

HIGHLY CALCAREOUS LOAMY SAND

General Description: *Highly calcareous sand to sandy loam becoming more calcareous and clayey with depth, grading to shell sand*

Landform: Very gently undulating low lying near coastal plains

Substrate: Shell sand of buried coastal sand dunes.

Vegetation:



Type Site: Site No.: CH086

1:50,000 sheet:	6626-1 (Goolwa)	Hundred:	Nangkita
Annual rainfall:	450 mm	Sampling date:	2/6/95
Landform:	Low rise on very gently undulating plain, 2 m elevation		
Surface:	Soft with no stone		

Soil Description:

<i>Depth (cm)</i>	<i>Description</i>
0-15	Highly calcareous greyish brown loamy sand. Clear to:
15-40	Very highly calcareous greyish brown light sandy loam. Clear to:
40-60	Light brownish grey very highly calcareous sandy clay loam with weak very coarse prismatic structure. Clear to:
60-110	White and brownish yellow mottled highly calcareous sand with minor shell fragments. Diffuse to:
110-170	Pale brown and brownish yellow mottled highly calcareous sand.



Classification: Hypervescent, Regolithic, Hypercalcic, Calcarosol; thick, non-gravelly, sandy / clay loamy, moderate

Summary of Properties

Drainage	The soil is well drained. Saturation of the soil profile will only occur where the groundwater table is near the surface.
Fertility	The natural fertility of this soil is low (refer CEC values), due to the low clay content, and very high carbonate content (limits availability of a range of nutrients). Surface organic matter is the main source of nutrient retention capacity. At the sampling site, calcium and potassium are marginally deficient. Magnesium is low relative to the other cations. Phosphorus and sulphur are adequate. Organic carbon is high.
pH	Alkaline at the surface, strongly alkaline with depth.
Rooting depth	Roots to 170 cm in pit.
Barriers to root growth	
Physical:	The soil has low physical strength (ie easy for roots to penetrate).
Chemical:	The soil has low levels of salt, boron and exchangeable sodium, although very high carbonate levels affect nutrient availability. Near surface saline groundwater tables (where present) will present a barrier to root development.
Water holding capacity	Approximately 120 mm.
Seedling emergence	Good
Workability	Good
Erosion Potential	
Water:	Low
Wind:	Moderate; sandy surface will blow if left unprotected.

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 (EDTA)				CEC cmol (+)/kg	Exchangeable Cations cmol(+)/kg				ESP
											Cu	Fe	Mn	Zn		Ca	Mg	Na	K	
Paddock	8.3	8.0	30.2	0.13	0.59	2.1	25	122	14.2	1.6	0.46	11.7	12.2	2.65	5.6	6.90	0.78	0.13	0.44	2.3
											*0.2	-	*5.7	*1.2						
0-15	8.4	8.1	31.0	0.15	0.87	1.8	26	183	14.3	1.6	-	-	-	-	5.5	6.89	0.86	0.20	0.48	3.6
15-40	8.4	8.1	36.2	0.13	0.77	1.0	5	90	12.0	1.4	-	-	-	-	4.8	6.42	1.02	0.15	0.26	3.1
40-60	8.6	8.2	42.4	0.14	0.58	0.3	<4	130	10.1	1.4	-	-	-	-	7.4	6.60	2.09	0.22	0.37	3.0
10-110	8.9	8.4	50.9	0.10	0.48	0.1	<4	65	8.0	1.1	-	-	-	-	2.9	2.79	1.09	0.22	0.62	na
110-170	9.4	9.0	33.6	0.28	2.55	0.0	<4	69	21.5	1.0	-	-	-	-	0.7	0.79	0.40	0.40	0.11	na

Note: Paddock sample bulked from 20 cores (0-10 cm) taken around the pit.

* DTPA trace element analyses for "paddock" sample.

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.