SANDY LOAM OVER POORLY STRUCTURED CLAY ON ROCK

General Description: *Sandy loam over a poorly structured brown mottled clay, calcareous with depth, grading to weathering rock*

Landform: Slopes of undulating low hills.

Substrate: Weathering schist of the Mangalo Formation, mantled by fine grained windblown carbonate.

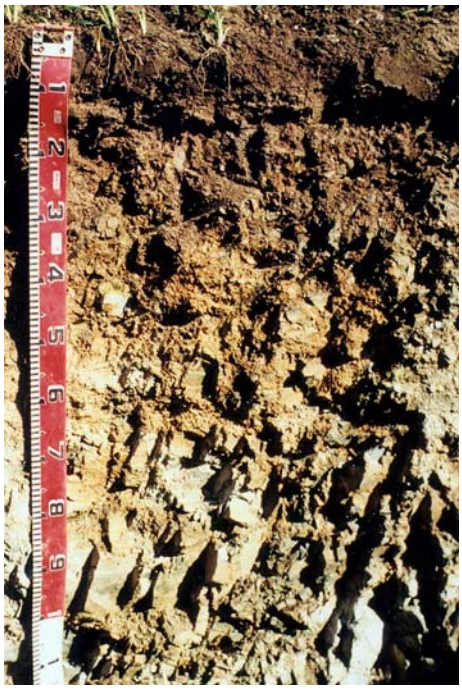
Vegetation:

Type Site: Site No.: EE221

1:50,000 sheet:	6130-1 (Rudall)	Hundred:	Campoona
Annual rainfall:	425 mm	Sampling date:	18/09/01
Landform:	Upper slope of undulating low hills, 3% slope.		
Surface:	Firm surface with no stones.		

Soil Description:

Depth (cm)	*Description*
0-10	Dark brown massive coarse sandy loam with 10% quartz and ironstone gravel. Abrupt to:
10-13	Yellowish brown massive sandy loam with 20% quartz and ironstone gravel. Abrupt to:
13-33	Strong brown with grey mottles medium heavy clay with strong subangular blocky structure and 5% schist fragments. Gradual to:
33-70	Yellowish red very highly calcareous massive light clay with 50% schist fragments. Gradual to:
70-120	Weathering schist, becoming hard by 120 cm.



Classification: Calcic, Mottled-Subnatric, Brown Sodosol; medium, slightly gravelly, loamy / clayey, moderate

Summary of Properties

Drainage: Well drained to imperfectly drained. Soil is likely to remain wet for a week or so following heavy or prolonged rainfall.

Fertility: Inherent fertility is moderate, as indicated by the exchangeable cation data. Nutrient retention capacity is relatively low in the surface, but high in the subsoil where clay content is significantly higher. Concentrations of all tested nutrient elements are adequate.

pH: Slightly acidic at the surface, strongly alkaline with depth.

Rooting depth: 100 cm in pit, but few roots below 33 cm.

Barriers to root growth:

Physical: The poorly structured clay subsoil restricts root growth to some extent. Underlying rock limits root length where sufficiently close to the surface. This is unlikely to be a limitation for annual plants where depth is more than 100 cm

Chemical: High alkalinity from 33 cm restricts root growth, possibly due to nutrient fixation.

Water holding capacity: Approximately 50 mm in the potential root zone.

Seedling emergence: Fair, as surface compaction is a likely condition on these soils.

Workability: Fair to satisfactory, depending on the degree of compaction of the surface.

Erosion Potential

Water: Moderately low. Although the soil is highly erodible due to its sandy surface and slowly permeable subsoil, low slope and upper slope position reduce potential.

Wind: Moderately low.

Laboratory Data

Depth cm	pH H_2O	pH $CaCl_2$	CO_3 %	EC 1:5 dS/m	Org.C %	NO_3 mg/kg	Avail. P mg/kg	Avail. K mg/kg	SO_4 mg/kg	Boron mg/kg	Trace Elements mg/kg (DTPA)				Sum of cations cmol (+)/kg	Exchangeable Cations cmol(+)/kg				ESP
											Cu	Fe	Zn	Mn		Ca	Mg	Na	K	
0-10	6.3	5.3	nd	0.05	2.45	8	60	361	2.3	1.0	2.25	106	1.57	21.0	7.3	4.77	1.42	0.25	0.82	3.4
10-13	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
13-33	8.8	8.2	nd	0.23	0.37	4	7	373	4.3	1.0	2.41	12.3	0.23	1.44	24.9	11.2	10.6	2.22	0.94	8.9
33-70	9.4	8.5	nd	0.23	0.31	11	4	259	10.9	1.4	1.57	4.6	0.25	0.96	19.8	9.26	7.45	2.43	0.64	12.3
70-120	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Note: Sum of cations in neutral to alkaline soils is an approximation of cation exchange capacity (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 sum of cations.