

GRADATIONAL RED LOAM

General Description: *Reddish brown well structured loam to clay loam becoming more clayey with depth, non calcareous at the surface, but highly calcareous with depth*

Landform: Long gentle slopes and flats

Substrate: Fine textured alluvial sediments with segregations of soft carbonate

Vegetation:



Type Site:	Site No.:	CM008	1:50,000 mapsheet:	6630-3 (Clare)
	Hundred:	Blyth	Easting:	271400
	Section:	93	Northing:	6245200
	Sampling date:	13/02/92	Annual rainfall:	455 mm average

Mid slope of a long gently inclined outwash fan. Firm surface, 1% slope.

Soil Description:

<i>Depth (cm)</i>	<i>Description</i>
0-2	Dark brown loam with strong granular structure. Clear to:
2-15	Dark reddish brown clay loam with strong polyhedral structure. Clear to:
15-33	Dark reddish brown moderately calcareous light clay with strong polyhedral structure. Clear to:
33-45	Brown very highly calcareous medium clay with moderate polyhedral structure and 20-50% soft carbonate segregations (Class I carbonate). Clear to:
45-72	Reddish yellow very highly calcareous medium clay with moderate polyhedral structure and 20-50% soft carbonate segregations. Gradual to:
72-105	Yellowish red very highly calcareous medium clay with moderate fine polyhedral structure and 20-50% soft carbonate segregations. Diffuse to:
105-170	Yellowish red very highly calcareous medium clay with moderate fine polyhedral structure and 20-50% soft carbonate segregations.



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



Summary of Properties

Drainage: The soil is moderately well drained. The high clay content restricts free flow of water, but the profile is unlikely to remain wet for more than a week or so.

Fertility: The inherent fertility of the soil is high as indicated by the exchangeable cation data, but increasing carbonate content and pH with depth reduce availability of trace elements. Organic carbon levels, a measure of surface soil fertility, are moderate. Phosphorus is high and zinc low at sampling site.

pH: Neutral at the surface, very strongly alkaline with depth.

Rooting depth: 160 mm in pit, but below 60 cm most roots are confined to vertical channels.

Barriers to root growth:

Physical: There are no physical barriers to root growth.

Chemical: Toxic levels of boron and exchangeable sodium below 105 cm and very high pH from 45 cm downwards restrict root growth.

Waterholding capacity: 90 mm in main rootzone, but there is potentially more capacity below.

Seedling emergence: Good.

Workability: Good.

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	
Paddock	7.0	6.3	1.9	0.10	0.5	1.4	51	830	-	-	3.07	12.1	38.5	0.34	26.1	15.64	4.45	0.20	2.81	0.8
0-2	7.2	6.7	1.5	0.25	1.4	1.5	89	950	-	-	3.35	16.8	68.9	0.52	25.8	14.67	4.72	0.22	3.25	0.9
2-15	7.2	6.4	1.5	0.06	0.3	1.2	49	740	-	-	3.05	11.0	24.4	0.29	26.9	16.29	4.13	0.21	2.66	0.8
15-33	8.5	7.5	2.6	0.10	0.3	0.6	5	320	-	2.8	2.14	2.3	2.7	0.06	29.9	22.37	4.57	0.39	1.37	1.3
33-45	8.9	7.9	26.5	0.10	0.2	0.4	6	140	-	2.0	1.73	2.0	2.1	0.03	20.1	15.64	4.03	0.59	0.63	2.9
45-72	9.3	7.9	43.0	0.14	0.5	0.3	5	180	-	2.7	1.68	2.6	2.2	0.04	15.2	9.82	4.80	1.31	0.80	8.6
72-105	9.7	8.2	39.5	0.30	1.0	0.2	3	390	-	14.9	1.18	2.7	2.0	0.03	16.6	5.11	8.30	3.72	1.43	22.4
105-170	10.0	8.5	33.9	0.47	1.1	0.1	4	340	-	27.0	0.67	2.0	1.3	0.05	15.0	2.37	7.33	6.09	1.25	40.6

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](#)

