HIGHLY CALCAREOUS SANDY LOAM

(Magarey / Cungena soil)

General Description: *Very highly calcareous sandy loam, becoming more clayey at depth with variable nodular carbonate*

Landform: Very gently undulating plains and rises.

Substrate: Very highly calcareous medium to coarse textured windblown deposits (Woorinen Formation).

Vegetation: Mallee.

Type Site:

Site No.:	EW061	1:50,000 mapsheet:	5832-4 (Cungena)
Hundred:	Tarlton	Easting:	460600
Section:	5	Northing:	6387650
Sampling date:	16/01/1986	Annual rainfall:	335 mm average

Lower slope of low hill.

Soil Description:

Depth (cm)	*Description*
0-5	Brown massive highly calcareous sandy loam. Abrupt to:
5-15	Brown massive highly calcareous light sandy clay loam. Abrupt to:
15-50	Brown massive highly calcareous heavy sandy loam. Clear to:
50-87	Reddish yellow massive very highly calcareous sandy loam with 20-50% carbonate nodules (Class III B carbonate). Clear to:
87-123	Brownish yellow massive very highly calcareous light sandy clay loam. Gradual to:
123-180	Brownish yellow massive very highly calcareous light sandy clay loam.

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

Summary of Properties

Drainage: Rapidly drained. The soil rarely remains saturated for more than a few hours.

Fertility: Inherent fertility is low due to the low clay content and very high carbonate concentration to the surface. Nutrient retention capacity low and fixation of phosphorus, zinc, manganese, copper and iron is high.

pH: Alkaline at the surface, strongly alkaline with depth.

Rooting depth: Not recorded. Estimate 50 cm in pit.

Barriers to root growth:

Physical: There are no physical barriers.

Chemical: High pH from 50 cm restricts root growth, and high carbonate concentration throughout affects nutrient availability.

Waterholding capacity: Approximately 70 mm in the potential rootzone.

Seedling emergence: Satisfactory.

Workability: The soft calcareous sandy loam surface is easily worked.

Erosion Potential:

Water: Low.

Wind: Moderate.

Laboratory Data

Depth cm	pH H_2O	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	
0-5	8.4	7.8	48	0.18	1.2	-	-	-	10.5	3.4	-	-	-	-	12.1	-	2.0	0.17	1.6	1.4
5-15	8.6	7.9	52	0.14	0.9	-	-	-	7.5	2.9	-	-	-	-	11.3	-	2.2	0.21	0.97	1.9
15-50	8.5	8.0	56	0.27	1.8	-	-	-	8.5	3.2	-	-	-	-	10.3	-	4.1	0.25	0.49	2.4
50-87	9.5	8.3	65	0.81	5.4	-	-	-	-	5.0	-	-	-	-	6.6	-	5.8	1.5	0.94	22.7
87-123	9.5	8.4	67	1.06	7.0	-	-	-	-	11.2	-	-	-	-	5.8	-	6.0	1.7	0.83	29.3
123-180	9.3	8.4	72	0.98	6.5	-	-	-	-	12.1	-	-	-	-	4.5	-	4.2	0.74	0.74	16.4

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.

* Exchangeable calcium (Ca) values not presented because the laboratory procedure used was inappropriate for very highly calcareous samples.

Further information: DEWNR Soil and Land Program