

SHALLOW SANDY LOAM OVER RED CLAY ON ROCK (Shallow Cleve 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.

Substrate: Weathering metamorphic basement rock.

Vegetation:



Type Site: Site No.: EE066

1:50,000 sheet: 6230-1 (Cowell)

Hundred: Miltalie

Annual rainfall: 350 mm

Sampling date: 21/01/93

Landform: Upper slope of an undulating rise, 9% slope

Surface: Firm with 2-10% stones

Soil Description:

<i>Depth (cm)</i>	<i>Description</i>
0-8	Reddish brown firm coarse sandy loam with moderate very fine granular structure and 2-10% gravel. Abrupt to:
8-25	Reddish brown friable medium clay with moderate fine subangular blocky structure and more than 50% fragments of parent rock. Abrupt to:
25-33	Yellowish red very highly calcareous light clay with weak fine subangular blocky structure. Abrupt to:
33-70	Weathering rock with fine carbonate in cleavages.



Classification: Haplic, Hypercalcic, Red Chromosol; thin, slightly 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 low. Nitrogen levels depend on legume content of pastures and cropping history. Trace element availability is not affected by soil conditions, and levels are adequate, although zinc results are suspect.
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 25 mm in the root zone.
Seedling emergence:	Fair to satisfactory. The surface soil may seal over, affecting establishment in some seasons.
Workability:	Fair, where structure is poor. Surface soil may shatter if worked too dry, and puddle if worked too wet. Otherwise, stones may interfere with or abrade equipment.
Erosion Potential	
Water:	Moderate.
Wind:	Low.

Laboratory Data

Depth cm	pH H ₂ O	pH CaCl 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	
Paddock	7.3	6.6	<1	0.04	0.31	0.7	18	350	-	0.41	0.85	31	23	0.36	8.6	3.85	0.96	0.15	0.71	1.7
0-8	7.5	7.4	<1	0.11	0.63	0.6	14	320	-	0.21	0.54	28	38	0.34	8.1	4.18	0.97	0.13	0.73	1.6
8-25	7.7	7.4	1	0.16	0.61	0.5	5	170	-	0.37	2.8	31	51	0.43	15.4	11.75	2.20	0.23	0.36	1.5
25-33	8.5	7.6	42	0.12	0.45	0.8	5	67	-	1.0	5.9	3.2	7.9	0.19	15.2	14.02	2.46	0.22	0.20	1.4
33-70	8.8	8.0	57	0.12	0.43	-	-	-	-	0.51	2.8	3.2	10	0.66	12.7	10.56	2.57	0.26	0.15	2.0

Note: Paddock sample bulked from 20 cores (0-10 cm) taken around the pit.

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