

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:

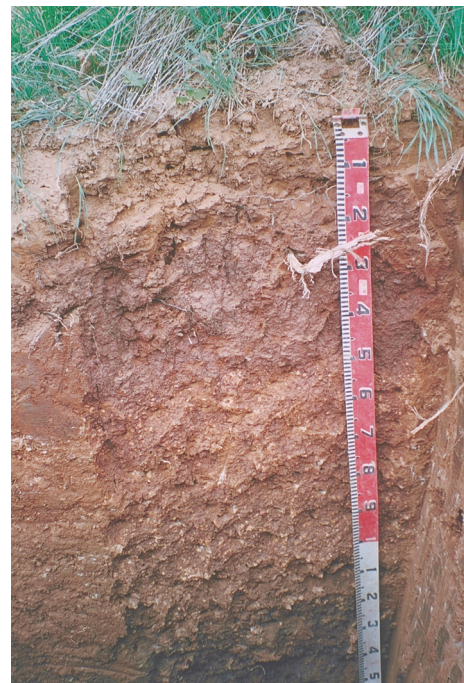


Type Site:	Site No.:	CL032B	1:50,000 mapsheet:	6628-4 (Gawler)
	Hundred:	Munno Para	Easting:	283600
	Section:	4143	Northing:	6162900
	Sampling date:	27/04/99	Annual rainfall:	445 mm average

Hard setting surface, no stones. Site between grape vine rows

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
- Waterholding capacity:** Approximate values of total and readily available water are:
100 mm and 45 mm for hardy crops (eg vines), with a potential root depth of 100 cm
75 mm and 35 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 ₂ O	pH CaCl ₂	CO ₃ %	EC1:5 dS/m	Cl mg/kg	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
											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.

Further information: [DEWNR Soil and Land Program](#)

