

RUBBLY CALCAREOUS CLAY LOAM

General Description: *Calcareous clay loam grading to a light clay with abundant rubble at shallow depth, over very highly calcareous sandy loam to sandy clay loam*

Landform: Gently undulating rises.

Substrate: Very highly calcareous medium grained Woorinen Formation deposits.

Vegetation:



Type Site:	Site No.:	CY018	1:50,000 mapsheet:	6429-3 (Maitland)
	Hundred:	Kilkerran	Easting:	742600
	Section:	60	Northing:	6189500
	Sampling date:	8/2/1993	Annual rainfall:	440 mm average

Midslope of gentle rise, 3% slope. Firm surface with minor calcrete fragments (2-6 mm).

Soil Description:

<i>Depth (cm)</i>	<i>Description</i>
0-10	Dark reddish brown friable slightly calcareous clay loam with strong fine polyhedral structure and minor quartz grit. Abrupt to:
10-25	Dark reddish brown friable slightly calcareous light clay with moderate fine polyhedral structure and minor quartz grit. Abrupt to:
25-38	Reddish brown soft very highly calcareous sandy clay loam with more than 50% calcrete fragments (20-60 mm). Clear to:
38-55	Brown soft very highly calcareous massive sandy loam with more than 50% carbonate nodules (20-60 mm). Gradual to:
55-95	Brown soft very highly calcareous massive sandy clay loam with 20-50% carbonate nodules (20-60 mm). Gradual to:
95-140	Light brown friable highly calcareous massive sandy clay loam with 20-50% carbonate nodules (20-60 mm). Gradual to:
140-	Very pale brown firm massive highly calcareous sandy light clay.



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



Summary of Properties

- Drainage:** Well drained. The soil rarely remains wet for more than a day or so 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 marginal at this site. Potassium levels are adequate. Zinc levels are marginal (possible responsive situation).
- pH:** Alkaline at the surface, strongly alkaline at depth.
- Rooting depth:** Roots to 90 cm in pit.
- Barriers to root growth:**
- Physical:** There are no physical barriers.
 - Chemical:** High sodicity and pH from 95 cm restrict deeper root growth.
- Waterholding capacity:** Approximately 85 mm in the rootzone.
- Seedling emergence:** Good. Organic matter levels need to be maintained to preserve soil structure.
- Workability:** Good.
- Erosion Potential:**
- Water:** Moderate.
 - 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	7.9	7.6	0.5	0.13	0.37	2.0	21	755	-	2.7	0.7	5	15.1	0.3	28.6	22.9	2.9	0.41	2.77	1.4
0-10	8.0	7.6	0.2	0.09	0.26	1.7	12	556	-	2.9	0.7	5	13.0	0.3	29.4	23.7	2.7	0.42	2.39	1.4
10-25	8.2	7.9	0.9	0.13	0.35	1.1	6	367	-	2.8	1.1	7	5.9	0.2	34.7	29.3	3.7	0.62	2.18	1.8
25-38	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
38-55	8.5	7.9	52.8	0.16	0.55	1.0	7	96	-	1.7	1.1	6	2.5	0.1	16.6	15.7	2.8	0.87	0.52	5.2
55-95	8.8	8.0	61.8	0.59	5.04	0.2	<4	169	-	6.9	0.8	3	1.8	0.3	13.7	8.8	5.2	2.04	0.70	14.9
95-140	9.3	8.4	60.9	0.71	5.03	0.3	<4	318	-	14.7	0.4	2	1.1	0.1	14.1	3.8	8.0	4.55	1.17	32.3
140+	9.6	8.5	64.2	0.85	5.37	0.3	<4	276	-	14.2	0.2	2	0.8	0.1	13.2	2.7	7.4	6.04	0.99	45.8

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](#)

