

# LOAM OVER POORLY STRUCTURED RED CLAY

**General Description:** *Hard setting loam abruptly overlying a coarsely structured dispersive red clay, calcareous with depth*

**Landform:** Fans and flats.

**Substrate:** Coarsely structured heavy red clay (Hindmarsh Clay equivalent).

**Vegetation:**

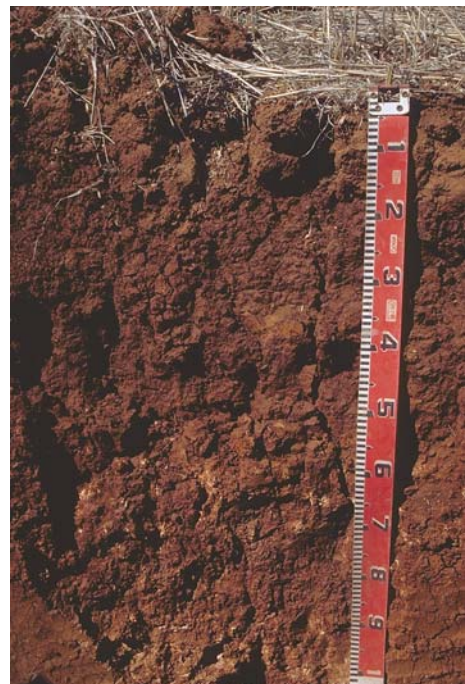


**Type Site:** Site No.: CM913

1:50,000 sheet: 6630-2 (Apoinga)      Hundred: Hanson  
Annual rainfall: 475 mm      Sampling date: 21/03/00  
Landform: Alluvial fan with slopes of 2%  
Surface: Hard setting with no stones

## Soil Description:

Depth (cm)	Description
0-15	Dark reddish brown hard massive loam with less than 2% quartz gravel (2-6 mm). Abrupt to:
15-55	Dark reddish brown very hard heavy clay with strong coarse prismatic structure. Gradual to:
55-110	Red very hard moderately calcareous heavy clay with strong coarse prismatic structure and 2-10% fine carbonate segregations. Gradual to:
110-180	Red very hard heavy clay with strong coarse prismatic structure and 2-10% fine carbonate segregations.



**Classification:** Calcic, Subnatric, Red Sodosol; medium, non-gravelly, loamy / clayey, deep

## Summary of Properties

**Drainage:** Moderately well drained. The dispersive subsoil clay perches water for up to a week following heavy or prolonged rainfall.

**Fertility:** Inherent fertility is high. Clay content exceeding 20%, high organic carbon levels and slightly acidic pH combine to provide favourable nutrient retention and availability characteristics. Phosphorus and nitrogen concentrations are high.

**pH:** Slightly acidic at the surface, alkaline with depth.

**Rooting depth:** 110 cm in pit, but few roots below 55 cm.

### Barriers to root growth:

**Physical:** The hard coarsely structured clay does not prevent root growth, but it causes reduced density as roots are forced around aggregates, with few penetrating inside.

**Chemical:** High sodicity and moderate salinity at depth restrict deep root growth.

**Water holding capacity:** Approximately 75 mm in the root zone.

**Seedling emergence:** Fair. Hard setting, sealing surface affects emergence percentage.

**Workability:** Fair. Surface tends to shatter if worked too dry, and puddle if worked too wet.

### Erosion Potential

**Water:** Moderately low.

**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)				Sum cations cmol (+)/kg	Exchangeable Cations cmol(+)/kg				ESP
											Cu	Fe	Mn	Zn		Ca	Mg	Na	K	
0-15	5.8	5.7	-	0.40	-	1.53	74	553	231	2.7	-	-	-	-	11.3	8.19	1.6	0.28	1.27	2.5
15-55	8.5	7.8	-	0.28	-	-	-	-	-	3.6	-	-	-	-	32.4	15.5	10.8	4.21	1.79	13.0
55-110	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
110-180	8.8	8.3	-	1.03	-	-	-	-	-	13.1	-	-	-	-	30.8	11.5	10.3	7.56	1.46	24.5

**Note:** Sum of cations (an estimate of cation exchange capacity or CEC) 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 estimated CEC.