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 sheet:	6923-2 (Kennion)	Hundred:	Coles
Annual rainfall:	750 mm	Sampling date:	24/10/96
Landform:	Flat plain, 0% slope		
Surface:	Firm with no stones. Water table 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 water table 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 water table determines absolute depth.

Chemical: There are no chemical barriers.

Water holding capacity Approximately 90 mm in the root zone.

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 $CaC1_2$	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	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.