

## DARK CRACKING CLAY

**General Description:** *Hard, dark coloured coarsely structured and seasonally cracking clay over a black coarsely structured heavy clay, calcareous with depth, grading to red heavy clay*

**Landform:** Undulating low hills.

**Substrate:** Coarsely structured red heavy clay, possibly a quartzite weathering product.

**Vegetation:**



<b>Type Site:</b>	Site No.:	CM110	1:50,000 mapsheet:	6630-2 (Apoinga)
	Hundred:	Stanley	Easting:	292764
	Section:	311	Northing:	6242173
	Sampling date:	07/02/2013	Annual rainfall:	535 mm average

Lower slope of low hill, 3% slope. Hard surface with seasonal cracks. No stones.

### Soil Description:

<i>Depth (cm)</i>	<i>Description</i>
0-10	Very dark grey hard medium clay with strong coarse angular blocky structure. Clear to:
10-20	Very dark grey hard medium clay with moderate coarse angular blocky structure. Clear to:
20-70	Black hard heavy clay with weak very coarse lenticular breaking to strong coarse subangular blocky structure. Clear to:
70-130	Yellowish red very hard calcareous heavy clay.



**Classification:** Endocalcareous-Endohypersodic, Epipedal, Black Vertosol; non-gravelly, medium fine / very fine, deep



## Summary of Properties

- Drainage:** Imperfectly drained. The heavy clay profile has low permeability, and subsurface layers are likely to remain wet for up to several weeks following heavy or prolonged rainfall.
- Fertility:** Inherent fertility is very high, as indicated by the exchangeable cation data (sum of cations exceeds 15 cmol(+)/kg). There are no apparent deficiencies, although zinc levels are often low on these soils. Organic carbon concentration is satisfactory for this soil / rainfall zone.
- pH:** Alkaline throughout.
- Rooting depth:** Moderate root growth in the upper 80 cm, with no roots observed below this depth.
- Barriers to root growth:**
- Physical:** High clay strength limits root proliferation.
  - Chemical:** Elevated boron and sodicity from 70 cm limit deeper root growth.
- Waterholding capacity:** Approximately 95 mm in potential rootzone.
- Seedling emergence:** The surface can set hard on drying, affecting emerging seedlings in unfavourable weather conditions.
- Workability:** The clayey surface becomes very sticky when wet, and works up very cloddy if too dry.
- 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> %	EC 1:5 dS/m	ECe dS/m	Org.C %	NO <sub>3</sub> mg/kg	Avail. P mg/kg	Avail. K mg/kg	SO <sub>4</sub> -S mg/kg	Boron mg/kg	Trace Elements mg/kg (DTPA)				Sum cations cmol (+)/kg	Exchangeable Cations cmol(+)/kg				Est. ESP
												Cu	Fe	Mn	Zn		Ca	Mg	Na	K	
Paddock	7.9	7.2	0	0.14	0.62	1.72	12	39	332	5.0	1.0	0.74	25	14.8	0.75	31.0	24.7	5.01	0.41	0.85	1.3
0-10	7.6	7	0	0.169	0.97	1.55	11	31	385	4.2	1.0	0.67	23	9.40	0.62	33.0	26.0	5.44	0.55	0.99	1.7
10-20	8.2	7.2	0	0.101	0.43	1.30	6	9	187	2.1	1.2	0.53	16	3.66	0.32	36.4	28.0	6.84	1.07	0.48	2.9
20-70	8.9	7.9	0.5	0.167	0.62	1.25	4	4	124	3.3	1.6	0.55	21	2.15	0.04	39.0	26.2	9.30	3.12	0.39	8.0
70-130	8.8	7.8	2.4	0.807	4.2	0.33	< 1	4	152	105	13.9	0.51	23	3.81	0.12	39.6	18.8	11.1	9.31	0.41	23.5

**Note:** Paddock sample bulked from cores (0-10 cm) taken around the pit.

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.

**Further information:** [DEWNR Soil and Land Program](#)

