

FE2: 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.

Distribution:	Widespread in small areas of high rainfall and basic igneous rocks extending from Tasmania to the base of Cape York Peninsula.
Typical land use:	Generally cleared and used for sugar cane in Queensland and dairying or horticulture further south.
Common variants:	Soil depth may range from 1.0 to 2.0 m to greater than 3.0 m.
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:	No site disturbance.
Native vegetation:	Lowland rainforest.

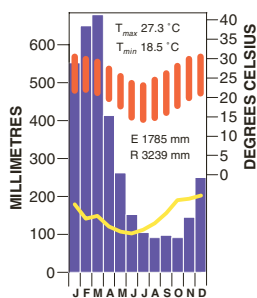


Innisfail district, north Queensland

Site location



Site climate



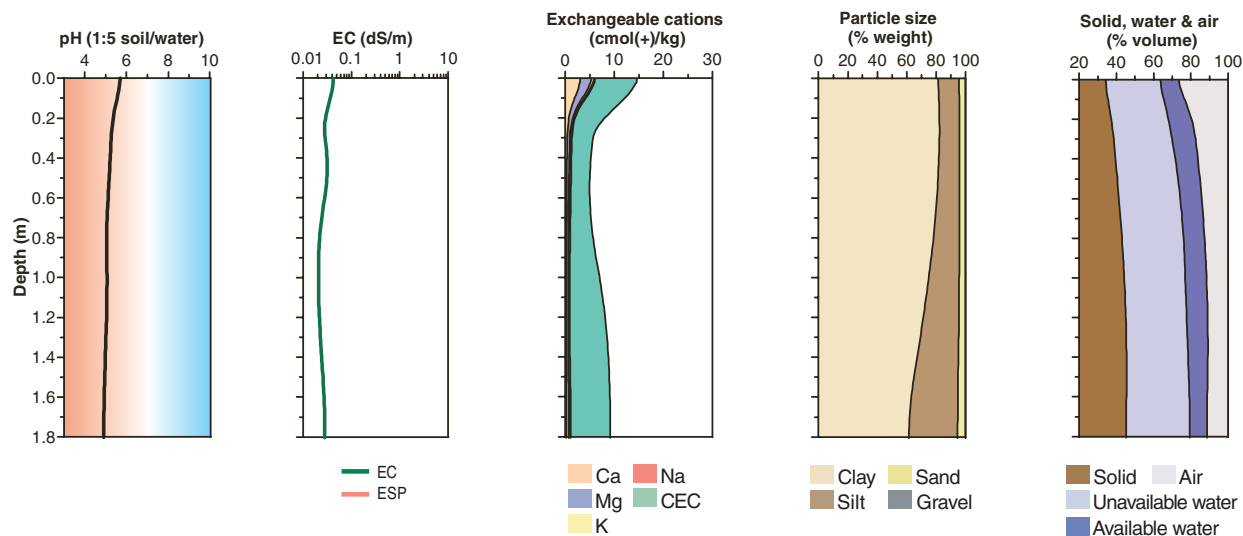
Soil morphology

Horizon	Depth (m)	Colour	Mottles	Texture	Structure			Consistence	Coarse fragments	Segregations	Boundary
					Grade	Shape	Size				
A1	0.00–0.10	dark reddish brown (2.5YR 3/4)	–	clay loam	strong	granular	2–5 mm	weak (moist)	–	–	gradual
A3	0.10–0.20	dark red (2.5YR 3/6)	–	heavy clay loam	moderate	subangular blocky	2–5 mm	weak (moist)	–	–	gradual
B1	0.20–0.30	dark red (2.5YR 3/6)	–	heavy clay loam	weak	angular blocky		weak (moist)	–	–	diffuse
B1	0.30–0.60	dark red (2.5YR 3/6)	–	light clay	weak	angular blocky		weak (moist)	–	–	diffuse
B21	0.60–0.90	dark red (2.5YR 3/6)	–	light clay	moderate	polyhedral	<2 mm	weak (moist)	–	–	diffuse
B22	0.90–1.20	dark red (2.5YR 3/8)	–	light medium clay	strong	polyhedral	<2 mm	firm (moist)	–	–	diffuse
B23	1.20–1.50	dark red (2.5YR 3/6)	–	medium clay	strong	polyhedral	<2 mm	firm (moist)	–	–	diffuse
B24	1.50–2.00	reddish brown (2.5YR 4/4)	–	medium clay	strong	polyhedral	<2 mm	firm (moist)	–	–	diffuse

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 % ^G	Extr. P mg/kg ^B	Tot. P % ^A	Tot. K % ^A	Cation exchange properties ^A						ESP %	Bulk dens. Mg/m ³	Particle size % ^F			
										Ca	Mg	K	Na	H+Al ^B	CEC			ECEC ^A	CS	FS	Silt
A1	0.00–0.10	5.7		0.04		4.9	10	0.162	0.025	3.1	2.2	0.5	0.3	0.5		7	–	2	2	13	75
A3	0.10–0.20	5.4		0.03		2.6	4	0.137	0.021	0.3	0.7	0.3	0.2	0.3		2	–	2	2	13	81
B1	0.20–0.30	5.2		0.02		1.8	4			0.2	0.3	0.1	0.2	0.1							
B1	0.30–0.60	5.2		0.04		1.0	4	0.120	0.050	0.2	0.4	0.2	0.3	0.2		1	–	2	2	14	77
B21	0.60–0.90	5.0		0.02																	
B22	0.90–1.20	5.1		0.02		0.5	3	0.136	0.017	0.2	0.3	0.1	0.3	0.1		1	–	1	3	22	65
B23	1.20–1.50	5.0		0.02																	
B24	1.50–1.80	4.9		0.03		0.3	7	0.124	0.046	0.2	0.5	0.1	0.3	0.1		4	–	1	4	31	57

Key profile properties



General qualities of the soil

Infiltration:	Rapid.
Available water store:	Large.
Permeability:	Very high to high in the deeper layers.
Physical root limitations:	None.
Erosion hazard:	Can be severe on slopes.
Nutrient availability:	General fertility level is low. Generally require nitrogen and phosphorus applications.
Toxicities:	Problems with strong acidity may arise.



Undulating low basalt hills, originally lowland rainforest, now mainly sugar cane. Near Innisfail, north Queensland.

Acknowledgements: Soil image, soil description and laboratory data: CSIRO Land and Water. Profile T64. Landscape image: CSIRO.