ACIDIC LOAM OVER BROWN CLAY ON ROCK

General Description: *Hard loam over a hard strongly pedal brown clay forming in fine grained quartzitic basement rock*

Landform: Slopes of rolling low hills.

Substrate: Fine sandstone

Vegetation: Stringybark (E.obliqua) and blue gum (E.leucoxylon) forest

Type Site: Site No.: CH118

1:50,000 sheet:	6628-3 (Adelaide)	Hundred:	Onkaparinga
Annual rainfall:	1100 mm	Sampling date:	29/03/98
Landform:	Upper slope of rolling low hills, 18% slope		
Surface:	Hard setting, with 2-10% surface sandstone and quartz gravel		

Soil Description:

Depth (cm)	*Description*
0-15	Hard dark brown loam with weak subangular blocky structure and 10-20% sandstone and quartz gravel. Clear to:
15-25	Hard brown medium clay with strong polyhedral structure and 10-20% sandstone gravel. Abrupt to:
25-50	Hard orange medium clay with strong polyhedral structure and 10-20% sandstone gravel. Gradual to:
50-80	Firm orange and red light clay with moderate polyhedral structure and 20-50% soft weathering sandstone fragments. Gradual to:
80-120	Firm red and orange weakly structured fine sandy clay loam with more than 50% soft weathering sandstone fragments.

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

Summary of Properties

Drainage The soil is moderately well drained. The clay subsoil prevents free drainage – the profile may remain wet for up to week following substantial rainfall.

Fertility Natural fertility is moderate but leaching losses associated with high rainfall can be expected. This problem worsens with increasing acidity.

pH

Rooting depth Strong vine root growth to 50 cm, with very few roots persisting below 80 cm.

Barriers to root growth

Physical: The hard clay subsoil may hinder optimal root distribution.

Chemical: No chemical barriers.

Water holding capacity Approximately 120 mm. Readily available capacity is approximately 55 mm.

Seedling emergence: Fair to good, depending on the condition of the surface.

Workability: Fair. Hard setting surfaces have a narrow moisture range between being too dry and hard, and too wet and puggy.

Erosion Potential

Water: Moderately high, due to the slope and the poorly structured hard setting soil surface.

Wind: Low.

Laboratory Data

Depth cm	pH H_2O	pH $CaC1_2$	CO_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	Exch Al mg/kg
											Cu	Fe	Mn	Zn		Ca	Mg	Na	K		
Row	6.5	5.7	0	0.08	-	1.76	181	551	8.8	0.6	45.6	95.8	36.9	17.7	-	8.66	2.84	0.22	1.00	-	na
0-15	6.3	5.5	0	0.06	-	1.70	196	338	6.5	0.7	11.8	181	32.9	9.91	-	10.1	2.40	0.18	0.57	-	na
15-25	6.5	5.7	0	0.04	-	1.17	144	197	4.2	0.7	4.54	86.1	19.7	5.75	-	8.75	2.13	0.17	0.33	-	na
25-50	6.8	6.1	0	0.03	-	0.56	16	130	11.0	0.7	1.32	19.8	1.05	2.73	-	7.59	2.27	0.21	0.26	-	na
50-80	6.4	5.9	0	0.05	-	0.34	4	85	71.0	0.5	0.40	11.5	<0.1	1.65	-	6.81	1.98	0.24	0.13	-	na
80-120	5.6	5.0	0	0.06	-	0.33	2	50	115	ns	0.34	8.6	<0.1	1.68	-	5.89	2.30	0.24	0.10	-	4.63

Note: Row sample bulked from 20 cores (0-15 cm) taken along the planting rows.
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.