THICK SAND OVER CLAY

General Description: *Thick sand to loamy sand over a coarsely structured brown clay, calcareous with depth*

Landform: Level plain.

Substrate: Clay.

Vegetation:

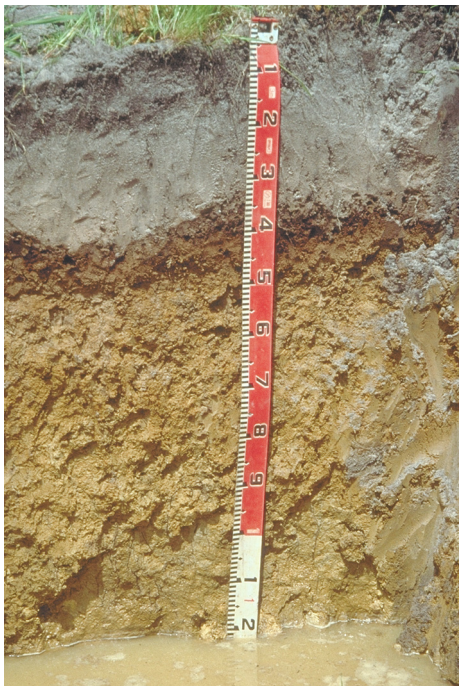
Type Site:

Site No.:	SE056	1:50,000 mapsheet:	6923-2 (Kennion)
Hundred:	Coles	Easting:	455100
Section:	131	Northing:	5874150
Sampling date:	24/10/1996	Annual rainfall:	665 mm average

Flat plain, 0% slope. Firm surface with no stones. Watertable at 120 cm.

Soil Description:

Depth (cm)	*Description*
0-23	Very dark grey soft light sandy loam with weak polyhedral structure. Clear to:
23-41	Light brownish grey loose sand. Abrupt to:
41-53	Brown loose loamy sand with 20-50% ironstone concretions (2-20 mm). Clear to:
53-70	Yellowish brown and brown mottled firm medium clay with coarse columnar breaking to angular blocky structure. Clear to:
70-90	Strong brown, yellowish brown and pale brown firm fine sandy medium clay with moderate coarse subangular blocky structure. Clear to:
90-110	Yellowish brown and light yellowish brown firm fine sandy medium clay with weak subangular blocky structure. Clear to:
110-130	Light yellowish brown, strong brown and yellowish brown friable (wet) massive sandy clay with 10-20% fine and 10-20% nodular carbonate. Gradual to:
130-150	Yellowish brown friable (wet) massive sandy light clay with 2-10% nodular carbonate.



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

Summary of Properties

Drainage: Imperfectly to poorly drained. The combination of shallow watertable and clayey subsoil leads to saturation of the profile for several weeks or more following heavy or prolonged rainfall.

Fertility: Inherent fertility is low as indicated by the exchangeable cation data. The sandy surface soil has minimal nutrient retention capacity - organic matter is needed to boost capacity. A range of deficiencies is likely. The data indicate deficiencies of phosphorus, calcium, magnesium, potassium, zinc, manganese and copper.

pH: Strongly acidic at the surface, alkaline with depth.

Rooting depth: 90 cm in pit.

Barriers to root growth:

Physical: The coarsely structured subsoil limits root growth - roots are confined to the surfaces of the aggregates. The watertable determines absolute depth.

Chemical: There are no chemical barriers.

Waterholding capacity: Approximately 90 mm in the rootzone.

Seedling emergence: Satisfactory except where water repellent.

Workability: The firm surface is easily worked.

Erosion Potential:

Water: Low.

Wind: Moderately low.

Laboratory Data

Depth cm	pH H_2O	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	Exch Al mg/kg
											Cu	Fe	Mn	Zn		Ca	Mg	Na	K		
Paddock	5.4	4.4	0.2	0.03	0.25	2.42	13	47	6.1	0.9	0.11	121	1.62	1.03	4.9	2.66	0.71	0.08	0.11	na	8.6
											*0.20	*159	*1.91	*1.16							
0-23	5.4	4.2	0.1	0.03	0.24	1.44	10	39	6.6	0.7	0.09	103	0.36	6.13?	4.1	2.04	0.34	0.09	0.28	na	15.3
23-41	5.5	4.9	0.0	0.02	0.22	0.28	4	17	1.9	0.3	0.07	36	0.10	0.30	1.1	0.58	0.14	0.12	0.04	na	2.5
41-53	5.9	5.4	0.0	0.04	0.33	0.30	6	52	9.4	0.4	0.09	111	1.65	0.09	2.1	1.09	0.33	0.40	0.14	na	1.8
53-70	5.9	5.1	0.0	0.08	0.38	0.71	3	155	9.6	0.9	0.05	41	0.51	0.10	15.5	9.66	3.44	0.39	0.50	2.5	3.5
70-90	6.1	5.5	0.5	0.11	0.52	0.43	2	127	24.5	0.6	0.04	13	0.63	0.09	15.3	10.24	3.18	0.31	0.39	2.0	2.0
90-110	6.5	5.9	0.95	0.12	0.55	0.20	2	120	29.7	0.6	0.07	5.8	1.56	0.07	13.3	9.93	2.31	0.34	0.26	2.6	2.0
110-130	8.0	7.5	3.3	0.20	0.70	0.21	2	108	16.9	0.5	0.08	5.1	2.97	0.05	14.1	11.23	1.23	0.26	0.23	1.8	2.0
130-150	8.2	7.5	6.2	0.17	0.84	0.16	2	78	9.4	0.5	0.07	4.8	3.11	0.06	9.3	8.31	0.58	0.08	0.16	0.9	1.9

Note: Paddock sample bulked from 20 cores (0-10 cm) taken around the pit.
* EDTA trace element analyses on "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.

Further information: DEWNR Soil and Land Program