

THICK SAND OVER CLAY

General Description: *Grey loamy sand with a thick bleached sandy subsurface layer, over a coarsely structured orange clay subsoil*

Landform: Plains.

Substrate: Lagoon floor clays and limestones of the Padthaway Formation.

Vegetation:



Type Site:	Site No.:	SE908	1:50,000 mapsheet:	6923-2 (Kennion)
	Hundred:	Kennion	Easting:	449000
	Section:	162	Northing:	5865350
	Sampling date:	23/05/06	Annual rainfall:	690 mm average

Flat plain. Soft surface with no stones. Delved to 70 cm in 2002.

Soil Description:

Depth (cm)	Description
0-20	Dark greyish brown soft clayey/loamy sand with weak granular structure and 10-20% clay fragments. Clear to:
20-35	Very pale brown (bleached) single grain sand. Clear to:
35-60	Yellowish brown single grain sand. Sharp to:
20-70	Delved zone - rough mix of upper three layers - mainly sand, with large clay lumps at intervals.
60-80+	Strong brown and yellowish brown mottled hard, coarsely structured medium clay, calcareous at base.



Classification: Bleached, Calcic, Brown Chromosol; very thick, non-gravelly, sandy / clayey, deep?



Summary of Properties

- Drainage:** Moderately well drained. Water is likely to perch on top of the clay subsoil for up to a week following heavy or prolonged rainfall.
- Fertility:** Inherent fertility is low (surface) to very low (sub surface), as indicated by the exchangeable cation data, due to low clay content of the topsoil layers. Delving has significantly improved nutrient retention capacity. Test data for the surface soil indicate deficiencies of potassium and probably copper, manganese and zinc.
- pH:** Slightly acidic at the surface, neutral to slightly alkaline in the subsoil.
- Rooting depth:** Not recorded, but expect that roots would be abundant in the surface, few in the bleached layer, and few to common in the subsoil clay.
- Barriers to root growth:**
- Physical:** The hard and poorly structured subsoil clay is a significant barrier. Roots are largely confined to the aggregate surfaces.
- Chemical:** Root growth is mainly restricted by the very low fertility of the bleached subsurface layer. There are no toxicities in the upper subsoil, but no data for the lower subsoil.
- Waterholding capacity:** Approximately 70 mm total available water to 80 cm.
- Seedling emergence:** Satisfactory provided that delving controls water repellence .
- Workability:** Good. Sandy soils are easily worked.
- Erosion Potential:**
- Water:** Low.
- Wind:** Moderately low to moderate.

Laboratory Data

Depth cm	pH H ₂ O	pH CaCl ₂	CO ₃ %	EC1:5 dS/m	ECe dS/m	Cl mg/kg	Org. C %	NO ₃ + NH ₄ mg/kg	Avail. P mg/kg	Avail. K mg/kg	SO ₄ -S mg/kg	React Fe mg/kg	Ext Al mg/kg	Boron mg/kg	Trace Elements mg/kg (EDTA)				Sum cations cmol (+)/kg	Exchangeable Cations cmol(+)/kg				Est. ESP
															Cu	Fe	Mn	Zn		Ca	Mg	Na	K	
0-20	5.9	5.0	0	0.05	-	7	2.31	5	19	44	9.3	254	1.0	0.6	0.25	26	0.23	0.20	5.1	4.17	0.75	0.06	0.11	1.2
20-35	6.4	5.1	0	0.01	-	6	0.24	2	6	15	5.3	55	0.3	0.3	0.19	17	0.28	1.16	0.7	0.52	0.12	0.02	0.05	2.8
35-60	5.9	5.2	0	0.04	-	7	0.19	7	18	14	15.0	74	0.7	0.3	0.22	28	0.32	0.25	0.8	0.55	0.14	0.03	0.03	4.0
60-80	7.4	6.7	0	0.11	-	19	0.37	11	4	111	13.1	439	0	1.3	0.18	40	2.13	0.15	13.3	8.92	3.47	0.65	0.31	4.9
0-20#	7.2	6.9	0	0.21	-	19	0.9	5	31	119	38.2	640	0	1.4	0.26	118	2.93	2.26	16.7	12.8	3.44	0.23	0.33	1.4
20-70*	6.6	6.1	0	0.13	-	34	0.26	11	11	119	36.0	371	0	1.7	0.31	38	2.33	1.17	13.1	8.99	3.26	0.57	0.3	4.3
20-70**	6.4	5.8	0	0.05	-	14	0.84	12	12	23	14.2	123	0	0.4	0.18	51	0.59	0.42	2.0	1.53	0.31	0.08	0.08	4.0

Note: 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, in this case estimated by the sum of cations.

- # Clay lumps raised by delving sampled from surface layer
- * Clay lumps sampled from within the zone altered by delving.
- ** Sand sampled from within the zone altered by delving.

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

