SANDY LOAM OVER SODIC RED CLAY

General Description: *Massive sandy loam to sandy clay loam over a red coarsely structured clay, calcareous with depth. Ironstone gravel occurs throughout.*

Landform: Very gently undulating to level plains

Substrate: Tertiary age clay

Vegetation:

Type Site:

Site No.:	SE164A	1:50,000 mapsheet:	7124-4 (Goroke)
Hundred:	State of Victoria	Easting:	512240
Section:	-	Northing:	5935670
Sampling date:	24/08/2007	Annual rainfall:	545 mm average

Flat plain. Firm surface with no stones. Non irrigated pasture.

Soil Description:

Depth (cm)	*Description*
0-5	Dark reddish brown soft light sandy clay loam with weak granular structure and 2-10% ironstone nodules (2-6 mm). Clear to:
5-12	Dark reddish brown friable massive light sandy clay loam with 10-20% ironstone nodules (2-6 mm). Clear to:
12-30	Light reddish brown, yellowish red and dark reddish brown firm light clay with weak medium subangular blocky structure and 10-20% ironstone nodules (2-6 mm). Clear to:
30-55	Red and brown friable medium heavy clay with strong medium subangular blocky structure. Diffuse to:
55-75	Red and reddish yellow friable medium clay with weak coarse subangular structure. Diffuse to:
75-110	Brownish yellow firm light medium clay with moderate coarse subangular blocky structure and 10-20% calcareous tubules. Diffuse to:
110-150	Brownish yellow firm medium clay with weak coarse prismatic structure.

2-10% ironstone nodules (2-6 mm) in all layers from 30 cm.

Classification: Calcic, Hypernatric, Red Sodosol; medium, non gravelly, loamy / clayey, very deep

Summary of Properties

Drainage: Moderately well drained. Water perches on top of the subsoil clay for a week or so following heavy or prolonged rainfall.

Fertility: Inherent fertility is moderately low, as indicated by the exchangeable cation data. Laboratory data indicate a possible copper deficiency.

pH: Acidic at the surface, alkaline in the subsoil, and strongly alkaline at depth.

Rooting depth: 110 cm in sampling pit, but few roots below 75 cm.

Barriers to root growth:

Physical: The subsoil clay layer imposes a slight restriction on root growth, mainly by confining many roots to the faces of coarse aggregates.

Chemical: High pH (and probably high sodicity) from 75 cm limit deep root growth.

Waterholding capacity: Approximately 110 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_2O	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	
0-5	6.0	5.0	0	0.17	1.74	184	3.86	47	72	423	5.8	2502	1.1	0.9	0.51	627	12.7	1.97	8.6	5.09	1.81	0.82	0.92	9.5
5-12	5.5	4.4	0	0.06	0.64	19	2.93	-	45	165	3.9	2583	-	-	-	-	-	-	5.7	3.52	1.38	0.40	0.38	7.0
12-30	6.6	5.4	0	0.06	0.84	30	0.53	-	6	112	3.7	1009	-	-	-	-	-	-	6.6	2.55	2.70	1.10	0.28	16.6
30-55	8.7	7.5	0	0.32	2.22	243	0.38	-	4	287	13.3	903	-	-	-	-	-	-	25.8	6.01	11.6	7.33	0.81	28.5
55-75	9.1	8.2	0	0.67	2.82	522	0.25	-	2	335	43.7	788	-	-	-	-	-	-	-	-	-	-	-	-
75-110	9.4	8.7	3	0.98	3.98	964	0.14	-	1	333	93.1	687	-	-	-	-	-	-	-	-	-	-	-	-
110-150	9.3	8.4	1	0.89	3.70	676	0.11	-	1	275	95.6	572	-	-	-	-	-	-	-	-	-	-	-	-

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