LOAM OVER RED CLAY (STONY)

General Description: Hard setting red brown loam to clay loam overlying a well structured

 $reddish\ clay\ subsoil,\ calcareous\ with\ depth,\ grading\ to\ fine\ grained$

alluvium

Landform: Gently sloping outwash fans,

and level flats and plains

Substrate: Fine grained, although often

gravelly, alluvium (Pooraka

Formation)

Vegetation: Blue gum - red gum

woodland



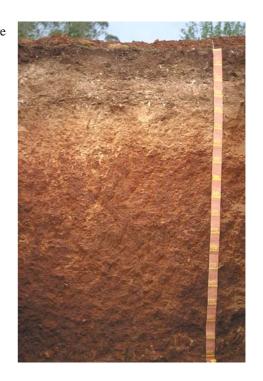
Type Site: Site No.: CH068

1:50,000 sheet: 6627-3 (Willunga) Hundred: Willunga Annual rainfall: 625 mm Sampling date: 26/05/94 Landform: Upper slope of a gently sloping alluvial fan, 4% slope

Surface: Firm with 2-10% slate and quartzite stones

Soil Description:

Depth (cm)	Description								
0-15	Dark brown silty clay loam with granular structure and 2-10% slate gravel. Clear to:								
15-35	Brown weakly structured silty clay loam with 20-50% fine slate and quartz gravel. Clear to:								
35-55	Reddish brown light clay with weak polyhedral structure and 2-10% slate gravel. Clear to:								
55-75	Red light medium clay with moderate polyhedral structure and 2-10% slate gravel. Gradual to:								
75-105	Dark red medium clay with coarse prismatic structure. Gradual to:								
105-160	Red and brown mottled medium clay with moderate prismatic structure. Gradual to:								
160-200	Reddish brown and brown mottled heavy clay with very coarse structure and 2-10% fine carbonate.								



Classification: Sodic, Eutrophic, Red Dermosol; medium, slightly gravelly, clay loamy/clayey, very deep.

Summary of Properties

Drainage Well drained. The soil is unlikely to remain wet for more than a few days. Lateral

drainage through the gravel layers is a possibility. Excessive irrigation could cause

waterlogging on the heavy clay at depth.

Fertility The inherent fertility is moderate to high, as indicated by the CEC values.

Phosphorus, calcium, magnesium, potassium and the trace elements are all adequate by agricultural standards. Organic carbon, and therefore total nitrogen, is high.

pH Slightly alkaline at the surface, becoming slightly acidic with depth and then alkaline

in the deep subsoil.

Rooting depth 160 cm in sampling pit (in old tree line).

Barriers to root growth

Physical: There are no physical barriers above the tough clay at 160 cm.

Chemical: Salinity levels are elevated presumably as a result of past irrigation. Note the much

higher levels in the present tree line compared with the pit. Soil salt levels should be no more than 0.25~dS/m (1:5 soil:water) in a clay loam soil. Exchangeable sodium is also high, probably for the same reason. These high values may restrict root growth

through adverse effects on soil structure and nutrient balance.

Water holding capacity Approximately 200 mm in the root zone. Readily available water capacity in potential

rootzone (i.e. 160 cm) for irrigated crops is about 90 mm.

Workability Fair to good, provided that organic matter levels are maintained to keep surface

structure in good condition.

Erosion Potential Moderately low potential for water erosion due to the 4% slope. This is easily

controlled by maintaining surface cover.

Laboratory Chemical Data

Depth cm	pH H ₂ O	pH CaC1 ₂	CaCO ₃	EC1:5 dS/m	ECe dS/m	Org.C	Avail. P	Avail. K	Boron mg/kg					CEC cmol	Exchangeable Cations cmol(+)/kg				ESP
							mg/kg	ng/kg mg/kg		Cu	Fe	Mn	Zn	(+)/kg	Ca	Mg	Na	K	
Row	7.7	7.5	0	0.67	5.74	2.3	77	338	2.3	25.2	15	25.5	9.9	12.3	8.0	3.1	0.68	0.72	5.5
										*61.6	*152	*329	*17.5						
0-15	7.7	7.4	0	0.22	1.90	2.5	28	317	2.2	36.7	11	18.6	8.2	13.0	8.6	3.2	0.33	0.65	2.5
15-35	7.6	6.7	0	0.10	1.62	0.8	14	133	0.7	1.9	9	8.2	0.6	8.8	4.7	1.5	1.71	0.20	19.4
35-55	7.0	6.0	0	0.11	1.39	0.4	<4	108	0.8	1.3	8	7.7	0.2	8.4	4.6	1.4	2.34	0.24	27.9
55-75	6.3	5.4	0	0.12	1.17	0.4	4	104	0.9	1.5	7	7.0	0.3	9.3	4.5	1.8	2.01	0.27	21.6
75-105	6.2	5.7	0	0.23	1.68	0.4	<4	152	1.9	1.1	6	5.0	0.1	11.3	5.6	4.2	1.70	0.50	15.0
105-160	6.8	6.3	0	0.22	1.80	0.3	<4	199	2.2	1.3	8	8.4	0.2	17.5	8.4	5.9	1.63	0.69	9.3
160-200	8.3	7.9	2.1	0.29	1.33	0.2	<4	203	1.9	0.7	10	3.4	0.2	27.8	16.2	7.7	1.71	0.73	6.1

Note: Row sample bulked from 20 cores (0-10 cm) taken from the tree lines 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.

^{*} EDTA trace element analyses for "row" sample.