

SHALLOW LOAM ON CALCRETED LIMESTONE

General Description: *Dark reddish brown, well-structured loam on calcreted Mt Gambier Limestone*

Subgroup soil: B4

Landform: Undulating plain

Substrate: Miocene limestone

Vegetation: Grass and clover.



Type Site:	Site No:	SE150	1:50,000 mapsheet:	7022-2 (Gambier)
	Hundred:	Caroline	Easting:	488200
	Section:	130	Northing:	5792410
	Sampling date:	23/10/08	Annual rainfall:	755 mm average

The site is on a flat irrigated via a centre-pivot irrigator. Some rock outcrop is evident in the paddock.

Soil Description:

<i>Depth (cm)</i>	<i>Description</i>
0–10	Hardsetting, dark reddish brown, loam with fine moderate granular structure.
10–19	Dark reddish brown, loam with fine moderate granular structure and 2–10% hard carbonate fragments.
19–23	Strongly cemented laminar calcrete.
23–80	Very weak rock: Mt Gambier limestone.
80–130	Very weak to weak rock: Mt Gambier limestone.



Classification: Haplic, Petrocalcic, Red Dermosol; medium, non-gravelly, loamy/-, very shallow.

Alternatively: Basic, Petrocalcic, Leptic Tenosol; medium, non-gravelly, loamy/-, very shallow.



Summary of Properties

- Drainage:** Drainage is imperfect to moderately good. This is exacerbated by somewhat compacted soil.
- Fertility:** Inherent fertility is high, given the high organic content and relatively high clay content of the soil. Surface soil phosphorus level is very high (above what is required for optimal growth). Boron levels may be marginal for high levels of productivity.
- pH:** Soil pH is alkaline.
- Rooting depth:** Root growth to the base of the soil: 19 cm in the pit where the profile was described.
- Barriers to Root Growth:**
- Physical:** The soil naturally has very good structure; however, some compaction has occurred: root growth would be restricted to some extent due to this. The limestone base forms an obvious barrier to root growth.
- Chemical:** There are no chemical barriers to root growth in the soil.
- Waterholding capacity:** Low. However mild climate reduces the loss of soil moisture to evaporation. Total available: approx 35 mm [(0.1x190)+(0.09x190)].
- Seedling emergence:** Moderate.
- Workability:** Moderate to good.
- Erosion Potential:**
- Water:** Low.
- Wind:** Low.

Laboratory Data

Depth cm	pH H ₂ O	pH CaCl ₂	CO ₃ %	EC 1:5 dS/m	ECe dS/m	Org.C %	Avail. P mg/kg	Avail. K mg/kg	Cl mg/kg	SO ₄ -S mg/kg	Boron mg/kg	Al CaCl ₂ mg/kg	Trace Elements mg/kg (EDTA)				Sum cations cmol (+)/kg	Exchangeable Cations cmol(+)/kg						Est. ESP
													Cu	Fe	Mn	Zn		Ca	Mg	Na	K	Al	H	
Paddock	7.9	7.3	0.8	0.36	2.15	8.6	170	335	182	53.8	1.4	2.2	3.0	238	14	5.0	26.0	20.6	4.1	0.6	0.6	0.0	0.0	2
0-10	7.9	7.4	0.6	0.30	1.64	9.9	338	177	142	47.8	1.7	4.1	5.8	289	15	9.8	28.0	21.8	5.1	0.6	0.4	0.0	0.0	2
10-19	7.9	7.3	0.7	0.29	0.89	7.4	78	137	69	24.5	1.3	0	2.5	232	15	1.7	23.0	18.4	3.7	0.6	0.3	0.0	0.0	3
19-23																								
23-80																								
80-130	8.9	7.9	5.4	0.13	0.62	0.1	4	25	68	7.1	0.2	0	0.3	8	1.8	0.2	15.7	14.9	0.4	0.2	0.0	0.1	0.1	1

Note: Paddock sample bulked from 20 cores (0-10 cm) taken around the pit.

Sum of cations approximates the CEC (cation exchange capacity), 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, in this case estimated by the sum of cations.

Further information: [DEWNR Soil and Land Program](#)

