

GRADATIONAL GREY CLAY LOAM (Grey clay soil)

General Description: *Grey well structured clay loam, usually cracking, grading to a grey coarsely structured clay, calcareous with depth*

Landform: Plain, commonly with gilgai microrelief

Substrate: Tertiary heavy clay

Vegetation:



Type Site: Site No.: EL005

1:50,000 sheet: 6029-3 (Cummins)

Hundred: Cummins

Annual rainfall: 425 mm

Sampling date: 24/03/92

Landform: Flat

Surface: Firm and sesonally cracking with no stones

Soil Description:

<i>Depth (cm)</i>	<i>Description</i>
0-5	Grey friable clay loam with moderate subangular blocky structure. Clear to:
5-18	Greyish brown friable massive light clay. Clear to:
18-35	Light brownish grey very hard medium clay with strong coarse prismatic breaking to fine angular blocky structure and slickensides. Diffuse to:
35-80	Light grey very hard moderately calcareous heavy clay with strong coarse prismatic breaking to fine angular blocky structure and slickensides. Diffuse to:
80-150	Light grey very hard highly calcareous heavy clay with strong coarse prismatic breaking to fine angular blocky structure and slickensides.



Classification: Vertic, Calcic, Grey Dermosol; thin, non-gravelly, clay loamy / clayey, deep

Summary of Properties

Drainage Imperfectly drained. The soil may remain wet for several weeks following heavy or prolonged rainfall.

Fertility Inherent fertility is moderate to high, as indicated by the exchangeable cation data. Nutrient retention capacity is high and concentrations of all tested nutrient elements are high. Organic carbon levels however are low.

pH Alkaline at the surface, strongly alkaline in the deep subsoil.

Rooting depth 80 cm in pit.

Barriers to root growth

Physical: The hard dense subsoil clay restricts uniform root growth - roots tend to grow between the aggregates rather than inside them.

Chemical: High pH and sodicity and high boron concentrations prevent roots extending below 80 cm.

Water holding capacity Approximately 100 mm in the root zone.

Seedling emergence: Satisfactory to fair (if surface seals over).

Workability: Firm surface is easily worked, although it becomes sticky and intractable when wet.

Erosion Potential

Water: Low.

Wind: Low.

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 mg/kg	Boron mg/kg	Trace Elements mg/kg (DTPA)				CEC cmol (+)/kg	Exchangeable Cations cmol(+)/kg				ESP
											Cu	Fe	Mn	Zn		Ca	Mg	Na	K	
0-5	7.8	7.3	0	0.2	1.1	0.98	35	-	151	2.8	0.44	19	1.61	0.64	17.2	13.3	2.0	0.38	2.63	2.2
5-18	7.9	7.3	0	0.2	0.6	0.41	6	-	11	2.6	0.26	25	1.05	0.26	20.7	16.2	3.2	0.38	1.29	1.8
18-35	8.0	7.4	0	0.2	0.6	-	-	-	23	4.4	0.29	15	1.09	0.14	29.8	19.2	7.0	1.81	2.03	6.1
35-80	8.9	8.0	4	0.4	1.0	-	-	-	60	9.9	0.26	12	0.64	0.17	23.6	9.6	8.2	5.28	2.19	22.4
80-150	9.3	8.2	18	0.6	1.3	-	-	-	76	14.1	0.28	13	0.41	0.22	22.8	4.8	7.8	10.6	2.20	46.5

Note: 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