

ACIDIC SANDY LOAM OVER BROWN CLAY ON ROCK

General Description: *Grey brown gravelly sandy loam with a bleached subsurface layer, abruptly overlying a strongly structured strong brown clayey subsoil grading to weathering coarse grained metamorphic rock*

Landform: Slopes of rolling low hills

Substrate: Gneisses of the Barossa Complex

Vegetation: Candlebark (*E.rubida*) and blue gum (*E.leucoxydon*) woodland



Type Site:	Site No.:	CH120	1:50,000 mapsheet:	6628-3 (Adelaide)
	Hundred:	Onkaparinga	Easting:	293150
	Section:	1117	Northing:	6126400
	Sampling date:	29/03/98	Annual rainfall:	995 mm average

Lower slope of rolling low hills, 10% slope. Firm surface with 2-10% quartz and ironstone. Vineyard.

Soil Description:

<i>Depth (cm)</i>	<i>Description</i>
0-11	Dark brown weakly structured sandy loam with 10-20% quartz and gneiss gravel. Abrupt to:
11-20	Massive bleached with brown mottles sandy loam with 10-20% gneiss gravel. Abrupt to:
20-40	Bright brown sandy light clay with weak coarse prismatic (breaking to strong polyhedral) structure and 2-10% gneiss gravel. Clear to:
40-75	Bright brown with red inclusions sandy medium clay with coarse prismatic (breaking to coarse blocky) structure and 10-20% weathering basement rock (gneiss) fragments. Clear to:
75-100	Yellowish brown, olive and light grey very firm mottled sandy medium clay with 20-50% weathering basement rock (gneiss) fragments.



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



Summary of Properties

Drainage: Soil is moderately well to imperfectly drained. Water will perch on the clayey subsoil for a week or more after prolonged rainfall. This problem is likely to be made worse by the lower slope position of the site.

Fertility: Natural fertility is moderately low, as indicated by the relatively low clay content surface soil and the bleached subsurface layer.

pH: Acidic throughout.

Rooting depth: Good root growth to 40 cm, few roots below.

Barriers to root growth:

Physical: Slight limitation caused by the firm clayey subsoil. This limitation is greater with depth as clay strength increases, probably a result of the high magnesium levels.

Chemical: No apparent limitations other than slightly elevated sodicity at depth. Effect of high exchangeable magnesium at depth unknown.

Waterholding capacity: Approximately 100 mm in the rootzone. Readily available capacity is approximately 60 mm.

Seedling emergence: Good to fair.

Workability: Fair to good.

Erosion Potential:

Water: Moderate due to slope.

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	6.3	5.5	0	0.06	-	1.79	49	203	11.0	0.7	72.8	194	69.6	20.2	-	6.20	2.83	0.17	0.38	-	-
0-11	5.8	4.7	0	0.04	-	2.15	33	67	6.1	0.7	17.4	397	27.1	5.27	-	3.50	1.63	0.22	0.12	-	32.3
11-20	5.9	4.7	0	0.03	-	1.03	25	34	2.7	0.5	2.00	296	11.2	2.02	-	2.45	1.35	0.19	0.03	-	28.8
20-40	5.9	4.9	0	0.03	-	0.64	3	39	5.9	0.7	0.71	112	3.59	1.67	-	3.44	6.90	0.45	0.09	-	10.4
40-75	5.9	4.8	0	0.04	-	0.47	2	57	18.8	0.5	0.53	77.6	<0.1	1.75	-	2.35	11.3	0.71	0.12	-	11.8
75-100	6.1	4.9	0	0.05	-	0.29	<1	44	17.4	0.5	0.52	79.6	<0.1	1.76	-	2.26	14.1	1.15	0.09	-	8.96

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](#)

