

HARD GRADATIONAL RED CLAY LOAM

(Clayey red brown earth)

General Description: *Clay loam to light clay over a hard red coarsely structured clay, calcareous with depth*

Landform: Gently undulating rises and fans.

Substrate: Tertiary or Quaternary clayey sediments.

Vegetation:

Type Site:	Site No.:	EL086	1:50,000 mapsheet:	6029-1 (Cockaleecheie)
	Hundred:	Shannon	Easting:	570610
	Section:	3	Northing:	6222200
	Sampling date:	30/09/1993	Annual rainfall:	425 mm average

Upper slope of gently inclined fan, 1% slope. Firm surface with no stones.

Soil Description:

Depth (cm)	Description
0-10	Strong brown firm light clay with strong fine subangular blocky structure and 2-10% ironstone gravel (2-6 mm). Clear to:
10-25	Yellowish red hard medium clay with strong coarse prismatic (breaking to fine angular blocky) structure and 10-20% ironstone gravel (2-6 mm). Diffuse to:
25-36	Reddish brown and reddish yellow firm very highly calcareous medium clay with moderate fine subangular blocky structure and 2-10% ironstone gravel (2-6 mm). Gradual to:
36-57	Reddish yellow firm very highly calcareous medium clay with moderate fine subangular blocky structure and 2-10% ironstone gravel (2-6 mm). Gradual to:
57-91	Yellow and red friable massive very highly calcareous heavy clay. Gradual to:
91-130	Light yellowish brown and red friable massive slightly calcareous heavy clay.



Classification: Sodic, Hypercalcic, Red Dermosol; medium, non-gravelly, clayey / clayey, deep



Summary of Properties

- Drainage:** Well drained. The soil rarely remains wet for more than a couple of days following heavy or prolonged rainfall.
- Fertility:** Inherent fertility is high, as indicated by the exchangeable cation data. Nutrient retention capacity, and measured nutrient status are both high. Organic carbon levels are also satisfactory.
- pH:** Alkaline at the surface, strongly alkaline with depth.
- Rooting depth:** 91 cm in pit, but few roots below 57 cm.
- Barriers to root growth:**
- Physical:** The coarsely structured clayey subsoil reduces root densities, but does not prevent root growth.
 - Chemical:** High pH from 57 cm limits deeper root growth.
- Waterholding capacity:** Approximately 75 mm in the rootzone.
- Seedling emergence:** Fair to satisfactory, depending on the degree of surface sealing.
- Workability:** Fair. The surface is likely to become sticky when wet, limiting time for effective cultivation.
- Erosion Potential:**
- Water:** Low.
 - 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
											Cu	Fe	Mn	Zn		Ca	Mg	Na	K	
0-10	8.2	7.6	8	0.16	0.51	1.7	42	780	-	2.9	1.4	9	3.2	1.3	25.9	22.1	2.5	0.2	2.0	0.8
10-25	8.4	7.7	4	0.14	0.27	0.6	6	440	-	3.6	0.3	14	0.5	0.3	33.7	28.1	4.4	0.4	1.4	1.2
25-36	8.7	7.8	23	0.16	0.34	0.5	4	550	-	3.4	0.4	13	0.6	0.2	26.6	19.9	4.8	0.5	0.9	1.9
36-57	9.0	7.9	29	0.18	0.38	0.3	<4	390	-	3.1	0.4	18	1.0	0.1	20.2	12.7	5.3	1.1	1.0	5.4
57-91	9.3	8.0	26	0.26	0.56	0.4	<4	430	-	4.4	0.3	17	1.5	0.2	19.4	9.5	5.9	2.6	1.1	13.4
91-130	9.5	8.2	20	0.37	0.70	0.4	<4	580	-	6.9	0.2	14	0.8	0.1	19.2	7.4	7.1	4.7	1.4	24.5

Note: 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](#)

