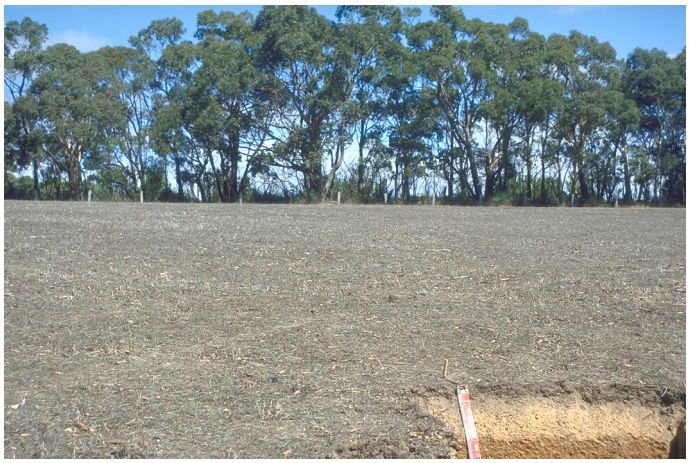
ACIDIC SANDY LOAM OVER BROWN CLAY ON ROCK

General Description: *Grey brown sandy loam over a brown or yellow friable clayey subsoil grading to weathering coarse grained rock*

Landform: Slopes of rises and low hills

Substrate: Precambrian sandstone, deeply weathered and kaolinized at this site

Vegetation: Open stringybark - blue gum forest



Type Site:

Site No.:	CH115	1:50,000 mapsheet:	6627-4 (Noarlunga)
Hundred:	Kuitpo	Easting:	291650
Section:	320	Northing:	6107600
Sampling date:	4/3/97	Annual rainfall:	835 mm average

Upper slope of an undulating rise. Firm surface, 8% slope.

Soil Description:

Depth (cm)	*Description*
0-8	Very dark grey sandy loam with weak granular structure and 10-20% ironstone and quartz gravel. Abrupt to:
8-28	Orange massive sandy loam with 10-20% ironstone and quartz gravel. Abrupt to:
28-50	Orange and red medium clay with strong polyhedral structure and 20-50% soft ferruginous segregations. Gradual to:
50-85	Yellowish brown, red and yellow medium clay with strong polyhedral structure and 20-50% soft ferruginous segregations. Diffuse to:
85-120	Light grey, red and brownish yellow light clay with moderate polyhedral structure and 20-50% soft ferruginous segregations. Diffuse to:
120-150	Red, yellow and white weakly structured fine sandy light clay with 20-50% soft ferruginous segregations and sandstone fragments.

Classification: Haplic, Eutrophic, Brown Chromosol; medium, slightly-gravelly, loamy/clayey, very deep

Summary of Properties

Drainage: Moderately well drained. Water will "perch" on top of the clay for a week or two following prolonged rain.

Fertility: Natural fertility is moderately low. Test data indicate satisfactory levels of all measured nutrients other than manganese - a tissue test is required to establish deficiency. Calcium : magnesium ratio is very high - possible magnesium deficiency. Organic carbon levels are high. Phosphate fixation is likely in this soil (indicated by the high ironstone content).

pH: Neutral in surface (6.2 is ideal), acidic with depth. Dolomite is needed for correction.

Rooting depth: 85 cm in pit, but few roots below 50 cm.

Barriers to root growth:

Physical: None.

Chemical: Aluminium toxicity is likely in this soil. Deep subsoil pH values are low, causing release of aluminium.

Waterholding capacity: Approximately 65 mm in rootzone.

Seedling emergence: No restriction on seedling emergence.

Workability: Good.

Erosion Potential:

Water: Moderate.

Wind: Low.

Laboratory Data

Depth cm	pH H_2O	pH $CaCl_2$	CO_3 %	EC1:5 dS/m	ECe dS/m	Org.C %	Avail. P mg/kg	Avail. K mg/kg	SO_4 mg/kg	Boron mg/kg	Trace Elements mg/kg (EDTA)				CEC cmol (+)/kg	Exchangeable Cations cmol(+)/kg				ESP
											Cu	Fe	Mn	Zn		Ca	Mg	Na	K	
Paddock	6.7	6.0	0	0.12	-	3.2	37	260	7.0	1.1	1.4	249	10	3.3	14.8	11.9	1.3	0.14	0.55	0.9
0-8	6.8	6.1	0	0.12	-	3.0	44	251	6.7	1.3	3.2	302	10	3.7	12.2	9.9	1.1	0.13	0.51	1.1
8-28	6.3	5.5	0	0.03	-	0.5	9	62	2.8	0.4	0.4	88	2.1	0.4	3.9	1.9	0.5	0.10	0.09	2.6
28-50	5.9	5.2	0	0.03	-	0.4	5	162	43	0.8	0.2	33	1.0	0.9	14.1	4.3	5.5	0.30	0.43	2.1
50-85	6.1	5.5	0	0.03	-	0.1	1	119	69	0.8	0.1	16	1.0	0.9	12.4	2.4	6.7	0.32	0.27	2.6
85-120	5.9	5.0	0	0.03	-	0.1	1	77	65	0.9	0.13	13	1.1	0.8	11.4	2.0	6.7	0.45	0.21	3.9
120-150	5.6	4.5	0	0.03	-	0.1	2	43	55	1.1	0.14	11	1.1	0.6	8.7	1.3	5.1	0.40	0.10	4.6

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.

Further information: DEWNR Soil and Land Program