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.

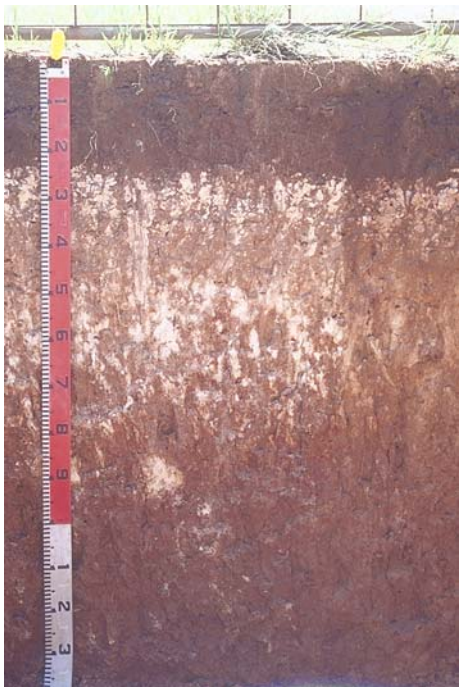
Vegetation:

Type Site: Site No.: CY021

1:50,000 sheet:	6429-1 (Kainton)	Hundred:	Kadina
Annual rainfall:	340 mm	Sampling date:	09/09/91
Landform:	Upper slope of rise, 1% slope		
Surface:	Hard setting with no stones		

Soil Description:

Depth (cm)	*Description*
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.

Water holding 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_2O	pH $CaC1_2$	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 (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