

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:



Type Site: Site No.: CY036

1:50,000 sheet: 6430-2 (Alford)

Hundred: Wiltunga

Annual rainfall: 370 mm

Sampling date: 12/03/96

Landform: Flat, 0% slope

Surface: Soft with no stones

Soil Description:

Depth (cm) *Description*

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.
Water holding 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 ₂ O	pH CaCl ₂	CO ₃ %	EC1:5 dS/m	ECe dS/m	Org.C %	Avail. P mg/kg	Avail. K mg/kg	SO ₄ -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	
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.