

CALCAREOUS LOAM

General Description: *Calcareous red brown loam becoming more clayey and calcareous with depth (Class I carbonate layer), grading to a coarsely structured red clay*

Landform: Flats, gentle slopes and inter-dune swales

Substrate: Pleistocene age heavy clay with well developed coarse blocky structure

Vegetation: Mallee scrub



Type Site: Site No.: CM062

1:50,000 sheet: 6529-1 (Balaklava) Hundred: Hall

Annual rainfall: 375 mm Sampling date: 23/08/95

Landform: Flat at edge of dunefield, 1% slope

Surface: Firm with no stones

Soil Description:

Depth (cm)	Description
0-6	Dark reddish brown moderately calcareous loam with strong granular structure and 2-10% quartzite gravel. Abrupt to:
6-12	Dark reddish brown moderately calcareous clay loam with strong polyhedral structure. Abrupt to:
12-30	Reddish brown highly calcareous light clay with moderate polyhedral structure. Clear to:
30-50	Reddish brown very highly calcareous light clay with moderate polyhedral structure, 10-20% soft carbonate segregations and 2-10% nodules. Gradual to:
50-75	Yellowish red very highly calcareous light clay with moderate polyhedral structure and 10-20% soft carbonate segregations. Diffuse to:
75-115	Red highly calcareous medium clay with moderate blocky structure and 10-20% soft carbonate segregations. Clear to:
115-160	Dark reddish brown highly calcareous medium heavy clay with strong coarse blocky structure and 2-10% soft carbonate and manganese segregations.



Classification: Endohypersodic, Pedal, Hypercalcic Calcarosol; thick, slightly gravelly, loamy/clayey, deep

Summary of Properties

Drainage	Well drained. The soil is never likely to be saturated form more than a day or so.
Fertility	Natural fertility is high (refer CEC values), and organic carbon levels are adequate, so nutrient retention is not a problem. All major nutrients are well supplied. Tissue testing needed to check trace element levels.
pH	Neutral at the surface, strongly alkaline with depth.
Rooting depth	115 cm in pit, but few roots below 75 cm.
Barriers to root growth	
Physical:	Strong plough pan at 6 cm affects early root extension (could be broken up by a deep working).
Chemical:	High pH from 75 cm, and toxic levels of boron and exchangeable sodium from 115 cm prevent significant root growth below 75 cm.
Water holding capacity	Approximately 110 mm in root zone (high).
Seedling emergence	Good to fair. Surface will seal and set down hard if organic matter is not maintained.
Workability	Good to fair (refer above).
Erosion Potential	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	7.1	6.5	0	0.07	0.45	1.2	57	676	10	1.3	0.96	-	16.1	1.81	15.0	12.28	2.29	0.19	1.98	1.3
0-6	7.4	7.0	0.1	0.10	0.57	1.8	46	773	8	1.4	-	-	-	-	14.6	11.09	2.23	0.15	2.02	1.0
6-12	7.9	7.5	0.8	0.16	0.44	1.2	50	655	6	1.2	-	-	-	-	17.9	15.23	2.20	0.16	1.87	0.9
12-30	8.6	7.9	12.3	0.12	0.35	0.7	9	386	6	1.2	-	-	-	-	13.7	13.60	1.96	0.17	1.14	1.2
30-50	8.8	7.9	26.6	0.11	0.35	0.4	6	132	9	0.9	-	-	-	-	9.7	9.61	2.45	0.24	0.35	2.5
50-75	9.0	8.0	26.8	0.14	0.52	0.4	4	138	12	1.6	-	-	-	-	9.6	7.39	4.04	0.53	0.38	5.5
75-115	9.6	8.4	20.0	0.33	1.05	0.2	<4	257	27	8.5	-	-	-	-	9.3	3.28	5.94	2.24	0.62	24.1
115-160	9.7	8.7	2.9	0.61	1.23	0.1	<4	576	27	25.0	-	-	-	-	19.8	2.39	10.02	7.87	1.41	39.7

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.