

SAND OVER WET SANDY CLAY ON CALCRETE

General Description: *Soft sand with a bleached subsurface layer, sharply overlying a grey mottled columnar structured sandy clay loam to clay with fragmented or sheet calcrete at about 50 cm. Water table within 100 cm*

Landform: Level to very gently undulating plains

Substrate: Calcreted limestones and clays of the Padthaway Formation (old lagoon bed deposits)

Vegetation: Tea tree / samphire



Type Site: Site No.: SE901

1:50,000 sheet: 6925-4 (Laffer)

Hundred: Laffer

Annual rainfall: 475 mm

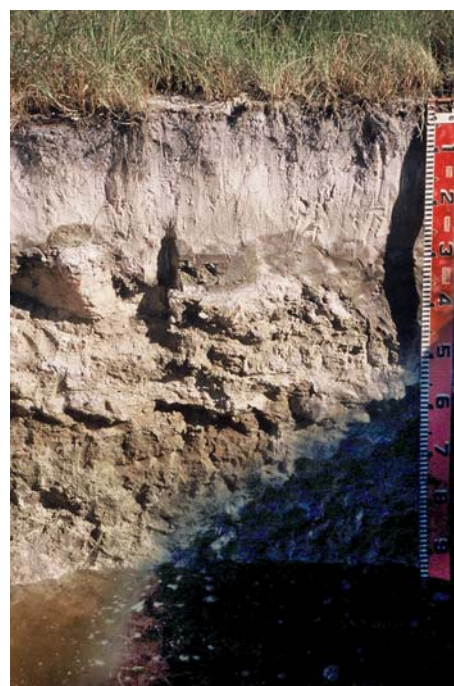
Sampling date: 26/11/03

Landform: Flat on very gently undulating plain

Surface: Soft with no stones. Water table at 95 cm.

Soil Description:

<i>Depth (cm)</i>	<i>Description</i>
0-12	Dark greyish brown (10YR4/2) soft single grain sand. Gradual to:
12-30	White (10YR8/2) soft single grain sand. Sharp to:
30-45	Light brownish grey (2.5Y6/3) and greyish brown (2.5Y5/2) mottled friable light sandy clay loam with weak very coarse columnar structure. Clear to:
45-52	Light yellowish brown (2.5Y6/4) and greyish brown (2.5Y5/2) mottled friable sandy light clay with weak very coarse prismatic structure, 2-10% calcrete fragments (60-200 mm) and 10-20% soft carbonate segregations. Abrupt to:
52-65	Strongly cemented massive calcrete pan. Clear to:
65-105	Light yellowish brown (2.5Y6/4), greyish brown (2.5Y5/2) and strong brown (7.5YR5/8) mottled friable massive fine sandy light clay with 10-20% calcrete fragments (60-200 mm) and 2-10% veins of soft carbonate.



Classification: Petrocalcic, Sodosolic, Salic Hydrosol; medium, non-gravelly, sandy / clayey, moderate, OR Calcic, Mottled-Hypernatric, Grey Sodosol; thick, non-gravelly, sandy / clayey, moderate

Summary of Properties

Drainage: Poorly drained. The shallow water table prevents adequate drainage of water from the profile to the extent that at least the lower part of the soil is wet for several months each year. The land is inundated during winter in most years.

Fertility: Inherent fertility is low, as indicated by the exchangeable cation data. This is due to low clay content and moderate to strong leaching. Phosphorus concentrations at the sampling site are very low, and copper also appears to be deficient. Regular phosphorus and nitrogen applications are essential, with strategic trace element applications. Tissue testing for calcium and magnesium levels is also warranted.

pH: Alkaline throughout.

Rooting depth: 52 cm in pit, but few roots below 30 cm.

Barriers to root growth:

Physical: The poorly structured subsoil restricts root growth, confining most activity to the surfaces of the coarse aggregates. The calcrete also prevents uniform root distribution, although it is sufficiently fractured to allow some penetration.

Chemical: Very high salinity throughout the profile is a severe restriction to growth of all but halophytic plants.

Water holding capacity: Approximately 30 mm in the potential root zone (low).

Seedling emergence: Satisfactory, although water repellence may cause uneven establishment in some seasons.

Workability: The sandy surface is easily worked, although compaction is likely if worked too wet.

Erosion Potential

Water: Low.

Wind: Moderately low.

Laboratory Data

Depth cm	pH H ₂ O	pH CaCl ₂	CO ₃ %	EC 1:5 dS/m	ECe dS/m	Org.C %	Avail. P mg/kg	Avail. K mg/kg	Cl mg/kg	SO ₄ -S mg/kg	Boron mg/kg	Trace Elements mg/kg (DTPA)				Sum cations cmol (+)/kg	Exchangeable Cations cmol(+)/kg				Est ESP
												Cu	Fe	Zn	Mn		Ca	Mg	Na	K	
0-12	9.5#	8.9#	nd	1.925	27.2	0.38	3	150	1936	123	6.4	0.16	3.9	0.66	1.2	6.5	2.36	2.49	1.33	0.35	20.4
12-30	8.4	8.0	nd	1.510	26.2	0.16	3	91	1621	98	2.7	0.09	5.0	0.33	0.26	2.0	0.21	0.88	0.67	0.23	na
30-45	8.7	8.2	nd	3.062	39.2	0.25	4	585	3605	250	11.3	0.23	5.4	0.36	0.25	10.6	0.68	3.43	5.03	1.47	47.4
45-52	9.0	8.6	nd	3.758	25.7	nd	4	862	4080	310	11.9	0.23	7.1	0.54	0.25	18.3	2.20	5.11	8.56	2.42	46.8
52-65	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
65-105	9.0	8.6	nd	3.882	28.3	nd	<1	722	3898	264	4.5	0.24	5.0	0.68	0.89	20.5	4.80	5.83	7.93	1.93	38.7

Note: # Reason for high surface pH is not known.

Sum of cations, in a neutral to alkaline soil, approximates the CEC (cation exchange capacity), 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.