

LOAMY SAND OVER RED SANDY CLAY

General Description: *Firm sandy surface over a coarsely structured reddish sandy clay, calcareous with depth*

Landform: Gently undulating rises.

Substrate: Coarse textured alluvium (Pooraka Formation), mantled by fine carbonate.

Vegetation:

Type Site: Site No.: EE204
1:50,000 sheet: 6130-1 (Rudall) Hundred: Yadnarie
Annual rainfall: 350 mm Sampling date: 17/09/01
Landform: Lower slope of gently undulating rise, 1% slope
Surface: Soft with no stones

Soil Description:

<i>Depth (cm)</i>	<i>Description</i>
0-15	Brown single grain loamy sand. Clear to:
15-25	Yellowish red hard dispersive sandy light clay with moderate coarse columnar structure. Gradual to:
25-60	Yellowish red hard massive very highly calcareous sandy light clay with 20-50% fine carbonate segregations. Clear to:
60-80	Red hard massive very highly calcareous clayey sand with more than 50% quartz grit and gravel to 6 mm. Gradual to:
80-100	Yellowish red massive slightly calcareous light sandy loam. Clear to:
100-140	Strong brown massive very highly calcareous clayey sand with more than 50% fine carbonate segregations. Clear to:
140-180	Strong brown massive slightly calcareous sand with more than 50% quartz grit.



Classification: Calcic, Hypernatric, Red Sodosol; medium, non-gravelly, sandy / clayey, moderate

Summary of Properties

Drainage: Moderately well drained. Water perches on top of the dispersive clayey subsoil causing partial saturation for a week or so following heavy or prolonged rainfall.

Fertility: Inherent fertility is moderately low, as indicated by the exchangeable cation data. Concentrations of all measured elements are adequate at type site. Organic carbon and nitrogen reserves are consistent with surface texture and rainfall zone.

pH: Neutral at the surface, strongly alkaline with depth

Rooting depth: 60 cm in the pit

Barriers to root growth:

Physical: The hard poorly structured subsoil layers impede root growth. The gritty clayey sand from 60 cm is included as a restrictive layer.

Chemical: High pH / sodicity at shallow depth, marginal boron levels and moderate salinity combine to restrict root growth.

Water holding capacity: Approximately 75 mm in the root zone.

Seedling emergence: Generally satisfactory, but surfaces may develop water repellence, and may seal over if excessively grazed or cultivated.

Workability: Coarse textured surface is easily worked.

Erosion Potential

Water: Moderately low. Slope is gentle, but lower slope location is susceptible to run off, and soil is highly erodible.

Wind: Moderately low.

Laboratory Data

Depth cm	pH H ₂ O	pH CaCl ₂	CO ₃ %	EC 1:5 dS/m	Org.C %	NO ₃ mg/k g	Avail P mg/k g	Avail K mg/k g	SO ₄ mg/k g	Boron mg/k g	Trace Elements mg/kg (DTPA)				Sum of cations cmol (+)/kg	Exchangeable Cations cmol(+)/kg				ESP
											Cu	Fe	Zn	Mn		Ca	Mg	Na	K	
0-15	7.3	6.5	nd	0.08	0.88	6	33	152	1.7	1.2	0.42	32.8	0.75	1.37	4.3	2.66	0.98	0.34	0.35	7.9
15-25	9.4	8.8	nd	0.57	0.30	1	8	202	15.1	8.1	1.29	14.4	0.40	0.76	22.1	7.58	7.29	6.68	0.53	30.3
25-60	9.7	8.9	nd	1.12	0.24	3	2	190	145	10.5	1.77	3.6	0.11	1.05	23.0	7.68	5.91	8.94	0.49	38.8
60-80	9.7	8.7	nd	0.80	0.09	3	1	193	99.1	8.8	0.87	2.6	0.11	0.54	17.2	5.22	4.58	6.90	0.47	40.2
80-100	9.8	8.7	nd	0.57	0.10	3	2	133	65.6	6.3	0.76	1.8	0.09	0.82	12.1	4.32	2.97	4.41	0.37	36.5
100-140	9.6	8.5	nd	0.49	0.12	1	2	118	39.8	5.5	0.86	-	0.14	0.48	11.0	5.46	2.23	2.96	9.30	27.0
140-180	9.6	8.5	nd	0.32	0.06	3	2	92	24.7	5.6	0.79	-	0.16	0.81	7.0	3.58	1.39	1.77	0.22	25.4

Note: Sum of cations in neutral to alkaline soils is an approximation of cation exchange capacity (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 sum of cations.