

DEEP BLACK CLAY

General Description: *Black clay with a well structured and weakly cracking surface, becoming greyer and coarser structured at depth*

Landform: Modern river flood plains and terraces

Substrate: Alluvial clay

Vegetation:



Type Site: Site No.: CL033

1:50,000 sheet:	6628-4 (Gawler)	Hundred:	Port Adelaide
Annual rainfall:	400 mm	Sampling date:	27/04/99
Landform:	Terrace of the Gawler River, 0% slope		
Surface:	Firm, fine cracking with no stones		

Soil Description:

<i>Depth (cm)</i>	<i>Description</i>
0-15	Black firm medium clay with strong granular structure. Gradual to:
15-35	Black firm medium clay with weak coarse prismatic structure breaking to moderate subangular blocky. Clear to:
35-65	Black friable light clay with strong fine polyhedral structure. Diffuse to:
65-100	Dark brown, yellowish brown and black mottled firm medium clay with moderate coarse subangular blocky structure. Diffuse to:
100-150	Brown and grey mottled hard fine sandy clay with weak coarse subangular blocky structure and minor soft manganese segregations.



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

Summary of Properties

Drainage: Moderately well drained. The clayey texture prevents free drainage, and parts of the soil may remain wet for a week or so.

Fertility: Inherent fertility is high. Nutrient retention capacity is high throughout the soil, and there are no apparent nutrient deficiencies, although the calcium : magnesium ratio is sub-optimal.

pH: Alkaline throughout.

Rooting depth: Good root growth to 65 cm, with a few roots to 100 cm.

Barriers to root growth

Physical: The strength of the clay may affect sensitive crops, but the limitation is not significant.

Chemical: There are no apparent limitations.

Water holding capacity: Approximate values of total and readily available water are:
120 mm and 45 mm for hardy crops (eg vines), with a potential root depth of 65 cm
70mm and 30 mm for more sensitive crops (eg almonds) with a potential root depth of 35 cm.

Seedling emergence: Satisfactory, although surface cracking can affect early growth.

Workability: Fair to good when soil is moderately moist, but when soil is wet it becomes very sticky.

Erosion Potential

Water: Low.

Wind: Low.

Laboratory Data

Depth cm	pH H ₂ O	pH CaCl ₂	CO ₃ %	EC1:5 dS/m	Cl mg/kg	Org.C %	Avail. P mg/kg	Avail. K mg/kg	SO ₄ -S mg/kg	Boron mg/kg	Trace Elements mg/kg (EDTA)				CEC cmol (+)/kg	Exchangeable Cations cmol(+)/kg				ESP
											Cu	Fe	Mn	Zn		Ca	Mg	Na	K	
Paddock	8.0	7.6	0	0.59	-	1.35	169	718	197	1.6	-	-	-	-	15.8	9.22	4.56	1.01	1.25	6.3
0-15	8.2	7.4	0	0.56	492	1.17	95	649	63	1.7	16.7	250	158	9.93	15.9	8.97	4.12	1.59	0.97	10.0
15-35	7.8	7.0	0	0.34	262	1.42	72	717	30	2.5	13.8	211	219	6.78	23.4	11.6	5.49	1.84	1.22	7.9
35-65	7.8	7.0	0.1	0.20	112	1.70	29	544	22	2.0	5.1	128	246	3.90	29.7	16.8	5.85	2.38	1.04	8.0
65-100	8.1	7.2	0	0.15	-	0.59	5	294	22	1.0	-	-	-	-	18.8	10.7	4.45	1.66	0.69	8.8
100-150	8.2	7.2	0	0.13	-	0.27	9	312	14	1.1	-	-	-	-	15.3	8.01	4.19	1.43	0.63	9.3

Note: Paddock sample bulked from 20 cores (0-10 cm) taken around the pit.

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.