CALCAREOUS RUBBLY SANDY CLAY LOAM

General Description: *Calcareous sandy loam to sandy clay loam, becoming more clayey with depth, over a very highly calcareous light clay with abundant carbonate rubble, decreasing with depth*

Landform: Gently undulating rises.

Substrate: Medium to coarse textured highly calcareous windblown deposits (Woorinen Formation).

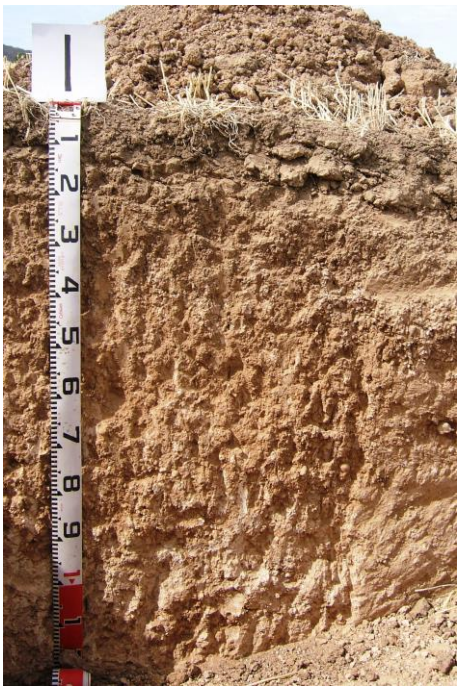
Vegetation:

Type Site:

Site No.:	CM105	1:50,000 mapsheet:	6529-4 (Wakefield)
Hundred:	Kulpara	Easting:	229710
Section:	116	Northing:	6233790
Sampling date:	15/02/2013	Annual rainfall:	430 mm average

Midslope of gentle rise, with slope of 2%. Firm surface with no stones.

Soil Description:



Depth (cm)	*Description*
0-10	Dark reddish brown highly calcareous sandy clay loam with weak granular structure. Clear to:
10-20	Dark brown very highly calcareous fine sandy clay loam with weak polyhedral structure, and 2-10% soft calcareous segregations. Clear to:
20-50	Strong brown massive very highly calcareous light clay with 2-10% carbonate nodules to 6mm, and 10-20% soft calcareous segregations. Gradual to:
50-90	Reddish yellow massive very highly calcareous light clay with 20-50% carbonate nodules to 20 mm, and 10-20% soft calcareous segregations. Gradual to:
90-120	Reddish yellow massive very highly calcareous coarse sandy clay loam with 20-50% carbonate nodules to 20 mm, and 10-20% soft calcareous segregations.

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

Summary of Properties

Drainage: Well drained. No part of the profile is likely to remain wet for more than a day or so following heavy or prolonged rainfall.

Fertility: Inherent fertility is high, as indicated by the exchangeable cation data (CEC exceeding 15 cmol(+)/kg means high nutrient retention capacity). There are no deficiencies at this site according to the laboratory data. Carbonate-induced fixation of phosphorus and trace elements may be expected where surface carbonate levels exceed 8%.

pH: Alkaline throughout, strongly alkaline from 90 cm.

Rooting depth: Most root growth is in the upper 50 cm, with some roots persisting to 75 cm.

Barriers to root growth:

Physical: There are no apparent physical barriers.

Chemical: High sodicity, pH and boron concentrations restrict deeper root growth.

Waterholding capacity: Approximately 90 mm in potential rootzone.

Seedling emergence: Satisfactory – calcareous surface soils usually maintain friable consistence.

Workability: Calcareous surface soils can usually be worked over a range of moisture conditions.

Erosion Potential

Water: Slight due to slope, but surface soil is relatively stable.

Wind: Moderately low – calcareous soils can become powdery and susceptible to wind erosion if over-grazed or worked too dry.

Laboratory Data

Depth cm	pH H_2O	pH $CaC1_2$	CO_3 %	EC 1:5 dS/m	ECe dS/m	Org.C %	NO_3 mg/kg	Avail. P mg/kg	Avail. K mg/kg	SO_4-S mg/kg	Boron mg/kg	Trace Elements mg/kg (DTPA)				Sum cations cmol (+)/kg	Exchangeable Cations cmol(+)/kg				Est. ESP
												Cu	Fe	Mn	Zn		Ca	Mg	Na	K	
Paddock	8.3	7.8	12.6	0.285	1.80	1.16	21	40	1366	155	2.1	1.32	7	14.8	2.19	29.4	24.1	2.28	0.26	2.68	0.9
0-10	8.2	7.6	12.2	0.371	2.18	2.30	7	55	1280	118	2.0	1.15	5	22.6	4.59	29.2	23.8	2.21	0.29	2.95	1.0
10-20	8.3	7.7	14.2	0.248	1.11	1.63	6	30	1261	60.0	2.2	1.36	5	10.5	2.20	30.8	25.4	2.69	0.34	2.38	1.1
20-50	8.8	7.8	30.7	0.232	0.83	0.80	10	12	225	17.9	2.4	1.62	8	5.34	0.15	25.6	19.8	3.84	1.38	0.58	5.4
50-90	8.9	7.9	36.5	0.577	3.46	0.57	7	10	313	55.5	8.8	1.23	6	3.33	0.10	24.3	14.0	5.37	4.16	0.80	17.1
90-120	9.3	8.3	36.0	0.718	4.15	0.36	23	< 2	423	69.8	21.1	0.59	4	2.62	0.17	23.0	9.40	6.13	6.36	1.09	27.7

Note: Paddock sample bulked from cores (0-10 cm) taken around the pit.

Sum of cations, in a neutral to alkaline soil, approximates the CEC (cation exchange capacity), 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, in this case estimated by the sum of cations.

Further information: DEWNR Soil and Land Program