SANDY LOAM OVER DISPERSIVE RED CLAY

General Description: *Hard sandy loam over a poorly structured dispersive red clay, calcareous with depth*

Landform: Flat plain**.**

Substrate: Clayey alluvial sediments

Vegetation:

Type Site: Site No.: CL032A

1:50,000 sheet:	6628-4 (Gawler)	Hundred:	Munno Para
Annual rainfall:	425 mm	Sampling date:	27/04/99
Landform:	Flat plain, 0% slope		
Surface:	Hard setting with no stones		

Soil Description:

Depth (cm)	*Description*
0-14	Dark reddish brown hard setting massive sandy loam. Sharp to:
14-50	Dark red very hard medium heavy clay with strong coarse prismatic structure. Clear to:
50-100	Dark red moderately calcareous hard light medium clay with moderate coarse prismatic structure and up to 10% soft calcareous segregations. Diffuse to:
100-160	Dark brown firm medium clay with strong angular blocky structure.

Classification: Calcic, Subnatric, Red Sodosol; medium, non-gravelly, loamy / clayey, deep

Summary of Properties

Drainage: Moderately well drained. The dispersive clayey subsoil perches water and may cause temporary saturation for periods of a week or so.

Fertility: Inherent fertility is moderate, as indicated by the exchangeable cation data. Nutrient retention capacity of the surface soil is moderately low, but the clayey subsoil at shallow depth has a high capacity. Apparent marginal calcium and magnesium deficiencies in the surface are not likely to be a problem. Other tested nutrient elements are well supplied.

pH: Neutral at the surface to alkaline with depth

Rooting depth: Strong root growth to 50 cm, with a few roots persisting to 160 cm.

Barriers to root growth:

Physical: The hard clayey subsoil restricts root growth of sensitive perennial crops and most vegetable crops, particularly at shallow depths as at this site. Grape vines are not significantly affected.

Chemical: High pH and moderate salinity at depth affect root growth of sensitive crops. Grape vines are reasonably tolerant.

Water holding capacity: Approximate values of total and readily available water are:
130 mm and 55 mm for hardy crops (eg vines), with a potential root depth of 90 cm
100 mm and 40 mm for more sensitive crops (eg almonds) with a potential root depth of 70 cm.

Seedling emergence: Fair to poor, due to hard setting surface soil. Gypsum is used to help ameliorate the problem.

Workability: Fair to poor, as above.

Erosion Potential

Water: Low. Although soil is highly erodible, runoff is minimal due to flat terrain.

Wind: Moderately low, but soil would have to be finely worked for a problem to occur.

Laboratory Data

Depth cm	pH H_2O	pH $CaC1_2$	CO_3 %	EC1:5 dS/m	Cl mg/kg	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
											Cu	Fe	Mn	Zn		Ca	Mg	Na	K	
Row	7.1	6.9	0	1.21	-	0.74	59	480	397	2.6	-	-	-	-	6.6	4.78	0.94	0.71	0.93	10.8
0-14	7.1	6.8	0	0.44	215	0.79	50	451	117	2.0	8.6	101	190	5.4	7.3	5.71	0.79	0.42	0.89	5.8
14-50	7.4	6.7	0	0.60	236	0.54	5	378	158	1.2	5.0	45	103	2.7	23.6	10.7	5.23	3.53	1.03	14.9
50-100	8.8	7.8	8.3	0.56	335	0.30	4	347	93	2.3	1.5	16	6.8	5.0	16.9	7.51	5.64	3.03	0.76	17.9
100-160	9.0	8.2	1.0	0.57	-	0.24	2	493	76	9.6	-	-	-	-	22.9	4.74	10.4	4.43	1.04	19.3

Note: Row sample bulked from cores (0-15 cm) taken along row adjacent 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.