

THICK SANDY LOAM OVER BROWN MOTTLED CLAY

General Description: *Thick sandy loam with a bleached sandy subsurface layer, overlying a coarsely structured brown mottled clay*

Landform: Gently undulating plains.

Substrate: Coarse grained Tertiary age sediments.

Vegetation:



Type Site: Site No.: SE111
 1:50,000 sheet: 7023-1 (Struan) Hundred: Joanna
 Annual rainfall: 600 mm Sampling date: 16/10/06
 Landform: Midslope of very gentle rise, 1% slope.
 Surface: Firm with no stones.

Soil Description:

<i>Depth (cm)</i>	<i>Description</i>
0-8	Dark brown friable massive sandy loam. Clear to:
8-20	Brown friable massive sandy loam. Clear to:
20-50	Pink (bleached), with strong brown mottles, friable massive clayey sand, with a 5 cm thick ironstone gravelly layer at base. Abrupt to:
50-70	Dark yellowish brown, yellowish brown and dark greyish brown mottled extremely hard medium clay with strong coarse prismatic structure. Gradual to:
70-95	Light olive brown, yellowish brown and red mottled extremely hard medium clay with weak coarse prismatic breaking to strong blocky structure and 2-10% ironstone nodules. Gradual to:
95-120	Brownish yellow, red and light yellowish brown mottled very hard light sandy clay loam with weak coarse prismatic structure. Gradual to:
120-180	Brownish yellow, pale yellow and brown (biopore infill) hard massive light clayey sand.



Classification: Eutrophic, Mottled-Subnatric, Brown Sodosol; thick, non-gravelly, loamy / clayey, deep

Summary of Properties

Drainage: Imperfectly drained. Water may perch on top of the clayey subsoil for several weeks at a time following heavy or prolonged rainfall.

Fertility: Inherent fertility is moderately low, as indicated by the exchangeable cation data. Low clay content in the topsoil, and depth to relatively low CEC subsoil indicates low nutrient retention and supply capacity. In sampling pit, concentrations of P, Cu, Mn and Zn are low to marginal.

pH: Acidic at the surface, neutral with depth.

Rooting depth: 95 cm in sampling pit, but few roots below 70 cm.

Barriers to root growth:

Physical: The poor structure and high strength of the subsoil clay restricts even root distribution. Roots penetrate, but density is too low for efficient water use.

Chemical: Aluminium toxicity in subsurface, caused by low pH.

Water holding capacity: Approximately 65 mm in the potential root zone

Seedling emergence: Fair to good, depending on friability of surface.

Workability: Satisfactory.

Erosion Potential

Water: Low.

Wind: Low.

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	
0-8	6.1	4.7	0	0.09	1.21	49	2.30	20	11	269	6.2	1012	0	0.8	0.23	411	9.86	0.69	3.2	1.69	0.35	0.43	0.68	na
8-20	5.1	4.2	0	0.05	0.53	26	1.02	14	13	49	4.1	1286	9.3	0.8	0.32	559	4.2	0.47	1.0	0.56	0.14	0.13	0.15	na
20-45	5.2	4.4	0	0.03	0.35	16	0.41	8	8	24	3.5	695	7.7	0.7	0.18	191	3.11	0.33	0.7	0.44	0.12	0.08	0.08	na
45-50	5.5	4.7	0	0.02	0.37	16	0.22	4	4	22	5.5	1035	1.9	0.6	0.18	121	7.18	0.32	1.0	0.56	0.25	0.08	0.07	na
50-70	6.2	5.1	0	0.04	0.29	7	0.47	8	2	138	11.2	1914	0	2.9	0.51	84	13.6	0.23	12.2	4.50	6.35	0.92	0.38	7.6
70-95	6.9	5.9	0	0.08	0.27	6	0.18	8	1	140	32	1641	0	5.9	0.36	26	3.22	0.15	15.3	5.35	8.13	1.41	0.41	9.2
95-120	7.0	5.8	0	0.04	0.33	7	0.08	4	1	62	15.2	1057	0	1.6	0.22	24	2.54	0.17	8.6	2.80	4.79	0.82	0.21	9.5
120-180	7.1	6.0	0	0.02	0.51	7	<0.05	4	1	31	5.9	720	0	0.8	0.26	147	3.83	0.28	3.6	1.16	1.89	0.43	0.10	12.0

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.