

Site code¹	MM178
Location	Hardie Hill (Buninyong Mount Mercer Road), Grenville district, south-west Victoria
Landform	Low hills
Geology	Quaternary Newer Volcanics: <i>extrusive tholeiitic to alkaline basalts, minor scoria and ash</i>
Element	Lower slopes

Profile morphology

Horizon	Depth (cm)	Description
A1	0–25	Dark brown (10YR3/3); fine sandy clay loam; apedal massive structure; weak consistence (dry); clear boundary to:
A2	25–40	Pale brown (10YR6/3), light grey (10YR7/2 dry) conspicuously bleached; fine sandy clay loam; sharp boundary to:
B21	40+	Olive brown (2.5Y4/4) with brown (10YR5/8) mottles; heavy clay; strong coarse blocky structure; strong consistence (dry).

ASC: Eutrophic, Mottled-Hypernatric, Grey Sodosol

Analytical data²

Site MM178	Sample depth	pH		EC	NaCl	Ex Ca	Ex Mg	Ex K	Ex Na	Ex Al	Ex acidity
		H ₂ O	CaCl ₂	dS/m	%	cmol _c /kg	cmol _c /kg	cmol _c /kg	cmol _c /kg	mg/kg	cmol _c /kg
Horizon	cm										
A1	0–25	5.4	N/R	0.05	N/R	1.5	1.5	0.1	0.2	32	8
A2	25–40	5.8	N/R	0.03	N/R	1	1	0	0.2	0	11.6
B21	40+	7.9	N/R	0.34	0.06	4.1	4.1	0.5	4.8	N/R	0

Site MM178	Sample depth	FC	PWP	KS	FS	Z	C	Org C	Bulk density
Horizon	cm	(-10kPa)	(-1500kPa)	%	%	%	%	%	t m ⁻³
A1	0–25	28	10	9	46	33	10	1.8	1.08
A2	25–40	N/R	N/R	21	42	30	8	0.8	N/R
B21	40+	49.5	32.1	5	20	15	60	N/R	1.25

Management considerations

These soils have acidic, hardsetting topsoils and exhibit a strong texture contrast between the surface soil and the subsoil with a bleached A2 horizon. The bleached A2 horizon is an indication of restricted drainage, poor soil structure (often massive) and low organic matter and nutrients. The fine segregations can restrict root penetration and limit available water holding capacity where there are sufficient amounts, often forming a discontinuous or continuous pan where concentrated (>50%). The subsoils are mottled, sodic and slightly alkaline indicating periodic waterlogging and nutrient imbalance.

Improvement of soil structure and nutrient input through increased organic matter would be useful while management options include reduced tillage and altering the subsoil through artificial drainage (ripping, mole drainage) and/or chemical amelioration (gypsum) to improve structure.

¹ Source: Maher JM, Martin JJ 1987 Soils and landforms of south-western Victoria. Department of Agriculture and Rural Affairs. Research Report No. 40.

² Source: Government of Victoria, State Chemistry Laboratory.