GRADATIONAL CALCAREOUS CLAY LOAM

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

Landform: Gently undulating rises.

Substrate: Alluvial clay (Pooraka Formation).

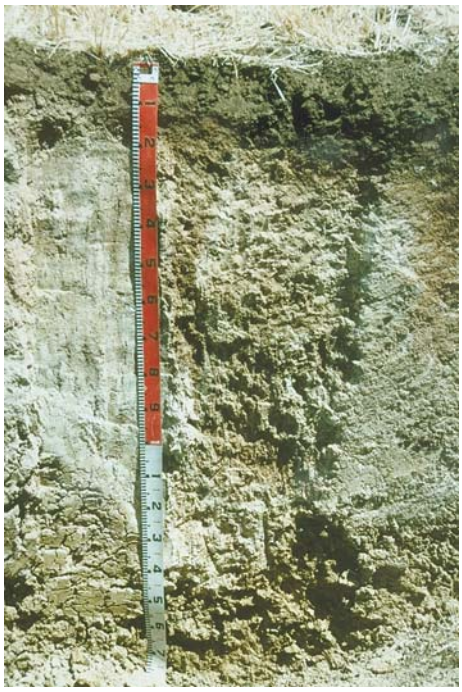
Vegetation:

Type Site: Site No.: CY003

1:50,000 sheet:	6429-3 (Maitland)	Hundred:	Maitland
Annual rainfall:	500 mm	Sampling date:	19/02/92
Landform:	Lower slope of 1.5%		
Surface:	Self-mulching with no stones		

Soil Description:

Depth (cm)	*Description*
0-9	Dark reddish brown friable highly calcareous silty clay loam with strong fine granular structure. Abrupt to:
9-19	Strong brown hard highly calcareous light medium clay with moderate fine platy structure. Clear to:
19-63	Very pale brown friable massive very highly calcareous light clay. Diffuse to:
63-140	Reddish yellow friable very highly calcareous medium clay with moderate coarse prismatic structure. Diffuse to:
140-175	Light yellowish brown friable very highly calcareous medium clay with strong coarse angular blocky structure.



Classification: Endohypersodic, Regolithic, Hypercalcic Calcarosol; medium, non-gravelly, silty / clayey, deep

Summary of Properties

Drainage Moderately well drained. The soil rarely remains wet for more than a week following heavy or prolonged rainfall.

Fertility Surface fertility relies on organic matter levels which are adequate, and on phosphorus levels which are high. The soil's capacity to retain nutrients is high. Exchangeable cation ratios are very good (calcium dominates) in the surface & subsoil. Zinc levels are marginal.

pH Alkaline at the surface, strongly alkaline at depth.

Rooting depth 65 cm in pit.

Barriers to root growth

Physical: Poor (prismatic) structure from 63 cm reduces root densities.

Chemical: Free lime to the soil surface may cause marginal trace element deficiencies. High pH and sodicity from 63 cm limit deeper root growth.

Water holding capacity Approximately 105mm in rootzone. Soil has a high wilting point, meaning that relatively high amounts of water are needed before any becomes available for plant growth.

Seedling emergence: Fair.

Workability: Fair to good. The soil has a satisfactory moisture range over which effective and non destructive cultivation can be carried out.

Erosion Potential

Water: Low.

Wind: Low.

Laboratory Data

Depth cm	pH H_2O	pH $CaC1_2$	CO_3 %	EC1:5 dS/m	ECe dS/m	Org.C %	Avail. P mg/kg	Avail. K mg/kg	SO_4-S 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	8.6	7.6	8.5	0.15	0.6	1.23	46	430	-	-	0.75	3.9	1.8	0.15	39.5	36.22	4.43	0.53	1.90	1.3
0-9	8.4	7.6	6.2	0.18	0.8	1.74	98	590	-	-	0.86	6.0	5.0	0.34	46.4	37.35	4.00	0.46	2.52	1.0
9-19	8.7	7.6	5.4	0.13	0.4	1.23	13	300	-	2.6	0.59	4.7	1.1	0.12	40.7	38.50	4.20	0.45	1.50	1.1
19-63	9.3	8.0	51.8	0.11	0.3	0.37	4	80	-	1.3	0.53	2.0	0.5	0.07	21.4	17.83	3.36	0.24	0.24	1.1
63-140	10.0	8.3	46.5	0.39	1.0	0.20	2	150	-	9.2	0.47	3.4	0.4	0.05	23.7	7.27	10.00	6.04	0.57	25.5
140-175	9.7	8.8	21.6	1.15	5.4	0.13	2	280	-	34.4	0.62	7.2	0.9	0.06	34.7	3.01	16.70	17.61	1.13	50.7

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 y the CEC.