

ACIDIC LOAM OVER BROWN CLAY ON ROCK

General Description: *Loamy surface soil overlying a brown, grey and red firm clay subsoil forming in fine grained metamorphic rock*

Landform: Slopes of undulating to rolling low hills of the central Mount Lofty Ranges

Substrate: Slates, phyllites, fine grained schists or micaceous siltstones of Proterozoic age

Vegetation: Red gum and blue gum woodland



Type Site: Site No.: CH043

1:50,000 sheet: 6628-2 (Onkaparinga) Hundred: Onkaparinga

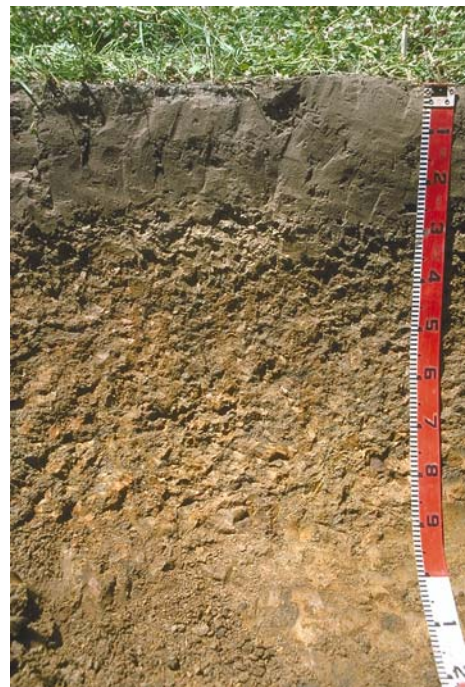
Annual rainfall: 775 mm Sampling date: 14/01/93

Landform: Lower slope of undulating low hills, 6% slope

Surface: Firm with no stones

Soil Description:

Depth (cm)	Description
0-10	Black loam with moderate granular structure. Gradual to:
10-25	Dark brown loam with weak granular structure. Clear to:
25-35	Very pale brown massive fine sandy clay loam with 2-10% quartz gravel. Abrupt to:
35-55	Orange and greyish brown medium clay with strong coarse blocky, breaking to fine polyhedral structure, and 2-10% phyllite fragments. Gradual to:
55-70	Dark yellowish brown, brownish grey and red light medium clay with strong fine polyhedral structure and 20-50% phyllite fragments. Gradual to:
70-120	Weathering phyllite with clay in cracks and bedding planes.



Classification: Bleached-Sodic, Eutrophic, Brown Chromosol; thick, non-gravelly, loamy / clayey, deep

Summary of Properties

Drainage	Moderately well drained. The soil may remain wet for a week or so, due to water lying on top of the clay subsoil.
Fertility	Inherent fertility is moderately high, as indicated by the exchangeable cation data. Surface soil fertility is partly dependent on organic carbon levels being maintained at about 2%. Phosphorus and potassium are high, and levels of other tested nutrient elements are adequate. Neutral pH values help maintain the soil's capacity to retain nutrients.
pH	Slightly acidic at the surface, neutral to slightly alkaline with depth.
Rooting depth	70 cm in pit, but few roots below 55 cm.
Barriers to root growth	
Physical:	No apparent barriers above the bedrock.
Chemical:	No apparent barriers. Roots have little need to extend to the full profile depth under irrigation.
Water holding capacity	125 mm in profile to bedrock.
Seedling emergence	Good, provided that surface structure is maintained through organic matter inputs.
Workability	Good to fair. Loss of structure on these soils results in puddling or shattering if soil is worked too wet or too dry respectively.
Erosion Potential	
Water:	Moderate, due to the 6% 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 (EDTA)				CEC cmol (+)/kg	Exchangeable Cations cmol(+)/kg				ESP
											Cu	Fe	Mn	Zn		Ca	Mg	Na	K	
Paddock	6.1	5.8	<1	0.13	0.66	1.6	52	230	-	1.0	3.83	360	248	13.0	9.6	8.30	2.00	0.36	0.34	3.8
0-10	6.2	5.9	<1	0.13	0.69	1.6	47	250	-	0.9	-	-	-	-	8.8	7.56	2.07	0.45	0.44	5.1
10-25	6.5	5.9	<1	0.07	0.30	0.75	23	200	-	0.8	-	-	-	-	6.8	5.86	1.47	0.33	0.27	4.9
25-35	6.8	6.2	<1	0.05	0.17	0.59	9	210	-	0.9	-	-	-	-	7.5	5.74	2.68	0.23	0.35	3.1
35-55	6.9	6.5	1	0.09	0.27	0.23	6	310	-	2.0	-	-	-	-	17.4	11.2	6.81	0.37	0.78	2.1
55-70	7.2	6.7	2	0.10	0.29	0.18	5	200	-	1.5	-	-	-	-	14.7	11.6	7.01	0.75	0.43	5.1
70-120	7.5	6.7	3	0.07	0.25	0.07	14	94	-	0.6	-	-	-	-	6.8	7.73	4.16	1.58	0.04	23.2

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.