

GRADATIONAL CALCAREOUS CLAY LOAM

General Description: *Calcareous clay loam becoming more clayey and calcareous with depth*

Landform: Gently undulating rises.

Substrate: Tertiary (Hindmarsh) Clay.
Red and olive mottled heavy clay.

Vegetation:

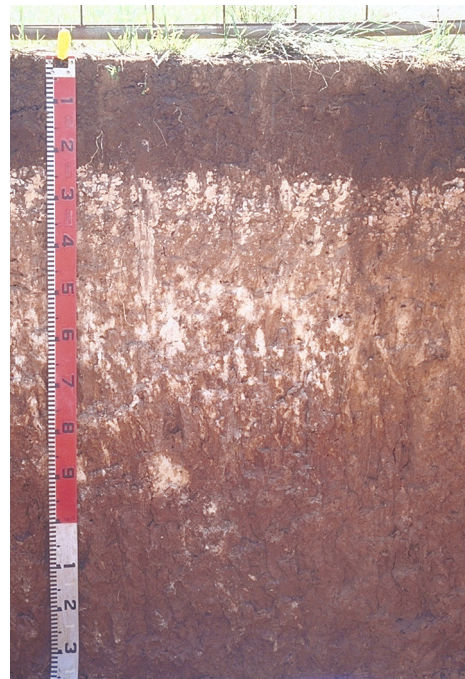


Type Site:	Site No.:	CY021	1:50,000 mapsheet:	6429-1 (Kainton)
	Hundred:	Kadina	Easting:	764000
	Section:	670	Northing:	6231500
	Sampling date:	9/9/1991	Annual rainfall:	390 mm average

Upper slope of rise, 1% slope. Hard setting surface with no stones.

Soil Description:

<i>Depth (cm)</i>	<i>Description</i>
0-6	Dark reddish brown firm moderately calcareous clay loam with weak granular structure. Clear to:
6-24	Dark reddish brown friable moderately calcareous clay loam with moderate medium subangular blocky structure. Abrupt to:
24-36	Reddish yellow soft massive very highly calcareous light clay with 10-20% calcrete fragments (6-20 mm). Clear to:
36-70	Reddish yellow soft massive very highly calcareous light clay. Gradual to:
70-120	Yellowish red and pink hard weakly structured highly calcareous medium heavy clay. Diffuse to:
120-140	Yellowish red and light yellowish brown firm medium heavy clay with strong medium angular blocky structure.



Classification: Epihypersodic, Pedal, Hypercalcic Calcarosol; medium, non-gravelly, clay loamy/clayey, deep



Summary of Properties

Drainage: Moderately well drained. The soil rarely remains wet for more than a week following heavy or prolonged rainfall.

Fertility: Natural fertility is high as indicated by the exchangeable cation data. Surface fertility relies on organic matter levels which are good, and on phosphorus levels which are marginal at this site. Low surface carbonate concentrations suggest that trace element deficiencies should not be an inherent problem.

pH: Alkaline at the surface, strongly alkaline at depth.

Rooting depth: 60 cm in pit.

Barriers to root growth:

Physical: The clayey subsoil offers some resistance to root growth and may cause reduction in root densities, but will not prevent root growth.

Chemical: High boron concentration, sodicity and pH restrict root growth below 36 cm. Nutrient availability problems probably occur in the subsoil due to high carbonate content.

Waterholding capacity: Approximately 90 mm in rootzone (moderate), but less is effectively available due to low root density in the subsoil.

Seedling emergence: Fair to good. Organic matter levels need to be maintained to preserve surface soil structure.

Workability: Fair to good.

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	
0-6	8.1	7.8	1.5	0.11	0.63	2.1	20	728	-	3.3	1.2	6	8.7	2.2	28.3	22.7	3.7	0.5	2.7	1.8
6-24	8.4	7.9	0.4	0.13	0.48	0.9	5	345	-	3.8	1.8	8	3.7	0.5	30.6	24.6	4.7	1.5	1.7	4.8
24-36	9.1	8.1	36.6	0.26	1.00	0.7	5	144	-	3.8	1.9	6	2.5	0.2	16.3	11.3	3.7	2.8	0.6	17.4
36-70	9.7	8.5	36.0	0.49	1.25	0.2	<4	351	-	22.3	1.5	4	1.2	0.1	16.6	4.6	6.9	6.5	1.2	38.9
70-120	9.7	8.9	10.2	1.11	4.04	0.1	<4	538	-	45.9	0.9	5	0.8	0.1	23.7	2.6	11.2	12.5	2.1	52.7
120-140	9.5	8.9	3.4	1.44	5.29	0.1	<4	563	-	50.4	0.8	6	0.7	0.1	26.1	2.1	11.8	14.2	2.1	54.2

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

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

