SHALLOW CALCAREOUS LOAM
(scalded and non scalded)

General Description: *Brown highly calcareous loam becoming more calcareous and silty with depth and grading to weathering basement rock within 100 cm*

Landform: Undulating rises

Substrate: Weathering siltstone mantled by soft carbonate

Vegetation:

Type Site: Site No.: CU051

1:50,000 sheet:	6631-3 (Bundaleer)	Hundred:	Reynolds
Annual rainfall:	475 mm	Sampling date:	03/11/94
Landform:	Paired scalded / non scalded sites on mid slope of low hill, 6% slope		
Surface:	Firm with minor quartzite stones. Up to 10% of the surface is scalded.		

Summary of Properties

Drainage The soil is well drained, with a permeable profile and adequate slope for runoff.

Fertility The natural fertility of the soil is moderate, most of the nutrient retention capacity being attributable to surface organic matter. The high carbonate content reduces nutrient availability.

pH Alkaline at the surface, strongly alkaline with depth.

Rooting depth 70 cm in natural soil pit (although few roots below 45 cm). There are few roots below 10 cm in the scalded soil pit

Barriers to root growth

- **Physical:** There are no physical barriers apart from shallow depth to rock.
- **Chemical:** Very high pH at shallow depth in the natural soil is the main limitation. On the scalded soil, high salinity and sodicity are additional limitations.

Water holding capacity Approximately 75 mm above the rock (moderately high).

Seedling emergence Good in natural soil; poor in scalded soil due to high surface salinity.

Workability Good.

Erosion Potential

- **Water:** Moderate due to the high erodibility of the soil, and the slope.
- **Wind:** Moderately low, although these soils will easily pulverize and blow.

Soil Description: **CU051A (non scalded site)**

Depth (cm)	*Description*
0-10	Dark brown highly calcareous loam with strong granular structure. Abrupt to:
10-20	Brown very highly calcareous loam with weak blocky structure and 2-10% carbonate nodules. Abrupt to:
20-45	Pink very highly calcareous massive friable silty loam with more than 50% soft carbonate segregations. Diffuse to:
45-70	Pink very highly calcareous massive friable silty loam with 20-50% soft carbonate segregations. Diffuse to:
70-100	Soft highly weathered siltstone. Gradual to:
100-120	Fresh weathering siltstone.

Classification: Epihypersodic, Paralithic, Hypercalcic Calcarosol; medium, non-gravelly, loamy / silty, moderate

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 mg/kg	Boron mg/kg	Trace Elements mg/kg (DTPA)			CEC cmol (+)/kg	Exchangeable Cations cmol(+)/kg				ESP	SAR	Cl mg/kg
											Cu	Mn	Zn		Ca	Mg	Na	K			
0-10	8.1	7.7	-	0.20	1.02	1.9	-	-	-	2.5	-	-	-	13.3	14.45	2.94	0.06	1.08	0.4	0.7	39
10-20	10.4	8.5	-	0.44	0.86	0.9	-	-	-	2.3	-	-	-	10.8	10.11	2.94	0.17	0.60	1.6	1.1	56
20-45	10.3	8.7	-	0.46	0.78	0.2	-	-	-	2.8	-	-	-	4.8	2.92	4.14	0.64	0.22	13.4	2.9	38
45-70	10.4	8.8	-	0.52	0.65	<0.1	-	-	-	2.4	-	-	-	4.4	2.54	3.12	0.76	0.21	17.3	6.4	43
70-100	10.4	8.9	-	0.46	0.44	<0.1	-	-	-	1.8	-	-	-	4.6	2.24	3.26	0.70	0.17	15.3	5.5	19
100-120	10.4	9.0	-	0.42	1.20	<0.1	-	-	-	2.4	-	-	-	5.7	2.37	3.80	1.53	0.27	26.9	6.7	89

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.
SAR is sodium adsorption ratio measured on the saturation extract

Soil Description: **CU051B (scalded site)**

Depth (cm)	*Description*
0-10	Brown very highly calcareous loam with moderate granular structure. Abrupt to:
10-30	Pink very highly calcareous massive soft silty loam. Gradual to:
30-55	Light brown very highly calcareous massive soft silty loam. Gradual to:
55-100	Weathering very highly calcareous siltstone.

Classification: Hypervescent, Paralithic, Hypercalcic Calcarosol; medium, non-gravelly, loamy / silty, moderate.

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 mg/kg	Boron mg/kg	Trace Elements mg/kg (DTPA)			CEC cmol (+)/kg	Exchangeable Cations cmol(+)/kg				ESP	SAR	Cl mg/kg
											Cu	Mn	Zn		Ca	Mg	Na	K			
0-10	8.5	8.1	-	2.92	16.71	0.6	-	-	162	6.2	-	-	-	6.6	5.55	2.58	1.64	0.63	24.9	19.1	1888
10-30	10.1	9.1	-	1.31	9.22	0.1	-	-	57	3.9	-	-	-	5.6	4.08	2.71	1.72	0.24	30.6	23.0	1136
30-55	10.2	9.1	-	0.82	7.24	0.1	-	-	27	2.9	-	-	-	5.9	3.53	3.05	1.96	0.25	33.4	21.9	921
55-100	10.1	9.1	-	0.79	6.28	<0.1	-	-	20	2.4	-	-	-	5.9	2.91	3.52	1.20	0.20	20.4	17.8	729

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. SAR is sodium adsorption ratio measured on the saturation extract.