

## LOAM OVER RED CLAY ON ROCK

**General Description:** *Hard loamy surface soil up to 50 cm thick, over a red clay grading to weathering fine grained rock within 150 cm of the surface*

**Landform:** Slopes of undulating to rolling low hills.

**Substrate:** Fine grained basement rock (siltstone, slate).

**Vegetation:**



**Type Site:** Site No.: CM098

1:50,000 sheet: 6630-3 (Clare)      Hundred: Clare

Annual rainfall: 650 mm      Sampling date: 12/05/04

Landform: Upper slope in landscape of undulating low hills, 5% slope

Surface: Hard setting with negligible stone.

**Soil Description:**

<i>Depth (cm)</i>	<i>Description</i>
0-10	Dark reddish brown massive friable silty loam with 2-10% siltstone gravel (6-20 mm). Gradual to:
10-25	Reddish brown with light reddish brown blotches firm massive silty loam with 2-10% siltstone gravel (6-20 mm). Clear to:
25-45	Pink (bleached) hard massive silty loam with 2-10% siltstone gravel and 2-10% quartz gravel (both 6-20 mm). Abrupt to:
45-80	Dark reddish brown, dark greyish brown and yellowish brown very hard medium heavy clay with coarse prismatic breaking to strong medium angular blocky structure. Diffuse to:
80-110	Reddish yellow, brownish yellow and yellowish red hard medium clay with strong medium angular blocky structure, 20-50% siltstone fragments and up to 2% fine carbonate segregations. Diffuse to:
110-140	Weathering siltstone.



**Classification:** Hypocalcic, Subnatric, Red Sodosol; thick, slightly gravelly, silty / clayey, deep

## Summary of Properties

**Drainage:** Moderately well drained. The subsoil clay restricts water movement to the extent that saturation of part of the profile is likely for periods of up to a week following heavy or prolonged rainfall.

**Fertility:** Inherent fertility is moderate as indicated by the exchangeable cation data. Surface soil nutrient retention capacity is boosted by high organic carbon levels, but subsurface layers (10-45 cm) have relatively poor capacity. This soil is not prone to any specific nutrient deficiencies, apart from nitrogen and phosphorus.

**pH:** Neutral throughout.

**Rooting depth:** 110 cm in pit, but few roots below 80 cm.

### Barriers to root growth:

**Physical:** The tight clayey subsoil restricts root growth to some extent.

**Chemical:** There are no apparent chemical barriers.

**Water holding capacity:** Approximately 110 cm (total available) for annual crop and pasture plants. Approximately 55 mm (readily available) in potential grape vine rootzone of 80 cm.

**Seedling emergence:** Fair to good, depending on condition of surface.

**Workability:** Fair – surface tends to puddle when wet and shatter if worked too dry.

### Erosion Potential

**Water:** Moderate, due to ground slope and erodible nature of surface soil.

**Wind:** Low.

## Laboratory Data

Depth cm	pH H <sub>2</sub> O	pH CaCl <sub>2</sub>	CO <sub>3</sub> %	EC 1:5 dS/m	ECe dS/m	Cl mg/kg	Org.C %	Avail. P mg/kg	Avail. K mg/kg	SO <sub>4</sub> mg/kg	Boron mg/kg	Trace Elements mg/kg (DTPA)				Sum cations cmol (+)/kg	Exchangeable Cations cmol(+)/kg				ESP	
												Cu	Fe	Mn	Zn		Ca	Mg	Na	K		
0-10	7.3	6.6	0	0.10	0.333	5	2.24	37	427	9.1	0.9	-	-	-	-	11.5	8.69	1.49	0.35	0.99	3.0	
10-25	6.6	6.0	0	0.066	0.663	30	0.89	6	231	5.7	0.4	-	-	-	-	6.2	4.74	0.87	0.28	0.35	4.5	
25-45	6.7	5.3	0	0.038	0.212	7	0.74	13	146	8.6	0.4	-	-	-	-	6.4	4.04	1.69	0.41	0.25	6.4	
45-80	6.9	5.5	0	0.093	0.465	2	0.69	4	184	17	1.0	-	-	-	-	22.0	7.74	11.3	2.47	0.51	11.2	
80-110	7.2	6.1	0	0.16	0.396	25	0.52	9	220	21	0.9	-	-	-	-	20.4	7.70	9.69	2.46	0.56	12.1	
110-140	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

**Note:** Sum of cations is an estimate of cation exchange capacity, a measure of the soil's capacity to store and release nutrient elements.

ESP (exchangeable sodium percentage) is derived by dividing the exchangeable sodium value by the sum of cations.