RED CRACKING CLAY

General Description: *Deep red cracking clay with abundant soft carbonate at variable depths within the upper 100 cm*

Landform: Flats and gentle slopes adjacent to hill country

Substrate: Fine textured alluvial deposits with variable fine carbonate

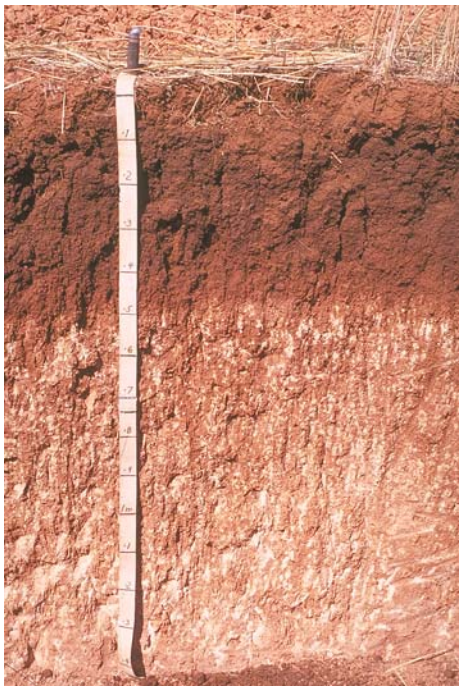
Vegetation:

Type Site: Site No.: CM012

1:50,000 sheet:	6630-3 (Clare)	Hundred:	Hall
Annual rainfall:	475 mm	Sampling date:	13/02/92
Landform:	Midslope of a long outwash fan, 1% slope		
Surface:	Self-mulching, seasonally cracking with no stones		

Soil Description:

Depth (cm)	*Description*
0-10	Dark reddish brown slightly calcareous light clay with strong granular structure. Clear to:
10-14	Dark reddish brown slightly calcareous light medium clay with strong coarse subangular blocky structure. Clear to:
14-45	Reddish brown moderately calcareous heavy clay with strong coarse subangular blocky structure. Clear to:
45-100	Red very highly calcareous medium clay with moderate subangular blocky structure and more than 20% soft carbonate segregations (Class I carbonate). Gradual to:
100-155	Yellowish red very highly calcareous heavy clay with moderate subangular blocky structure and more than 20% soft carbonate segregations (Class I carbonate).



Classification: Epicalcareous-Endohypersodic, Self-mulching, Red Vertosol; non-gravelly, fine / very fine, very deep

Summary of Properties

Drainage The soil is moderately well drained. Although the texture is clayey throughout and the surface becomes very sticky when wet, the soil profile does not generally remain saturated for more than about a week.

Fertility The natural fertility is very high, as indicated by the high cation exchange capacity and high calcium saturation. Organic carbon and phosphorus levels, indicators of surface fertility are marginal. Zinc may be deficient.

pH Alkaline at the surface, strongly alkaline with depth.

Rooting depth 150 cm in pit, but most roots are confined to channels (biopores) in the Class I carbonate layers.

Barriers to root growth

Physical: There are no apparent physical barriers.

Chemical: High pH, causing nutrient unavailability, and high sodicity in the deep subsoil inhibit root growth.

Water holding capacity More than 150 mm in root zone.

Seedling emergence Good.

Workability Good to fair. Surface soil is liable to become sticky after rain. This affects accessibility and timing of operations.

Erosion Potential

Water: Low, except where water is allowed to concentrate on the surface. These soils are then highly susceptible to gully erosion.

Wind: Low.

Laboratory Data

Depth cm	pH H_2O	pH $CaC1_2$	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	8.3	7.5	2.6	0.11	0.5	1.42	24	680	-	-	1.70	2.8	9.5	0.26	31.7	22.35	3.34	0.24	2.68	0.8
0-10	8.4	7.6	3.1	0.12	0.5	1.56	27	840	64	-	2.01	3.5	20.1	0.40	31.6	23.08	3.17	0.16	2.95	0.5
10-14	8.3	7.4	3.5	0.12	0.4	1.15	7	540	9.4	2.2	1.85	3.0	8.7	0.17	34.3	24.08	3.78	0.24	2.24	0.7
14-45	8.5	7.5	3.5	0.09	0.3	0.70	5	260	4.5	1.8	1.66	2.6	5.2	0.06	33.8	26.38	6.14	0.35	1.22	1.0
45-100	8.8	7.8	26.9	0.11	0.3	0.29	4	160	7.7	1.6	1.16	2.0	3.2	0.04	23.8	15.59	7.60	0.48	0.73	2.0
100-155	9.7	8.2	47.9	0.23	0.8	0.13	2	210	4.3	4.1	0.60	2.0	1.6	0.02	15.5	4.90	8.56	2.47	0.76	15.9

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.