

## BLACK CRACKING CLAY

**General Description:** *Black self mulching clay, with coarse subsurface structure and cracks, and with soft carbonate at variable depths.*

**Landform:** Undulating to rolling rises and low hills

**Substrate:** Heavy clays deposited in ancient glacial valleys

**Vegetation:** Grassland



<b>Type Site:</b>	Site No.:	CH002	1:50,000 mapsheet:	6527-2 (Yankalilla)
	Hundred:	Yankalilla	Easting:	257350
	Section:	1050	Northing:	6070450
	Sampling date:	30/01/92	Annual Rainfall:	590 mm average

Lower slope of undulating rises, 7% slope. Self mulching, cracking surface.

### Soil Description:

Depth (cm)	Description
0-10	Black medium clay with strong granular structure. Gradual to:
10-30	Black medium clay with strong polyhedral structure. Gradual to:
30-60	Light brownish grey light medium clay with weak coarse subangular blocky structure. Clear to:
60-120	Black heavy clay with coarse blocky structure and slickensides. Gradual to:
120-150	Greyish brown heavy clay with coarse blocky structure and up to 10% fine Class I carbonate.



**Classification:** Endocalcareous - Endohypersodic, Self-mulching, Black Vertosol



## Summary of Properties

- Drainage:** Imperfect to moderately well drained. Soil may remain wet for a week to several weeks.
- Fertility:** High nutrient retention capacity, as indicated by high cation exchange capacity. Naturally well supplied with essential elements. Zinc deficiency is probable. Other elements appear to be in good supply, although magnesium deficiency induced by very high calcium levels is possible.
- pH:** Neutral in the surface, becoming alkaline with depth.
- Rooting Depth:** 120 cm at type site.
- Barriers to root growth:**
- Physical:** None in upper profile, but clay strength increases with depth, as indicated by the higher exchangeable sodium percentage from 50 cm. Cracking in the upper part of the profile as the soil dries may damage roots.
- Chemical:** Class I carbonate layer is generally associated with poor root growth. Elevated boron concentrations below 120 cm may affect root growth. There is no significant salinity.
- Waterholding capacity:** 150 to 220 mm in rootzone (high).
- Seedling emergence:** Good, provided that self mulching surface is maintained. Soil surface does not crust or set hard, and is not water repellent.
- Workability:** Fair. Sticky and boggy when wet.
- Erosion potential:**
- Water:** Moderately low to moderate. Despite the slope, the strong surface structure of these soils stabilises them against sheet erosion. However they are prone to rilling and gullyng by stream flow.
- 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	Cl 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	
0-10	7.5	7.3	0.4	0.19	0.6	3.1	35	500	49	2.2	0.5	11	5.6	0.2	36.5	31.3	1.6	0.37	1.48	1.0
10-30	7.6	7.3	0.5	0.12	0.3	2.0	31	290	16	2.5	0.4	8	3.2	0.2	36.4	32.5	3.8	0.37	1.01	1.0
30-60	7.6	7.3	<0.1	0.07	0.3	1.9	15	140	11	1.1	0.5	8	3.0	<0.1	23.3	20.1	2.6	0.23	0.31	1.0
60-120	8.1	7.4	<0.1	0.12	0.3	1.4	16	310	47	3.6	0.5	13	2.5	<0.1	37.1	22.3	11.3	2.64	1.04	7.1
120-150	8.8	8.2	8.3	0.48	0.7	0.2	19	380	93	11.9	0.5	9	0.6	<0.1	32.6	13.5	14.1	6.24	1.26	19

**Note:** 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.

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

