

CALCAREOUS LOAM

General Description: *Calcareous loam grading to a more clayey and calcareous subsoil, with minor to moderate rubble, grading to heavy clay with depth*

Landform: Very gently sloping outwash fans

Substrate: Coarsely structured heavy clay (Hindmarsh Clay)

Vegetation: Mallee



Type Site: Site No.: CL028

1:50,000 sheet: 6628-4 (Gawler)

Hundred: Mudla Wirra

Annual rainfall: 425 mm

Sampling date: 23/12/96

Landform: Lower slope of a very gently inclined outwash fan, 2% slope

Surface: Firm with no stones

Soil Description:

Depth (cm)	Description
0-13	Dark brown moderately calcareous firm loam with weak granular structure. Abrupt to:
13-35	Brown very highly calcareous friable clay loam with weak subangular blocky structure and 10-20% carbonate nodules. Diffuse to:
35-60	Orange very highly calcareous friable light clay with weak subangular blocky structure, 2-10% carbonate nodules and 20-50% soft carbonate segregations. Gradual to:
60-90	Orange and olive brown mottled firm heavy clay with strong very coarse prismatic structure and 10-20% soft carbonate segregations. Diffuse to:
90-180	Pale olive, red and yellowish brown mottled firm heavy clay with strong very coarse lenticular structure and slickensides.



Classification: Endohypersodic, Regolithic, Hypercalcic Calcarosol; medium, non-gravelly, loamy / clayey, moderate

Summary of Properties

Drainage	Moderately well drained. The heavy clay substrate is virtually impermeable and only 60 cm from the surface. This will cause water to accumulate in the upper profile for up to a week following prolonged rain.
Fertility	The natural fertility level is sub-optimal due to the high pH and carbonate content. Test results indicate that all nutrients are at satisfactory levels. Note that paddock levels are higher than in pit due to proximity to a track.
pH	Alkaline at the surface, strongly alkaline with depth. Higher pH in pit due to dust from track.
Rooting depth	No roots below 90 cm in pit, and few below 60 cm.
Barriers to root growth	
Physical:	The heavy clay from 60 cm retards root development.
Chemical:	High levels of boron, salt, pH and sodium from 60 cm significantly restrict root growth.
Water holding capacity	Approximately 80 mm in root zone.
Seedling emergence:	Good.
Workability:	Good.
Erosion Potential	
Water:	Moderately low, due to the slight slope.
Wind:	Moderately low - the surface soil will readily pulverize.

Laboratory Data

Depth cm	pH H ₂ O	pH CaCl ₂	CO ₃ %	EC1:5 dS/m	ECe dS/m	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	
Paddock	7.9	7.0	0	0.12	-	1.23	57	717	5.5	1.4	2.5	52	171	3.4	16.4	9.6	2.0	0.22	1.5	1.3
0-13	8.6	7.8	1	0.14	-	1.31	15	467	4.0	1.5	1.8	14	97	2.0	20.7	16.4	1.8	0.24	1.3	1.2
13-35	8.7	7.9	25	0.12	-	0.72	8	213	3.7	1.4	0.9	3.6	14	1.4	17.5	14.7	2.7	0.55	0.61	3.1
35-60	9.2	8.0	30	0.25	-	0.30	6	211	5.7	2.4	0.8	3.5	2.0	1.3	18.4	10.0	5.4	1.8	0.44	9.9
60-90	9.4	8.7	4	1.13	-	<0.05	2	428	112	16	0.3	7.2	1.8	1.2	27.3	3.9	12.0	8.6	1.2	31.3
90-180	9.2	8.6	0	1.20	-	<0.05	1	497	145	21	0.4	36.4	13	0.8	27.1	2.6	11.2	9.8	1.3	36.2

Note: Paddock sample bulked from cores (0-10 cm) taken 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.