

<b>Site code<sup>1</sup></b>	<b>MM173</b>
<b>Location</b>	<b>Plains above Leigh River valley (Mount Mercer Road), Cargerie district, south-west Victoria</b>
<b>Landform</b>	Gently undulating basalt plains
<b>Geology</b>	Quaternary Newer Volcanics: <i>extrusive tholeiitic to alkaline basalts, minor scoria and ash</i>
<b>Element</b>	Flat

### Profile morphology

Horizon	Depth (cm)	Description
A1	0–15	Dark brown (10YR3/3); fine sandy clay loam; apedal massive structure; weak consistence (dry); clear boundary to:
A2	15–30	Pale brown (10YR6/3), very pale brown (10YR8/2 dry) conspicuously bleached; fine sandy clay loam; very many fine segregations; sharp boundary to:
B21	30–70	Brown (10YR4/3) with brown (10YR5/8) mottles; heavy clay; strong coarse blocky structure; strong consistence (dry); boundary to:
B22	70+	Light olive brown (2.5Y5/4) with red (2.5YR4/6) mottles; heavy clay; strong coarse blocky structure; very firm consistence (dry).

**ASC:** Eutrophic; Mottled-Mesonatric; Brown Sodosol

### Analytical data<sup>2</sup>

Site MM173	Sample depth	pH	EC	NaCl	Ex Ca	Ex Mg	Ex K	Ex Na	Ex Al	Ex acidity	
Horizon	cm	H <sub>2</sub> O	CaCl <sub>2</sub>	dS/m	%	cmol <sub>c</sub> /kg	cmol <sub>c</sub> /kg	cmol <sub>c</sub> /kg	cmol <sub>c</sub> /kg	mg/kg	cmol <sub>c</sub> /kg
A1	0–15	6	N/R	0.21	0.03	1.4	1.4	1	0.6	0	6.9
A2	15–30	5.9	N/R	0.05	N/R	1.1	1.1	0	0.3	0	1.8
B21	30–70	6.1	N/R	0.19	0.03	1.6	1.6	0.2	3.4	N/R	1.2
B22	70+	6.8	N/R	0.71	0.09	2.7	2.7	0.2	4.2	N/R	0.6

Site MM173	Sample depth	FC	PWP	KS	FS	Z	C	Org C	Bulk density
Horizon	cm	(-10kPa)	(-1500kPa)	%	%	%	%	%	t m <sup>-3</sup>
A1	0–15	28.6	9.7	6	46	30	16	3.3	1.07
A2	15–30	N/R	N/R	12	46	29	13	1	N/R
B21	30–70	N/R	N/R	7	12	7	74	N/R	N/R
B22	70+	N/R	N/R	4	13	12	71	N/R	N/R

### Management considerations

These soils have 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%). Sodic and mottled subsoils are other key features of this soil and are an indication of periodic waterlogging.

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

<sup>2</sup> Source: Government of Victoria, State Chemistry Laboratory.

## Maher & Martin Reference Site

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