

# DEEP BLACK GRADATIONAL CLAY

**General Description:** *Dark coloured clay, becoming brown and grey mottled and weakly calcareous with depth*

**Landform:** Alluvial flats of the Clare Hills

**Substrate:** Fine textured alluvial sediments, weakly calcified

**Vegetation:** Red gum woodland



**Type Site:** Site No.: CM046

1:50,000 sheet:	6630-3 (Clare)	Hundred:	Clare
Annual rainfall:	650 mm	Sampling date:	11/08/93
Landform:	Alluvial flat between rolling low hills, 0% slope		
Surface:	Hard setting with no stones		

## Soil Description:

<i>Depth (cm)</i>	<i>Description</i>
0-15	Very dark greyish brown light medium clay with strong granular structure. Gradual to:
15-35	Very dark greyish brown medium clay with strong polyhedral structure. Clear to:
35-60	Very dark grey moderately calcareous medium heavy clay with strong polyhedral structure. Clear to:
60-80	Very dark greyish brown and brown mottled moderately calcareous medium heavy clay with strong coarse blocky structure. Gradual to:
80-110	Dark brown, grey brown and yellow brown mottled slightly calcareous heavy clay with strong coarse prismatic structure and minor carbonate nodules. Gradual to:
110-150	Yellow brown and grey brown mottled heavy clay with strong blocky structure.



**Classification:** Melanic-Sodic, Calcic, Black Dermosol; medium, non-gravelly, clayey / clayey, deep

## Summary of Properties

<b>Drainage</b>	The soil is imperfectly drained due to its high clay content and low lying position in the landscape. Parts of the profile may remain wet for several weeks.
<b>Fertility</b>	High natural fertility as indicated by its high base status, although calcium saturation is less than in very fertile soils. There is ample phosphorus at the sampling site and organic carbon levels are adequate, but 2% organic carbon is achievable.
<b>pH</b>	Slightly acidic to neutral at the surface, alkaline with depth.
<b>Rooting depth</b>	110 cm in sampling pit.
<b>Barriers to root growth</b>	
<b>Physical:</b>	The only possible barrier is high clay strength at moderately dry moisture status. Temporary waterlogging will impede root growth at times during the season.
<b>Chemical:</b>	The only apparent chemical barrier is the high pH in the deep subsoil, reducing the availability of a range of nutrients, notably zinc.
<b>Water holding capacity</b>	Approximately 150 mm in the root zone.
<b>Seedling emergence</b>	Good, provided that surface sealing is minimized through maintenance of high organic matter levels.
<b>Workability</b>	Good to fair. The surface soil tends to become sticky when wet, limiting opportunities for effective working.
<b>Erosion Potential</b>	
<b>Water:</b>	Low.
<b>Wind:</b>	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	6.4	6.1	0	0.07	0.29	1.6	69	533	-	1.2	7.0	90	17.3	1.1	12.7	6.54	2.92	0.17	0.87	1.3
0-15	6.9	6.6	0	0.07	0.23	1.8	55	736	8.1	1.6	6.5	34	17.6	1.1	16.2	8.58	4.47	0.21	1.06	1.3
15-35	7.8	7.5	0.4	0.14	0.37	1.3	21	535	4.8	1.6	6.7	21	12.1	0.4	18.4	9.12	7.44	0.24	0.95	1.3
35-60	8.4	8.0	2.5	0.17	0.35	0.8	7	577	4.4	2.1	2.1	11	4.0	0.1	26.1	8.80	15.46	0.57	1.30	2.2
60-80	8.8	8.4	8.9	0.22	0.43	0.5	<4	509	4.2	3.8	2.3	13	3.2	0.1	20.8	3.23	15.71	1.33	1.05	6.4
80-110	9.2	8.5	4.7	0.32	0.56	0.2	<4	520	6.0	4.1	1.3	15	3.7	<0.1	19.1	2.57	13.16	3.04	1.00	15.9
110-150	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

**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.