

DARK CLAY LOAM OVER HEAVY CLAY

General Description: *Dark clay loam over moderately structured dark brown medium heavy clay, becoming calcareous and more coarsely structured with depth.*

Landform: Gently undulating rises.

Substrate: Fine to medium grained Tertiary sediments.

Vegetation: Grey box, blue gum, bull oak.



Type Site:

Site No.:	SE130	1:50,000 mapsheet:	7025-2 (Tatiara)
Hundred:	Tatiara	Easting:	490900
Section:	358	Northing:	5972830
Sampling date:	22/02/07	Annual rainfall:	500 mm average

Midslope of gently undulating rise, 2% slope. Hard setting surface with no stones.

Soil Description:

Depth (cm)	Description
0-11	Very dark brown friable clay loam with moderate platy structure. Surface sealing evident. Abundant roots. Gradual to:
11-35	Dark brown firm medium heavy clay with strong moderate subangular blocky structure. Many roots. Gradual to:
35-60	Brown firm medium heavy clay with weak moderate subangular blocky structure. Roots common. Gradual to:
60-80	Pale brown firm moderately calcareous light medium clay with weak coarse prismatic structure and 10-20% carbonate veins. Few roots. Diffuse to:
80-110	Very pale brown and reddish brown firm highly calcareous light medium clay with weak, very coarse lenticular, breaking to weak coarse angular blocky, structure and 10-20% carbonate veins. Very few roots. Diffuse to:
110-150	Very pale brown and reddish brown firm moderately calcareous light medium clay with moderate very coarse lenticular structure. No roots.



Classification: Vertic, Calcic, Brown Dermosol; medium, non-gravelly, clay loamy / clayey, deep



Summary of Properties

Drainage:	Moderately well to imperfectly drained. Water is likely to perch on top of the clay subsoil for a week to several weeks following heavy or prolonged rainfall.
Fertility:	Inherent fertility is high, as indicated by the exchangeable cation data. Nutrition should be adequate for most crops and pastures, although zinc and copper levels should be checked by tissue testing. High reactive iron content in the surface indicates potential for phosphate fixation.
pH:	Slightly acidic to neutral at the surface, alkaline in the subsoil, and strongly alkaline at depth.
Rooting depth:	80 cm in the sampling pit, but few roots below 60 cm.
Barriers to root growth:	
Physical:	The coarseness of the clay aggregates will restrict root abundance in the subsoil.
Chemical:	High sodicity and boron levels from 60 cm, and high pH and salinity from 80 cm significantly restrict root abundance. Severity of these deep subsoil constraints is related to restricted drainage.
Waterholding capacity:	Approximately 80 mm total available water in the potential rootzone.
Seedling emergence:	Satisfactory.
Workability:	Satisfactory, although surface may become sticky and intractable 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	
0-11	6.7	5.6	0	0.09	0.79	42	2.05	16	44	333	12.2	1246	1.9	1.3	215	53.3	0.6	16.6	11.7	3.31	0.77	0.85	4.6
11-35	8.0	6.8	0	0.13	1.38	73	0.66	6	5	154	17.7	1051	2.9	2.4	125	37.8	3.1	24.8	12.3	8.71	3.37	0.41	13.6
35-60	9.1	8.4	1	0.49	2.27	330	0.36	6	3	217	78	705	10.0	1.7	55	75.0	0.8	33.6	11.7	13.3	8.07	0.62	24.0
60-80	9.2	8.6	12	0.88	3.78	733	0.18	6	2	289	190	555	17.7	1.2	16	2.9	0.5	40.4	10.9	16.4	12.2	0.86	30.2
80-110	9.3	8.7	6	0.84	6.38	1189	0.15	6	2	305	231	505	18.7	0.9	17	3.0	0.2	40.0	10.3	16.3	12.5	0.83	31.2
110-150	9.2	8.7	14	1.08	6.29	1480	0.13	4	2	304	225	489	17.7	1.2	17	1.8	0.1	43.1	11.8	16.2	14.1	0.9	32.8

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 estimated by the sum of cations.

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

