

## CALCAREOUS BLACK CRACKING CLAY

**General Description:** *Well structured black cracking clay over grey clay containing hard carbonate concretions throughout*

**Landform:** Broad lacustrine plain

**Substrate:** Lacustrine sediment

**Vegetation:** Swamp gum (*Eucalyptus ovata*) open scrub.



**Type Site:** Site No.: SE084

1:50,000 sheet: 6922-1 (Millicent)      Hundred: Mayurra

Annual rainfall: 775 mm      Sampling date: 29/09/04

Landform: Flat plain

Surface: Firm and seasonally cracking with no stones

### Soil Description:

Depth (cm)	Description
0-22	Black light medium clay with strong medium to fine polyhedral structure, and a very few soft carbonate segregations. Gradual to:
22-57	Black light medium clay with strong medium to fine polyhedral structure, and a few (2-10%) carbonate concretions. Clear to:
57-80	Very dark grey light medium clay with strong medium polyhedral structure and very many soft and nodular carbonate segregations. Many roots. Clear to:
80-105	Very dark grey light medium clay with strong coarse polyhedral structure and abundant soft and nodular carbonate segregations. Gradual to:
105-150	Dark grey light medium clay with strong medium polyhedral structure.



**Classification:** Melanic, Pedal, Supracalcic, Calcarosol; thick, slightly gravelly, clayey / clayey, deep

## Summary of Properties

**Drainage:** Imperfectly drained. Profile may remain wet for several weeks following heavy or prolonged rainfall. Artificial drainage is common in these landscapes.

**Fertility:** Inherent fertility is high, as indicated by sum of cations. Phosphorus, potassium and sulphur levels are very high. Trace copper and manganese appear low (tissue test required). Zinc, commonly deficient on heavy calcareous soils, appears to be at adequate levels in the topsoil.

**pH:** Slightly alkaline in upper 22 cm, becoming slightly more alkaline below 50 cm.

**Rooting depth:** 150 cm unless plants are sensitive to carbonate and alkaline conditions, then 22 cm.

### Barriers to root growth:

**Physical:** Nil.

**Chemical:** No chemical barriers unless specific species are sensitive to alkalinity.

**Water holding capacity:** Approximately 125 mm.

**Seedling emergence:** Satisfactory.

**Workability:** These soils become too sticky for machinery access when wet and are slow to dry to optimum moisture conditions needed to achieve good tilth.

### Erosion Potential

**Water:** 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 %	Avail. P mg/kg	Avail. K mg/kg	Cl mg/kg	SO <sub>4</sub> -S mg/kg	Boron mg/kg	Trace Elements mg/kg (EDTA)				Sum cations cmol (+)/kg	Exchangeable Cations cmol(+)/kg				Est. ESP
												Cu	Fe	Zn	Mn		Ca	Mg	Na	K	
0-22	7.9	7.4	50.2	0.55	4.93	5.55	186	1407	214	32.8	1.9	0.59	18	6.38	10.6	57.1	47.8	4.25	0.84	4.17	1.5
22-57	8.7	7.6	69.8	0.20	0.66	2.73	27	937	19	12.8	1.8	0.23	17	0.59	5.13	43.1	36.5	3.80	0.26	2.56	0.6
57-80	8.7	7.5	74.2	0.19	0.66	1.57	12	746	24	12.8	1.6	0.23	10	0.28	1.50	30.5	24.4	3.82	0.27	2.08	0.9
80-105	8.8	7.6	77.8	0.17	0.84	0.53	4	634	24	22.5	1.0	0.15	13	0.30	1.33	20.8	15.4	3.58	0.33	1.49	1.6
105-150	8.7	7.6	79.8	0.20	1.23	0.28	2	664	43	40.9	0.5	0.11	16	0.28	1.44	20.6	13.4	5.22	0.37	1.60	1.8

**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, the sum of cations).