

# COARSE SANDY LOAM OVER BROWN MOTTLED CLAY

**General Description:** *Thick coarse textured surface with a pale coloured ironstone gravelly subsurface layer, over a brown, yellow, grey and red mottled light clay, calcareous with depth*

**Landform:** Gently undulating plains

**Substrate:** Tertiary age sandy clay

**Vegetation:**



**Type Site:** Site No.: SE110

1:50,000 sheet: 7023-1 (Struan)      Hundred: Joanna  
 Annual rainfall: 600 mm      Sampling date: 16/10/06  
 Landform: Saddle between two runaway holes, 1% slope.  
 Surface: Firm with no stones.

**Soil Description:**

<i>Depth (cm)</i>	<i>Description</i>
0-8	Dark brown friable massive light coarse sandy loam. Clear to:
8-23	Brown friable massive light coarse sandy loam. Abrupt to:
23-38	Light yellowish brown and brown mottled friable massive light coarse sandy loam with 10-20% ironstone nodules. Abrupt to:
38-55	Dark yellowish brown, yellowish brown and dark greyish brown mottled extremely hard light medium clay with very coarse prismatic structure and 2-10% ironstone nodules. Gradual to:
55-100	Brownish yellow, olive brown and red mottled extremely hard light medium clay with very coarse prismatic structure. Diffuse to:
100-150	Yellowish brown, light grey and red mottled extremely hard light clay with very coarse prismatic structure and 2-10% soft carbonate segregations.



**Classification:** Mottled, Hypocalcic, Brown Chromosol; thick, non-gravelly, loamy / clayey, very 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 moderate depth to relatively low CEC subsoil indicates low nutrient retention and supply capacity. In sampling pit, concentrations of P, K, Cu and Zn are low to marginal.

**pH:** Acidic to strongly acidic at the surface, slightly alkaline with depth

**Rooting depth:** 150 cm in sampling pit, but few roots below 55 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 80 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 <sub>2</sub> O	pH CaCl <sub>2</sub>	CO <sub>3</sub> %	EC1:5 dS/m	ECe dS/m	Cl mg/kg	Org.C %	NO <sub>3</sub> + NH <sub>4</sub> mg/kg	Avail. P mg/kg	Avail. K mg/kg	SO <sub>4</sub> -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	5.8	5.0	0	0.06	0.60	47	2.63	8	14	110	9.7	993	0	1.1	0.59	180	40.2	1.54	5.7	4.46	0.66	0.25	0.3	4.4
8-23	4.9	4.1	0	0.02	0.16	6	1.04	4	9	38	3.5	1077	13.1	0.3	0.31	207	6.06	0.73	2.0	1.59	0.22	0.07	0.1	na
23-38	5.1	4.4	0	0.03	0.28	12	0.50	9	3	27	8.5	1959	3.5	0.2	0.26	218	14.7	1.01	1.7	1.24	0.23	0.08	0.1	na
38-55	6.0	5.1	0	0.02	0.11	5	0.77	9	2	85	4.6	2262	0	0.2	0.43	64	3.11	0.45	11.9	8.65	2.86	0.08	0.27	0.7
55-100	6.7	6.0	0	0.03	0.10	5	0.33	7	1	126	10.4	1976	0	0.2	0.35	20	1.63	0.37	13.5	9.07	3.9	0.15	0.38	1.1
100-150	7.9	7.0	0	0.08	0.23	6	0.07	2	1	152	5.0	1629	0	2.5	0.15	23	9.76	0.44	11.5	7.13	3.68	0.26	0.39	2.3

**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.