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:

No landscape image available

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_2O	pH $CaC1_2$	CO_3 %	EC1:5 dS/m	ECe dS/m	Org.C %	Avail. P mg/kg	Avail. K mg/kg	SO_4-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