

Site code¹ SW33



Grazing paddock (dairy).

Location Kawarren
Landform Level plain.
Geology Quaternary sediments overlying Palaeogene - Dilwyn Formation
Element Flat



Humose-Acidic, Dermosolic, Redoxic Hydrosol

Horizon	Depth (cm)	Description
A1	0-20	Greyish brown (10YR3/2); rusty root channel mottling present; very fine sandy clay loam; weak to moderate coarse blocky, parting to moderate medium blocky structure; weak consistence (moist); pH 5.1:
B21	20-45	Brown (10YR5/3) with yellowish brown (10YR5/8) mottles; light clay; moderate medium polyhedral structure; weak consistence (moist); pH 4.9:
B22	45-100	Grey (10YR5/1) with yellowish brown (10YR5/6) mottles; medium clay; strong medium polyhedral, parting to strong fine polyhedral structure; weak consistence (moist); pH 4.7.

¹ Source: Imhof M, Brown A, Ward G (unpublished) Soils associated with dairy irrigation and winter wet soils in Southwest Victoria

Analytical data²

Site SW33	Sample depth	pH		EC	NaCl	Ex Ca	Ex Mg	Ex K	Ex Na	Ex Al	Ex acidity	FC	PWP	KS	FS	Z	C
Horizon	cm	H ₂ O	CaCl ₂	dS/m	%	cmol _c /kg	cmol _c /kg	cmol _c /kg	cmol _c /kg	mg/kg	cmol _c /kg	(-10kPa)	(-1500kPa)	%	%	%	%
A1	0–20	5.1	4.4	0.13	N/R	3.9	0.9	0.2	0.05	N/R	N/R	28.7	11.2	9	50	14	24
B21	20–45	4.9	4.2	0.12	N/R	2.5	1.6	0.2	0.05	N/R	N/R	29.2	13.6	10	41	10	38
B22	45–80	4.7	4	0.16	N/R	1.6	3.3	0.3	0.2	N/R	N/R	38.8	21.2	7	26	7	57
B23	80–100	4.7	3.9	0.13	N/R	1.2	3.7	0.2	0.2	N/R	N/R	N/R	N/R	8	27	8	54

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.

The soil profile is very strongly acid throughout. 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.

The soil profile is likely to be saturated for a number of months in most years due to its low position in the landscape. Mottled subsoils are common and are an indication of periodic waterlogging, particularly if the mottles are pale (low oxygen conditions).

The soil profile has low overall levels of exchangeable basic cations (i.e. low nutrient holding capacity).

Linear shrinkage is quite low and the soil is reasonably plastic – moles should be able to be formed when moisture contents are between 100 and 300 kPa (i.e. moderately moist) or wetter. The main problem with soils such as these is ensuring that water can get through them to the mole drains. Therefore, the moles should not be placed too deep into the subsoil and adequate shattering of the overlying layers will be essential.

² Source: Government of Victoria State Chemistry Laboratory.