

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 sheet:	6628-3 (Adelaide)	Hundred:	Onkaparinga
Annual rainfall:	1150 mm	Sampling date:	29/03/98
Landform:	Lower slope of rolling low hills, 10% slope		
Surface:	Firm with 2-10% quartz and ironstone		

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.
Water holding capacity	Approximately 100 mm in the root zone. 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 -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	6.3	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.