

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 mapsheet:	6029-2 (Koppio)
	Hundred:	Koppio	Easting:	586900
	Section:	133	Northing:	6193800
	Sampling date:	1982	Annual rainfall:	485 mm average

Mid slope in a landscape of undulating low hills, 15% slope.

Soil Description:

<i>Depth (cm)</i>	<i>Description</i>
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.

Waterholding capacity: Approximately 65 mm in the rootzone.

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.

Further information: [DEWNR Soil and Land Program](#)

