

## LOAM OVER RED CLAY

**General Description:** *Loam over red clay, calcareous with depth*

**Landform:** Gently undulating plains.

**Substrate:** Weathered ferruginized basement sandstone, mantled by fine carbonates.

**Vegetation:**



<b>Type Site:</b>	Site No.:	CY036	1:50,000 mapsheet:	6430-2 (Alford)
	Hundred:	Wiltunga	Easting:	770190
	Section:	184	Northing:	6255120
	Sampling date:	12/3/1996	Annual rainfall:	365 mm average

Flat. Soft surface with no stones.

### Soil Description:

<i>Depth (cm)</i>	<i>Description</i>
0-7	Dark brown friable moderately calcareous loam with weak granular structure. Abrupt to:
7-11	Dark brown very hard moderately calcareous light clay with strong coarse angular blocky structure (plough pan). Abrupt to:
11-35	Dark reddish brown very hard slightly calcareous medium clay with strong coarse angular blocky structure. Clear to:
35-95	Reddish yellow massive very highly calcareous light medium clay. Gradual to:
95-145	Yellowish red highly calcareous medium heavy clay with strong coarse angular blocky structure. Gradual to:
145-170	Weathering ferruginized sandstone.



**Classification:** Sodic\*, Hypercalcic, Red Chromosol; thin, non-gravelly, loamy / clayey, deep  
\* Alternatively *Effervescent* Subgroup, but carbonate may be road dust.



## Summary of Properties

- Drainage:** Moderately well drained. Water may perch on the clayey subsoil for up to a week following heavy or prolonged rainfall.
- Fertility:** Inherent fertility is high, as indicated by the exchangeable cation data. Favourable clay and organic matter contents at the surface provide nutrient retention capacity. None of the measured elements is deficient at the sampling site, although regular applications of phosphorus are needed. High subsoil carbonate levels reduce availability of trace elements.
- pH:** Alkaline at the surface, strongly alkaline at depth.
- Rooting depth:** 60 cm in pit.
- Barriers to root growth:**
- Physical:** A cultivation pan at 7cm and coarse blocky structure between 11 and 35 cm create a sub-optimal environment for root growth and densities are reduced.
  - Chemical:** High pH and sodicity from 35 cm, and high boron concentrations from 95 cm restrict root growth.
- Waterholding capacity:** Approximately 80 mm in rootzone.
- Seedling emergence:** Good, provided that surface structure is maintained. These soils can develop hard setting and sealing characteristics which reduce establishment percentages.
- Workability:** Good, although compaction and associated workability problems can occur if the soil is worked too wet.
- Erosion Potential:**
- Water:** 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)				CEC cmol (+)/kg	Exchangeable Cations cmol(+)/kg				ESP
											Cu	Fe	Mn	Zn		Ca	Mg	Na	K	
Paddock	8.3	7.8	4.6	0.17	1.13	1.9	38	560	6	3.9	0.68	7	6.24	0.82	23.6	20.30	3.05	0.26	1.87	1.1
0-7	8.1	7.7	2.3	0.20	1.21	2.1	46	937	8	3.7	-	-	-	-	24.5	20.49	2.98	0.16	2.62	0.6
7-11	8.3	7.8	1.3	0.15	0.84	1.6	21	569	5	3.6	-	-	-	-	25.6	21.45	3.66	0.26	1.70	1.0
11-35	8.7	8.0	2.6	0.16	0.47	0.4	<4	316	6	4.7	-	-	-	-	29.4	19.54	8.32	1.18	0.94	4.0
35-95	9.7	8.4	49.1	0.48	1.52	0.3	<4	194	29	9.0	-	-	-	-	14.8	3.88	8.03	4.81	0.54	32.5
95-145	9.6	9.0	6.0	0.94	0.98	0.2	<4	526	90	19.6	-	-	-	-	33.3	3.13	15.13	16.40	1.55	49.2
145-170	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

**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](#)

