

DEEP GRADATIONAL CLAY LOAM

General Description: *Firm loam to clay loam grading to a red brown well structured clay loam to clay with a prominent layer of soft carbonate at moderate depth overlying a coarsely structured orange clay*

Landform: Flats and gently sloping outwash fans

Substrate: Alluvial clay, mantled by soft (Class I) carbonate

Vegetation:



Type Site: Site No.: CM067

1:50,000 sheet:	6629-4 (Halbury)	Hundred:	Hall
Annual rainfall:	455 mm	Sampling date:	23/08/95
Landform:	Lower slope of very gently inclined fan, 2% slope		
Surface:	Firm with no stones		

Soil Description:

Depth (cm)	Description
0-11	Dark reddish brown clay loam with strong granular structure. Clear to:
11-23	Dark reddish brown light medium clay with strong polyhedral structure. Clear to:
23-40	Dark reddish brown medium clay with strong prismatic structure. Clear to:
40-60	Red medium clay with strong coarse prismatic structure. Clear to:
60-100	Yellowish red very highly calcareous medium clay with moderate blocky structure and more than 50% soft carbonate segregations. Diffuse to:
100-160	Yellowish red very highly calcareous medium clay with moderate blocky structure and 20-50% soft carbonate segregations.



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

Summary of Properties

Drainage	Well drained. The soil is never likely to remain wet for more than a few hours.
Fertility	Natural fertility is very high (very high CEC and high calcium saturation). Organic carbon levels satisfactory. Need to monitor trace elements.
pH	Alkaline at the surface, strongly alkaline at depth (surface carbonate and high pH may be due to road dust).
Rooting depth	100 cm.
Barriers to root growth	
Physical:	No physical barriers.
Chemical:	High pH (more than 9.2) prevents root growth below 100 cm.
Water holding capacity	Approximately 150 mm in rootzone (very high).
Seedling emergence	Good.
Workability	Good, but may get sticky when wet.
Erosion Potential	
Water:	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	8.2	7.7	0.6	0.15	0.61	1.6	88	940	7	2.4	1.30	-	15.6	1.40	25.2	20.94	3.10	0.27	3.01	1.1
0-11	8.1	7.8	0.9	0.13	0.45	1.5	21	958	6	1.5	-	-	-	-	27.2	21.59	3.28	0.25	2.87	0.9
11-23	8.3	7.8	0.3	0.12	0.31	1.0	8	635	3	1.2	-	-	-	-	31.6	25.24	4.22	0.39	2.25	1.2
23-40	8.4	7.8	0.3	0.13	0.25	0.7	7	308	3	0.6	-	-	-	-	37.2	27.59	7.65	1.01	1.46	2.7
40-60	8.5	7.8	0.2	0.17	0.38	0.6	7	354	2	0.7	-	-	-	-	39.2	25.95	10.67	2.26	1.71	5.8
60-100	9.1	8.0	22.9	0.28	0.74	0.3	6	413	10	1.0	-	-	-	-	25.0	13.53	8.97	3.24	1.56	13.0
100-160	9.5	8.1	45.4	0.47	1.52	0.1	6	446	48	4.0	-	-	-	-	18.6	6.26	9.26	4.45	1.29	23.9

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.