

## DARK CRACKING CLAY OVER CALCIFIED ROCK

**General Description:** *Black friable seasonally cracking clay, becoming coarsely structured and redder with depth, over fine carbonate, grading to weathering rock below 100 cm*

**Landform:** Undulating to rolling low hills.

**Substrate:** Highly weathered siltstone, capped by abundant fine carbonate.

**Vegetation:**



**Type Site:** Site No.: CL047

1:50,000 sheet: 6729-3 (Truro)

Hundred: Moorooroo

Annual rainfall: 550 mm

Sampling date: 14/11/06

Landform: Lower slope of rolling low hills, 10% slope.

Surface: Firm and seasonally cracking with 2-10% fragments of 'honeycomb' rock.

### Soil Description:

<i>Depth (cm)</i>	<i>Description</i>
0-10	Dark reddish brown friable light clay with strong granular structure. Clear to:
10-25	Dark reddish brown very hard medium heavy clay with strong very coarse subangular blocky structure and 2-10% honeycomb rock fragments to 200 mm. Clear to:
25-65	Dark reddish brown very hard heavy clay with strong very coarse angular blocky (breaking to medium polyhedral) structure and 2-10% honeycomb rock fragments to 200 mm. Abrupt to:
65-90	Reddish yellow firm massive very highly calcareous silty clay loam with more than 50% fine carbonate and 10-20% honeycomb rock fragments to 60 mm. Diffuse to:
90-180	Very highly weathered siltstone with silty loam texture, and 10-20% fine carbonate in fissures.



**Classification:** Haplic, Eutrophic, Red Dermosol; medium, slightly gravelly, clayey / clayey, moderate

## Summary of Properties

- Drainage:** Moderately well drained. The clayey texture prevents free drainage, resulting in periods of saturation of up to a week following heavy or prolonged rainfall.
- Fertility:** Inherent fertility is very high, as indicated by the exchangeable cation data. Levels of all tested nutrient elements are high. High reactive iron levels indicate a significant potential for phosphate fixation.
- pH:** Neutral at the surface, alkaline with depth
- Rooting depth:** 90 cm in sampling pit.
- Barriers to root growth:**
- Physical:** The coarsely structured clay prevents optimal root distribution, but doesn't prevent growth.
- Chemical:** There are no significant chemical constraints, although salinity levels in the substrate material (below 65 cm) are slightly elevated, probably due to the high carbonate content.
- Water holding capacity:** (Estimates for potential root zone of irrigated crops)
- Total available: 130 mm  
Readily available: 55 mm
- Seedling emergence:** Satisfactory, due to friable surface, but can be slow due to high wilting point of surface soil.
- Workability:** Clayey surface becomes sticky when wet.
- Erosion Potential**
- Water:** Moderately low to moderate.
- 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	Org.C %	Avail. P mg/kg	Avail. K mg/kg	Cl mg/kg	SO <sub>4</sub> -S mg/kg	Boron mg/kg	React Fe mg/kg	Trace Elements mg/kg (EDTA)				Sum cations cmol (+)/kg	Exchangeable Cations cmol(+)/kg				Est. ESP
													Cu	Fe	Mn	Zn		Ca	Mg	Na	K	
0-10	6.7	6	0.9	0.082	0.74	2.97	114	454	68	8.4	1.0	1358	48.5	289	142	6.11	24.1	16.2	6.51	0.34	1.08	1.4
10-25	6.6	5.6	0.9	0.118	0.95	2.56	90	362	48	8.7	0.9	1277	50.4	313	155	5.36	25.3	17.5	6.64	0.35	0.80	1.4
25-65	7.0	6.1	0	0.229	0.29	1.60	6	236	11	9.3	0.7	1131	46.5	143	17.3	0.62	43.7	26.9	14.7	1.52	0.61	3.5
65-90	8.4	7.8	52.8	0.567	2.88	0.76	3	153	296	114	0.7	131	11.4	3	1.21	0.33	45.6	30.3	12.1	2.93	0.33	6.4
90-180	8.8	8.0	34.4	0.453	2.32	0.35	2	279	224	98.1	0.3	146	3.7	1	1.69	0.33	62.9	33.7	25.4	3.26	0.56	5.2

**Note:** Sum of cations, in a neutral to alkaline soil, approximates the CEC (cation exchange capacity), 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, in this case estimated by the sum of cations.