GRADATIONAL CALCAREOUS CLAY LOAM

General Description: *Calcareous clay loam becoming more clayey and calcareous with depth*

Landform: Gently undulating low rises.

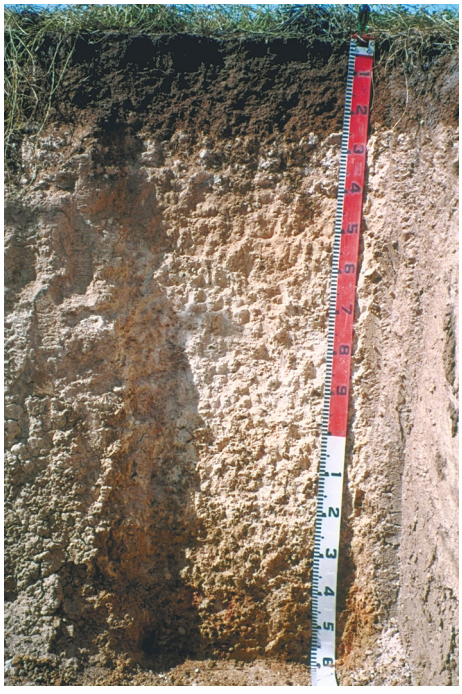
Substrate: Red and grey coarsely structured Tertiary clay (Hindmarsh Clay equivalent).

Vegetation:

Type Site:	Site No.:	CY009	1:50,000 mapsheet:	6429-3 (Maitland)
	Hundred:	Maitland	Easting:	742850
	Section:	52	Northing:	6186900
	Sampling date:	9/12/1992	Annual rainfall:	450 mm average

Very gentle slope of 1%. Hard setting surface with no stones.

Soil Description:



Depth (cm)	*Description*
0-7	Dark reddish brown firm clay loam with moderate fine angular blocky structure. Clear to:
7-24	Dark reddish brown firm slightly calcareous light clay with moderate fine angular blocky structure. Abrupt to:
24-42	Strong brown friable very highly calcareous light clay with more than 50% carbonate fragments (20-60 mm). Clear to:
42-56	Yellowish brown friable massive very highly calcareous clay loam. Gradual to:
56-105	Brownish yellow friable very highly calcareous light clay with moderate coarse angular blocky structure. Diffuse to:
105-141	Brownish yellow hard very highly calcareous light clay with strong coarse angular blocky structure and 2-10% ironstone gravel (6-20 mm). Gradual to:
141-160	Yellowish brown, red and grey mottled firm very highly calcareous medium clay with strong coarse angular blocky structure and 2-10% ironstone gravel (6-20 mm).

Classification: Epibasic, Pedal, Lithocalcic Calcarosol; medium, non-gravelly, clay loamy / clayey, deep

Summary of Properties

Drainage: Moderately well drained. The soil may remain wet for up to a week following heavy or prolonged rainfall.

Fertility: The soil's natural capacity to retain nutrients is high as indicated by the exchangeable cation data. Surface fertility relies on organic matter levels which are adequate, and on phosphorus levels which are adequate to low at this site. Potassium levels are adequate. Zinc and copper deficiencies may occur from time to time.

pH: Neutral in surface, alkaline at depth.

Rooting depth: 85 cm in pit, but few roots below 56 cm.

Barriers to root growth:

Physical: There are no physical barriers.

Chemical: High boron and sodicity levels from 141 cm, but poor root growth from 56 cm may be due to low nutrient availability.

Waterholding capacity: Approximately 110 mm in rootzone.

Seedling emergence: Good to fair. Organic matter levels need to be maintained to preserve soil structure.

Workability: Good.

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	Org.C %	Avail. P mg/kg	Avail. K mg/kg	SO_4 mg/kg	Boron mg/kg	Trace Elements mg/kg (DTPA)				CEC cmol (+)/kg	Exchangeable Cations cmol(+)/kg				ESP (%)
											Cu	Fe	Mn	Zn		Ca	Mg	Na	K	
Paddock	7.5	7.2	2	0.30	0.78	1.7	25	1100	-	2.5	1.2	9.6	32	0.57	32.2	20.3	3.68	0.27	2.96	0.8
0-7	7.3	7.0	2	0.18	0.53	1.7	15	1100	-	2.9	1.2	8.1	33	0.47	30.4	20.9	3.81	0.24	2.91	0.8
7-24	7.8	7.4	2	0.20	0.37	0.93	3.1	790	-	2.5	1.3	6.3	14	0.16	34.9	25.2	4.13	0.37	2.16	1.1
24-42	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
42-56	8.8	7.9	53	0.17	0.35	0.47	4.8	270	-	1.8	1.2	4.1	2.7	0.10	19.9	13.9	5.87	0.93	0.34	4.7
56-105	9.2	8.0	56	0.32	0.97	0.18	2.9	200	-	4.8	1.0	4.6	1.5	0.09	20.4	8.78	9.59	3.39	0.50	16.6
105-141	9.3	8.5	32	0.70	1.57	0.04	<2.0	520	-	18.3	0.46	4.5	0.65	0.07	32.0	5.52	19.8	7.39	1.29	23.1
141-160	9.3	8.4	9	0.73	1.24	0.02	<2.0	510	-	36.5	0.45	4.9	0.54	0.05	27.9	3.40	16.5	9.00	1.09	32.3

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.

Further information: DEWNR Soil and Land Program