

GRADATIONAL RED CLAY LOAM OVER CALCRETE

General Description: *Shallow to moderately deep red brown crumbly loam to clay loam overlying calcareous fine grained bedrock, usually with a calcrete capping*

Landform: Slopes of gently undulating to undulating rises and low hills

Substrate: Calcareous shale or siltstone, containing abundant fine carbonate which often forms a hard capping on the weathering rock

Vegetation: Blue gum woodland



Type Site:	Site No.:	CM041	1:50,000 mapsheet:	6630-3 (Clare)
	Hundred:	Upper Wakefield	Easting:	284000
	Section:	792	Northing:	6236700
	Sampling date:	11/08/93	Annual rainfall:	550 mm average

Midslope of an undulating low hill with a firm surface and a slope of 8%.

Soil Description:

<i>Depth (cm)</i>	<i>Description</i>
0-9	Dark reddish brown clay loam with strong granular structure. Abrupt to:
9-34	Dark reddish brown light clay with strong polyhedral structure and up to 10% calcrete fragments. Sharp to:
34-36	Moderately strong calcrete pan. Sharp to:
36-120	Soft weathering calcareous siltstone with a texture of silty clay loam and 75% soft finely divided carbonate distributed throughout.



Classification: Haplic, Petrocalcic, Red Dermosol; thin, non-gravelly, clay loamy / clayey, shallow



Summary of Properties

Drainage: The soil is well drained and no part of the profile is likely to remain wet for more than a day or so.

Fertility: The soil has moderately high level of natural fertility as indicated by the cation exchange capacity and degree of calcium saturation. Phosphorus levels at the sampling site are high; organic carbon is adequate.

pH: Neutral at the surface, alkaline with depth.

Rooting depth: Few roots penetrate the weathering rock (36 cm deep in the sampling pit). Roots only occur where topsoil has fallen into cracks or channels.

Barriers to root growth:

Physical: The thin calcrete pan restricts root growth into the underlying softer rock.

Chemical: There are no apparent chemical barriers to root growth.

Waterholding capacity: Approximately 50 mm in the rootzone in the sampling pit.

Seedling emergence: Good.

Workability: Good.

Erosion Potential:

Water: Moderate, due to the 8% slope. The soil has a relatively low susceptibility to erosion because of its clay content and good structure.

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	
Row	7.5	7.3	0.5	0.17	0.52	1.6	61	728	-	1.7	5.2	7	19.3	3.0	15.5	11.48	2.26	0.11	1.26	0.7
0-9	7.6	7.4	0.7	0.15	0.44	1.7	100	769	9.6	2.1	5.8	8	17.7	3.1	16.1	11.65	2.69	0.09	1.22	0.6
9-34	7.7	7.5	0.9	0.14	0.31	0.8	18	437	5.2	1.3	1.7	6	14.1	0.4	13.6	11.16	2.24	0.09	0.55	0.7
34-36	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
36-120	8.7	7.8	74.9	0.10	0.29	0.7	4	354	7.1	0.4	0.4	3	1.4	0.1	1.6	3.33	0.54	0.19	0.08	n.a.

Note: Row sample bulked from 20 cores (0-10 cm) taken from along the vine rows 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](#)

