

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.leucoxydon*) forest



Type Site:	Site No.:	CH118	1:50,000 mapsheet:	6628-3 (Adelaide)
	Hundred:	Onkaparinga	Easting:	292050
	Section:	2	Northing:	6128700
	Sampling date:	29/03/98	Annual rainfall:	1,040 mm average

Upper slope of rolling low hills, 18% slope. Hard setting surface, 2-10% surface sandstone and quartz gravel. Vineyard.

Soil Description:

<i>Depth (cm)</i>	<i>Description</i>
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.
- Waterholding 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 ₂ O	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	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.

Further information: [DEWNR Soil and Land Program](#)

