

DE7: Acidic, Dystrophic, Brown Dermosol

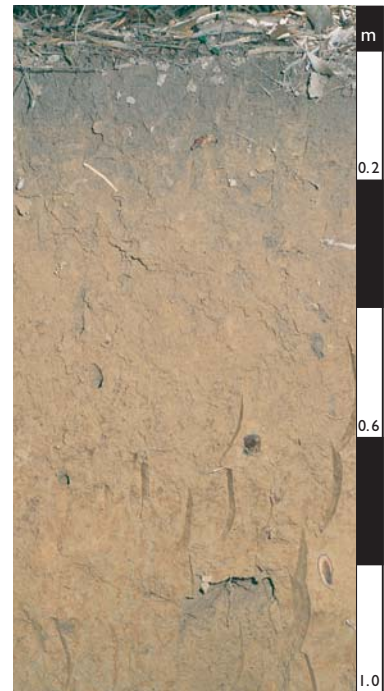
General description of the soil

A strongly structured Brown Dermosol in which the major part of the B2 horizon has a very low base status (i.e. Dystrophic) and is strongly acid (pH <5.5).

Distribution:	These soils occupy relatively small but widespread areas in the higher rainfall near-coastal plains of eastern Australia.
Typical land use:	Nature conservation and pasture and cropping when cleared.
Common variants:	B horizon textures range from silty clay loam to medium clay and texture profiles may be uniform or gradational. In less well-drained sites mottling occurs at shallower depths in the profile.
World Reference Base:	Alumic Ferralsol.
Other names:	Alluvial Soils.

Environment and location of the example profile

Landform:	Alluvial plain, levee.
Parent material or substrate:	Alluvial sediments.
Drainage class:	Well-drained.
Surface condition:	Firm.
Site disturbance:	Undisturbed.
Native vegetation:	Lowland rainforest.

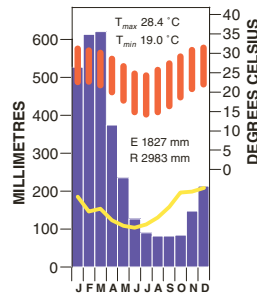


Tully district, north Queensland

Site location



Site climate



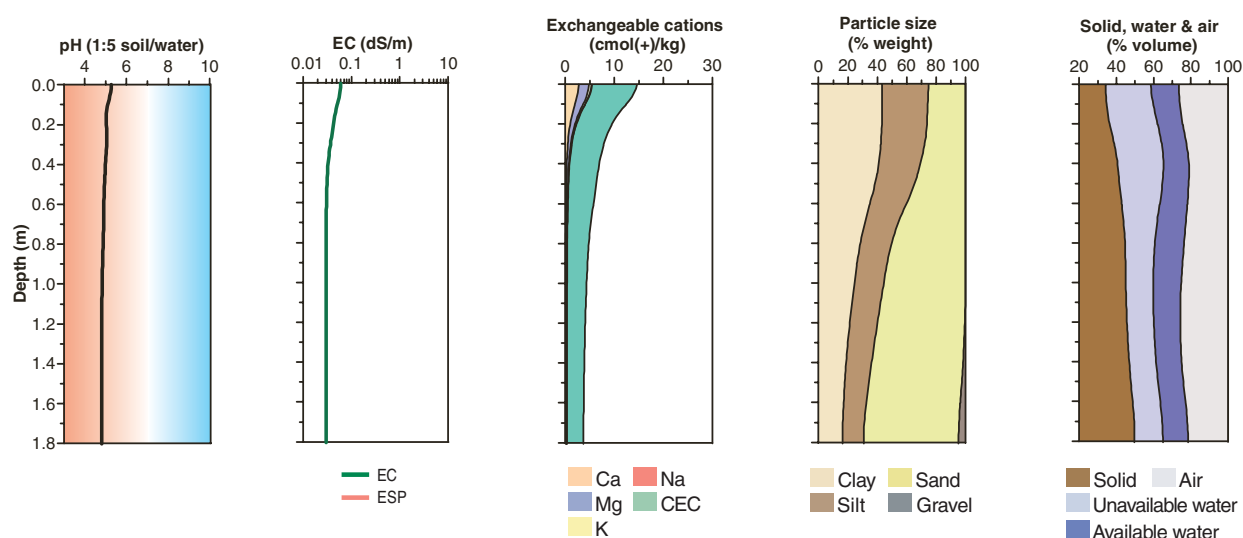
Soil morphology

Horizon	Depth (m)	Colour	Mottles	Texture	Structure			Consistence	Coarse fragments	Segregations	Boundary
					Grade	Shape	Size				
A1	0.00–0.10	dark greyish brown (10YR 4/2)	–	silty clay loam	moderate	cast	5–10 mm	weak (moist)	–	–	gradual
A3	0.10–0.20	brown (10YR 5/3)	–	silty light clay	strong	granular	5–10 mm	weak (moist)	–	–	gradual
B1	0.20–0.30	yellowish brown (10YR 5/4)	–	silty light clay	strong	angular blocky	10–20 mm	very firm (moist)	–	–	
B21	0.30–0.45	yellowish brown (10YR 5/5)	–	silty light clay	strong	angular blocky	5–10 mm	very firm (moist)	–	–	gradual
B22	0.45–0.60	yellowish brown (10YR 5/6)	10–20% brown (10YR 4/3) faint (<5 mm)	silty light clay	strong	angular blocky	5–10 mm	very firm (moist)	–	–	diffuse
B3	0.60–0.90	yellowish brown (10YR 5/4)	20–50% brown (7.5YR 5/4) faint (15–30 mm)	fine sandy clay loam	moderate	angular blocky	5–10 mm	weak (moist)	–	–	diffuse
BC1	0.90–1.20	light yellowish brown (10YR 6/4)	20–50% yellowish red (5YR 5/8) distinct (15–30 mm) and 20–50% light grey (10YR 7/2) distinct (15–30 mm)	fine sandy clay loam	massive	–	–	weak (moist)	–	–	
BC2	1.20–1.60	yellowish brown (10YR 6/4)	20–50% yellowish red (5YR 5/8) distinct (15–30 mm) and 20–50% light grey (10YR 7/2) distinct (15–30 mm)	fine sandy loam	massive	–	–	weak (moist)	–	–	
C	1.60–1.80	light yellowish brown (10YR 6/4)	20–50% yellowish brown (10YR 5/8) distinct (15–30 mm)	sandy clay loam	massive	–	–	weak (moist)	5% gravel	–	

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 % ^A	Tot. K % ^A	Cation exchange properties ^A cmol(+)/kg						ESP %	Bulk dens. Mg/m ³	Particle size % ^A				
										Ca	Mg	K	Na	H+Al ^B	CEC ^C			ECEC ^A	CS	FS	Silt	Clay
A1	0.00–0.10	5.3		0.06		2.8	21	0.058	2.36	3.0	2.3	0.5	0.1	0.9	15	7	–		2	23	32	43
A3	0.10–0.20	4.7		< 0.05		1.4	8			0.9	1.1	0.2	0.1	2.8		5			2	24	30	44
B1	0.20–0.30	5.2		< 0.05		0.7				0.3	0.5	0.1	0.1	3.2	8	4	–		2	23	32	43
B21	0.30–0.45	5.0		< 0.05		0.4	3			0.2	0.3	0.1	0.1	3.6		4			2	27	28	43
B22	0.45–0.60	4.9		< 0.05				0.019	2.20	0.2	0.2	0.1	0.1	3.4	6	4	–		2	32	28	39
B3	0.60–0.90	4.9		< 0.05		0.2				0.1	0.2	<0.1	0.1	2.9	5	3	–		2	49	20	28
BC1	0.90–1.20	4.8		< 0.05						0.1	0.1	0.1	<0.1	2.7	4	3	–		4	58	19	20
BC2	1.20–1.60	4.8		< 0.05										2.8		3						
C	1.60–1.80	4.8		< 0.05						0.1	0.2	0.1	<0.1	1.7		2	–		37	24	13	15

Key profile properties



General qualities of the soil

Infiltration:	Rapid.
Available water store:	Moderate to large.
Permeability:	High.
Physical root limitations:	None.
Erosion hazard:	Extreme rainfall events may cause problems with flooding.
Nutrient availability:	Low when organic matter declines.
Toxicities:	Strong acidity will cause problems in some crops.



Alluvial plain and low levees with rainforest (background), soybeans (foreground) and sugar cane, Tully Experimental Station, north Queensland

Acknowledgements: Soil image, soil description and laboratory data: CSIRO Land and Water. Profile T257. Landscape image: CSIRO.