

SANDY LOAM OVER POORLY STRUCTURED RED CLAY

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

Landform: Lower slopes, outwash fans and valley floors.

Substrate: Clayey alluvium or (at this site) highly weathered basement rock

Vegetation:



Type Site: Site No.: CM911

1:50,000 sheet: 6630-1 (Burra) Hundred: Ayres
 Annual rainfall: 450 mm Sampling date: 21/03/00
 Landform: Lower slope of low rise, 2% slope
 Surface: Hard setting with no stones

Soil Description:

Depth (cm)	Description
0-15	Dark reddish brown hard massive fine sandy loam. Abrupt to:
15-55	Dark reddish brown very hard medium heavy clay with strong very coarse prismatic, breaking to angular blocky, structure. Clear to:
55-95	Red hard highly calcareous medium clay with strong coarse angular blocky structure, 10-20% fine carbonate segregations and 2-10% ironstone nodules (2-6 mm). Gradual to:
95-125	Red, with grey and yellow inclusions of decomposed siltstone, very hard medium clay, moderate coarse subangular blocky structure and 2-10% fine carbonate segregations.



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

Summary of Properties

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

Fertility: Inherent fertility is moderately high, as indicated by the exchangeable cation data. However, nutrient retention capacity at the surface could be improved through increasing organic matter levels. Organic carbon concentrations of 1.2% are achievable at this site.

pH: Neutral at the surface, alkaline with depth.

Rooting depth: 95 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: Moderately high salinity and sodicity from 95 cm prevent deeper root growth.

Water holding capacity: Approximately 80 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 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)				Sum cations cmol (+)/kg	Exchangeable Cations cmol(+)/kg				ESP
											Cu	Fe	Mn	Zn		Ca	Mg	Na	K	
0-15	6.9	6.6	-	0.11	-	0.93	24	321	9.1	1.1	-	-	-	-	12	7.93	2.92	0.83	0.82	6.6
15-55	8.9	8.1	-	0.49	-	-	-	-	-	5.1	-	-	-	-	35	16.2	11.9	5.97	1.07	17.0
55-95	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
95-125	8.4	8.1	-	1.17	-	0.42	7	227	257	6.4	-	-	-	-	25	11.1	7.41	6.2	0.72	24.4

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.