

## 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 sheet: 6630-3 (Clare)

Hundred:

Upper Wakefield

Annual rainfall: 575 mm

Sampling date:

11/08/93

Landform: Midslope of an undulating low hill, 8% slope

Surface: Firm with no stones

### Soil Description:

Depth (cm)	Description
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.

**Water holding capacity** Approximately 50 mm in the root zone 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 <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> -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	
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.