

GRADATIONAL SANDY LOAM OVER CALCIFIED ROCK

General Description: *Sandy loam grading to a very highly calcareous brown clay, overlying weathering rock*

Landform: Undulating rises.

Substrate: Weathering granite of the Mangalo / Cooke Gap Formation, coated with secondary carbonates

Vegetation:



Type Site: Site No.: EE208

1:50,000 sheet: 6130-1 (Rudall)

Hundred: Yadnarie

Annual rainfall: 375 mm

Sampling date: 17/09/01

Landform: Lower slope of undulating rise, 3% slope

Surface: Firm with minor quartz stones

Soil Description:

<i>Depth (cm)</i>	<i>Description</i>
0-16	Dark brown firm sandy loam with weak granular structure. Gradual to:
16-33	Brown massive sandy clay loam. Clear to:
33-50	Strong brown massive very highly calcareous light clay with 20% granite fragments. Gradual to:
50-80	Strong brown very highly calcareous massive sandy clay loam with more than 50% carbonate nodules. Clear to:
80-100	Weathering granite with carbonate coatings on fracture faces.



Classification: Sodic, Lithocalcic, Brown Kandosol; medium, non-gravelly, loamy / clayey, moderate

Summary of Properties

- Drainage:** The soil is well drained and unlikely to remain wet for more than a couple of days following heavy or prolonged rainfall.
- Fertility:** Inherent fertility is moderate, as indicated by the exchangeable cation data. At the pit site, concentrations of all elements except zinc appear to be satisfactory. High pH throughout suggests that deficiencies due to fixation of other trace elements and phosphorus may be expected from time to time. Organic carbon levels are in the adequate range.
- pH:** Alkaline at the surface, strongly alkaline with depth
- Rooting depth:** 80 cm in pit.
- Barriers to root growth:**
- Physical:** The underlying rock is the only physical barrier. Its depth will determine whether or not there is a limitation to plant growth due to inadequate moisture storage capacity.
- Chemical:** High pH from 50 cm restricts root growth to some extent.
- Water holding capacity:** Approximately 115 mm in the potential root zone at this site.
- Seedling emergence:** Satisfactory.
- Workability:** The sandy loam surface is readily worked, but can become cloddy when dry and sticky when wet if aggregation is allowed to degrade.

Erosion Potential

- Water:** Moderately low – there is sufficient gradient that water from upslope will cause soil to wash if unprotected
- Wind:** Moderately low. Excessive working or over-grazing will break surface aggregates to fine particles which will blow.

Laboratory Data

Depth cm	pH H ₂ O	pH CaCl ₂	CO ₃ %	EC 1:5 dS/m	Org.C %	NO ₃ mg/kg	Avail. P mg/kg	Avail. K mg/kg	SO ₄ mg/kg	Boron mg/kg	Trace Elements mg/kg (DTPA)				Sum of cations cmol (+)/kg	Exchangeable Cations cmol(+)/kg				ESP
											Cu	Fe	Zn	Mn		Ca	Mg	Na	K	
0-16	8.2	7.6	nd	0.12	1.07	6	34	453	4.3	1.8	0.54	8.7	0.21	5.06	11.6	8.23	1.93	0.27	1.13	2.3
16-33	8.6	8.2	nd	0.14	0.68	4	8	313	10.3	2.4	1.06	4.0	0.06	1.16	22.3	16.3	4.75	0.44	0.82	2.0
33-50	9.1	8.6	nd	0.23	0.57	4	9	131	12.1	2.8	1.57	5.0	0.05	0.87	22.7	12.0	8.97	1.42	0.32	6.3
50-80	9.5	8.8	nd	0.44	0.52	3	7	173	31.3	5.7	1.38	5.1	0.06	0.98	23.2	8.89	10.4	3.46	0.41	14.9
80-100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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.