

SHALLOW SAND OVER CLAY ON CALCRETE

General Description: *Sandy surface soil with a bleached subsurface layer over a thin clayey subsoil with calcrete at shallow depth*

Landform: Flats and rises in relict coastal dune - corridor country

Substrate: Calcreted calcarenite of the Bridgewater Formation or limestone / marl of the Padthaway Formation.

Vegetation: Pink gum.



Type Site:	Site No.:	SE047	1:50,000 mapsheet:	6925-1 (Keith)
	Hundred:	Stirling	Easting:	436900
	Section:	87	Northing:	6002700
	Sampling date:	08/11/1995	Annual rainfall:	495 mm average

Flat with soft surface and 2-10% surface calcrete fragments.

Soil Description:

Depth (cm)	Description
0-5	Dark greyish brown soft loamy sand. Sharp to:
5-9	Bleached soft loamy sand. Sharp to:
9-25	Light yellowish brown mottled firm sandy medium clay with moderate coarse columnar structure and 2-10% calcrete fragments. Clear to:
25-40	Pale olive and pale yellow firm sandy medium clay with weak subangular blocky structure and 20-50% calcrete fragments. Sharp to:
40-60	Calcrete pan. Clear to:
60-80	Limestone.



Classification: Bleached-Mottled, Petrocalcic, Yellow Chromosol; thin, slightly gravelly, sandy / clayey, shallow



Summary of Properties

- Drainage:** Moderately well drained. Some perching of water on top of subsoil clay occurs, but saturation is unlikely to persist for more than a few days.
- Fertility:** The natural fertility of the sandy soil is low, as confirmed by the low CEC values. There is high nutrient retention capacity in the subsoil clay. The data indicate that all elements, with the possible exception of calcium, are in adequate supply.
- pH:** Alkaline at the surface, strongly alkaline with depth. Higher than normal topsoil pH values are probably caused by irrigation water and road dust.
- Rooting depth:** 40 cm in pit.
- Barriers to root growth:**
- Physical:** Calcrete pan. The depth to the pan varies, as will the extent of fracture, which determines the depth to which roots can exploit moisture.
- Chemical:** Nil.
- Waterholding capacity:** Approximately 40 mm in rootzone. However, because of variable depth to the calcrete, and fracturing patterns, this figure may be misleading.
- Seedling emergence:** Good, except where water repellence is a problem.
- Workability:** Good.
- Erosion Potential:**
- Water:** Low.
- Wind:** Moderately 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	
Paddock	8.1	7.4	0	0.39	3.15	0.9	27	144	31	1.8	0.80	14	2.0	1.7	5.2	1.78	2.49	0.77	0.19	14.8
0-5	8.4	7.8	0	0.09	0.48	0.7	38	220	8	0.5	-	-	-	-	6.0	4.62	0.94	0.04	0.42	0.7
5-9	8.2	7.5	0	0.06	0.35	0.6	34	193	12	0.6	-	-	-	-	6.8	5.23	1.18	0.05	0.34	0.7
9-25	8.2	7.5	0.1	0.11	0.44	0.4	nd	339	10	1.3	-	-	-	-	16.0	9.34	4.62	0.14	0.88	0.9
25-40	8.6	7.9	0.3	0.13	0.36	0.3	54	321	10	1.6	-	-	-	-	17.4	10.18	4.73	0.55	0.84	3.2
40-60	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
60-80	9.5	8.3	69.6	0.70	4.85	0.5	10	266	83	1.5	-	-	-	-	8.1	3.80	4.42	2.60	0.51	32.1

Note: Paddock sample bulked from 20 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.

Further information: [DEWNR Soil and Land Program](#)

