

DEEP BLACK CLAY

General Description: *Black well structured seasonally cracking clay with increasing carbonate segregations at depth*

Landform: Flat plains

Substrate: Lagoon-deposited calcareous clay of the Padthaway Formation.

Vegetation:



Type Site: Site No.: SE160A 1:50,000 mapsheet: 7023-4 (Bool Lagoon)
 Hundred: Killanoola Easting: 475040
 Section: 403 Northing: 5882840
 Sampling date: 21/08/2007 Annual rainfall: 625 mm average

Flat plain. Seasonally cracking, crusting surface with no stones. Non irrigated pasture.

Soil Description:

Depth (cm)	Description
0-10	Black friable light clay with strong fine granular structure. Gradual to:
10-20	Black friable moderately calcareous light medium clay with strong fine polyhedral structure. Gradual to:
20-35	Black friable slightly calcareous light medium clay with strong fine to medium polyhedral structure. Gradual to:
35-65	Black friable highly calcareous light medium clay with strong fine to medium polyhedral structure and 20-50% fine carbonate segregations. Diffuse to:
65-100	Very dark grey friable very highly calcareous light medium clay with strong fine to medium polyhedral structure and about 50% soft to hard carbonate segregations. Diffuse to:
100-150	Very dark grey friable very highly calcareous light medium clay with strong medium polyhedral structure and about 50% soft to hard carbonate segregations.



Classification: Melanic-Sodic, Hypercalcic, Black Dermosol; medium, non-gravelly, clayey/clayey, very deep



Summary of Properties

- Drainage:** Moderately well drained due to favourable soil permeability, but rising seasonal watertables and inundation are likely to cause saturation for several weeks at a time in average to wetter seasons.
- Fertility:** Inherent fertility is very high, as indicated by the exchangeable cation data. This is due to the high clay and organic matter contents of the surface layers. Laboratory data indicate satisfactory levels of all tested nutrients with the possible exception of zinc.
- pH:** Neutral at the surface, alkaline with depth, and strongly alkaline below 100 cm
- Rooting depth:** 150 cm in sampling pit, but few roots below 100 cm.
- Barriers to root growth:**
- Physical:** There are no significant physical barriers to root growth.
 - Chemical:** High carbonate content reduces availability of zinc at depth.
- Waterholding capacity:** Approximately 180 mm in the potential rootzone.
- Seedling emergence:** Satisfactory.
- Workability:** Fair. Clayey surface becomes sticky when wet.
- Erosion Potential:**
- Water:** Low.
 - Wind:** Low.

Laboratory Data

Depth cm	pH H ₂ O	pH CaCl ₂	CO ₃ %	EC1:5 dS/m	ECe dS/m	Cl mg/kg	Org.C %	NO ₃ + NH ₄ mg/kg	Avail. P mg/kg	Avail. K mg/kg	SO ₄ -S mg/kg	React Fe mg/kg	Boron 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	5.9	0	0.12	0.46	21	4.42	44	49	1520	5.2	560	2.0	2.11	110	21.0	1.74	36.5	24.2	9.55	0.35	2.41	1.0
10-20	7.1	6.1	2.2	0.08	0.27	6	2.22	-	8	840	3.4	561	-	-	-	-	-	37.4	24.1	10.9	0.45	1.94	1.2
20-35	7.7	6.8	0.4	0.12	0.41	3	1.82	-	6	680	6.7	544	-	-	-	-	-	41.1	28.0	10.9	0.45	1.68	1.1
35-65	8.5	7.8	7.8	0.20	0.79	28	1.54	-	6	550	6.2	461	-	-	-	-	-	38.7	26.8	9.98	0.52	1.38	1.3
65-100	8.8	8.1	30.9	0.26	1.06	43	1.10	-	4	355	5.9	385	-	-	-	-	-	36.8	21.2	13.3	1.27	1.08	3.5
100-150	9.6	8.4	25.0	0.43	2.01	234	0.77	-	6	426	19.6	387	-	-	-	-	-	32.4	10.9	14.1	6.33	1.12	19.5

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.

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

