

SAND OVER ACIDIC CLAY

General Description: *Sandy surface soil overlying a yellow, brown and red sandy clay to clay subsoil grading to soft sandstone*

Landform: Slopes of undulating rises and low hills of the northern Mt. Lofty Ranges and Barossa Valley

Substrate: Massive sandstone of Tertiary age

Vegetation: Blue gum, stringybark and manna gum forest



Type Site: Site No.: CH038

1:50,000 sheet: 6728-4 (Angaston)

Hundred: Moorooroo

Annual rainfall: 825 mm

Sampling date: 11/12/92

Landform: Upper slope of undulating low hills, 7% slope

Surface: Firm with no stone

Soil Description:

Depth (cm)	Description
0-15	Dark greyish brown soft massive loamy sand. Clear to:
15-38	Yellowish brown soft massive loamy sand. Abrupt to:
38-46	Brown and yellow soft massive light sandy clay loam with 50% quartz gravel. Abrupt to:
46-75	Yellowish brown, brown and red medium clay with strong fine polyhedral structure. Clear to:
75-135	Soft kaolinized sandstone.



Classification: Bleached, Mesotrophic, Brown Kurosol; thick, non-gravelly, sandy / clayey, moderate

Summary of Properties

Drainage Moderately well drained. The soil may remain wet for a week or so, possibly longer in a wet season due to seepage along the top of the clay.

Fertility Natural fertility is low, as indicated by the exchangeable cation data. Exchangeable calcium, magnesium and potassium values are all low, with magnesium especially deficient. Zinc, manganese and boron also appear to be deficient. Acidification will further reduce the capacity of the soil to retain nutrients.

pH Acidic to strongly acidic throughout. Dolomite is needed to correct the pH problem.

Rooting depth 75 cm in pit.

Barriers to root growth

Physical: The gravelly layer (38-46 cm) may dry out in spring before adequate root extension into the subsoil has occurred.

Chemical: Low fertility and acidity (with marginal aluminium toxicity) restrict root growth.

Water holding capacity 80 mm in root zone (moderately high).

Seedling emergence Good.

Workability Good.

Erosion Potential

Water: Moderate to moderately high (7% slope and very high soil erodibility).

Wind: Moderately 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	5.4	4.8	0	0.07		1.3	78	180	-	0.2	3.50	247	7.67	1.82	2.9	2.70	0.34	0.12	0.11	na	2
0-15	5.1	4.6	0	0.04	0.26	1.0	44	100	-	0.1	-	-	-	-	2.9	2.08	0.28	0.12	0.05	na	3
15-38	5.1	4.6	0	0.03	0.08	0.41	10	120	-	0.1	-	-	-	-	1.3	0.84	0.24	0.11	0.03	na	4
38-46	5.1	4.5	0	0.02	0.12	0.31	5	130	-	0.3	-	-	-	-	1.9	0.89	0.68	0.14	0.03	na	6
46-75	4.8	4.3	0	0.06	0.08	0.24	<2	140	-	1.0	-	-	-	-	6.7	1.38	4.02	0.21	0.06	3.1	2
75-135	5.0	4.4	0	0.04	0.13	0.01	3	130	-	0.3	-	-	-	-	1.8	0.07	2.15	0.21	0.01	na	2

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

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.