

## SANDY LOAM OVER POORLY STRUCTURED BROWN CLAY

**General Description:** *Thin hard sandy loam to sandy clay loam sharply overlying a coarsely structured (prismatic or columnar) brown mottled clay, calcareous with depth, grading to heavy clay*

**Landform:** Flat plain

**Substrate:** Heavy clay (Blanchetown equivalent)

**Vegetation:** Mallee woodland  
E. odorata, E. fasciculosa, E. dumosa



**Type Site:** Site No.: CH056

1:50,000 sheet: 6627-2 (Milang)

Hundred: Bremer

Annual rainfall: 500 mm

Sampling date: 30/08/93

Landform: Flat, 0% slope

Surface: Hard setting, no stones

### Soil Description:

Depth (cm)	Description
0-8	Very hard massive dark brown sandy clay loam. Abrupt to:
8-20	Olive brown, brownish grey and orange mottled very hard heavy clay with strong very coarse blocky structure. Clear to:
20-45	Light grey and olive mottled hard highly calcareous heavy clay with strong very coarse blocky structure and 20-10% soft carbonate segregations. Clear to:
45-80	Grey and brown mottled highly calcareous heavy clay with very coarse blocky structure and 10-20% soft carbonate. Gradual to:
80-115	Olive, yellowish brown and pale brown mottled highly calcareous heavy clay with very coarse lenticular structure. Gradual to:
115-150	Pale brown, olive and red mottled very hard heavy clay with strong very coarse lenticular structure.



**Classification:** Calcic, Mottled-Subnatric, Brown Sodosol; thin, non-gravelly, clay loamy / clayey, deep

## Summary of Properties

<b>Drainage</b>	Imperfect. The dispersive sodic subsoil clay at very shallow depth perches water, causing saturation in the upper profile for weeks at a time.
<b>Fertility</b>	Natural fertility is moderately high as indicated by the exchangeable cation data. All major nutrients tested are adequately supplied, but zinc, copper and manganese appear to be deficient.
<b>pH</b>	Slightly alkaline at the surface, strongly alkaline from 20 cm.
<b>Rooting depth</b>	80 cm in pit but few roots below 45 cm.
<b>Barriers to root growth</b>	
<b>Physical:</b>	The very hard, dispersive clay subsoil hinders root development.
<b>Chemical:</b>	Very high pH and sodicity from 45 cm and toxic levels of boron from 80 cm are serious barriers to root growth.
<b>Water holding capacity</b>	Approximately 50 mm in root zone.
<b>Seedling emergence:</b>	Fair to poor due to the hard setting, sealing surface.
<b>Workability:</b>	Fair to poor due to the narrow moisture range in which the surface is not too wet and not too hard.
<b>Erosion Potential</b>	
<b>Water:</b>	Low.
<b>Wind:</b>	Low.

## Laboratory Data

Depth cm	pH H <sub>2</sub> O	pH CaCl <sub>2</sub>	CaCO <sub>3</sub> %	EC1:5 dS/m	ECe dS/m	Org.C %	Avail. P mg/kg	Avail. K mg/kg	SO <sub>4</sub> -S mg/kg	Boron mg/kg	Trace Elements mg/kg (EDTA)				CEC cmol (+)/kg	Exchangeable Cations cmol(+)/kg				ESP
											Cu	Fe	Mn	Zn		Ca	Mg	Na	K	
Paddock	7.8	7.4	0.4	0.23	1.45	1.4	44	258	96	0.1	1.33	78.7	12.1	2.20	15.1	12.8	2.49	0.26	0.62	1.7
0-8	7.0	6.7	0	0.20	1.46	1.8	47	302	87	1.3	-	-	-	-	15.0	13.3	2.44	0.20	0.76	1.4
8-20	8.3	7.7	0.9	0.19	0.75	0.4	4	282	50	1.7	-	-	-	-	29.1	21.5	6.84	1.20	0.87	4.1
20-45	9.0	8.0	13.9	0.24	0.84	0.2	<4	228	27	2.3	-	-	-	-	25.8	15.1	7.82	2.83	0.68	11.0
45-80	9.5	8.4	14.5	0.42	1.33	0.1	<4	240	32	6.7	-	-	-	-	21.1	8.29	8.73	5.44	0.70	25.8
80-115	9.6	8.6	9.3	0.69	2.64	0.2	<4	239	63	18.0	-	-	-	-	19.2	4.86	8.01	7.33	0.72	38.2
115-150	9.5	8.8	0.9	0.81	3.07	0.1	<4	245	91	22.0	-	-	-	-	19.8	3.73	8.24	8.71	0.78	44.0

**Note:** Paddock sample bulked from 20 cores (0-10 cm) taken around the pit.

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.