

DEEP CALCAREOUS LOAM

General Description: *Reddish brown calcareous loamy soil, becoming more clayey and calcareous with depth, overlying Class I carbonate layer*

Landform: Alluvial plains and adjacent low angle alluvial fans. Slopes usually less than 4%.

Substrate: Alluvial clay loam to clay, calcified by windblown lime leached in from the overlying soil.

Vegetation:



Type Site:	Site No.:	CU005	1:50,000 mapsheet:	6531-2 (Gladstone)
	Hundred:	Narridy	Easting:	246600
	Section:	41	Northing:	6295950
	Sampling date:	21/02/1992	Annual rainfall:	400 mm average

Lower slope of outwash fan, 2% slope. Firm surface, no stones.

Soil Description:

<i>Depth (cm)</i>	<i>Description</i>
0-10	Dark reddish brown strongly granular highly calcareous loam. Clear to:
10-20	Reddish brown moderately granular very highly calcareous clay loam. Clear to:
20-40	Yellowish red moderately granular very highly calcareous clay loam with 10-20% soft carbonate. Gradual to:
40-70	Yellowish red very highly calcareous clay loam with 20-50% soft lime, and up to 10% fine nodules. Gradual to:
70-110	Yellowish red, very highly calcareous light clay, with 20-50% soft lime and up to 10% fine nodules (Class I carbonate). Gradual to:
110-160	Yellowish red weakly subangular blocky very highly calcareous clay loam, with about 50% fine and nodular lime.



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



Summary of Properties

- Drainage:** Well to moderately well drained. Soil is never wet for more than a week.
- Fertility:** Fair to high, due to high levels of exchangeable cations. High carbonate (CaCO₃) levels may reduce availability of phosphorous and trace elements. Phosphorus (24 mg/kg) and organic carbon (1.0%) are marginal at this site
- pH:** Alkaline at surface, grading to strongly alkaline with depth, due to high levels of exchangeable sodium.
- Rooting depth:** 110 cm in pit, but few roots below 70 cm.
- Barriers to root growth:**
- Physical:** None apparent.
- Chemical:** High levels of boron (more than 15 mg/kg), sodicity (exchangeable sodium (Na) more than 15% of cation exchange capacity), and carbonate are inhibiting root growth. There is negligible salinity.
- Waterholding capacity:** 150 mm in rootzone (high), but not all is available due to poor root growth below 70 cm.
- Workability:** Good, due to the friability of the calcareous surface soil. There are no rocks or stones.
- Seedling establishment:** Good. Calcareous surface maintains adequate structure.
- Erosion potential:**
- Water:** Low.
- Wind:** Low to moderately low. Calcareous surface may become powdery if overgrazed or over cultivated.

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	8.6	7.8	5.0	0.12	-	1.00	24	380	-	-	0.53	2.1	6.6	0.43	-	-	-	-	-	-
0-10	8.6	7.8	4.0	0.13	0.9	1.07	30	430	-	-	0.57	2.4	9.5	0.48	16.6	14.6	1.45	0.09	1.46	0.5
10-20	8.7	7.9	4.1	0.10	0.4	0.74	4	260	-	-	0.77	1.6	1.5	0.13	22.3	19.2	2.02	0.15	1.20	0.7
20-40	8.8	8.0	16.3	0.09	0.3	0.53	4	85	-	2.0	0.80	1.4	1.1	0.05	21.8	19.4	2.53	0.21	0.57	1.0
40-70	9.1	8.0	21.7	0.12	0.4	0.35	2	60	-	2.3	0.68	1.6	1.0	0.10	19.5	14.0	4.61	0.70	0.34	3.6
70-110	9.6	8.4	38.9	0.59	4.5	0.28	2	160	-	14.4	0.55	2.0	0.9	0.09	14.2	4.21	6.17	3.35	0.69	24
110-160	9.8	8.6	42.1	0.85	8.0	0.22	1	280	-	25.5	0.46	1.8	0.8	0.08	13.4	1.93	6.13	4.54	1.09	34

- Note:** Paddock sample bulked from 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](#)

