RUBBLY GRADATIONAL CALCAREOUS CLAY LOAM

General Description: *Calcareous clay loam grading to a very highly calcareous clay over rubbly carbonate at shallow depth, grading to coarsely structured heavy clay at about 100 cm*

Landform: Undulating rises

Substrate: Coarsely structured heavy clay (Hindmarsh Clay equivalent) overlying Tertiary sandstone.

Vegetation: Mallee.

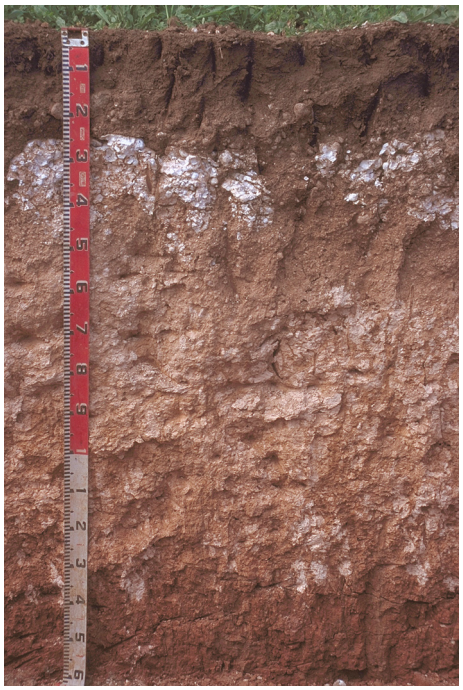
Type Site:

Site No.:	CM089	1:50,000 mapsheet:	6530-2 (Blyth)
Hundred:	Hart	Easting:	260500
Section:	488	Northing:	6261550
Sampling date:	04/08/00	Annual rainfall:	430 mm average

Upper slope of undulating rise, 4% slope. Firm surface with minor calcrete stone (20-60 mm).

Soil Description:

Depth (cm)	*Description*
0-15	Dark brown friable weakly granular highly calcareous fine sandy clay loam. Clear to:
15-30	Dark reddish brown friable highly calcareous light clay with 2-10% carbonate nodules (2-20 mm). Abrupt to:
30-45	Reddish brown friable very highly calcareous light clay with more than 50% carbonate nodules (6-60 mm). Clear to:
45-70	Yellowish red friable very highly calcareous light clay with 10-20% carbonate nodules (6-20 mm). Gradual to:
70-120	Reddish yellow firm massive very highly calcareous light clay. Gradual to:
120-170	Red hard medium heavy clay with strong coarse prismatic structure and 20% soft carbonate and manganese segregations. Gradual to:
170-190	Weak sandstone.



Classification: Epihypersodic, Regolithic, Lithocalcic Calcarosol; thick, non-gravelly, clay loamy/clayey, deep

Summary of Properties

Drainage: Moderately well drained. The soil rarely remains wet for more than a week at a time.

Fertility: Inherent fertility is moderate, as indicated by the exchangeable cation data. Analyses indicate that concentrations of all measured nutrients are satisfactory, but some tie up of phosphorus, zinc and manganese by the carbonate can be expected. Organic carbon levels are good.

pH: Alkaline at the surface, strongly alkaline with depth.

Rooting depth: 120 cm in pit, but few roots below 70 cm.

Barriers to root growth:

Physical: The rubbly carbonate layer is dense enough in places to impede root growth. Otherwise there are no restrictions above the Hindmarsh Clay (at 120 cm in the pit).

Chemical: High pH and sodicity from 45 cm, and moderate salinity in the deep subsoil restrict root growth

Waterholding capacity: Approximately 80 mm in the rootzone.

Seedling emergence: Satisfactory.

Workability: Satisfactory.

Erosion Potential:

Water: Moderately low.

Wind: Low.

Laboratory Data

Depth cm	pH H_2O	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	8.4	7.8	5	0.22	1.4	1.84	47	548	4.4	2.2	0.48	6.6	4.7	1.0	20.2	20.0	2.5	0.09	1.69	0.4
0-15	8.3	7.7	6	0.17	1.1	1.6	23	401	4.5	1.8	0.50	7.4	2.1	0.76	21.8	19.5	2.7	0.11	1.33	0.5
15-30	8.5	7.8	11	0.14	0.9	1.44	6	140	5.9	2.1	0.6	10	1.2	0.99	22.1	19.5	3.9	0.22	0.54	1.0
30-45	8.9	8.0	18	0.20	1.3	0.88	6	155	6.1	3.4	0.68	11	1.1	1.8	17.6	13.6	5.8	1.0	0.37	5.7
45-70	9.8	8.3	32	0.54	3.5	0.40	5	88	29.7	13.2	0.72	7.5	0.60	2.1	13.1	4.0	5.5	4.3	0.35	32.8
70-120	9.8	8.5	49	0.92	6.0	0.25	4	98	110	14.1	0.5	5.2	0.58	0.85	9.7	1.8	4.5	5.5	0.32	56.7
120-170	9.7	9.1	20	1.03	6.7	0.14	3	137	105	14.8	0.73	5.7	0.79	1.6	14.2	2.1	6.9	7.9	0.47	55.6

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