BLACK CLAY OVER SEMI HARD CARBONATE

General Description: *Black strongly structured clay over semi-hard carbonate at shallow to moderate depth*

Landform: Flat plains

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

Vegetation:

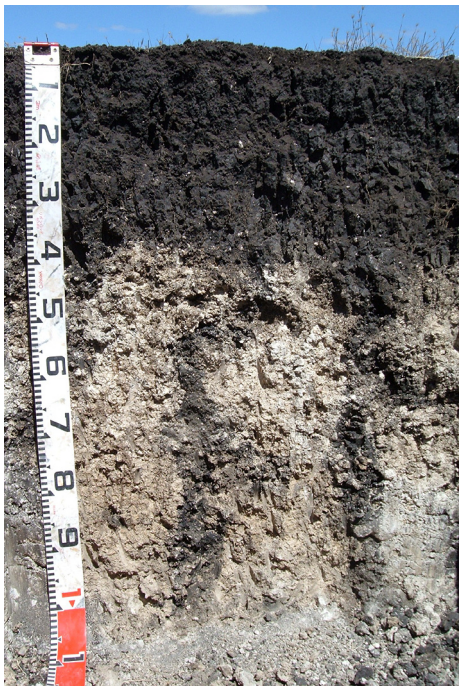
Type Site:

Site No.:	SE159A	1:50,000 mapsheet:	6924-3 (Minecrow)
Hundred:	Townsend	Easting:	420620
Section:	234	Northing:	5906320
Sampling date:	21/02/2008	Annual rainfall:	625 mm average

Flat plain. Self-mulching surface with no stones. Non irrigated pasture.

Soil Description:

Depth (cm)	*Description*
0-10	Black self-mulching medium clay with strong fine polyhedral structure (upper 3 cm), over black very hard (dry) medium clay with strong coarse prismatic structure, breaking to strong medium subangular blocky. Gradual to:
10-35	Black very hard (dry) moderately calcareous light clay with strong very coarse prismatic structure, breaking to strong medium subangular blocky. Clear to:
35-65	Light brownish grey firm very highly calcareous light medium clay with weak medium subangular blocky structure and more than 80% soft and nodular carbonate segregations. Diffuse to:
65-100	Light grey firm very highly calcareous medium clay with weak medium subangular blocky structure and more than 80% soft and nodular carbonate segregations.



Classification: Melanic, Pedal, Lithocalcic Calcarosol; thick, non-gravelly, clayey / clayey, deep

Summary of Properties

Drainage: Moderately well drained due to favourable soil permeability, but rising seasonal s 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, except for phosphorus, concentrations of which are marginal.

pH: Neutral at the surface, alkaline with depth.

Rooting depth: 100 cm in sampling pit, but few roots below 65 cm.

Barriers to root growth:

Physical: There are no significant physical barriers to root growth.

Chemical: High carbonate content reduces availability of trace elements (especially zinc) at depth.

Waterholding capacity: Approximately 85 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_2O	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 (DTPA)				Sum cations cmol (+)/kg	Exchangeable Cations cmol(+)/kg				Est. ESP
														Cu	Fe	Mn	Zn		Ca	Mg	Na	K	
0-10	6.9	6.5	0	0.56	1.41	101	5.55	110	28	782	33.4	-	4.1	0.43	7	2.51	0.79	49.0	37.9	8.46	0.64	2.01	1.3
10-35	8.7	8.1	2.7	0.39	1.34	152	1.69	-	6	416	79.2	781	-	-	-	-	-	36.2	24.8	8.63	1.73	1.00	4.8
35-65	8.9	8.1	57.4	0.75	4.96	667	0.40	-	6	341	206	469	-	-	-	-	-	29.6	14.9	7.82	5.97	0.88	20.2
65-100	8.9	8.3	54.2	1.03	3.93	906	0.31	-	4	282	459	960	-	-	-	-	-	26.8	13.1	6.04	7.00	0.67	26.1

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