

CALCAREOUS SANDY CLAY LOAM ON CLAY (Wiabuna soil)

General Description: *Calcareous sandy clay loam with variable subsurface rubble, over a clayey substrate within 120 cm*

Landform: Very gently undulating rises.

Substrate: Tertiary heavy clay.

Vegetation:



Type Site: Site No.: EL102

1:50,000 sheet: 6129-4 (Butler)

Hundred: Butler

Annual rainfall: 380 mm

Sampling date: 11/03/94

Landform: Flat between rises, 1% slope

Surface: Firm with 2-10% calcrete stone

Soil Description:

<i>Depth (cm)</i>	<i>Description</i>
0-10	Dark brown friable moderately calcareous sandy clay loam with weak fine subangular blocky structure. Clear to:
10-15	Brown friable highly calcareous clay loam with weak subangular blocky structure and 10-20% calcrete fragments. Abrupt to:
15-30	Yellowish brown soft very highly calcareous clay loam with more than 50% calcrete fragments (6-20 mm). Abrupt to:
30-60	Partially cemented Class III C rubble layer. Clear to:
60-100	Reddish yellow soft very highly calcareous clay loam with moderate fine subangular blocky structure and more than 50% calcrete fragments (6-20 mm). Gradual to:
100-140	Reddish yellow very hard very highly calcareous medium clay with minor quartz gravel. Clear to:
140-150	Yellowish red and grey mottled friable heavy clay with strong angular blocky structure.



Classification: Endohypersodic, Regolithic, Lithocalcic Calcarosol; medium, slightly gravelly, clay loamy / clay loamy, deep

Summary of Properties

Drainage Well drained. The soil is rarely saturated for more than a day or so following heavy or prolonged rainfall.

Fertility Inherent fertility is high, as indicated by the exchangeable cation data. Surface clay and organic carbon levels are high, providing abundant nutrient retention. Concentrations of all measured elements are adequate, although nitrogen levels were not assessed - depend on legume status of pastures and cropping history.

pH Alkaline at the surface, strongly alkaline with depth.

Rooting depth 30 cm in pit.

Barriers to root growth

Physical: The partly cemented Class III C carbonate rubble layer severely restricts root growth.

Chemical: High pH, sodicity and boron concentrations below 60cm effectively inhibit deeper root growth.

Water holding capacity Approximately 35 mm in the root zone.

Seedling emergence: Satisfactory.

Workability: Firm surface is easily worked.

Erosion Potential

Water: Low.

Wind: Moderately 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	
0-10	8.3	7.7	5	0.21	0.99	2.0	62	990	-	3.6	0.25	9.6	7.6	0.59	39.2	29.9	5.23	0.15	3.91	0.3
10-15	8.6	8.0	12	0.18	0.53	1.6	6.3	670	-	4.1	0.33	16	1.6	0.31	45.2	32.2	10.2	0.10	2.73	0.2
15-30	9.1	8.4	24	0.25	0.87	1.1	9.0	610	-	8.4	0.56	8.9	1.3	0.47	34.9	16.7	14.5	1.14	2.60	3.3
30-60	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
60-100	10.0	8.7	56	0.87	3.87	0.17	<2.0	840	-	26	0.65	3.5	0.29	0.39	22.0	2.20	9.90	7.72	2.72	32.8
100-140	10.0	8.8	52	0.97	5.30	0.13	<2.0	920	-	29	0.63	3.4	0.25	1.0	24.7	2.07	9.92	9.43	3.29	38.2
140-150	9.1	8.3	2	1.14	4.28	<0.1	<2.0	1200	-	41	0.46	4.5	0.87	0.29	31.2	1.12	13.3	12.32	4.48	39.5

Note: 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.