Site code[1] **MM230**
Location **Nalangil (Nalangil Road), Colac district, south-west Victoria**
Landform Undulating rises
Geology Quaternary alluvium: *paludal lagoon and swamp deposits, silt, clay*
Element Flat

Profile morphology

Horizon	Depth (cm)	Description
A1	0–20	Black (10YR2/1); clay loam; very fine blocky structure; weak consistence (dry); clear boundary to:
B21	20–40	Black (10YR2/1); medium clay; strong fine blocky structure; smooth ped fabric; weak consistence (moderately moist); gradual boundary to:
B22	40–90	Very dark greyish brown (10YR3/2); medium clay; strong coarse blocky structure; smooth ped fabric; very firm consistence (moist); gradual boundary to:
B23	90–100	Brown (10YR4/3) with yellowish brown (10YR5/8) mottles; medium clay; firm consistence (moist); clear boundary to:
B24	100–110	Brown (10YR4/3) with yellowish brown (10YR5/8) mottles; medium clay; firm consistence (moist); common calcareous soft segregations; boundary to:
B25	110–140	Dark brown (10YR3/3); medium clay; apedal massive structure; very weak consistence (moist); clear boundary to:
B26	140–160	Dark greyish brown (2.5Y4/2); medium clay; apedal massive structure; very weak consistence (moist); clear boundary to:
B27	160+	Light olive brown (2.5Y5/4 moist); light clay; apedal massive structure; very weak consistence (moist).

ASC: Haplic, Calcic, Black Chromosol

Analytical data[2]

Site MM230	Sample depth	pH		EC	NaCl	Ex Ca	Ex Mg	Ex K	Ex Na	Ex Al	Ex acidity
Horizon	cm	H_2O	$CaCl_2$	dS/m	%	$cmol_c/kg$	$cmol_c/kg$	$cmol_c/kg$	$cmol_c/kg$	mg/kg	$cmol_c/kg$
A1	0–20	5.5	N/R	0.08	N/R	4.9	4.9	0.6	0.6	0	22.5
B21	20–40	5.9	N/R	0.06	N/R	7	7	0.7	0.7	N/R	18.3
B22	40–90	7	N/R	0.06	N/R	N/R	N/R	N/R	N/R	N/R	11.4
B23	90–100	8	N/R	0.09	N/R	N/R	N/R	N/R	N/R	N/R	N/R
B24	100–110	8.3	N/R	0.26	0.04	N/R	N/R	N/R	N/R	N/R	N/R
B25	110–140	8.5	N/R	0.11	N/R	N/R	N/R	N/R	N/R	N/R	N/R
B26	140–160	8.3	N/R	0.07	N/R	N/R	N/R	N/R	N/R	N/R	N/R
B27	160+	8.3	N/R	0.07	N/R	12	12	0.3	1.6	N/R	N/R

[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.

Site MM230 Horizon	Sample Depth Cm	FC (-10kPa) %	PWP (-1500kPa) %	KS %	FS %	Z %	C %	Org C %	Bulk density t m^{-3}
A1	0–20	34.5	27.7	4	41	20	28	5	1.15
B21	20–40	39.5	30.6	5	31	12	48	N/R	1.09
B22	40–90	49.8	37.5	4	22	9	64	N/R	N/R
B23	90–100	N/R	N/R	4	23	9	61	N/R	N/R
B24	100–110	N/R	N/R	11	23	10	52	N/R	N/R
B25	110–140	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R
B26	140–160	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R
B27	160+	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R

Management considerations

Strong texture contrast between the surface soil and the subsoil is a very important soil feature. This can have a major effect by reducing and/or redirecting the internal drainage and restricting root growth beyond the upper horizons. 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.

Mottled subsoils are common and are an indication of periodic waterlogging, particularly if the mottles are pale (low oxygen conditions). Some brighter mottling may be due to past soil mixing and clay alluviation. Improved drainage, with the application of gypsum for sodic subsoils may be beneficial.

Alkaline subsoils are associated with a high nutrient capacity but result in an imbalance in nutrient availability (may be restrictive to certain plant species (eg. potatoes). These soils are often associated with sodic and calcic soil properties. Growing alkaline tolerant species is a practical option.

Calcium carbonate nodules (segregations, soft and hard) are associated with alkaline soils. This secondary lime is often found in deep subsoils of many basalt-derived soils. As well as growing tolerant species, some micronutrients may be required to bolster essential macronutrients for more adequate plant growth (eg. zinc).