

SANDY LOAM OVER DISPERSIVE RED CLAY ON ROCK

General Description: *Sandy loam over dispersive red clay, calcareous with depth, on weathering basement rock*

Landform: Undulating rises and low hills

Substrate: Schists and gneisses of the Mangalo Formation, mantled by fine grained aeolian carbonates.

Vegetation:



Type Site: Site No.: EE218
 1:50,000 sheet: 6230-4 (Mangalo) Hundred: Mann
 Annual rainfall: 400 mm Sampling date: 18/09/01
 Landform: Upper slope in a landscape of undulating rises, 4% slope.
 Surface: Firm to hard setting with no stones.

Soil Description:

Depth (cm)	Description
0-10	Dark brown firm fine sandy loam with weak granular structure and 10% quartz gravel and stone. Clear to:
10-40	Red firm medium clay (dispersive) with strong subangular blocky structure and 2-10% quartz gravel. Diffuse to:
40-55	Brown firm massive very highly calcareous medium clay with 20% schist fragments. Diffuse to:
55-90	Weathering schist with 10% pockets of calcareous clay as above.



Classification: Calcic, Subnatric, Red Sodosol; medium, slightly gravelly, loamy / clayey, moderate

Summary of Properties

Drainage: Moderately well to well drained. Soil is unlikely to remain saturated for more than a few days following heavy or prolonged rainfall.

Fertility: Inherent fertility is moderate as indicated by the exchangeable cation data. Although sandy, the surface soil has a reasonable cation retention capacity. Concentrations of tested nutrient elements are satisfactory.

pH: Alkaline at the surface, strongly alkaline at depth.

Rooting depth: 90 cm in pit, but few roots below 60 cm.

Barriers to root growth:

Physical: Although sodic and dispersive, the clayey subsoil presents only a slight limitation to root growth. Underlying rock restricts root zone depth where shallower than 50 cm.

Chemical: High pH from 40 cm restricts root growth to some extent.

Water holding capacity: Approximately 60 mm in the potential root zone above the rock.

Seedling emergence: Fair to good, depending on the degree to which the soil crusts.

Workability: Fair to satisfactory. Sandy loam surface soils can easily degrade, restricting opportunities for effective working.

Erosion Potential

Water: Moderate, due to the gradient and the high inherent erodibility of sandy loam over clay soils.

Wind: Moderately low. Problems are only likely if soil is excessively cultivated or heavily grazed.

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	
0-10	8.3	7.2	nd	0.14	2.86	23	29	356	9.6	1.6	0.29	37.9	2.08	14.2	13.0	9.01	2.86	0.24	0.09	1.8
10-40	8.6	7.5	nd	0.13	0.71	3	4	260	5.7	1.6	0.21	12.7	0.14	1.81	24.2	13.0	8.14	2.38	0.66	9.9
40-55	9.3	8.3	nd	0.22	0.42	3	4	131	9.2	1.8	0.50	8.3	0.17	0.85	21.1	12.1	5.74	3.04	0.29	14.4
55-90	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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.