

CLAY LOAM OVER DISPERSIVE RED CLAY ON ROCK

General Description: *Sandy loam to clay loam overlying a very firm red coarsely structured clay subsoil forming in quartzite or quartzitic siltstone*

Landform: Slopes of undulating to rolling low hills

Substrate: Quartzite or quartzitic siltstone or fine sandstone

Vegetation: Eucalyptus odorata, Eucalyptus leucoxyton, Casuarina stricta woodland



Type Site: Site No.: CU018

1:50,000 sheet:	6531-1 (Laura)	Hundred:	Booyoolie
Annual rainfall:	550 mm	Sampling date:	31/08/92
Landform:	Upper slope of undulating low hills, slope 10%		
Surface:	Hard setting with 2-10% quartzite stones		

Soil Description:

<i>Depth (cm)</i>	<i>Description</i>
0-7	Dark reddish brown weakly granular clay loam with 10% quartzite gravel. Sharp to:
7-9	Pinkish grey massive clay loam with 10% quartzite gravel. Sharp to:
9-25	Dark red firm heavy clay with strong coarse blocky structure and 10% quartz stones. Clear to:
25-40	Red firm heavy clay with strong coarse blocky structure and 30% quartz stone. Clear to:
40-80	Reddish yellow highly calcareous heavy clay with weak blocky structure and 50% quartzite stones. Clear to:
80-100	Hard quartzite bedrock of the Wirrabara Formation, with pockets of soft carbonate in fractures.



Classification: Hypercalcic, Subnatric, Red Sodosol; thin, slightly gravelly, clay loamy / clayey, moderate

Summary of Properties

Drainage	Moderately well drained. Soil may remain wet for a week or so because of the low permeability of the clay subsoil.
Fertility	Natural fertility is high, as indicated by the CEC values. Organic carbon levels are good and there are no evident deficiencies on the basis of the soil analyses.
pH	Slightly acidic at the surface, alkaline with depth.
Rooting depth	70 cm in the pit, but there is very little growth below 40 cm.
Barriers to root growth	
Physical:	The high strength of the clay may impede root growth and affect distribution patterns. Large stones or bedrock close to the surface will also affect root depth.
Chemical:	There are no apparent chemical barriers to root growth.
Water holding capacity	70 mm in rootzone (moderate). Some of this is not accessible by roots because of poor distribution.
Seedling emergence	Fair to good. The surface soil tends to set hard. This will cause patchy emergence if the surface dries out soon after seeding.
Workability	Fair due to poorly structured surface soil. There is a narrow moisture range for effective working. Quartz stones on surface cause accelerated wear of implements.
Erosion Potential	
Water:	Moderate, due to the combination of 10% slope and moderately erodible soil.
Wind:	Low.

Laboratory Data

Depth cm	pH H ₂ O	pH CaCl ₂	CO ₃ %	EC1:5 dS/m	ECe dS/m	Org.C %	Avail. P mg/kg	Avail. K mg/kg	SO ₄ -S mg/kg	Boron mg/kg	Trace Elements mg/kg (DTPA)				CEC cmol (+)/kg	Exchangeable Cations cmol(+)/kg				ESP
											Cu	Fe	Mn	Zn		Ca	Mg	Na	K	
Paddock	6.6	6.4	-	0.12	0.44	2.5	47	563	-	1.7	0.8	52	47	2.5	14.1	10.6	2.5	0.27	1.05	1.9
0-7	6.9	6.8	-	0.13	0.60	1.8	41	609	-	1.7	1.0	33	20	1.1	15.7	10.7	4.3	0.42	1.23	2.7
7-9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9-25	7.4	7.0	<0.1	0.20	0.81	0.9	6	475	-	3.3	1.5	25	4.4	0.2	32.9	16.1	12.7	2.18	1.14	6.6
25-40	8.0	7.4	0.1	0.19	0.39	0.7	<4	430	-	5.8	1.5	15	4.4	0.3	43.7	21.3	18.4	2.93	1.36	6.7
40-80	8.7	8.0	27.6	0.29	0.51	0.3	<4	383	-	3.9	1.5	12	3.1	0.1	29.9	14.6	13.6	2.73	0.93	9.1
80-100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Note: Paddock sample bulked from cores (0-10 cm) taken around the pit.

CEC (cation exchange capacity) is a measure of the soil's capacity to store and release major nutrient elements.

ESP (exchangeable sodium percentage) is derived by dividing the exchangeable sodium value by the CEC.