THICK BLEACHED SAND OVER COFFEE ROCK (PODSOL)

General Description: Thick grey sand with a bleached subsurface on hard iron / organic matter cemented sand (coffee rock), over buried sand over sandy clay.

Landform: Very gently undulating plain.

Substrate: Buried sand over clay soil,

formed on windblown sand.

Vegetation:



Type Site: Site No.: SE173 1:50,000 sheet: 7022-2 (Gambier)

Hundred:GambierEasting:495030Section:Northing:5819960

Sampling date: 12/12/2012 Annual rainfall: 745 mm average

Low rise on very gently undulating plain, 1% slope. Soft surface with no stones.

Soil Description:

Depth (cm) Description

0-20 Very dark grey soft single grain loamy sand. Clear

to:

20-50 Light greyish brown (bleached when dry) soft

single grain sand. Sharp to:

50-80 Dark brown hard massive clayey sand (coffee

rock) with abundant ferruginous segregations.

Clear to:

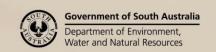
80-125 Light grey soft single grain sand. Abrupt to:

Brown with grey and orange mottles, hard sandy

light clay with weak coarse prismatic structure.



Classification: Parapanic, Humosesquic, Aeric Podosol; medium, non-gravelly, sandy / sandy, moderate





Summary of Properties

Drainage: Well drained. No part of the profile is likely to remain wet for more than a day or two at a

time following heavy or prolonged rainfall.

Fertility: Inherent fertility is low, as indicated by the exchangeable cation data. The sandy surface

soil, with high organic carbon levels, has satisfactory nutrient retention capacity, but below 20 cm, capacity is very low. Test data indicate marginal to low levels of

phosphorus, potassium, sulphur, copper and zinc, more pronounced in the dryland surface soil, then the irrigated samples. However, note that the dryland sample is 0.20 cm.

soil, than the irrigated samples. However, note that the dryland sample is 0-20 cm,

compared with 0-10 cm for the irrigated.

pH: Acidic at the surface, mildly acidic at depth. Irrigated surface soil is slightly alkaline, due

to irrigation water.

Rooting depth: Not recorded – estimate that most root growth occurs in the upper 80 cm.

Barriers to root growth:

Physical: The coffee rock presents a marginal to severe barrier to root growth (depending on degree

of cementation).

Chemical: Low nutrient retention capacity (below 20 cm), exacerbated by low pH and associated

aluminium toxicity and nutrient leaching, affects root growth in all subsurface layers.

Waterholding capacity: Approximately 45 mm in the estimated potential rootzone.

Seedling emergence: Satisfactory, except where water repellent

Workability: The sandy surface soil is readily worked, but over-working creates wind erosion hazard.

Erosion Potential

Water: Low.

Wind: Moderately low.

Laboratory Data

Depth cm	pH H ₂ O	pH CaC1 ₂	Ext. Al	EC 1:5 dS/m	Cl mg/kg	_	NO ₃ + NH ₄	P	PBI	K	mg/kg	Boron mg/kg	Trace elements mg/kg (DTPA)			Sum cations	8				ESP	
			mg/kg				mg/kg	mg/kg		mg/kg			Cu	Fe	Mn	Zn	cmol (+)/kg	Ca	Mg	Na	K	
Paddock	7.4	6.8	-	0.357	1	3.70	110	26	10	94	15.9	0.7	1.20	30	2.05	5.87	15.3	12.0	2.13	0.89	0.28	6.0
0-20	5.1	4.3	1.08	0.146	52	2.23	52	12	10	83	5.9	0.4	1.11	47	3.37	4.71	8.19	6.64	1.20	0.14	0.21	1.7
20-50	6.1	5.3	0.40	0.011	4	0.29	1	18	12	62	1.3	0.2	0.10	16	0.24	1.26	1.00	0.79	0.12	0.02	0.07	2.0
50-80	5.1	4.1	16.2	0.028	1	1.60	3	38	273	43	4.3	0.6	0.14	88	0.43	0.44	1.59	1.12	0.30	0.06	0.11	3.8
80-125	6.4	5.5	1.27	0.013	2	0.09	2	8	19	17	1.9	0.1	0.10	25	0.17	0.09	0.56	0.33	0.14	0.06	0.03	10.7
125-145	6.9	5.9	0.47	0.043	8	0.16	2	1	64	35	14.1	0.6	0.05	13	0.19	0.54	6.29	3.06	2.56	0.57	0.10	9.1

Note: Paddock sample bulked from cores (0-10 cm) taken from adjacent irrigated lucerne.

Sum of cations, in a neutral to alkaline soil, 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: <u>DEWNR Soil and Land Program</u>



