

BLEACHED SAND OVER YELLOWISH RED SANDY CLAY LOAM

General Description: *Sandy topsoil with a thick bleached sandy subsurface layer over reddish sandy clay loam and soft to hard carbonate*

Subgroup soil: G2

Landform: Dunefield

Substrate: Buried sandy soil

Vegetation: Lucerne, brome grass, barley grass.



Type Site:	Site No:	SE145	1:50,000 mapsheet:	6926-3 (Tintinara)
	Hundred:	Coombe	Easting:	428520
	Section:	104	Northing:	6021060
	Sampling date:	22/10/08	Annual rainfall:	475 mm average

The site is in a flat, swale area.

Soil Description:

<i>Depth (cm)</i>	<i>Description</i>
0–13	Hardsetting, water repellent, very dark greyish brown, loamy sand with single grain structure.
13–50	Bleached, heavy sand with massive structure.
50–60	Yellowish red, light sandy clay loam with very large columnar structure (>50 cm across). This is a hard layer with some olive-grey mottling, and a very hard surface which exhibits some dark organic staining.
60–85	Highly calcareous, pale brown, heavy fine sandy clay loam with massive structure and 20–50% plate-like hard segregations.

Buried Soil

85–135	Highly calcareous, bleached loamy sand with massive to single grain structure.
135–170	Highly calcareous, bleached loamy sand with weak subangular blocky structure and 20–50% hard carbonate fragments.
170–185	Slightly calcareous, light brownish grey, loamy sand with massive to single grain structure.
185	Calcrete fragments (?)



Classification: Bleached-Mottled, Supracalcic, Red Chromosol; thick, non-gravelly, sandy/clay loamy, deep.



Summary of Properties

Drainage: Drainage is good.

Fertility: Inherent fertility is low in the topsoil (especially in the bleached subsurface layer), but somewhat raised in the subsoil. The sandy topsoil has limited capacity to retain and provide nutrients. Most of the soil's natural fertility is provided by the organic matter present in the surface soil. Maintenance and improvement of surface soil organic matter and residues is important for maintenance of fertility as well as protection against erosion.

pH: Soil pH is neutral in the surface soil, and alkaline below this.

Rooting depth: Viewed in the pit: root growth was observed to 185 cm.

Barriers to Root Growth:

Physical: The high strength of the subsoil would limit root growth.

Chemical: Low fertility may limit root growth. For example, low phosphorus, zinc and copper levels below the surface soil. Boron and sulfur levels (to 60 cm) are likely to be deficient. Levels of salts are elevated below 135 cm. There is some likelihood of a seasonal perched watertable, but this is unlikely to persist for long.

Waterholding capacity: High. Total available: approx 140 mm
 $[(0.13 \times 110) + (0.37 \times 60) + (0.1 \times 140) + (0.25 \times 150 \times 0.5) + (0.5 \times 80) + (0.35 \times 140 \times 0.5) + (0.15 \times 80 \times 0.4)]$.

Seedling emergence: Good.

Workability: Good.

Erosion Potential:

Water: Low.

Wind: Moderate to moderately high. Residue retention and maintenance of surface cover are crucial for protection against erosion.

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	8.1	7.2	0.2	0.10	0.67	1.2	27	85	25	8.1	0.6	0	1.9	49	20	3.5	3.3	2.5	0.4	0.2	0.1	0.0	0.0	6
0-13	7.2	6.7	0.2	0.06	0.53	0.9	40	56	21	6.9	0.7	0	2.1	48	17	2.6	2.6	1.9	0.4	0.2	0.1	0.0	0.0	8
13-50	8.5	7.7	0.3	0.05	0.33	0.1	2	46	6	1.6	0.3	0	0.4	42	1.9	0.2	1.3	0.8	0.2	0.2	0.0	0.0	0.0	15
50-60	8.3	7.7	0.4	0.11	0.58	0.2	3	179	7	1.9	0.6	0	0.5	31	2.2	0.0	8.7	5.0	3.1	0.2	0.4	0.0	0.0	3
60-85	8.8	8.2	8.7	0.24	1.46	0.6	2	50	147	41	1.5	0	0.2	9	2.1	0.2	25.5	18.1	6.8	0.4	0.1	0.0	0.1	1
85-135	9.1	8.4	1.7	0.18	1.20	0.1	2	27	88	15.4	0.5	0	0.2	3	1.9	0.2	14.7	11.7	2.4	0.2	0.0	0.3	0.0	1
135-170	8.4	8.1	5.4	0.75	6.08	0.4	2	89	1208	35.5	1.0	0	0.3	6	1.6	0.1	31.1	19.5	11.1	0.4	0.1	0.0	0.1	1
170-185	8.8	8.2	1.4	0.46	4.20	0.0	2	127	431	25.9	0.6	0	0.2	12	3.7	0.1	10.9	7.2	3.2	0.3	0.2	0.1	0.1	2

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](#)

