

ACIDIC SANDY LOAM OVER BROWN CLAY ON ROCK

General Description: *Thin sandy to loamy surface soil overlying a yellowish or brownish clay grading to weathering micaceous sandstone.*

- Landform:** Slopes of undulating to rolling low hills
- Substrate:** Weathering micaceous sandstone of the Backstairs Passage Formation in the southern Mount Lofty Ranges
- Vegetation:** Eucalyptus baxteri / Euc. fasciculosa scrub



- Type Site:** Site No.: CH017
- 1:50,000 sheet: 6627-3 (Willunga) Hundred: Goolwa
- Annual rainfall: 750 mm Sampling date: 29/07/92
- Landform: Lower slope of undulating low hills, slope 8%
- Surface: Firm with trace of sandstone

Soil Description:

Depth (cm)	Description
0-13	Brown light sandy loam with weak granular structure and 10% quartz and metasandstone gravel. Abrupt to:
13-30	White massive sandy loam with 20-50% metasandstone gravel. Clear to:
30-42	Yellowish brown weakly structured light clay. Clear to:
42-56	Yellowish brown and red medium clay with strong polyhedral structure. Clear to:
56-78	Yellow, red and light brown light clay with moderate polyhedral structure and 10% weathering rock fragments. Gradual to:
78-115	Yellowish brown, red and light brown weakly structured fine sandy clay loam with 50% weathering rock fragments. Gradual to:
115-180	Soft weathering micaceous sandstone



Classification: Bleached, Eutrophic, Brown Kurosol; medium, slightly gravelly, loamy / clayey, deep

Summary of Properties

Drainage	Well drained. Soil is unlikely to remain wet for more than a few days.
Fertility	Natural fertility is moderately low, as indicated by the exchangeable cation data. There are deficiencies of phosphorus, sulphur and possibly copper, zinc and manganese. Cation ratios are good, but absolute values are low. Nutrient retention capacity is low, caused by acidification weakening the exchange complex.
pH	Acidic throughout. Dolomitic lime is needed to correct the problem.
Rooting depth	78 cm at type site, but density from 56 cm is low.
Barriers to root growth	
Physical:	None.
Chemical:	Low natural fertility accentuated by acidity. Apart from possible aluminium toxicity caused by the acidity, there are no other potential problems.
Water holding capacity	100 mm in root zone, but only about 70 mm is effectively available because of poor root density.
Seedling emergence	Good to fair. Surface compaction is a risk, especially if organic matter levels fall.
Workability	Good, provided that surface structure is maintained.
Erosion Potential	
Water:	Moderate due to the 8% slope.
Wind:	Low.

Laboratory Data

Depth cm	pH H ₂ O	pH CaCl ₂	CaCO ₃ %	EC1:5 dS/m	ECe dS/m	Org.C %	Avail. P mg/kg	Avail. K mg/kg	SO ₄ -S mg/kg	Boron mg/kg	Trace Elements mg/kg (DTPA)				CEC cmol (+)/kg	Exchangeable Cations cmol(+)/kg				ESP	Ext Al mg/kg	
											Cu	Fe	Mn	Zn		Ca	Mg	Na	K			
Paddock	5.5	4.8	0	0.08	-	2.9	9	170	6.5	0.7	0.3	116	2.6	0.9	6.5	3.7	1.1	0.10	0.31	1.5	2	
											*0.6	*154	*4.6	*1.3								
0-13	5.2	4.5	0	0.06	-	3.1	9	190	5.9	0.9	0.3	141	1.1	0.4	6.7	2.8	1.1	0.11	0.33	1.6	2	
13-30	5.0	4.4	0	0.04	-	0.5	2	57	2.6	0.5	0.3	147	0.1	0.2	3.0	0.5	0.4	0.12	0.09	na	6	
30-42	5.1	4.4	0	0.05	-	0.5	<2	58	3.7	0.8	0.1	45	<0.1	0.1	5.1	0.8	1.4	0.40	0.13	5.9	5	
42-56	5.0	4.6	0	0.06	-	0.5	<2	120	23	1.2	<0.1	8	<0.1	<0.1	9.8	1.1	6.2	0.26	0.28	2.7	1	
56-78	5.5	5.2	0	0.05	-	0.1	<2	220	44	1.8	<0.1	3	<0.1	<0.1	10.7	0.5	9.0	0.33	0.61	3.1	<1	
78-115	5.4	5.0	0	0.04	-	<0.1	<2	170	27	1.2	<0.1	4	<0.1	<0.1	7.9	<0.4	5.4	0.23	0.39	2.9	<1	
115-180	5.1	4.4	0	0.04	-	<0.1	<2	68	9.8	0.4	<0.1	5	<0.1	<0.1	2.4	<0.4	1.5	0.11	0.06	na	2	

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

* EDTA trace element analyses for "paddock" sample.

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.