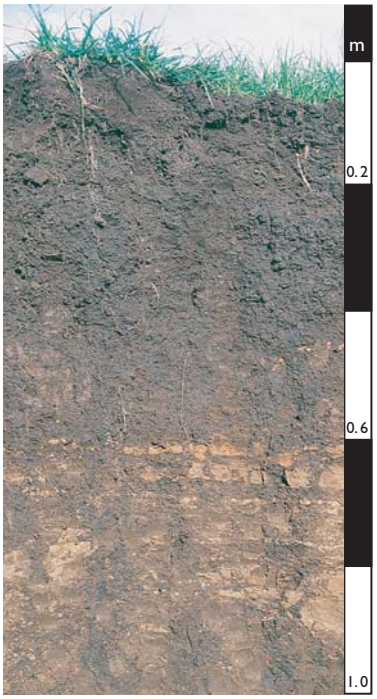
DE10: Melanic-Sodic, Eutrophic, **Black Dermosol**



Near Warrnambool, southwestern Victoria

General description of the soil

A strongly structured Black Dermosol in which the major part of the B2 horizon has a high base status (i.e. Eutrophic) and is sodic (i.e. ESP 6 or more) in its lower part.

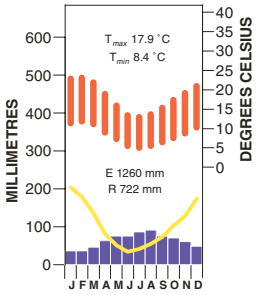
Distribution:	These soils are only known to occur in western Victoria where they occupy small areas on Quaternary volcanic ash.
Typical land use:	Dairying.
World Reference Base:	Luvic Phaeozem.
Other names:	May also be known as a Chernozems or Prairie Soils.

Environment and location of the example profile

Landform:	Upper slope of a rolling hill.
Parent material or substrate:	Quaternary volcanic ash overlying Tertiary limestone.
Drainage class:	Moderately well-drained in the upper profile.
Surface condition:	Firm.
Site disturbance:	Cleared, improved pastures.

Site location

Site climate



Soil morphology

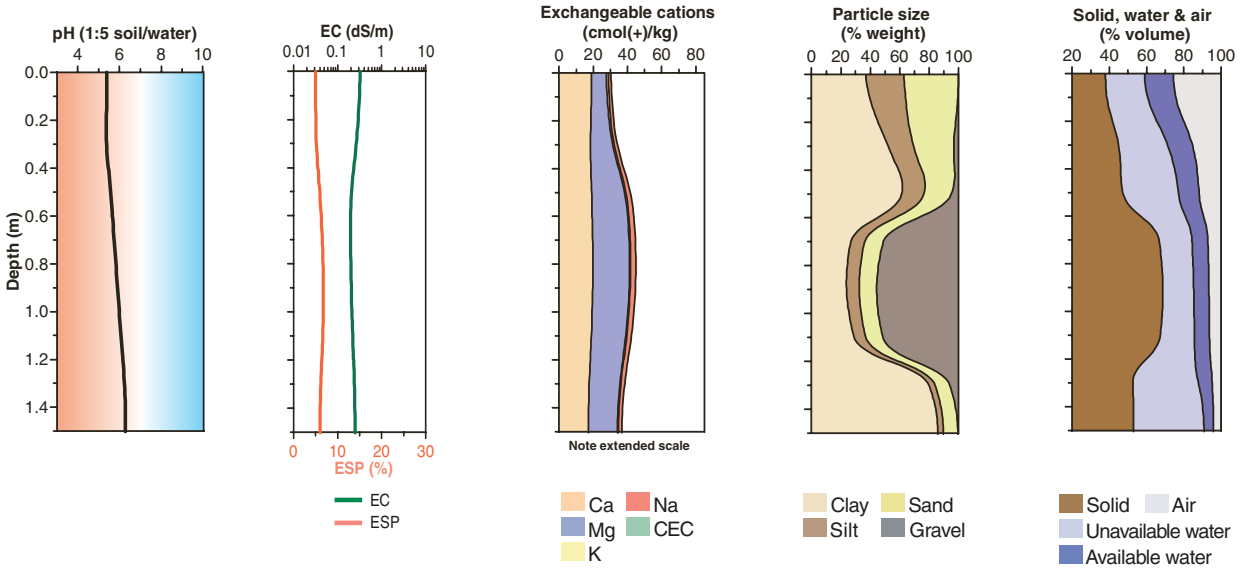
Horizon	Depth (m)	Colour	Mottles	Texture	Structure			Consistence	Coarse fragments	Segregations	Boundary
					Grade	Shape	Size				
A1	0.00–0.20	very dark brown (7.5YR 2/2)	–	heavy clay loam	moderate	subangular blocky	20–50 mm parting to 10–20 mm	weak (moist)	–	–	gradual
B21	0.20–0.40	very dark greyish brown (10YR 3/2)	–	light medium clay	strong	polyhedral	10–20 mm parting to 5–10 mm	firm (moist)	2% limestone (10 mm)	–	gradual
B22	0.40–0.60	dark brown (7.5YR 3/2)	–	medium clay	strong	polyhedral	10–20 mm parting to 5–10 mm	firm (moist)	–	–	wavy
B23	0.60–1.20	dark brown (7.5YR 3/2)	yellowish brown (10YR 5/4) weathered ash layer	light clay	moderate	polyhedral	10–20 mm parting to 5–10 mm	strong (moist)	–	40% ferruginous nodules (5–15 mm)	clear
2B	1.20–1.50	yellowish brown (10YR 5/6)	–	medium clay	strong	lenticular	5–10 mm parting to 2–5 mm	weak (moist)	–	–	abrupt
2C	1.50+	limestone substrate		–	–	–	–				

Soil chemical and physical properties

Horizon	Sample Depth (m)	pH H_2O[A]	pH $CaCl_2$[B]	Elect. Cond. dS/m[A]	$CaCO_3$ %	Org. C %[A]	Extr. P mg/kg	Tot. P %	Tot. K %	Cation exchange properties[I] cmol(+)/kg							ESP %[C]	Bulk dens. Mg/m^3	Particle size %[G]			
										Ca	Mg	K	Na	H+Al	CEC	ECEC			CS	FS	Silt	Clay
A1	0–0.20	5.4	6.1	0.32		4.6				19.0	8.9	1.2	1.6				5		5	25	21	33
B21	0.20–0.40	5.3	6.0	0.27						18.0	12.0	0.8	1.8				5		4	21	15	48
B22	0.40–0.60	5.6	6.6	0.19						19.0	21.0	0.7	2.7				6		2	14	14	57
B23	0.60–1.20	5.9	6.9	0.20						20.0	22.0	0.6	3.3				7		3	21	18	45
2B	1.20–1.50	6.3	7.1	0.25						17.0	17.0	0.5	2.0				6		1	8	4	83
2C	1.50+																					

Note: No pretreatment for soluble salts, hence exchangeable sodium and ESP may be inflated.

Key profile properties



General qualities of the soil

Infiltration:	Rapid unless compacted and poached by livestock.
Available water store:	Moderate.
Permeability:	High to moderate above the weathered ash but low in the base of the profile.
Physical root limitations:	The effective rooting depth may be restricted by the weathered ash deposits at depth which would result in reduced plant available water capacity.
Erosion hazard:	Unlikely to be a problem.
Nutrient availability:	The nutrient status of this soil is very high with high exchangeable calcium and magnesium throughout the profile. Organic matter reserves are large in the A horizon.
Toxicities:	Unlikely to be a problem.

Upper slope of a rolling hill near Merri Creek in south-western Victoria. Here Quaternary volcanic ash deposits overlie Tertiary limestone. Improved pastures are used for dairying.

Acknowledgements: Soil image, soil description and laboratory data: Department of Primary Industries, Victoria. Site SW10. Landscape image: Department of Primary Industries, Victoria.