

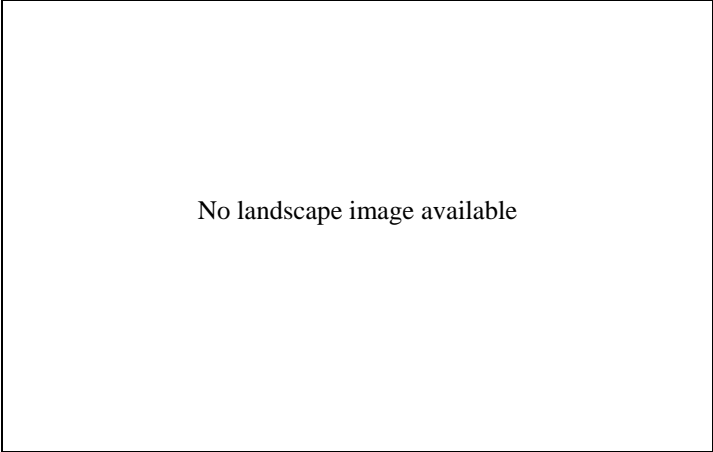
# HARD SANDY CLAY LOAM OVER DISPERSIVE RED CLAY (Cleve soil)

**General Description:** *Hard sandy loam to sandy clay loam over a coarsely structured dispersive red clay, calcareous with depth*

**Landform:** Very gently sloping outwash fans.

**Substrate:** Alluvial clayey outwash sediments (Pooraka Formation).

**Vegetation:** Mallee.



**Type Site:** Site No.: EE063

1:50,000 sheet:	6130-1 (Rudall)	Hundred:	Yadnarie
Annual rainfall:	400 mm	Sampling date:	19/01/93
Landform:	Very gentle slope of 1%		
Surface:	Firm with no stones		

**Soil Description:**

Depth (cm)	Description
0-8	Dark brown firm sandy clay loam with moderate platy structure. Abrupt to:
8-25	Dark reddish brown hard medium clay with very coarse prismatic structure. Abrupt to:
25-40	Reddish brown soft very highly calcareous medium clay with weak subangular blocky structure. Clear to:
40-90	Yellowish red friable very highly calcareous medium clay with strong fine angular blocky structure. Clear to:
90-155	Strong brown firm very highly calcareous medium clay with strong fine subangular blocky structure. Gradual to:
155-180	Reddish yellow friable very highly calcareous medium clay with minor soft manganese segregations.



**Classification:** Hypercalcic, Subnatric, Red Sodosol; thin, non-gravelly, clay loamy / clayey, deep

## Summary of Properties

**Drainage** Moderately well drained. Water perches on top of the dispersive clayey subsoil for up to a week following heavy or prolonged rainfall.

**Fertility** Inherent fertility is moderate to high, as indicated by the exchangeable cation data. Without regular applications, phosphorus deficiencies are usual, and nitrogen levels depend on legume content of pastures and cropping history. Trace element problems are uncommon.

**pH** Alkaline at the surface, strongly alkaline with depth.

**Rooting depth** Not recorded. Estimate 40 cm in pit.

### Barriers to root growth

**Physical:** The coarsely structured dispersive clay subsoil restricts root growth to the surfaces of the aggregates, thereby reducing water use efficiency.

**Chemical:** High pH, sodicity and boron concentrations from 40 cm prevent significant deeper root growth.

**Water holding capacity** Approximately 50 mm in the root zone.

**Seedling emergence:** Fair. Surface tends to seal over and set hard, reducing establishment in patchy openings.

**Workability:** Fair. Poorly structured surface soil will shatter if worked too dry and puddle if worked too wet.

### Erosion Potential

**Water:** Moderately low to moderate, depending on slope.

**Wind:** Moderately low to 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> -S mg/kg	Boron mg/kg	Trace Elements mg/kg (DTPA)				CEC cmol (+)/kg	Exchangeable Cations cmol(+)/kg				ESP
											Cu	Fe	Mn	Zn		Ca	Mg	Na	K	
0-8	8.2	7.8	4	0.15	0.94	1.2	7	560	-	1.6	1.0	12.0	15	5.5	33.09	23.9	6.52	0.77	1.90	2.3
8-25	8.6	7.9	2	0.14	0.53	0.4	4	370	-	1.7	2.3	8.2	6.3	0.39	29.04	18.9	6.95	1.92	1.22	6.6
25-40	9.4	8.2	24	0.23	0.78	0.4	3	260	-	2.8	2.4	6.6	4.7	0.26	23.08	10.0	7.67	4.18	1.23	18.1
40-90	9.6	8.4	21	0.95	7.09	-	-	-	-	24	1.2	8.2	4.4	0.26	24.35	5.05	9.81	7.36	2.13	30.2
90-155	9.5	8.5	8	1.43	12.59	-	-	-	-	32	0.93	10.0	3.3	0.30	24.01	3.95	9.87	7.93	2.24	33.0
155-180	9.4	8.4	25	1.55	13.07	-	-	-	-	31	0.61	10.0	1.8	0.28	24.18	4.82	9.19	7.63	2.54	31.6

**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