GRADATIONAL CLAY LOAM

General Description: *Medium thickness clay loam grading to a well structured red clay, highly calcareous with depth*

Landform: Undulating rises.

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

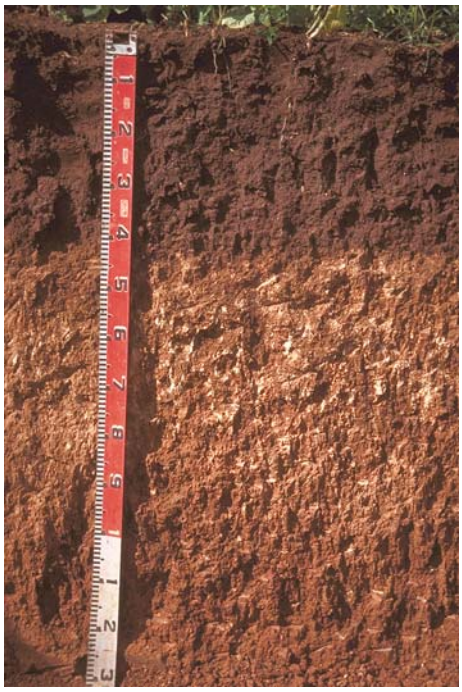
Vegetation: Mallee.

Type Site: Site No.: CM090

1:50,000 sheet:	6530-2 (Blyth)	Hundred:	Hart
Annual rainfall:	400 mm	Sampling date:	04/08/00
Landform:	Midslope of undulating rise, 3% slope		
Surface:	Firm, seasonally cracking in places with no stones		

Soil Description:

Depth (cm)	*Description*
0-13	Dark reddish brown hard clay loam with coarse subangular blocky structure. Clear to:
13-40	Dark reddish brown firm medium heavy clay with strong fine polyhedral structure. Gradual to:
40-70	Yellowish red firm very highly calcareous light clay with weak coarse prismatic structure. Gradual to:
70-95	Red firm highly calcareous light clay with weak coarse prismatic structure. Diffuse to:
95-170	Red with grey mottles very hard moderately calcareous medium heavy clay with very coarse prismatic structure and minor soft manganese segregations.



Classification: Sodic, Hypercalcic, Red Dermosol; medium, non-gravelly, clay loamy / clayey, moderate

Summary of Properties

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

Fertility: Inherent fertility is high, as indicated by the exchangeable cation data. Concentrations of all measured nutrient elements are satisfactory. Organic carbon levels are favourable.

pH: Neutral at the surface (alkalinity in paddock sample is due to calcareous surface soils adjacent to the pit site) to strongly alkaline at depth.

Rooting depth: 95 cm in pit but few roots below 70 cm.

Barriers to root growth:

Physical: There are no barriers above the Hindmarsh Clay, which affects root growth from 95 cm.

Chemical: High pH, high sodicity and moderate salinity from 40 cm restrict root growth.

Water holding capacity: Approximately 40 mm in the root zone.

Seedling emergence: Fair (in some patches of hard setting soils) to satisfactory where surface soils are calcareous, self-mulching.

Workability: Fair to good. The more clayey surface soils tend to become sticky when wet. The hard setting surfaces have a narrow moisture range for effective working.

Erosion Potential

Water: Moderately low.

Wind: Low.

Laboratory Data

Depth cm	pH H_2O	pH $CaC1_2$	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	8.2	7.1	0.1	0.20	1.3	1.72	89	585	4.1	1.5	0.87	13	8.9	1.6	16.8	13.1	4.4	0.38	1.84	2.3
0-13	7.3	6.6	0	0.17	1.6	1.61	88	558	6.2	1.8	0.97	13	8.7	0.79	17.3	12.7	4.7	1.2	1.46	6.9
13-40	9.0	8.1	0.6	0.63	4.1	0.63	8	282	19.9	7.0	1.2	9.6	1.9	0.73	28.2	16.7	9.9	5.8	1.22	20.6
40-70	9.3	8.3	26	1.43	13.6	0.36	6	229	289	14.7	1.40	8.1	0.84	0.48	15.3	5.4	8.2	7.7	0.81	50.3
70-95	9.4	8.3	30	1.45	13.8	0.23	5	226	316	13.2	1.1	6.7	0.77	0.52	13.9	3.7	7.2	7.8	0.78	56.1
95-170	9.2	8.5	13	1.43	9.3	0.11	4	287	340	18.9	0.71	5.6	0.44	0.24	16.6	4.2	8.8	9.8	0.94	59.0

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.