

THICK SAND OVER SANDY CLAY

General Description: *Thick bleached sand over a brown or red sandy clay to clay subsoil, usually calcareous with depth*

Landform: Gently undulating plain with sandhills.

Substrate: Calcrete.

Vegetation:



Type Site: Site No.: CY022

1:50,000 sheet: 6428-1 (Port Julia)

Hundred: Muloowurtie

Annual rainfall: 365 mm

Sampling date: 25/11/93

Landform: Crest of sandhill, 1% slope

Surface: Loose with no stones

Soil Description:

18 cm drift sand on surface, not included in following description.

Depth (cm)	Description
0-10	Yellowish brown loose sand. Abrupt to:
10-47	Very pale brown (bleached) loose sand. Clear to:
47-56	Strong brown firm massive sandy medium clay with more than 50% carbonate nodules (60-200 mm), cemented into a pan.



Classification: Bleached, Petrocalcic, Brown Chromosol; thick, non-gravelly, sandy / clayey, moderate

Summary of Properties

Drainage	Well drained due to elevated position on low dune. Despite the poorly structured clayey subsoil, saturation rarely lasts more than a couple of days.
Fertility	The natural fertility of the surface layers is low, but high in the lower clay layers as indicated by the exchangeable cation data. Due to the low clay content, surface fertility relies on maintaining high organic matter levels: native organic carbon levels on this cleared but uncropped dune are very low. Natural phosphorus, potassium, zinc, manganese, copper and boron levels are also low, although potassium and boron levels increase in the clayey subsoil.
pH	Neutral at the surface, alkaline in subsoil.
Rooting depth	Greater than 50 cm.
Barriers to root growth	
Physical	Abundant large hard carbonate nodules and the tight clay subsoil restrict root growth.
Chemical	There are no limitations due to high levels of sodicity, boron, salt or pH - low nutrient status is likely to be the main limitation to root growth.
Water holding capacity	Approximately 45 mm in the rootzone (moderately low). Limited in the subsoil by hard carbonate fragments. There is likely to be some lateral water movement along the top of the clay.
Seedling emergence	Good, except in seasons when water repellence is a problem.
Workability	Good.
Erosion Potential	
Water	Low.
Wind	Moderately high (semi-arable).

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	
0-10	7.5	6.9	0	0.02	0.10	0.2	7	38	-	0.1	0.1	4	0.4	0.1	2.3	1.7	0.5	0.2	0.1	na
10-47	7.5	7.0	0	0.01	0.07	0.0	6	14	-	<0.1	0.1	2	<0.1	0.1	1.3	0.8	0.2	0.1	0.1	na
47-56	8.2	7.8	0.2	0.08	0.19	0.2	4	310	-	2.1	0.1	9	<0.1	0.1	19.7	13.0	4.9	0.4	1.5	1.9

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