

CALCAREOUS CLAY LOAM

General Description: *Reddish brown well structured calcareous clay loam, becoming more clayey and calcareous with depth, overlying a Class I carbonate layer within 50 cm. This grades to a heavy clay at about 100 cm*

Landform: Flats, gentle slopes and low rises

Substrate: Coarsely structured very firm red heavy clay (Hindmarsh Clay) with pockets of soft carbonate

Vegetation: Mallee scrub



Type Site: Site No.: CM023

1:50,000 sheet:	6530-2 (Blyth)	Hundred:	Hart
Annual rainfall:	450 mm	Sampling date:	13/05/93
Landform:	Lower slope of a gently undulating rise, 3% slope		
Surface:	Firm with no stone		

Soil Description:

Depth (cm)	Description
0-10	Dark reddish brown highly calcareous clay loam with granular structure. Clear to:
10-20	Reddish brown highly calcareous light clay with moderate blocky structure. Gradual to:
20-35	Yellowish red highly calcareous weakly structured light medium clay. Diffuse to:
35-50	Yellowish red very highly calcareous massive light medium clay with 20-50% soft Class I carbonate segregations. Diffuse to:
50-80	Yellowish red very highly calcareous massive medium clay with more than 50% soft Class I carbonate segregations. Diffuse to:
80-150	Red moderately calcareous medium heavy clay with strong coarse prismatic structure (Hindmarsh Clay), and pockets of soft carbonate.



Classification: Epihypersodic, Pedal, Hypercalcic Calcarosol; medium, non-gravelly, clay loamy/clayey, moderate

Summary of Properties

Drainage	The soil is moderately well drained and is unlikely to remain wet for more than a week in most years.
Fertility	Inherent fertility is high, as indicated by the exchangeable cation data. Lower values with depth due to high carbonate content, together with high pH indicate subsoil infertility and particularly induced deficiencies of some elements below about 35 cm. Organic carbon levels are moderate and phosphorus is low at sampling site.
pH	Alkaline at the surface, strongly alkaline with depth.
Rooting depth	150 cm in pit but below 85 cm roots are confined to vertical biopores.
Barriers to root growth	
Physical:	No physical barriers to root growth above the Hindmarsh Clay. High strength of this clay causes most root growth to be confined to the surfaces of the coarse aggregates.
Chemical:	High boron (toxic below 50 cm), high exchangeable sodium and very high pH (limiting nutrient availability) restrict root growth.
Water holding capacity	Approximately 110 mm in root zone, but not all is available due to uneven root distribution.
Seedling emergence	Good.
Workability	Good.
Erosion Potential	
Water:	Low to moderately 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 -S 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	8.1	7.8	5.5	0.15	0.54	1.4	15	777	-	3.0	0.2	<1	<0.1	<0.1	27.7	21.28	3.61	0.21	1.94	0.8
0-10	8.1	7.8	6.1	0.13	0.46	1.5	16	766	-	3.5	0.8	3	5.3	0.3	27.7	22.00	3.54	0.21	1.93	0.8
10-20	8.5	7.9	16.8	0.15	0.35	1.0	9	421	-	3.5	1.0	4	2.8	0.1	27.1	20.06	4.11	0.90	1.05	3.3
20-35	8.9	8.0	29.7	0.23	0.67	0.9	6	235	-	3.5	1.0	4	2.2	0.1	21.0	14.67	4.34	2.02	0.52	9.6
35-50	9.2	8.1	46.5	0.49	2.45	0.6	6	197	-	9.8	0.9	3	1.8	0.1	15.6	8.36	4.77	3.33	0.38	21.3
50-80	9.2	8.2	55.2	0.81	3.80	0.2	6	263	-	18.7	0.8	3	1.4	0.1	13.4	4.90	5.60	3.94	0.55	29.4
80-150	9.5	8.6	32.5	1.26	5.61	0.2	4	546	-	43.1	0.5	3	0.9	0.1	18.6	3.04	9.14	7.31	1.42	39.3

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.