Site code[1] **COF01c**

Rolling low hills near Johanna

Location	Johanna
Landform	Rolling low hills
Geology	Neogene Hanson Plain Sand: *fluvial gravel, sand, silt*
Element	Upper slopes
Slope	24%
Aspect	North

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 5.2; many medium roots; diffuse and wavy boundary to:
B21	25–70	Dark brown (10YR3/3) with medium faint yellowish brown (10YR5/6) mottles common; medium heavy clay; moderate very coarse polyhedral, parting to weak fine polyhedral structure; firm consistence (moderately moist); pH 5.4; medium roots common; gradual and wavy boundary to:
B22	70–110	Strong brown (7.5YR5/8) with many coarse distinct light grey (10YR7/2) and dark brown (10YR3/3) mottles; medium heavy clay; moderate coarse polyhedral, parting to weak fine polyhedral structure; firm consistence (moderately moist); pH 5.2; few fine roots; gradual and wavy boundary to:
B23	110–135	Light grey (10YR7/2) with many medium distinct brownish yellow (10YR6/8) and grey (10YR5/1) and dark reddish brown (5YR4/4) mottles; light clay; weak coarse polyhedral structure; weak consistence (moderately moist); pH 5.1; clear and wavy boundary to:
C	135–150	Strong brown (7.5YR5/8) with many very coarse distinct light grey (10YR7/2) mottles; light clay; apedal massive structure; weak consistence (moderately moist); pH 5.1; few very fine roots:
	150–200	As above:
	200–250	Grey/blue – lavender; roots to 2.0 m:
	250–280	As above; same hardness as 200–280 :
	280–290	Hard for backhoe; assume similar to above.

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 COF01c 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	5.2	4.4	0.09	N/R	4.0	2.5	0.96	0.18	89	14	N/R	N/R	2.4	39.1	26.5	26.0
B21	2—70	5.4	4.5	0.06	N/R	6.3	4.9	1.2	0.25	230	13	N/R	N/R	0.7	32.0	25.0	41.5
B22	70–110	5.2	4.2	0.07	N/R	4.3	5.5	0.77	0.29	520	16	N/R	N/R	1.0	35.8	23.0	31.8
B23	110–135	5.1	4.2	0.07	N/R	2.0	5.6	0.53	0.36	620	17	N/R	N/R	N/R	N/R	N/R	N/R
C	135–150	5.1	4.1	0.05	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R

Management considerations

Exchangeable aluminium levels are very high in the strongly acid subsoil.

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.

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.

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.