SANDY LOAM OVER BROWN CLAY
(Butler soil)

General Description: *Sandy loam over coarsely structured brown clay, calcareous with depth*

Landform: Very gently undulating plain.

Substrate: Tertiary clay.

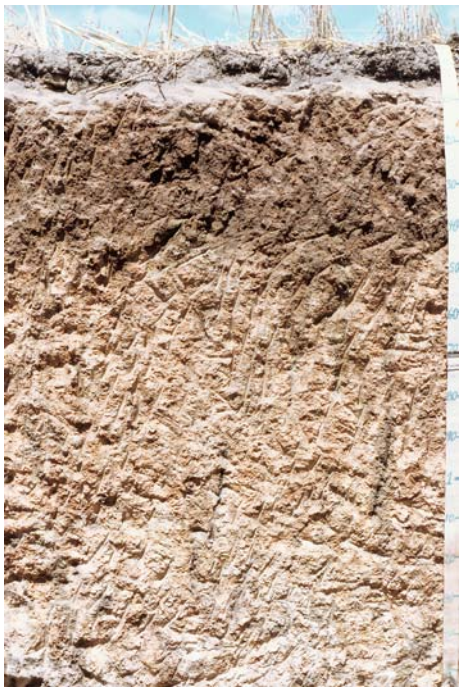
Vegetation:

Type Site: Site No.: EL038

1:50,000 sheet:	6029-4 (Yeelanna)	Hundred:	Cummins
Annual rainfall:	425 mm	Sampling date:	20/02/86
Landform:	Flat plain		
Surface:	Firm to hard setting with no stones		

Soil Description:

Depth (cm)	*Description*
0-7	Very dark greyish brown massive sandy loam. Abrupt to:
7-10	Yellowish brown massive sandy loam. Sharp to:
10-45	Orange medium clay with coarse prismatic structure. Clear to:
45-115	Brownish yellow very highly calcareous light medium clay with weak coarse prismatic structure. Gradual to:
115-145	Light reddish brown very highly calcareous light clay with weak coarse prismatic structure. Gradual to:
145-180	Pink highly calcareous light clay with weak coarse prismatic structure.



Classification: Sodic, Hypercalcic, Brown Chromosol; medium, non-gravelly, loamy / clayey, deep

Summary of Properties

Drainage Moderately well drained. Water can perch on top of the clayey subsoil for a week or so following heavy or prolonged rainfall.

Fertility Inherent fertility is moderately low - surface clay content of about 15% and organic carbon content of 1.3% provide relatively low nutrient retention capacity. Regular phosphorus applications are needed, and concentrations are low at the sampling site.

pH Slightly acidic at the surface, alkaline with depth.

Rooting depth 115 cm in pit, but few roots below 45 cm.

Barriers to root growth

Physical: The coarsely structured dense clayey subsoil prevents uniform and prolific root growth.

Chemical: There are no chemical barriers to root growth.

Water holding capacity Approximately 70 mm in the root zone.

Seedling emergence: Fair to good, depending on the degree of surface sealing and compaction.

Workability: Fair to good.

Erosion Potential

Water: Low.

Wind: Moderately 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	
0-7	7.9	7.2	2	0.14	1.33	1.3	15	-	-	1.5	-	-	-	-	11.7	-	0.96	0.12	1.20	1
7-10	8.3	7.3	2	0.09	0.86	-	-	-	-	0.8	-	-	-	-	6.1	-	0.67	0.1	0.69	2
10-45	8.3	7.4	3	0.15	0.98	-	-	-	-	2.6	-	-	-	-	36.2	-	5.90	1.10	2.50	3
45-115	8.8	7.9	57	0.33	2.15	-	-	-	-	2.3	-	-	-	-	18.3	-	5.10	1.60	1.40	9
115-145	9.1	7.9	60	0.42	2.73	-	-	-	-	2.1	-	-	-	-	16.3	-	5.90	2.20	1.50	13
145-180	9.2	8.0	48	0.56	3.64	-	-	-	-	3.8	-	-	-	-	18.6	-	9.80	3.20	2.00	17

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.

* Exchangeable calcium (Ca) values not presented because the laboratory procedure used was inappropriate for highly calcareous samples.