

**Project Name:** Soil Studies in the Lower Namoi Valley  
**Project Code:** EDGEROI **Site ID:** ed097 **Observation ID:** 1  
**Agency Name:** CSIRO Division of Soils (QLD)

#### Site Information

<b>Desc. By:</b> D. McGarry	<b>Locality:</b> Luckdale
<b>Date Desc.:</b> 03/06/86	<b>Elevation:</b> 221 metres
<b>Map Ref.:</b> Sheet No. : 8837_N 1:50000	<b>Rainfall:</b> No Data
<b>Northing/Long.:</b> 6665000 AMG zone: 55	<b>Runoff:</b> No Data
<b>Easting/Lat.:</b> 764900 Datum: AGD66	<b>Drainage:</b> No Data

#### Geology

<b>ExposureType:</b> Undisturbed soil core	<b>Conf. Sub. is Parent. Mat.:</b> No Data
<b>Geol. Ref.:</b> No Data	<b>Substrate Material:</b> No Data

#### Land Form

<b>Rel/Slope Class:</b> No Data	<b>Pattern Type:</b> No Data
<b>Morph. Type:</b> No Data	<b>Relief:</b> No Data
<b>Elem. Type:</b> Terrace flat	<b>Slope Category:</b> Level
<b>Slope:</b> 0 %	<b>Aspect:</b> No Data

**Surface Soil Condition (dry):** Self-mulching, Recently cultivated

#### Erosion:

#### Soil Classification

<b>Australian Soil Classification:</b> N/A	<b>Mapping Unit:</b> N/A
<b>ASC Confidence:</b> Confidence level not specified	<b>Principal Profile Form:</b> Ug5.16
	<b>Great Soil Group:</b> Grey clay

**Site Disturbance:** Cultivation. Rainfed

#### Vegetation:

#### Surface Coarse Fragments:

#### Profile Morphology

A11p	0 - 0.06 m	Very dark grey (10YR3/1-Moist); Very dark grey (10YR3/1-Dry); ; Medium clay; Moderate grade of structure, 10-20 mm, Subangular blocky; Moderate grade of structure, 2-5 mm, Granular; Rough-ped fabric; Fine, (0 - 5) mm crack; Few (<1 per 100mm <sup>2</sup> ) Very fine (0.075-1mm) macropores, Moderately moist; Firm consistence; Field pH 6.5 (pH meter); Abrupt, Smooth
A12p	0.06 - 0.3 m	Very dark grey (10YR3/1-Moist); ; Medium clay; Massive grade of structure; Smooth-ped fabric; Coarse, (10 - 20) mm crack; Few (<1 per 100mm <sup>2</sup> ) Very fine (0.075-1mm) macropores, Moderately moist; Rigid consistence; Field pH 6.7 (pH meter); Few, very fine (0-1mm) roots; Abrupt, Smooth change to -
A13	0.3 - 0.55 m	Black (10YR2/1-Moist); , 10YR71, 0-2% , 0-5mm, Distinct; Medium clay; Weak grade of structure, 20-50 mm, Angular blocky; Smooth-ped fabric; Fine, (0 - 5) mm crack; Few (<1 per 100mm <sup>2</sup> ) Very fine (0.075-1mm) macropores, Moderately moist; Very strong consistence; Very few (0 - 2 %), Calcareous, Fine (0 - 2 mm), Nodules; Field pH 8.5 (pH meter); Few, very fine
A14	0.55 - 0.95 m	Black (10YR2/1-Moist); , 2.5Y72, 0-2% , 0-5mm, Distinct; , 10YR71, 0-2% , 0-5mm, Distinct; Medium clay; Weak grade of structure, 20-50 mm, Lenticular; Weak grade of structure, 5-10 mm, Angular blocky; Smooth-ped fabric; Fine, (0 - 5) mm crack; Few (<1 per 100mm <sup>2</sup> ) Very fine (0.075-1mm) macropores, Moderately moist; Strong consistence; Very few (0 - 2 %), Calcareous, Fine (0 - 2 mm), Nodules; Field pH 8.7 (pH meter); Few, very fine (0-1mm) roots; Clear, Smooth change to -
B21	0.95 - 1.9 m	Greyish brown (10YR5/2-Moist); , 10YR21, 0-2% , 0-5mm, Distinct; Medium clay; Weak grade of structure, 100-200 mm, Lenticular; Weak grade of structure, 20-50 mm, Angular blocky; Smooth-ped fabric; Few (<1 per 100mm <sup>2</sup> ) Very fine (0.075-1mm) macropores, Moderately moist; Strong consistence; Very few (0 - 2 %), Gypseous, Fine (0 - 2 mm), Crystals; Field pH 6.5 (pH meter); Few, very fine (0-1mm) roots;
B22	1.9 - 2.81 m	Greyish brown (10YR5/2-Moist); ; Medium clay; Strong grade of structure, 20-50 mm, Lenticular; Moderate grade of structure, 10-20 mm, Angular blocky; Smooth-ped fabric; Fine, (0 - 5) mm crack; Few (<1 per 100mm <sup>2</sup> ) Very fine (0.075-1mm) macropores, Moderately moist; Very strong consistence; Field pH 5.5 (pH meter);

#### Morphological Notes

A11p Layer 1 is loose, granular topsoil. Layer 2 is an extremely hard, compacted zone. Natural peds begin at 30cm. Note lack of carbonates from 100cm on. The B2 is quite wet, and colour appears somewhat gleyed. Better structured, slickensided B2

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A12p      begins at 230cm and continues. Manganese is slight and not found below 210cm. Note that B2 layer is quite acid and in general quite different from other grey clay B2 layers. Note 10YR5/2 greyish brown B. The top 6cm might include a recent  
A13      wash and be source of inwashed sand at 70-80. 097.02 compacted not ploughed. Test of crystals at 120-130 shows gypsum.

**Observation Notes**

Parent Rock: alluvial sediment, mixed texture, non-calcareous, fifth (eroded) fan

**Site Notes**

In sorghum stubble almost due west of Edgeroi. A weak crusting surface covers large cracks beneath. A very flat area. Very few surface pebbles or rocks.

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**Laboratory Test Results:**

Depth	pH	1:5 EC	Exchangeable Cations			Exchangeable	CEC	ECEC	ESP
m		dS/m	Ca	Mg	K	Na	Acidity		%
						Cmol (+)/kg			
0 - 0.02	7.57A	0.054A	16.24B	4.47	1.39	0.32			
0 - 0.06	7.35A	0.098A	16.66B	4.46	1.2	0.51			
0.1 - 0.2	7.77A	0.054A	17.29B	4.48	0.69	1.18			
0.3 - 0.4	8.74A	0.123A	26.05B	7.18	0.36	2.72			
0.7 - 0.8	8.61A	0.529A	25.72B	11.75	0.26	7.83			
1.2 - 1.3	5.91A	2.2A	20.92B	8.93	0.26	8.41			
2.5 - 2.6	4.83A	0.9069999A	17.05B	7.42	0.23	8.13			

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**Laboratory Analyses Completed for this profile**

15A2_CA	Exchangeable bases (Ca <sup>2+</sup> ,Mg <sup>2+</sup> ,Na <sup>+</sup> ,K <sup>+</sup> ) - 1M ammonium chloride at pH 7.0, pretreatment for soluble salts
15A2_K	Exchangeable bases- 1M ammonium chloride at pH 7.0, pretreatment for soluble salts
15A2_MG	Exchangeable bases- 1M ammonium chloride at pH 7.0, pretreatment for soluble salts
15A2_NA	Exchangeable bases- 1M ammonium chloride at pH 7.0, pretreatment for soluble salts
19B1	Carbonates - manometric
3A1	EC of 1:5 soil/water extract
4A1	pH of 1:5 soil/water suspension
5A2	Chloride - 1:5 soil/water extract, automated colour
6B3	Total organic carbon - high frequency induction furnace, infrared
7B1	Water soluble nitrate - automated colour
9B1	Bicarbonate-extractable phosphorus - manual colour
P10_CF_C	Clay (%) - Coventry and Fett pipette method
P10_CF_Z	Silt (%) - Coventry and Fett pipette method