

Site code<sup>1</sup> SW37



Grazing paddock.

**Location** Irrewillipe  
**Landform** Level plain of an associated swamp  
**Geology** Quaternary sediments overlying Neogene - Moorabool Viaduct Formation.  
**Element** Gentle plain



Epiacidic, Epipedal, Black Vertosol

Horizon	Depth (cm)	Description
A1	0–25	Black (10YR2/1); light clay; strong medium blocky structure; firm consistence (moist); pH 5.5:
B21	25–60	Very dark brown (10YR2/2); medium clay; strong coarse blocky, parting to strong medium blocky structure; very firm consistence (moist); pH 5.5:
B22	60–95	Dark greyish brown (10YR4/2) with dark yellowish brown (10YR4/4) mottles; medium heavy clay; strong fine lenticular, parting to strong very fine lenticular structure; weak consistence (moist); pH 5.8; wavy boundary to:
B23	95+	Very dark grey (10YR3/1), with yellowish brown (10YR5/6) mottles; medium heavy clay; strong fine lenticular, parting to strong very fine lenticular structure; weak consistence (moist); pH 5.5.

<sup>1</sup> Source: Imhof M, Brown A, Ward G (unpublished) Soils associated with dairy irrigation and winter wet soils in Southwest Victoria

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

Site SW37	Sample depth Horizon	pH		EC dS/m	NaCl %	Ex Ca cmol <sub>c</sub> /kg	Ex Mg cmol <sub>c</sub> /kg	Ex K cmol <sub>c</sub> /kg	Ex Na cmol <sub>c</sub> /kg	Ex Al mg/kg	Ex acidity cmol <sub>c</sub> /kg	FC (-10kPa) %	PWP (-1500kPa) %	KS %	FS %	Z %	C %	
		H <sub>2</sub> O	CaCl <sub>2</sub>															
	A1	0–25	5.5	4.9	0.18	N/R	11	3.1	0.4	0.2	N/R	N/R	45.9	27	6	14	21	45
	B21	25–60	5.5	4.7	0.1	N/R	3.7	5.5	0.2	0.3	N/R	N/R	43.1	25.1	2	10	25	59
	B22	60–95	5.8	4.8	0.1	N/R	2.9	7.4	0.2	0.8	N/R	N/R	44.8	25.3	1	7	22	66
	B23	95+	5.5	4.6	0.13	N/R	2.5	6.9	0.2	1.3	N/R	N/R	42.7	23.3	2	11	21	60

## Management considerations

The following comments are made on the basis of examination of a single profile and are therefore indicative only. Fertiliser and lime requirements would need to be verified and quantified through analysis of bulk samples of standard depth taken from across a whole paddock.

When the soil is dry, heavy rains will move down soil cracks. This rapid recharge can be valuable for the survival of species near wilting. When wet, the soil will swell and further infiltration of water will be relatively slow.

The high wilting point value (i.e. 27%) indicates that plants will be unable to utilise light rains when the soil is relatively dry.

The surface soil will be difficult to manage, being hard and cloddy when dry and firm and sticky when wet. As a consequence, these soils are generally most suited to pasture production. Tillage or overstocking of clayey soils such as these should be avoided if the soil is wet (i.e. wetter than the plastic limit). At such moisture conditions, excessive tillage, trafficking or over-stocking can result in structural damage (e.g. compaction, pugging, smearing) occurring. Ideally, tillage or trafficking should take place when the soil is drier than the plastic limit.

Much of the soil profile is strongly acid. This indicates that aluminium and manganese toxicity may occur. Lime can be used to increase soil pH. Other factors need to be considered before lime is recommended (e.g. pasture species grown, method of application, local trial responses, soil surface structure and likely cost/benefit). Manganese toxicity is more likely to occur in poorer drained situations (as waterlogging may bring manganese into solution). If lime is required, and pH increased, then the availability of major nutrients (e.g. phosphorus and some trace elements such as molybdenum) may improve.

Mottled subsoils are common and are an indication of periodic waterlogging, particularly if the mottles are pale (low oxygen conditions). Improved drainage may be beneficial. The subsoil is plastic at a relatively low moisture content but needs to be fairly wet for maximum compaction. The strongly vertic nature and the reasonable organic matter levels of the subsoil may lead to deterioration of mole drains over time, unless high soil compaction can be achieved.

Significant shrinking and swelling occurs in vertic soils such as these during wetting and drying cycles. This may disturb the roots of some plant species and has engineering implications (e.g. disturbance to fence lines and foundations).

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