

CALCAREOUS SANDY LOAM OVER CLAYEY SUBSTRATE

General Description: *Highly calcareous sandy loam, grading to a rubbly carbonate layer within 50 cm of the surface, overlying a reddish heavy clay below 100 cm*

Landform: Plains and gently undulating to undulating rises

Substrate: Heavy clay of Pleistocene age (Hindmarsh Clay equivalent)

Vegetation: Mallee scrub



Type Site: Site No.: CM029

1:50,000 sheet:	6530-3 (Lochiel)	Hundred:	Cameron
Annual rainfall:	350 mm	Sampling date:	13/05/93
Landform:	Lower slope of an undulating rise, 3% slope		
Surface:	Soft with no stones		

Soil Description:

<i>Depth (cm)</i>	<i>Description</i>
0-10	Dark brown highly calcareous massive fine sandy loam. Abrupt to:
10-30	Dark brown very highly calcareous massive fine sandy clay loam. Abrupt to:
30-50	Brown very highly calcareous fine sandy clay loam with 55% carbonate nodules (Class III B carbonate). Clear to:
50-80	Yellowish red very highly calcareous massive fine sandy clay loam with 10% carbonate nodules. Gradual to:
80-110	Reddish yellow very highly calcareous massive clay loam with 10% carbonate nodules. Diffuse to:
110-160	Red medium clay with strong prismatic structure and 10-20% fine Class I carbonate segregations (Hindmarsh Clay equivalent).



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

Summary of Properties

Drainage	The soil is well drained and is unlikely to remain wet for more than a day or so.
Fertility	The nutrient retention capacity of the soil is moderately high as indicated by the exchangeable cation data, but the high carbonate content and pH reduce nutrient availability. Organic carbon and phosphorus levels are satisfactory.
pH	Alkaline at the surface, strongly alkaline with depth.
Rooting depth	80 cm at sampling site.
Barriers to root growth	
Physical:	There are no apparent physical barriers above the Hindmarsh Clay which is of sufficiently high strength to impede root growth.
Chemical:	There are toxic levels of boron from 50 cm, very high pH values (inducing nutrient deficiencies), moderate salinity and a very high ESP, indicating possibly toxic levels of sodium.
Water holding capacity	Approximately 90 mm in the root zone.
Seedling emergence	Good, although these soils may become compacted if organic matter is depleted.
Workability	Good to fair. Organic matter depletion and excessive cultivation may result in surface compaction and a limited moisture range for effective working.
Erosion Potential	
Water:	Moderately low.
Wind:	Moderately low, provided that organic carbon levels are maintained.

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	8.1	0.18	1.02	1.9	33	636	-	3.5	0.5	4	5.7	0.6	16.6	13.80	1.66	0.19	1.33	1.1
0-10	8.0	7.8	7.9	0.18	1.04	1.9	33	600	-	3.3	0.5	4	6.8	0.6	16.4	13.57	1.58	0.20	1.36	1.2
10-30	8.3	8.0	15.4	0.16	0.61	1.1	11	269	-	3.5	0.6	6	2.2	0.2	15.7	13.09	2.87	0.39	0.49	2.5
30-50	9.1	8.4	24.6	0.38	2.25	0.5	8	167	-	9.2	1.0	5	1.3	0.2	11.5	4.96	6.17	1.96	0.32	17.0
50-80	9.6	8.6	38.3	0.86	7.54	0.2	7	231	-	23.9	0.8	3	0.5	0.1	9.6	2.07	5.67	4.08	0.44	42.5
80-110	9.5	8.7	41.7	1.33	9.30	0.2	6	324	-	27.2	0.8	3	0.5	0.1	11.4	2.32	5.44	5.23	0.72	45.9
110-160	9.2	8.5	17.7	1.48	8.77	0.2	5	465	-	46.2	0.7	4	1.3	0.1	18.1	3.23	7.94	7.16	1.12	39.6

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.