

GRADATIONAL CALCAREOUS CLAY LOAM

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

Landform: Gently undulating plain.

Substrate: Alluvial clay (Pooraka Formation).

Vegetation:



Type Site:	Site No.:	CY010	1:50,000 mapsheet:	6429-3 (Maitland)
	Hundred:	Wauraltee	Easting:	742750
	Section:	83W	Northing:	6181000
	Sampling date:	9/12/1992	Annual rainfall:	410 mm average

Flat, 0% slope. Firm surface with no stones.

Soil Description:

Depth (cm)	Description
0-9	Dark brown firm moderately calcareous clay loam with weak fine angular blocky structure and minor quartz gravel. Clear to:
9-30	Dark brown friable moderately calcareous light clay with moderate fine angular blocky structure and minor quartz gravel. Gradual to:
30-42	Yellowish red friable moderately calcareous light medium clay with moderate fine angular blocky structure and minor quartz gravel. Gradual to:
42-107	Strong brown friable massive very highly calcareous light medium clay. Diffuse to:
107-142	Brownish yellow friable very highly calcareous medium clay with strong medium angular blocky structure. Diffuse to:
142-160	Yellowish brown, light grey and orange friable highly calcareous medium clay with strong medium angular blocky structure.



Classification: Vertic, Pedal, Hypercalcic Calcarosol; thick, non-gravelly, clay loamy / clayey, deep



Summary of Properties

- Drainage:** Moderately well drained. The soil may remain wet for 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 low at this site. Potassium levels are adequate. Copper and zinc deficiencies may occur from time to time.
- pH:** Alkaline at the surface, strongly alkaline at depth.
- Rooting depth:** Roots to 100 cm in pit.
- Barriers to root growth:**
- Physical:** There are no physical barriers.
 - Chemical:** High pH, sodicity and boron concentrations from 107 cm prevent deeper root growth.
- Waterholding capacity:** Approximately 160 mm in rootzone, but effective availability is less due to poor root density in lower rootzone. The soil has a high wilting point, which causes water to be withheld in a dry season.
- Seedling emergence:** Good to fair. Organic matter levels need to be maintained to preserve surface condition.
- Workability:** Fair to good. Soil has a satisfactory moisture range for effective working.
- 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	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	8.0	7.6	4	0.22	0.45	1.8	18	1000	-	3.5	0.72	5.7	6.3	0.36	38.3	31.5	3.16	0.32	3.34	0.8
0-9	8.0	7.6	4	0.21	0.58	1.8	24	1300	-	3.0	0.84	6.2	9.9	0.32	38.8	31.3	3.21	0.38	3.58	1.0
9-30	8.1	7.7	3	0.15	0.29	0.74	3.7	580	-	3.3	0.89	8.5	6.7	0.14	33.1	27.4	3.25	0.36	1.68	1.1
30-42	8.4	7.9	3	0.18	0.29	0.36	<2.0	340	-	2.7	0.99	11	4.4	0.15	36.5	30.1	6.14	1.04	1.08	2.8
42-107	9.2	8.1	28	0.34	0.76	0.20	<2.0	410	-	4.7	0.92	6.0	2.6	0.08	26.2	14.5	7.60	4.39	1.15	16.8
107-142	9.7	8.7	23	0.91	1.12	0.07	<2.0	500	-	52.3	0.64	5.7	0.83	0.07	32.2	5.6	14.2	15.0	1.82	46.5
142-160	9.4	8.7	15	1.64	3.58	0.05	<2.0	550	-	51.6	1.6	6.6	0.87	0.13	34.1	5.2	15.1	18.5	1.91	54.2

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](#)

