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

1:50,000 sheet:	6630-3 (Clare)	Hundred:	Clare
Annual rainfall:	700 mm	Sampling date:	11/08/93
Landform:	Mid slope in a range of undulating low hills, 10% slope		
Surface:	Hard setting with 10% sandstone and quartzite stones		

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.

Water holding capacity Approximately 70 mm in the root zone.

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_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	
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.