

GREY CRACKING CLAY

General Description: *Dark grey seasonally cracking clay with increasing carbonate segregations at depth*

Landform: Flat plains

Substrate: Tertiary age clay.

Vegetation:



Type Site:

Site No.:	SE165B	1:50,000 mapsheet:	7124-4 (Goroke)
Hundred:	State of Victoria	Easting:	511330
Section:	-	Northing:	5936000
Sampling date:	25/08/2007	Annual rainfall:	545 mm average

Flat plain. Seasonally cracking, hard setting surface with no stones. Irrigated barley.

Soil Description:

Depth (cm)	Description
0-10	Very dark grey friable light clay with weak medium subangular blocky structure. Clear to:
10-30	Dark grey and red friable light clay with weak to moderate medium subangular blocky structure. Clear to:
30-40	Brown firm light clay with weak coarse subangular blocky structure. Clear to:
40-70	Grey and reddish grey firm light clay with strong very coarse prismatic structure. Gradual to:
70-110	Pinkish grey and yellowish red hard slightly calcareous light clay with strong very coarse lenticular structure, breaking to strong coarse angular blocky, and with 10-20% soft calcareous segregations. Diffuse to:
110-150	Very pale brown hard slightly calcareous light clay with strong very coarse lenticular structure and 10-20% soft calcareous segregations.



Classification: Episodic-Endocalcareous, Massive, Grey Vertosol; non-gravelly, fine / fine, very deep



Summary of Properties

Drainage:	Imperfectly drained. Profile may remain saturated for several weeks at a time following heavy or prolonged rainfall.
Fertility:	Inherent fertility is very high, as indicated by the exchangeable cation data. This is due to the high clay content of the surface layers. Laboratory data indicate satisfactory levels of all tested nutrients.
pH:	Alkaline at the surface and strongly alkaline with depth.
Rooting depth:	130 cm in sampling pit, but few roots below 90 cm.
Barriers to root growth:	
Physical:	The coarsely lenticular and prismatic structured clay from 40 cm confines most root growth to aggregate surfaces, resulting in reduced efficiency of water and nutrient exploitation.
Chemical:	High pH (and probably sodicity), and salinity / chloride from 70 cm restrict deeper root growth.
Waterholding capacity:	(Estimates for potential rootzone of irrigated crops) Total available: 125 mm Readily available: 45 mm
Seedling emergence:	Satisfactory to fair, depending on degree to which surface seals over.
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	8.6	7.6	0	0.17	0.89	29	1.85	24	52	516	11.5	702	2.2	1.68	74	72.2	1.9	32.4	22.8	6.21	2.17	1.20	6.7
10-30	8.5	7.5	0	0.26	1.29	102	1.17	-	14	292	26.7	803	-	-	-	-	-	27.0	19.0	5.21	2.04	0.73	7.6
30-40	7.9	7.4	0	0.32	3.17	283	0.43	-	6	194	59.7	684	-	-	-	-	-	-	-	-	-	-	-
40-70	8.4	7.7	0	0.35	3.94	457	0.12	-	5	173	63.4	354	-	-	-	-	-	-	-	-	-	-	-
70-110	9.5	8.5	6	0.75	4.64	823	0.11	-	8	309	79.3	370	-	-	-	-	-	-	-	-	-	-	-
110-150	9.7	8.7	5	0.76	3.06	675	0.05	-	6	333	72.4	358	-	-	-	-	-	-	-	-	-	-	-

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](#)

