

SANDY LOAM OVER DISPERSIVE RED CLAY ON ROCK

General Description: Greyish gravelly sandy loam to sandy clay loam overlying a red, brown and yellow mottled clay forming in impure sandstone

Landform: Slopes of the Clare Hills

Substrate: Weakly metamorphosed sandstone or greywacke

Vegetation: Open forest of blue gum / red stringybark



Type Site: Site No.: CM044
Hundred: Clare
Section: 345
Sampling date: 11/08/93

1:50,000 mapsheet: 6630-3 (Clare)
Easting: 279550
Northing: 6244950
Annual rainfall: 620 mm average

Mid slope in a range of undulating low hills. Hard setting surface with 10% sandstone and quartzite stones. 10% slope.

Soil Description:

Depth (cm)	Description
0-10	Very dark greyish brown massive coarse sandy loam with 2-10% quartzite gravel. Clear to:
10-20	Pale brown massive light sandy clay loam with 20-50% quartzite gravel. Abrupt to:
20-45	Red, brown and orange mottled medium heavy clay with strong coarse blocky structure. Gradual to:
45-65	Olive brown, red and grey brown mottled weakly structured sandy medium clay with 20% sandstone fragments. Clear to:
65-70	Weakly metamorphosed sandstone.



Classification: Eutrophic, Mottled-Subnatric, Red Sodosol; medium, slightly gravelly, loamy / clayey, moderate.



Summary of Properties

Drainage: The soil is moderately well to imperfectly drained. The clayey subsoil is dispersive and has low permeability, so perched water tables may form on it, saturating the soil for a week to several weeks.

Fertility: The surface soil has a moderately low capacity to retain nutrients and relies on satisfactory organic matter levels for its fertility. The subsoil clay has a high capacity, but has a low proportion of exchangeable calcium compared with more fertile soils. Phosphorus levels are marginal at the sampling site.

pH: Acidic throughout.

Rooting depth: There is little or no root growth once rock is encountered (65 cm in sampling pit).

Barriers to root growth:

Physical: Basement rock limits root growth, but its effects are dependent on the depth to rock and its degree of weathering. The tight, dispersive clay may also restrict root penetration.

Chemical: There are no chemical limitations.

Waterholding capacity: Approximately 70 mm in the rootzone.

Seedling emergence: Fair, due to the tendency of the surface to seal over and set down hard.

Workability: Fair to good, depending on the organic matter content of the surface.

Erosion Potential:

Water: Moderately high due to the slope and the high erodibility of the soil. Poorly structured sandy surfaces overlying slowly permeable clay subsoils are very susceptible to erosion.

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 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	
Row	5.9	5.6	0	0.06	0.31	1.5	31	445	-	0.5	2.8	128	3.6	1.8	6.3	4.58	1.47	0.17	0.30	2.7
0-10	5.9	5.6	0	0.06	0.38	1.9	23	378	20	0.6	8.1	137	6.1	4.9	9.1	6.32	2.12	0.18	0.32	2.0
10-20	5.8	5.2	0	0.03	0.22	0.7	11	372	4.5	0.4	0.7	116	1.4	0.7	4.7	2.97	1.36	0.17	0.22	3.6
20-45	6.0	5.4	0	0.14	0.40	0.7	5	585	7.3	1.3	0.8	113	0.3	0.1	25.1	8.62	12.60	1.70	0.95	6.8
45-65	6.0	5.4	0	0.18	0.71	0.5	<4	515	11	1.2	0.3	63	0.1	0.1	22.2	7.78	12.80	2.23	0.89	10.0
65-70	6.1	5.6	0	0.17	1.20	0.2	4	302	21	0.8	0.2	311	0.2	0.3	7.7	2.97	4.69	0.99	0.34	12.9

Note: Row sample bulked from 20 cores (0-10 cm) taken from along the vine rows 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.

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

