

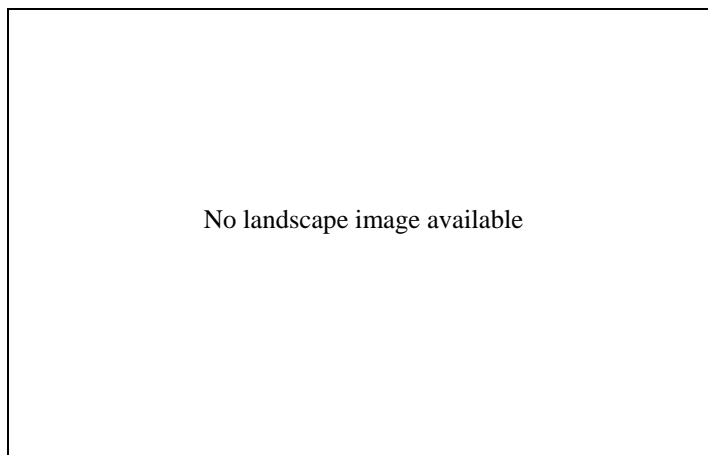
## SHALLOW SANDY LOAM OVER RED CLAY ON ROCK (Shallow Cleve – Mangalo soil)

**General Description:** *Hard gravelly sandy loam over a well structured red clay, calcareous with depth over weathering basement rock within 100 cm*

**Landform:** Undulating rises and low hills.

**Substrate:** Weathering schist, mantled by fine wind blown carbonates.

**Vegetation:**



**Type Site:** Site No.: EE065

1:50,000 sheet:	6230-4 (Mangalo)	Hundred:	Mann
Annual rainfall:	400 mm	Sampling date:	20/01/93
Landform:	Midslope of an undulating low hill, 8% slope		
Surface:	Hard setting with 10-20% schist stones		

**Soil Description:**

Depth (cm)	Description
0-6	Dark brown firm sandy loam with moderate fine subangular blocky structure and 2-10% quartz gravel. Abrupt to:
6-20	Dark red firm medium clay with strong fine subangular blocky structure. Abrupt to:
20-36	Yellowish red soft very highly calcareous medium clay with weak fine subangular blocky structure. Abrupt to:
36-	Weathering schist.



**Classification:** Haplic, Hypercalcic, Red Chromosol; thin, gravelly, loamy / clayey, shallow

### Summary of Properties

**Drainage** Well drained. The soil rarely remains wet for more than a day or so following heavy or prolonged rainfall.

**Fertility** Inherent fertility is moderate, as indicated by the exchangeable cation data. Nutrient retention capacity in the surface soil is moderately low (about 20% clay and sub-optimal organic carbon levels), but shallow subsoil clay has high retention capacity. Regular phosphorus applications are needed - levels at sampling site are high. Nitrogen levels depend on legume content of pastures and cropping history. Trace element availability is not affected by soil conditions, and levels are adequate.

**pH** Slightly alkaline at the surface, alkaline with depth.

**Rooting depth** 36 cm in pit.

#### Barriers to root growth

**Physical:** The underlying rock inhibits deeper root growth.

**Chemical:** There are no chemical barriers.

**Water holding capacity** Approximately 45 mm in the root zone.

**Seedling emergence:** Fair. The hard setting sealing surface affects establishment in some seasons.

**Workability:** Fair, where structure is poor. Surface soil may shatter if worked too dry, and puddle if worked too wet.

#### Erosion Potential

**Water:** Moderate.

**Wind:** Low.

### Laboratory Data

Depth cm	pH H <sub>2</sub> O	pH CaCl <sub>2</sub>	CO <sub>3</sub> %	EC1:5 dS/m	ECe dS/m	Org.C %	Avail. P mg/kg	Avail. K mg/kg	SO <sub>4</sub> -S mg/kg	Boron mg/kg	Trace Elements mg/kg (DTPA)				CEC cmol (+)/kg	Exchangeable Cations cmol(+)/kg				ESP
											Cu	Fe	Mn	Zn		Ca	Mg	Na	K	
0-6	7.4	6.3	<1	0.11	0.60	0.9	40	290	-	2.2	0.44	37	32	0.57	10.0	5.82	2.48	0.23	0.51	2.3
6-20	7.6	6.9	2	0.16	0.53	0.6	6	130	-	2.6	0.46	24	14	0.19	25.9	18.62	4.51	0.45	0.38	1.7
20-36	8.6	7.9	40	0.15	0.45	0.4	5	120	-	2.2	0.62	7.5	3.6	0.16	17.3	14.05	3.41	0.49	0.32	2.8

**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