

SANDY LOAM OVER DISPERSIVE CLAY ON ROCK (Hammat soil)

General Description: *Sandy loam to loam over a red or yellowish brown coarse blocky clay, sometimes calcareous with depth, grading to weathering basement rock*

Landform: Undulating to rolling low hills.

Substrate: Schists and gneisses of the Hutchison Group.

Vegetation:



Type Site: Site No.: EL143

50,000 sheet:	6029-2 (Koppio)	Hundred:	Koppio
Annual rainfall:	475 mm	Sampling date:	1982
Landform:	Mid slope in a landscape of undulating low hills, 15% slope		
Surface:	Firm with 10-20% gneiss fragments		

Soil Description:

Depth (cm)	Description
0-10	Dark brown sandy loam with granular structure and 10-25% gneiss fragments (10-50 mm). Gradual to:
10-23	Dark yellowish brown light sandy loam with granular structure and 50-75% gneiss fragments (10-50 mm). Gradual to:
23-30	Brown massive light sandy loam with 2-10% gneiss fragments (10-50 mm). Abrupt to:
30-50	Dark yellowish brown mottled medium clay with blocky structure and 2-10% gneiss fragments (10-50 mm). Diffuse to:
50-110	Yellowish brown calcareous medium clay with blocky structure and fine carbonate segregations in pockets within weathered gneiss.



Classification: Calcic, Mottled-Mesonatric, Brown Sodosol; thick, gravelly, loamy / clayey, deep

Summary of Properties

Drainage Moderately well to imperfectly drained. Water will perch on the clayey subsoil for a week to several weeks following heavy or prolonged rainfall.

Fertility Inherent fertility is moderate, as indicated by the exchangeable cation data. Nutrient retention capacity is fair at the surface, but the subsoil has a large retention capacity. Phosphate levels are extremely low, and zinc and manganese concentrations in the lower topsoil are low. Organic carbon levels are also sub-optimal.

pH Neutral in the surface and upper subsoil, alkaline in the lower subsoil / weathering rock layer.

Rooting depth Not recorded. Estimate 50 cm in pit.

Barriers to root growth

Physical: The clayey subsoil from 30 cm restricts root growth to some extent.

Chemical: There are no apparent chemical barriers apart from low trace element availability in the subsoil.

Water holding capacity Approximately 65 mm in the root zone.

Seedling emergence: Fair to satisfactory depending on the degree of hard setting.

Workability: Fair. Surface soil prone to setting hard, reducing time for effective cultivation.

Erosion Potential

Water: Moderate to high.

Wind: Low.

Laboratory Data

Depth cm	Sand %	Silt %	Clay %	pH H ₂ O	pH CaCl ₂	CO ₃ %	EC1:5 dS/m	ECe dS/m	Org.C %	Avail. P mg/kg	Trace Elements mg/kg (DTPA)				CEC cmol (+)/kg	Exchangeable Cations cmol(+)/kg				ESP
											Cu	Fe	Mn	Zn		Ca	Mg	Na	K	
0-10	79	9	12	7.7	-	0	0.05	0.86	1.24	3	1.92	32	10.0	0.52	11.0	4.7	1.80	0.26	0.40	2.4
10-23	83	8	9	6.8	-	0	0.04	0.88	0.67	2	0.88	30	2.6	0.40	6.5	2.6	1.10	0.21	0.24	3.2
23-30	82	9	9	6.9	-	0	0.03	0.55	0.27	2	0.28	22	0.2	0.12	4.1	1.4	0.99	0.11	0.15	2.7
30-50	41	4	55	7.2	-	1.5	0.18	1.06	-	-	-	-	-	-	30.0	7.7	12.0	4.50	1.10	15.0
50-110	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Note: CEC (cation exchange capacity) 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 CEC.