

CALCAREOUS CLAY LOAM (Calcrete soil – deep phase)

General Description: *Calcareous clay loam becoming more clayey and calcareous with depth*

Landform: Undulating rises and low hills.

Substrate: Calcreted Bridgewater Formation calcarenites.

Vegetation: Mallee.

Type Site: Site No.: EC096

1:50,000 sheet: 5830-1 (Elliston)

Hundred: Ward

Annual rainfall: 400 mm

Sampling date: 23/11/93

Landform: Flat between rises

Surface: Firm with minor calcrete stones

Soil Description:

<i>Depth (cm)</i>	<i>Description</i>
0-10	Dark brown friable moderately calcareous clay loam with strong fine subangular blocky structure. Gradual to:
10-30	Dark brown soft highly calcareous light clay with moderate fine subangular blocky structure. Gradual to:
30-60	Brown soft massive very highly calcareous sandy clay loam with 2-10% carbonate concretions. Sharp to:
60-	Calcrete.



Classification: Hypervescent, Petrocalcic, Hypercalcic Calcarosol; thick, non-gravelly, clay loamy / clayey, moderate

Summary of Properties

Drainage Rapidly drained. The soil rarely remains wet for more than a few hours at a time unless the underlying calcrete is unfractured, in which case it may pond for a week or so in hollows.

Fertility Inherent fertility is high, as indicated by the exchangeable cation data. However, regular phosphorus applications are needed, and levels are low at the sampling site. Nitrogen levels depend on legume content of pastures and cropping history. Trace element deficiencies are possible - copper and zinc levels may be limiting from time to time. Organic carbon levels at sampling site are very high.

pH Alkaline throughout.

Rooting depth 60 cm in pit.

Barriers to root growth

Physical: The calcrete prevents virtually all deeper growth.

Chemical: There are no chemical limitations.

Water holding capacity Approximately 90 mm in the root zone.

Seedling emergence: Satisfactory.

Workability: The firm surface is easily worked.

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 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	
0-10	8.3	7.6	12	0.23	1.01	3.7	16	1500	-	2.7	0.28	7.1	9.7	1.4	42.8	35.41	4.26	0.71	4.65	1.7
10-30	8.3	7.6	23	0.19	0.56	1.6	6.2	690	-	1.4	0.33	7.8	6.2	0.44	35.3	30.77	4.26	0.84	2.88	2.4
30-60	8.3	7.6	57	0.17	0.45	0.76	5.0	340	-	1.2	0.21	5.4	1.7	0.27	17.7	14.92	2.59	0.48	1.22	2.7

Note: 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.