

SANDY LOAM OVER BROWN CLAY

General Description: *Medium thickness hard sandy loam over a well structured brown clay grading to alluvial sediments*

Landform: Angas River flood plain.

Substrate: Grey, red and brown mottled massive porous micaceous sandy clay (old alluvium).

Vegetation:



Type Site: Site No.: CH132
 1:50,000 sheet: 6627-2 (Milang) Hundred: Bremer
 Annual rainfall: 400 mm Sampling date: 06/12/04
 Landform: Flat plain
 Surface: Firm with minor calcrete fragments (6-20 mm), not related to the soil

Soil Description:

Depth (cm)	Description
0-10	Dark brown friable massive sandy loam with 2-10% calcrete fragments (6-20 mm). Gradual to:
10-24	Brown friable massive sandy loam. Abrupt to:
24-55	Dark brown and brown firm medium clay with strong medium polyhedral structure. Gradual to:
55-90	Dark yellowish brown and dark brown mottled firm medium clay with strong medium prismatic structure, breaking to polyhedral. Diffuse to:
90-135	Brownish yellow, yellowish brown and strong brown mottled hard silty medium clay with weak very coarse prismatic structure and minor fine carbonate segregations.
135-180	Red, yellowish brown and greyish brown mottled very hard massive porous and micaceous sandy light medium clay.



Classification: Hypocalcic, Mottled-Subnatric, Brown Sodosol; medium, slightly gravelly, loamy / clayey, deep

Summary of Properties

- Drainage:** Moderately well drained. Water perches on top of the clay for periods of no more than a week at a time during late winter. Deep drainage is satisfactory.
- Fertility:** Inherent fertility is moderately high as indicated by the exchangeable cation data. Clay content is sufficiently high that all layers have ample nutrient retention capacity. All tested nutrient elements are in adequate supply.
- pH:** Alkaline throughout. Surface alkalinity is due to calcrete fragments on surface and in topsoil. These appear to be 'imported'.
- Rooting depth:** 135 cm in pit.
- Barriers to root growth:**
- Physical:** The hard clayey subsoil presents a minor barrier to root growth. Root density and distribution uniformity decrease with depth.
- Chemical:** Marginally high salinity and sodicity from 55 cm and 90 cm respectively may have some impact on root growth and water uptake. Mild sodicity in top of subsoil (24-55 cm) is probably irrigation-induced.
- Water holding capacity:** (Estimates for potential root zone of grape vines)
- Total available: 180 mm
Readily available: 80 mm
- Seedling emergence:** Fair to satisfactory. There is a tendency for the surface soil to seal and set hard. This condition can prevent a proportion of seedlings from emerging.
- Workability:** Fair to satisfactory. Excessive traffic or cultivation destroys tilth and reduces the moisture range for effective working.

Erosion Potential

- Water:** Low.
- Wind:** Low.

Laboratory Data

Depth cm	pH H ₂ O	pH CaCl ₂	CO ₃ %	EC 1:5 dS/m	ECe dS/m	Org.C %	Avail. P mg/kg	Avail. K mg/kg	Cl mg/kg	SO ₄ mg/kg	Boron mg/kg	Trace Elements mg/kg (EDTA)				Sum cations cmol (+)/kg	Exchangeable Cations cmol(+)/kg				Est. ESP
												Cu	Fe	Mn	Zn		Ca	Mg	Na	K	
0-10	8.7	7.8	0.9	0.140	1.41	1.36	64	319	50	10.2	1.3	6.53	117	106	11.4	12.4	8.24	2.86	0.55	0.74	4.4
10-24	8.8	7.9	0.9	0.139	1.34	0.73	52	312	62	13.5	0.9	2.55	110	99.3	8.64	11.5	8.27	1.96	0.64	0.65	5.6
24-55	8.7	7.7	0	0.266	1.64	0.40	26	955	136	48.8	1.8	3.53	71	77.4	1.45	22.9	13.6	4.58	2.33	2.39	10.2
55-90	8.4	7.8	0	0.405	3.17	0.17	5	1048	282	99.8	1.4	1.96	38	91.0	0.11	15.4	7.46	3.99	1.39	2.60	9.0
90-135	9.0	8.2	0.3	0.289	2.19	0.05	3	534	163	59.1	1.4	0.80	25	76.8	0.10	12.0	5.68	3.34	1.68	1.26	14.0
135-180	8.5	7.8	0	0.403	3.97	<0.05	3	344	309	97.7	1.8	0.43	27	142	<.05	11.2	4.88	3.72	1.76	0.81	15.8

Note: Sum of cations, in a neutral to alkaline soil, approximates the CEC (cation exchange capacity), 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, in this case estimated by the sum of cations.