Site code[1] **COF01b**

Rolling low hills near Johanna

Location Johanna

Landform Rolling low hills

Geology Neogene Hanson Plain Sand: *fluvial gravel, sand, silt*

Element Upper slopes

Slope 20%

Aspect South

Horizon	Depth (cm)	Description
A1	0–25	Dark brown (10YR3/3); light clay; strong medium granular, parting to strong fine granular structure; weak consistence (moderately moist); pH 5.1; many medium roots; diffuse and wavy boundary to:
B21	25–80	Dark brown (10YR3/3) with common medium faint yellowish brown (10YR5/6) mottles; medium heavy clay; moderate coarse polyhedral, parting to weak medium polyhedral structure; firm consistence (moderately moist); pH 5.7; very fine roots common; gradual and wavy boundary to:
B22	80–120	Light grey (10YR7/2) with many coarse distinct brownish yellow (10YR6/8) mottles; medium heavy clay; moderate coarse polyhedral, parting to weak fine granular structure; weak consistence (moderately moist); pH 5.0; fine roots common; clear and wavy boundary to:
B23	120–150	Light grey (10YR7/2) with many coarse distinct brownish yellow (10YR6/8) laminated and striated mottles; silty light clay; moderate coarse polyhedral, parting to weak fine granular structure; weak consistence (moderately moist); pH 5.0; fine roots common; clear and wavy boundary to:
C	150–175	Light grey (10YR7/2) with many coarse distinct strong brown (7.5YR5/8) and grey (10YR5/1) mottles on ped faces; silty clay loam; massive structure; weak consistence (moderately moist); pH 5.0; few very fine roots:
	175–210	As above; no roots observed:
	210–300	Bit harder than above.
	300–360	Softer again.

Acidic, Eutrophic, Brown DERMOSOL

[1] Source: Feikema PM, Sargeant IJ and Imhof MP (in press). Characterisation of Soils used for Farm Forestry in South-eastern mainland Australia. CFTT Report No. 2001/027. DPI

Analytical data[2]

Site COF01b Horizon	Sample depth cm	pH H_2O	pH $CaCl_2$	EC dS/m	NaCl %	Ex Ca $cmol_c/kg$	Ex Mg $cmol_c/kg$	Ex K $cmol_c/kg$	Ex Na $cmol_c/kg$	Ex Al mg/kg	Ex Acidity $cmol_c/kg$	FC –10kPa %	PWP –1500kPa %	KS %	FS %	Z %	C %
A1	0–25	5.1	4.5	0.12	N/R	5.5	2.7	0.62	0.23	80	14	40.7	18.3	3.8	37.4	25.0	24.5
B21	25–80	5.7	4.8	0.06	N/R	8.8	6.1	0.59	0.31	69	11	41.1	22	2.4	21.8	23.5	50.0
B22	80–120	5.0	4.0	0.06	N/R	2.7	4.9	0.51	0.30	1200	21	48.1	23.2	0.4	21.6	29.5	46.5
B23	120–150	5.0	4.0	0.05	N/R	1.0	4.9	0.39	0.29	1200	22	N/R	N/R	N/R	N/R	N/R	N/R
C	150–175	5.0	4.0	0.05	N/R	0.35	6.5	0.43	0.27	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R

Management considerations

The levels of exchangeable aluminium are extremely high in the deeper subsoil (from 80 cm depth). These levels will significantly affect the growth of aluminium-sensitive species.

Clay soils are generally impermeable when saturated and require similar attention to the cracking soils while moisture status is also important. Incorporation of organic matter may benefit soil structure and provide microenvironments for roots.

Acidic surface soils (topsoil) are often associated with sandy surfaces due to the lack of base minerals and may or may not have organic matter (humose or peaty surfaces). Their acidic nature restricts the uptake of certain nutrients as well as intolerance for some plant species (due in part to the increasing mobilisation of aluminium and manganese). The application of lime is the main method of increasing the pH, reducing toxic levels of nutrients to plants while increasing the availability of nutrients such as calcium, potassium and molybdenum.

Acidic subsoils generally occur on acidic parent material or where there has been sufficient leaching of the soil. These subsoils affect nutrient availability, creating a nutrient imbalance and the potential for aluminium and manganese toxicity. Deficiencies of calcium, potassium and molybdenum are likely. Where the acidity is deep, acid tolerant plants are a practical option, while increasing the pH may be preferable by applying lime.

[2] Source: Government of Victoria State Chemistry Laboratory.