

## HARD LOAM OVER POORLY STRUCTURED RED CLAY

**General Description:** *Hard setting reddish brown sandy loam to clay loam overlying a coarsely structured reddish brown clay with fine calcareous segregations at depth, forming in fine grained alluvium*

**Landform:** Flats and gently to moderately inclined outwash fans.

**Substrate:** Fine grained alluvium sometimes with sand and gravel, derived from hard rock hills (Pooraka Formation)

**Vegetation:** Peppermint box woodland

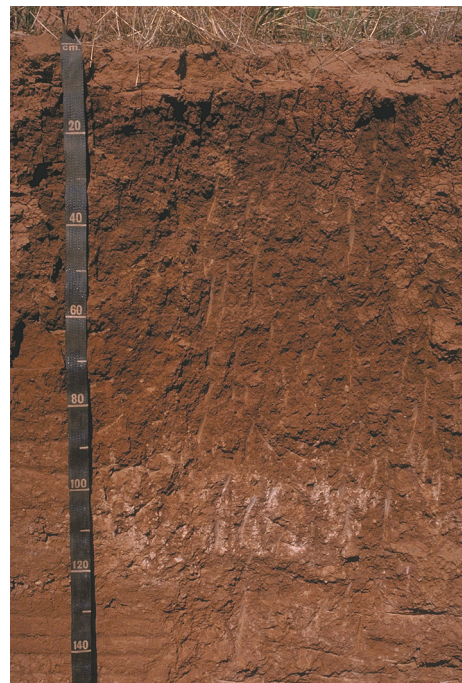


<b>Type Site:</b>	Site No.:	CM007	1:50,000 mapsheet:	6630-3 (Clare)
	Hundred:	Blyth	Easting:	272500
	Section:	24	Northing:	6245950
	Sampling date:	14/02/94	Annual rainfall:	475 mm average

Midslope of long outwash fan. Hard setting surface, 2.5% slope.

### Soil Description:

Depth (cm)	Description
0-10	Brown massive hard setting sandy clay loam. Sharp to:
10-36	Dark reddish brown light medium clay with strong coarse prismatic structure. Clear to:
36-55	Dark reddish brown highly calcareous light medium clay with moderate polyhedral structure. Gradual to:
55-80	Dark reddish brown highly calcareous weakly structured light clay. Diffuse to:
80-160	Red very highly calcareous weakly structured light clay with 20-50% soft carbonate segregations (Class I carbonate) and quartz gravel lenses. Diffuse to:
160-180	Yellowish red very highly calcareous weakly structured light clay with 20-50% soft carbonate segregations.



**Classification:** Hypercalcic, Mesonatric, Red Sodosol; medium, non-gravelly, clay loamy/clayey, very deep



## Summary of Properties

- Drainage:** The soil is moderately well to imperfectly drained. The dispersive clay subsoil has low permeability and causes waterlogging in the topsoil after prolonged rain. The soil may remain wet for a week to several weeks.
- Fertility:** The inherent fertility of the soil is moderate; the clay subsoil has a high nutrient retention capacity, as indicated by the exchangeable cation data, but the surface soil with lower clay content and very low organic matter has a poor retention capacity. Phosphorus is adequate at the sampling site, but zinc may be deficient.
- pH:** Neutral at the surface, strongly alkaline with depth.
- Rooting depth:** 95 cm in pit, but there are few roots below 50 cm.
- Barriers to root growth:**
- Physical:** The poor structure in both the surface and subsoil impedes root growth.
  - Chemical:** Toxic levels of boron and exchangeable sodium, and high pH (restricting nutrient availability) from 36 cm.
- Waterholding capacity:** Approximately 60 mm in the rootzone, which is considerably less than the overall waterholding capacity of the profile.
- Seedling emergence:** Fair to poor due to the hard setting, poorly structured surface.
- Workability:** Fair to poor due to the poor surface condition, which has a limited moisture range for effective working.
- Erosion Potential:**
- Water:** Moderate, because of the relatively gentle slope. The soil has a high erodibility and on steeper slopes has a high potential for erosion.
  - Wind:** Low to moderately low.

## Laboratory Data

Depth cm	pH H <sub>2</sub> O	pH CaCl <sub>2</sub>	CO <sub>3</sub> %	EC1:5 dS/m	ECe dS/m	Org.C %	Avail. P mg/kg	Avail. K mg/kg	SO <sub>4</sub> 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	6.8	5.7	0	0.08	1.4	0.8	37	400	-	-	2.53	21.4	44.1	0.39	6.9	3.98	1.70	0.54	0.93	7.8
0-10	6.9	6.2	0	0.11	1.0	0.9	42	420	7.8	-	2.16	23.8	40.5	0.45	6.0	3.20	0.82	0.39	0.83	6.5
10-36	8.1	6.6	1.4	0.14	0.9	0.6	5	550	12	-	5.11	6.3	12.2	0.06	22.7	6.65	8.02	4.08	1.72	18.0
36-55	9.4	8.2	3.1	0.89	6.2	0.2	2	530	180	17.5	2.15	2.8	1.5	0.03	18.6	3.55	8.92	6.76	1.62	36.3
55-80	9.4	8.3	3.7	1.06	6.2	0.2	6	550	262	17.7	2.09	3.2	1.3	0.06	17.1	3.23	8.59	6.77	1.53	39.6
80-160	9.4	8.4	22.9	1.10	9.8	0.2	7	670	267	17.7	1.06	1.8	0.9	0.04	16.3	3.16	7.51	6.24	1.77	38.3
160-180	9.3	8.4	46.7	1.29	10.3	0.2	10	530	268	20.9	1.05	2.0	0.7	0.08	14.4	3.00	6.74	5.83	1.82	40.5

- 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](#)

