

FE1: Humose-Acidic, Dystrophic, Red Ferrosol

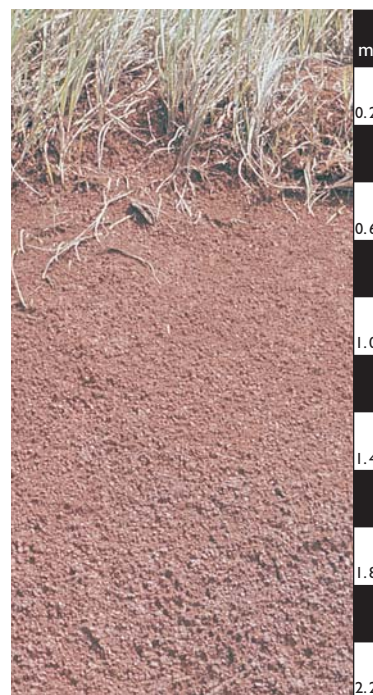
General description of the soil

A deep, strongly structured Red Ferrosol with a low base status (i.e. Dystrophic) in the major part of the B2 horizon which is strongly acid. The A1 horizon is moderately organic (i.e. Humose).

Distribution:	Widespread in small areas with high rainfall and basic igneous rocks, extending from Tasmania to the base of Cape York Peninsula.
Typical land use:	Nature reserve. Where cleared, often used for dairying and in more recent times for a diverse range of horticultural crops.
Common variants:	A1 horizon development is variable, as is depth of the solum.
World Reference Base:	Ferralic Nitisol.
Other names:	Krasnozems.

Environment and location of the example profile

Landform:	Undulating low hills.
Parent material or substrate:	Basalt.
Drainage class:	Rapidly drained.
Surface condition:	Soft.
Site disturbance:	None apparent.
Native vegetation:	Rainforest.

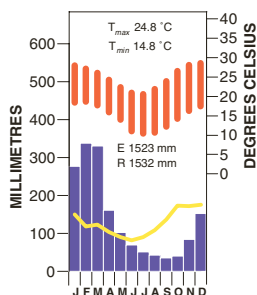


Atherton Tableland, north Queensland

Site location



Site climate



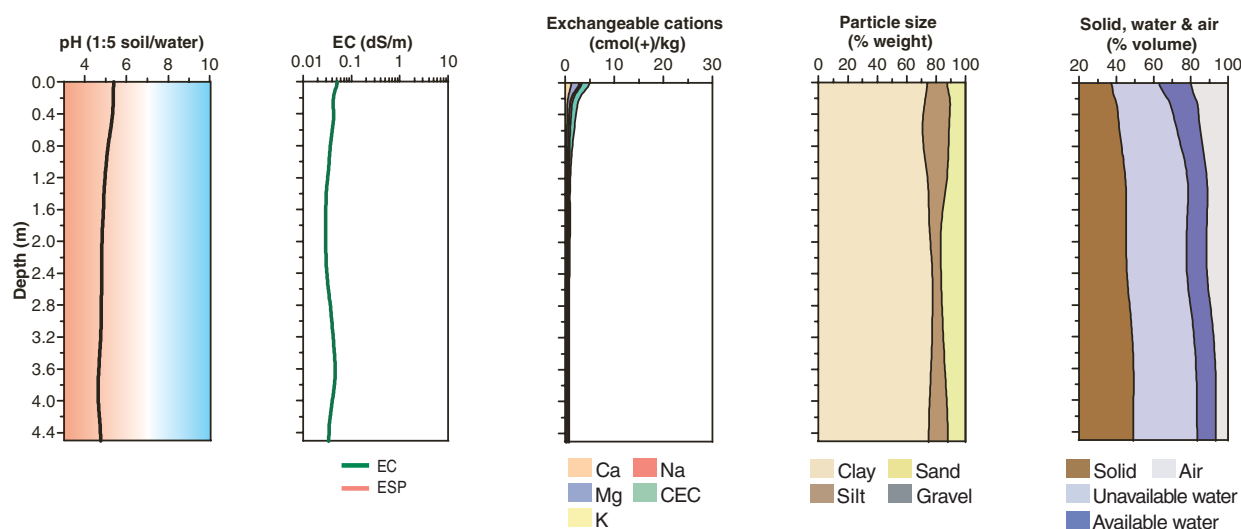
Soil morphology

Horizon	Depth (m)	Colour	Mottles	Texture	Structure			Consistence	Coarse fragments	Segregations	Boundary
					Grade	Shape	Size				
A11	0.00–0.10	dark reddish brown (2.5YR 3/4)	–	heavy loam	strong	granular	2–5 mm	weak (moist)	–	–	
A12	0.10–0.20	dusky red (10R 3/4)	–	clay loam	moderate	subangular blocky	2–5 mm	weak (mod. moist)	–	–	gradual
B11	0.20–0.30	dusky red (10R 3/4)	–	clay loam	weak	angular blocky	5–10 mm	weak (mod. moist)	–	–	gradual
B12	0.30–0.60	dusky red (10R 3/4)	–	light clay	moderate parting to strong	angular blocky parting to polyhedral	5–10 mm parting to 2–5 mm	weak (moderately moist)	–	–	diffuse
B21	0.60–0.90	dusky red (10R 3/4)	–	light medium clay	moderate parting to strong	angular blocky parting to polyhedral	5–10 mm parting to 2–5 mm	firm	–	–	diffuse
B22	0.90–1.20	dusky red (10R 3/4)	–	medium clay	moderate parting to strong	angular blocky parting to polyhedral	5–10 mm parting to 2–5 mm	firm	–	–	diffuse
B23	1.20–2.70	dark red (2.5YR 3/6)	–	medium clay	moderate parting to strong	angular blocky parting to polyhedral	5–10 mm parting to 2–5 mm	firm	–	–	diffuse
B24	2.7–5.55	reddish brown (2.5YR 4/4)	–	medium clay	moderate	angular blocky	5–10 mm	firm	2–10% soft weathered basalt	–	
BC	5.55–7.95	reddish brown (2.5YR 4/4)	–	light medium clay	–	–	–	–	2–10% soft weathered basalt	–	
C	7.95–8.27	weathered basalt	–	–	–	–	–	–	–	–	

Soil chemical and physical properties

Horizon	Sample Depth (m)	pH H ₂ O ^A	pH CaCl ₂	Elect. Cond. dS/m ^A	CaCO ₃ %	Org. C % ^C	Extr. P mg/kg ^B	Tot. P %	Tot. K % ^A	Cation exchange properties ^A cmol(+)/kg						ESP %	Bulk dens. Mg/m ³	Particle size % ^F				
										Ca	Mg	K	Na	H+Al ^B	CEC			ECEC	CS	FS	Silt	Clay
A11	0.00–0.10	5.4		0.05		6.1	16	0.189	0.037	1.3	1.6	0.3	0.3	1.6		5	–		3	8	12	66
A12	0.10–0.20	5.3		0.04		3.7	9	0.173	0.021	0.3	0.4	0.1	0.3					3	6	14	63	
B11	0.20–0.30	5.4		0.04		2.8	10			0.3	0.3	0.1	0.4	1.1		2	–	3	6	17	67	
B12	0.30–0.60	5.4		0.05		1.9	14	0.158	0.017	0.3	0.2	0.1	0.3	0.8		2	–	3	7	17	62	
B22	0.90–1.20	5.0		0.04		0.2	8	0.143	0.017	0.2	0.3	<0.1	0.3	0.2		1	–	3	8	12	68	
B23	1.50–1.80	4.9		0.03		0.3	10	0.177	0.018	0.2	0.3	0.1	0.2	0.2		1	–	3	13	7	70	
B23	2.10–2.45	4.8		0.03				0.180	0.018	0.1	0.2	0.1	0.2	0.2		1	–	3	12	5	70	
B24	2.70–3.00	4.8		0.04				0.212	0.012	0.1	0.2	0.2	0.2					2	13	8	78	

Key profile properties



General qualities of the soil

Infiltration:	Rapid.
Available water store:	Very large.
Permeability:	Very high in the near surface layers and high in the rest of the profile.
Physical root limitations:	None.
Erosion hazard:	Can be severe on slopes.
Nutrient availability:	General fertility level is low. Nitrogen and phosphorus applications are generally required.
Toxicities:	Problems with strong acidity may arise.



The rolling undulating hills of the Atherton Tablelands in north Queensland were originally covered by rainforest.

Acknowledgements: Soil image, soil description and laboratory data: CSIRO Land and Water. Profile T62. Landscape image: Bill van Aken, CSIRO.