

## DARK GRADATIONAL CLAY LOAM

**General Description:** *Dark well structured clay loam becoming more clayey, coarser structured and calcareous with depth, grading to heavy clay*

**Landform:** Slopes of undulating rises.

**Substrate:** Heavy clay, probably of Tertiary age

**Vegetation:**



**Type Site:** Site No.: CL022

1:50,000 sheet: 6729-3 (Truro)	Hundred: Dutton
Annual rainfall: 400 mm	Sampling date: 21/03/95
Landform: Upper slope of undulating rise, 3% slope	
Surface: Hard with some cracking. The naturally occurring gilgai microrelief has been obliterated by cultivation.	

**Soil Description:**

<i>Depth (cm)</i>	<i>Description</i>
0-10	Dark brown hard clay loam with strong granular structure. Clear to:
10-30	Dark grey brown hard clay loam with coarse polyhedral structure. Clear to:
30-60	Dark grey brown hard light clay with moderate coarse polyhedral structure. Clear to:
60-100	Yellowish brown very hard moderately calcareous medium heavy clay with coarse prismatic structure. Gradual to:
100-140	Yellowish brown very hard moderately calcareous medium heavy clay with coarse prismatic structure and slickensides. Moist and friable from 180 cm. Gradual to:
140-180	Yellowish brown firm moderately calcareous medium heavy clay with coarse subangular blocky structure and slickensides. Gradual to:
180-220	Brown, grey and red mottled medium heavy clay with slickensides.



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

## Summary of Properties

**Drainage** Moderately well to imperfectly drained. Water movement impeded by clay layers from 30 cm, causing saturation for a week or two following heavy or prolonged rainfall.

**Fertility** Inherent fertility is very high as indicated by the exchangeable cation data. Organic carbon is also high. Phosphorus levels are marginal, but concentrations of other measured nutrient elements are high.

**pH** Slightly alkaline at the surface, strongly alkaline with depth. Surface pH is variable depending on depth to lime due to underground gilgai effect.

**Rooting depth** 100 cm in pit, but few roots below 60 cm.

### Barriers to root growth

**Physical:** Apart from general hardness of the soil, there are no obvious physical barriers.

**Chemical:** High pH, sodicity and boron, and increasing salinity from 60 cm combine to restrict root growth significantly below 60 cm. Boron toxicity likely in dry seasons.

**Water holding capacity** Approximately 100 mm in rootzone (not limiting).

**Seedling emergence:** Patchy due to variable gilgai (crabhole) surface condition, possible surface sealing.

**Workability:** Occasional temporary waterlogging after rain.

### Erosion Potential

**Water:** Moderately low.

**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	
Paddock	8.3	7.6	2.6	0.2	0.9	1.7	23	794	30	3.6	-	-	-	-	37.3	28.01	6.42	0.76	1.77	2.0
0-10	7.1	6.6	0.1	0.1	0.9	3.0	13	575	26	3.1	-	-	-	-	36.4	26.28	7.89	0.71	2.21	6.0
10-30	8.0	7.6	0.0	0.1	0.3	1.5	4	254	23	3.9	-	-	-	-	40.3	26.19	8.52	1.75	1.31	2.4
30-60	9.0	8.1	2.0	0.3	0.6	1.1	<4	257	20	6.0	-	-	-	-	46.5	21.11	13.94	7.49	1.68	16.1
60-100	9.5	8.6	15.0	0.8	1.9	0.4	<4	245	55	26.3	-	-	-	-	40.6	11.57	15.36	13.50	1.32	33.2
100-140	9.3	8.6	9.8	1.5	4.6	0.1	<4	271	240	29.2	-	-	-	-	41.7	9.74	14.96	16.69	1.37	40.0
140-180	9.1	8.6	5.4	2.2	7.0	0.1	<4	277	370	21.8	-	-	-	-	40.7	9.71	15.59	17.30	1.36	42.5
180-220	9.0	8.5	2.7	2.3	6.0	0.1	<4	269	372	22.5	-	-	-	-	45.4	9.28	16.75	17.77	1.37	39.1

**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.