

## GRADATIONAL CALCAREOUS LOAM (Wiabuna soil)

**General Description:** *Calcareous loam grading to a highly calcareous sandy clay loam with variable rubble, becoming more clayey at depth*

**Landform:** Very gently undulating rises.

**Substrate:** Tertiary clay.

**Vegetation:** Mallee.



**Type site:** Site No.: EC059

1:50,000 sheet: 6030-1 (Palkagee)

Hundred: Palkagee

Annual rainfall: 380 mm

Sampling date: 19/02/86

Landform: Very gentle slope

Surface: Firm with no stones

### Soil Description:

Depth (cm)	Description
0-8	Dark reddish brown massive highly calcareous loam. Abrupt to:
8-34	Brown massive highly calcareous sandy clay loam. Abrupt to:
34-56	Reddish yellow very highly calcareous massive sandy clay loam with 20-50% carbonate nodules (Class III B carbonate). Abrupt to:
56-98	Reddish yellow very highly calcareous light clay with weak coarse lenticular structure. Clear to:
98-140	Reddish yellow very highly calcareous light medium clay with weak coarse lenticular structure. Gradual to:
140-180	Strong brown medium clay with strong coarse lenticular structure.



**Classification:** Endohypersodic, Regolithic, Supracalcic Calcarosol; thick, non-gravelly, loamy / clayey, deep

## Summary of Properties

<b>Drainage</b>	Well drained. The soil rarely remains wet for more than a day or so following heavy or prolonged rainfall, although the substrate clay impedes deep drainage under irrigation.
<b>Fertility</b>	Inherent fertility is moderate to high. Nutrient retention capacity is high, with over 20% clay and 1.7% organic carbon at the surface. Phosphorus concentrations are above adequate levels, but regular applications are necessary. Nitrogen levels depend on legume component of pastures and cropping history. Free lime to the surface may reduce trace element availability, but levels of all are high.
<b>pH</b>	Alkaline at the surface, strongly alkaline at depth.
<b>Rooting depth</b>	140 cm in pit, but few roots below 56 cm.
<b>Barriers to root growth</b>	
<b>Physical:</b>	There are no physical barriers above the substrate clay where coarse structure limits root growth to the surfaces of aggregates.
<b>Chemical:</b>	High pH and boron concentrations from 56 cm severely restrict deeper growth.
<b>Water holding capacity</b>	Approximately 90 mm in the root zone.
<b>Seedling emergence</b>	Satisfactory.
<b>Workability</b>	Firm surface is easily worked.
<b>Erosion Potential</b>	
<b>Water:</b>	Moderately low to low.
<b>Wind:</b>	Moderately low to low

## Laboratory Data

Depth cm	pH H <sub>2</sub> O	pH CaCl <sub>2</sub>	CO <sub>3</sub> %	EC1:5 dS/m	ECe dS/m	Org.C %	Avail. P mg/kg	Avail. K mg/kg	SO <sub>4</sub> -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	
0-8	8.2	7.7	9	0.22	0.81	1.7	50	-	-	4.6	0.90	9.9	6.8	4.20	19.8	17.56	3.73	0.18	1.27	0.9
8-34	8.8	8.0	24	0.13	0.57	1.3	5.2	-	-	4.1	0.31	12.0	2.9	0.29	23.0	21.17	3.58	0.64	0.56	2.8
34-56	9.2	8.3	44	0.19	0.44	0.64	4.8	-	-	6.5	0.51	17.0	9.9	0.18	19.7	13.14	6.37	0.52	0.58	2.6
56-98	10.2	8.9	59	0.70	0.62	0.32	5.5	-	-	20.3	0.76	9.2	5.0	0.16	14.6	6.66	8.26	1.44	0.68	9.9
98-140	10.1	8.8	38	0.71	1.45	0.26	5.3	-	-	26.9	1.40	19.0	6.4	0.34	14.1	2.90	6.49	6.73	1.10	48
140-180	10.1	8.7	18	0.56	2.49	0.12	3.6	-	-	27.7	1.00	3.8	1.1	0.48	16.2	1.31	5.66	10.00	0.84	62

**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.