

CLAY LOAM OVER RED CLAY ON ROCK

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

Landform: Undulating to rolling rises and low hills.

Substrate: Fine sandstones and siltstones of the Mintaro Shale Formation

Vegetation:



Type Site: Site No.: CM904

1:50,000 sheet: 6630-1 (Burra)

Hundred: Hanson

Annual rainfall: 450 mm

Sampling date: March 1990

Landform: Lower slope of low hill, 7% slope

Surface: Hard setting with no stones

Soil Description:

Depth (cm)	Description
0-10	Reddish brown hard fine sandy clay loam with weak granular structure. Clear to:
10-17	Light reddish brown hard massive clay loam. Abrupt to:
17-35	Dark reddish brown hard heavy clay with strong medium prismatic structure. Clear to:
35-45	Yellowish red hard highly calcareous heavy clay with moderate angular blocky structure and 2-10% fine carbonate segregations. Gradual to:
45-130	Reddish yellow hard massive calcareous light clay (highly weathered fine sandstone).



Classification: Calcic, Red Chromosol / Sodosol; medium, non-gravelly, clay loamy / clayey, moderate

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 moderately high due to the relatively high clay and organic matter contents of the surface soil. However, the tendency towards acidification will reduce nutrient retention capacity.

pH: Acidic at the surface, strongly alkaline with depth.

Rooting depth: Poor root growth throughout – no roots below 35 cm.

Barriers to root growth:

Physical: Hard consistence throughout restricts, but does not prevent root growth.

Chemical: High boron concentration, high pH (and probably sodicity) inhibit root growth below 35 cm. However, the data do not explain the poor root growth in the upper 35 cm.

Water holding capacity: Approximately 50 mm in the potential root zone.

Seedling emergence: Fair. Hard setting surface tends to seal over, preventing full seedling emergence.

Workability: Fair. The surface soil tends to shatter if worked too dry, and puddle if worked too wet.

Erosion Potential

Water: Moderate.

Wind: Low.

Laboratory Data

Depth cm	pH H ₂ O	pH CaCl ₂	CO ₃ %	EC 1:5 dS/m	ECe dS/m	Org.C %	Avail. P mg/kg	Boron mg/kg
0-10	5.7	5.3	0	0.18	-	1.52	93	2.4
10-17	5.9	5.2	0	0.10	-	0.85	34	2.4
17-35	7.5	6.6	0	0.18	-	0.56	5	9.7
35-45	8.8	7.7	8	0.45	-	0.39	3	16.1
45-130	9.5	8.7	2	0.78	4.41	0.22	3	15.3