calcareous segregations and 2-10% shale gravel. Diffuse to:
90-130	Red very firm medium heavy clay with strong blocky structure, 20-50% soft calcareous segregations and 20-50% shale gravel.



Classification: Vertic, Hypercalcic, Red Dermosol; medium, non-gravelly, clay loamy / clayey, deep



Summary of Properties

Drainage: Moderate. The clayey soil prevents free drainage of water and some layers are prone to saturation for periods of a week or so following rain.

Fertility: Natural fertility is high. Phosphorus is marginal, organic carbon (therefore nitrogen reserves) is good. Sulphur and probably zinc should be monitored closely.

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

Rooting depth: 110 cm in pit, but very few roots below 60 cm.

Barriers to root growth:

Physical: Tight sodic clay subsoil inhibits good root proliferation.

Chemical: High pH (more than 9.2) restricts root growth below 60 cm.

Waterholding capacity: Approximately 150 mm, but effectively about 90 mm due to low root densities below 60 cm.

Seedling emergence: Fair to good. Surface may become sticky after rain and have a limited moisture range for effective working. Gypsum may help.

Workability: Fair to good. Relies on high organic matter levels to maintain surface structure.

Erosion Potential:

Water: Moderately low, due to the slope of the land.

Wind: 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 mg/kg	Boron mg/kg	Trace Elements mg/kg (DTPA)				CEC cmol (+)/kg	Exchangeable Cations cmol(+)/kg				ESP	Ext Al mg/kg
											Cu	Fe	Mn	Zn		Ca	Mg	Na	K		
Paddock	6.6	5.8	0	0.09	0.88	2.0	30	433	8.3	1.1	-	-	-	-	11.2	6.94	1.74	0.12	1.10	1.1	-
0-10	5.7	4.9	0	0.13	1.07	2.5	67	449	8.6	4.0	-	-	-	-	12.1	5.76	1.72	0.13	1.22	1.1	1.7
10-23	6.9	6.2	0	0.07	0.60	0.8	7	344	4.7	1.1	-	-	-	-	16.2	7.85	4.33	0.32	0.86	2.0	-
23-60	8.7	7.7	1.1	0.16	0.50	0.5	2	425	3.9	1.4	-	-	-	-	28.3	15.1	14.2	2.14	1.42	7.6	-
60-90	9.3	8.3	23.3	0.25	0.77	0.2	2	315	8.7	6.4	-	-	-	-	17.4	5.92	12.6	2.50	0.86	14.4	-
90-130	9.6	8.4	18.7	0.32	0.72	0.1	3	341	7.1	8.4	-	-	-	-	21.2	4.27	13.2	5.30	0.96	25.0	-

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.

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

