

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 sheet: 6630-1 (Burra)

Hundred: Kingston

Annual rainfall: 450 mm

Sampling date: 02/08/94

Landform: Midslope of a moderately inclined alluvial fan, slope 4%

Surface: Firm 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.
Water holding 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 -S 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.