

HIGHLY CALCAREOUS SANDY LOAM (Wookata soil)

General Description: *Very highly calcareous sandy loam becoming more clayey with depth and containing variable carbonate rubble*

Landform: Undulating low hills.

Substrate: Bridgewater Formation
Calcrete, capped by very highly calcareous Woorinen Formation carbonates.

Vegetation: Mallee / tea tree



Type Site: Site No.: EF029

1:50,000 sheet: 5334-3 (Kuragi)

Hundred: Miller

Annual rainfall: 315 mm

Sampling date: 27/10/88

Landform: Midslope of low hill, 4% slope

Surface: Soft with no stones

Soil Description:

<i>Depth (cm)</i>	<i>Description</i>
0-10	Dark brown loose very highly calcareous sandy loam. Abrupt to:
10-15	Dark brown friable massive very highly calcareous light sandy clay loam. Clear to:
15-28	Brown soft massive very highly calcareous light sandy clay loam. Abrupt to:
28-40	Brown friable massive very highly calcareous light sandy clay loam. Abrupt to:
40-50	Orange friable massive very highly calcareous sandy loam with 20-50% carbonate nodules. Abrupt to:
50-80	Light brown soft massive very highly calcareous sandy loam with more than 50% laminar calcrete fragments. Gradual to:
80-160	Light brown firm massive very highly calcareous sandy clay loam. Diffuse to:
160-180	Reddish yellow friable massive very highly calcareous sandy clay loam.



Classification: Supravescent, Regolithic, Lithocalcic Calcarosol; thick, non-gravelly, loamy / loamy, moderate

Summary of Properties

Drainage	Rapidly drained. The soil never remains wet for more than a few hours.
Fertility	Exchangeable cation data indicate moderately low fertility. Extremely high carbonate concentrations cause a high degree of nutrient fixation. Phosphorus, zinc, manganese and copper availability is reduced. Data suggest deficiencies of copper and zinc at the sampling site, but phosphorus levels are high. Organic carbon concentrations are satisfactory.
pH	Alkaline at the surface, strongly alkaline with depth.
Rooting depth	80 cm in pit.
Barriers to root growth	
Physical:	There are no physical barriers, except where calcrete rubble is cemented.
Chemical:	High pH and sodicity from 40 cm, and high boron concentrations and moderate salinity from 80 cm restrict root growth.
Water holding capacity	Approximately 70 mm in the root zone.
Seedling emergence:	Satisfactory.
Workability:	Soft surface is easily worked.
Erosion Potential	
Water:	Moderately low.
Wind:	Moderate.

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 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	8.4	7.5	67	0.26	1.38	1.40	42	-	-	2.3	0.14	5	7.43	0.33	9.2	9.66	1.62	0.16	1.46	1.7
10-15	8.3	7.6	68	0.30	1.66	1.40	20	-	-	2.5	0.16	5	6.04	0.30	10.3	9.81	1.65	0.17	1.42	1.7
15-28	8.7	7.8	73	0.25	1.31	0.60	6.2	-	-	3.3	0.13	2	3.44	0.11	6.4	6.62	2.12	0.20	1.03	3.2
28-40	9.0	8.2	74	0.26	1.88	0.58	5.7	-	-	4.6	0.13	1	1.71	0.07	5.3	4.36	3.08	0.34	0.92	6.4
40-50	9.7	8.7	79	0.40	3.23	0.39	4.8	-	-	10.3	0.12	1	0.86	0.07	4.7	1.70	3.57	1.22	1.18	26.0
50-80	10.0	8.8	78	0.60	5.44	0.28	4.3	-	-	14.7	0.13	1	0.71	0.05	5.2	1.05	3.17	2.61	1.43	27.5
80-160	10.0	8.7	81	0.74	8.82	0.21	3.6	-	-	19.1	0.18	1	0.75	0.06	4.2	0.95	1.73	2.55	1.46	60.7
160-180	10.0	8.7	78	1.06	12.64	0.14	3.6	-	-	27.0	0.15	1	0.82	0.08	5.2	1.28	1.78	2.73	1.98	52.5

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.