

## SANDY LOAM OVER SODIC BROWN CLAY

**General Description:** *Massive grey sandy loam over a brown mottled coarsely structured clay, calcareous with depth*

**Landform:** Very gently undulating to level plains

**Substrate:** Tertiary age clay

**Vegetation:**



<b>Type Site:</b>	Site No.:	SE163A	1:50,000 mapsheet:	7124-4 (Goroke)
	Hundred:	State of Victoria	Easting:	504410
	Section:	-	Northing:	5937060
	Sampling date:	28/08/2007	Annual rainfall:	540 mm average

Flat plain. Hard setting surface with no stones. Non irrigated pasture.

### Soil Description:

<i>Depth (cm)</i>	<i>Description</i>
0-8	Very dark grey friable massive sandy loam. Clear to:
8-15	Dark grey and weak red friable massive heavy sandy loam. Sharp to:
15-35	Light yellowish brown, red and dark grey firm coarse sandy light clay with strong very coarse columnar structure, breaking to strong coarse subangular blocky. Diffuse to:
35-70	Brown and strong brown firm light medium clay with strong coarse subangular blocky structure. Diffuse to:
70-105	Brownish yellow and red friable light medium clay with weak coarse prismatic structure and 20-50% soft carbonate segregations. Gradual to:
105-150	Light yellowish brown, red and pinkish grey hard light medium clay with moderate coarse prismatic structure and 20-50% soft ferruginous segregations.



**Classification:** Hypercalcic, Mottled-Hypernatric, Brown Sodosol; medium, non gravelly, loamy / clayey, very deep



## Summary of Properties

- Drainage:** Moderately well to imperfectly drained. Water perches on top of the subsoil clay for a week to several weeks following heavy or prolonged rainfall.
- Fertility:** Inherent fertility is low, as indicated by the exchangeable cation data. This is due to the relatively low clay content of the surface layer. Laboratory data indicate marginal deficiencies of potassium and copper, and possibly manganese and zinc. Sulphur levels are also marginal, but increase in the subsoil.
- pH:** Acidic at the surface, alkaline in the subsoil, and strongly alkaline at depth.
- Rooting depth:** 105 cm in sampling pit, but few roots below 35 cm.
- Barriers to root growth:**
- Physical:** The subsoil clay layer imposes a moderate restriction on root growth, mainly by confining many roots to the faces of coarse aggregates.
- Chemical:** Mild aluminium toxicity in surface soil affects sensitive species, and overall fertility is low. High pH and elevated salinity / chloride from 70 cm, and high sodicity from 35 cm severely limit deep root growth.
- Waterholding capacity:** Approximately 65 mm in the potential rootzone.
- Seedling emergence:** Fair to satisfactory. Tendency to seal over can reduce establishment percentage.
- Workability:** Fair. Surface tends to shatter if worked too dry, and puddle if worked too wet.
- 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	5.9	4.8	0	0.07	0.63	24	3.31	38	67	123	4.4	1818	2.4	0.6	0.73	842	4.73	1.68	5.4	3.34	1.32	0.4	0.31	7.4
8-15	6.1	4.9	0	0.06	0.62	19	1.43	-	14	56	5.1	1367	-	-	-	-	-	-	4.1	2.06	1.41	0.47	0.11	11.6
15-35	7.5	6.3	0	0.15	1.72	86	0.42	-	7	134	11.1	636	-	-	-	-	-	-	10.9	2.45	5.90	2.22	0.28	20.5
35-70	9.1	8.0	0	0.45	2.97	284	0.22	-	3	255	35.4	469	-	-	-	-	-	-	20.1	3.24	11.0	5.20	0.67	25.9
70-105	9.6	8.7	9	0.83	6.68	686	0.15	-	3	313	76.4	378	-	-	-	-	-	-	-	-	-	-	-	-
105-150	9.6	8.6	2	0.70	4.20	500	0.09	-	5	238	65.3	295	-	-	-	-	-	-	-	-	-	-	-	-

**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.

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

