

## HARD SANDY LOAM OVER DISPERSIVE RED CLAY

**General Description:** *Thin hard setting sandy loam overlying a very firm reddish mottled clay subsoil, calcareous with depth.*

**Landform:** Gently undulating slopes and rises.

**Substrate:** Ironstone rich alluvial clays of Tertiary age.

**Vegetation:** Blue gum - box woodland



<b>Type Site:</b>	Site No.:	SE001A	1:50,000 mapsheet:	7025-2 (Tatiara)
	Hundred:	Tatiara	Easting:	493600
	Section:	867	Northing:	5980300
	Sampling date:	11/12/1991	Annual rainfall:	480 mm average

Mid-slope of gentle rise, 3% slope. Hard setting surface.

### Soil Description:

Depth (cm)	Description
0-5	Dark greyish brown massive sandy loam with 2-10% ironstone nodules. Sharp to:
5-6	Pink massive sandy loam with 2-10% ironstone nodules. Sharp to:
6-34	Yellowish red and brown mottled very firm medium clay with very coarse prismatic structure. Clear to:
34-45	Reddish yellow firm highly calcareous medium clay with coarse polyhedral structure and 2-10% soft carbonate. Gradual to:
45-75	Yellowish red and brownish yellow mottled highly calcareous medium heavy clay with moderate coarse polyhedral structure and 10-20% soft carbonate. Diffuse to:
75-120	Strong brown, olive brown and yellowish red mottled highly calcareous medium heavy clay with strong coarse polyhedral structure and 10-20% soft carbonate.



**Classification:** Calcic, Mottled-Mesonatric, Red Sodosol; thin, slightly gravelly, loamy/clayey, deep



**Summary of Properties**

**Drainage:** Moderately well to imperfectly drained. Soil may remain wet for several weeks due to the low permeability of the shallow clay subsoil.

**Fertility:** Natural fertility is high, as indicated by the CEC values.

**pH:** Acidic at the surface, alkaline with depth.

**Rooting depth:** 75 cm in pit.

**Barriers to root growth:**

**Physical:** Hard poorly structured surface layers and hard, sodic clay subsoil restrict satisfactory root development. Waterlogging on top of the clay may also prevent roots from making adequate downward growth.

**Chemical:** Class I carbonate layer from 45 cm typically affects root development. There are no apparent nutrient deficiencies or toxic materials, although the salt level is moderately high below 75 cm.

**Waterholding capacity:** 95 mm in rootzone, but up to a third may be effectively unavailable to plants because of low root density in clay.

**Seedling emergence:** Fair, due to poorly structured hard setting surface.

**Workability:** Fair due to hard surface and narrow moisture range for effective working. Lower organic carbon levels than at the type site would further reduce ease of working.

**Erosion Potential:**

**Water:** Moderate. Although the slope is only 3%, the soil is highly erodible due to its thin poorly structured surface soil and slowly permeable subsoil.

**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	Org.C %	Avail. P mg/kg	Avail. K mg/kg	SO <sub>4</sub> mg/kg	Boron mg/kg	Trace Elements mg/kg (DTPA)				CEC cmol (+)/kg	Exchangeable Cations cmol(+)/kg				ESP	Cl mg/kg
											Cu	Fe	Mn	Zn		Ca	Mg	Na	K		
0-5	5.7	5.5	0	0.14	1.3	2.0	45	340	-	1.6	0.5	204	3.3	0.7	7.6	4.1	2.0	0.48	0.73	6	100
5-6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6-34	7.1	6.4	<1	0.16	0.7	0.4	<5	120	-	2.5	0.2	19	<0.5	<0.1	15.4	5.6	7.8	2.70	0.31	18	50
34-45	8.9	8.3	4.8	0.70	2.8	0.2	<5	140	-	7.4	0.2	6	0.7	<0.1	20.6	6.0	10.3	5.44	0.36	26	374
45-75	9.2	8.3	12.8	1.14	6.4	0.2	<5	150	-	8.1	0.2	3	<0.5	<0.1	18.1	5.3	10.1	5.91	0.36	33	950
75-120	9.1	8.3	15.0	1.26	8.3	0.1	<5	120	-	9.4	0.2	3	<0.5	<0.1	15.9	4.4	8.9	4.82	0.28	30	1180

**Note:** 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.

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

