

LOAM OVER RED CLAY ON ROCK

General Description: *Hard setting loam over a strongly structured red clay, calcareous with depth, grading to weathering basement rock.*

Landform: Slopes of undulating to rolling rises and low hills

Substrate: Precambrian siltstone, mantled by fine carbonate.

Vegetation:



Type Site: Site No.: CL906

1:50,000 sheet: 6629-2 (Kapunda) Hundred: Light
Annual rainfall: 450 mm Sampling date: 07/03/91
Landform: Lower slope of gently undulating rise, 2% slope
Surface: Hard setting with no stones

Soil Description:

<i>Depth (cm)</i>	<i>Description</i>
0-7	Reddish brown firm loam with moderate medium granular structure. Abrupt to:
7-27	Dark reddish brown firm medium clay with strong medium polyhedral structure. Clear to:
27-67	Yellowish red firm very highly calcareous light clay with moderate subangular blocky structure and 20-50% fine carbonate segregations. Gradual to:
67-130	Weathering siltstone with 10-20% fine carbonate in fissures and pockets.



Classification: Sodic, Hypercalcic, Red Chromosol; thin, non-gravelly, loamy / clayey, moderate

Summary of Properties

Drainage: Well drained. The soil rarely remains wet for more than a day or so following heavy or prolonged rainfall.

Fertility: Inherent fertility is moderately high, a reflection of surface clay content of 20-25%, and favourable organic matter levels. Low zinc concentrations from 7 cm may be significant.

pH: Neutral at the surface, alkaline with depth.

Rooting depth: 43 cm in the pit, but few roots below 27 cm.

Barriers to root growth:

Physical: There are no apparent barriers to root growth until basement rock is encountered.

Chemical: Unusually high boron and salt concentrations from shallow depth limit root growth. The boron and salt presumably derive from the parent rock.

Water holding capacity: Approximately 55 mm in the potential root zone.

Seedling emergence: Satisfactory to fair. These soils tend to set hard and seal, reducing establishment percentages. The problem reduces when surface condition is improved through better residue management or gypsum application.

Workability: Typically the surfaces of these soils shatter if worked too dry, and puddle if worked too wet. The length of time for effective cultivation increases as surface condition is improved.

Erosion Potential

Water: Moderately 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	
0-7	7.1	6.6	0	0.33	-	1.24	77	490	-	-	1.7	25	25.0	0.6	-	-	-	-	-	-
7-27	8.5	7.5	1	0.40	-	0.77	8	600	-	26	2.5	7.2	4.7	0.2	-	-	-	-	-	-
27-67	9.0	8.4	38	1.40	-	0.25	4	460	-	28	1.5	3.9	1.1	0.0	-	-	-	-	-	-
67-130	8.9	8.4	9	2.21	-	0.09	2	210	-	-	0.5	1.8	0.3	0.1	-	-	-	-	-	-