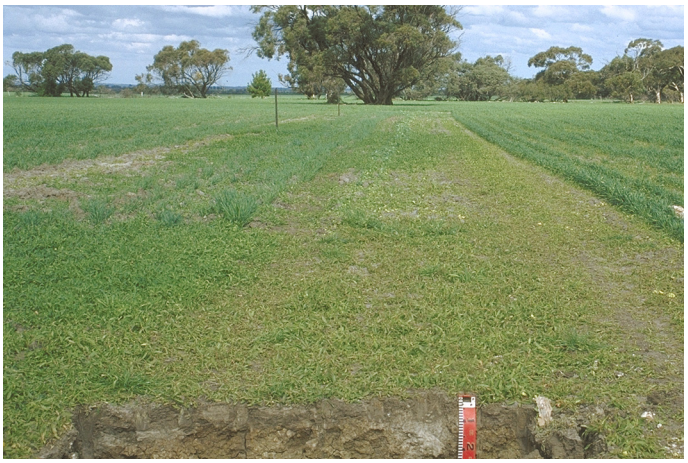
SANDY LOAM OVER POORLY STRUCTURED BROWN CLAY

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 mapsheet:	6627-2 (Milang)
Hundred:	Bremer	Easting:	303500
Section:	86	Northing:	6085600
Sampling date:	30/08/93	Annual rainfall:	500 mm average

Flat, 0% slope. Hard setting surface.

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

Drainage: Imperfect. The dispersive sodic subsoil clay at very shallow depth perches water, causing saturation in the upper profile for weeks at a time.

Fertility: 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.

pH: Slightly alkaline at the surface, strongly alkaline from 20 cm.

Rooting depth: 80 cm in pit but few roots below 45 cm.

Barriers to root growth:

Physical: The very hard, dispersive clay subsoil hinders root development.

Chemical: Very high pH and sodicity from 45 cm and toxic levels of boron from 80 cm are serious barriers to root growth.

Waterholding capacity: Approximately 50 mm in rootzone.

Seedling emergence: Fair to poor due to the hard setting, sealing surface.

Workability: Fair to poor due to the narrow moisture range in which the surface is not too wet and not too hard.

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	Org.C %	Avail. P mg/kg	Avail. K mg/kg	SO_4 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.

Further information: DEWNR Soil and Land Program