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.

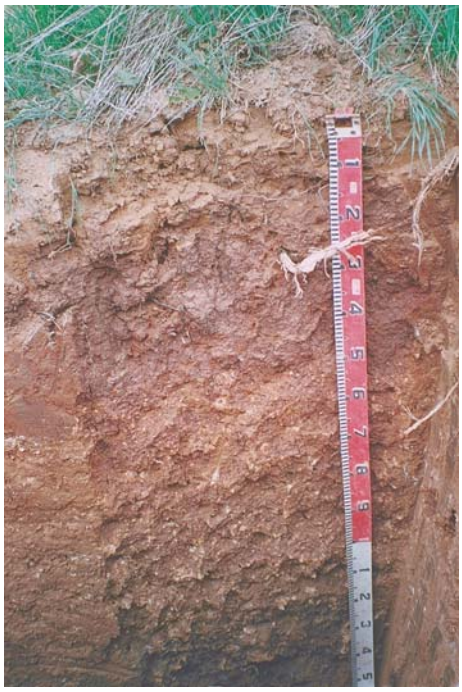
Vegetation:

Type Site: Site No.: CL032B

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*
0-15	Hard reddish brown massive sandy loam. Clear to:
15-25	Hard red fine sandy clay loam with weak subangular blocky structure. Clear to:
25-55	Hard dark red medium clay with strong coarse prismatic structure breaking to angular blocky. Gradual to:
55-100	Hard dark reddish brown highly calcareous medium clay with strong subangular blocky structure and 10-20% soft carbonate segregations. Diffuse to:
100-160	Firm dark brown moderately calcareous medium clay with strong angular blocky structure and 2-10% soft manganese segregations.



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

Summary of Properties

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

Fertility: Inherent fertility is moderate. The surface soil has a moderate nutrient retention capacity, but the clayey subsoil has a high capacity, so the apparently low surface magnesium levels are overcome at shallow depth. All tested nutrient elements are in adequate supply.

pH: Neutral at the surface, alkaline with depth.

Rooting depth: Strong root growth to 40 cm, with a few roots to 160 cm.

Barriers to root growth

Physical: The hard clayey subsoil will restrict 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:
140 mm and 60 mm for hardy crops (eg vines), with a potential root depth of 100 cm
100 mm and 45 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 helps 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	6.8	6.3	0	0.95	-	0.94	46	590	805	9.7	-	-	-	-	8.2	11.4	0.72	0.57	1.25	7.0
0-15	6.9	6.7	0	1.69	649	0.69	45	731	939	2.6	7.3	70	218	7.0	7.9	11.5	1.04	0.90	1.31	11.4
15-25	7.1	6.7	0	0.46	288	0.67	19	389	166	2.2	4.3	84	230	2.6	8.2	5.01	2.07	1.25	0.74	15.2
25-55	7.9	6.9	0.1	0.45	215	1.04	9	434	46	1.3	4.9	48	108	2.8	26.3	12.3	5.91	3.74	1.12	14.2
55-100	9.2	8.2	9.5	0.30	-	0.33	3	265	28	1.0	-	-	-	-	14.9	7.99	4.04	2.62	0.61	17.6
100-160	9.0	8.3	2.0	0.61	-	0.30	6	490	74	5.3	-	-	-	-	23.1	5.80	9.98	2.19	0.97	9.5

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.