**Project Name:** **Soil Studies in the Lower Namoi Valley**
**Project Code:** **EDGEROI** **Site ID:** **ed067** **Observation ID:** **1**
**Agency Name:** **CSIRO Division of Soils (QLD)**

## Site Information

| | | | |
|---|---|---|---|
| **Desc. By:** | W.T. Ward | **Locality:** | B. & M.(Bevan) O'Regan, Moema |
| **Date Desc.:** | 09/07/86 | **Elevation:** | 300 metres |
| **Map Ref.:** | Sheet No. : 8837_N 1:50000 | **Rainfall:** | No Data |
| **Northing/Long.:** | 6669800 AMG zone: 55 | **Runoff:** | No Data |
| **Easting/Lat.:** | 778900 Datum: AGD66 | **Drainage:** | No Data |

## Geology

| | | | |
|---|---|---|---|
| **ExposureType:** | Undisturbed soil core | **Conf. Sub. is Parent. Mat.:** | No Data |
| **Geol. Ref.:** | No Data | **Substrate Material:** | No Data |

## Land Form

| | | | |
|---|---|---|---|
| **Rel/Slope Class:** | No Data | **Pattern Type:** | No Data |
| **Morph. Type:** | No Data | **Relief:** | No Data |
| **Elem. Type:** | Hillcrest | **Slope Category:** | Very gently sloped |
| **Slope:** | 1 % | **Aspect:** | 306 degrees |

**Surface Soil Condition (dry):** Hardsetting, Trampled

**Erosion:**

## Soil Classification

**Australian Soil Classification:**
N/A
**ASC Confidence:**
Confidence level not specified

**Mapping Unit:** N/A
**Principal Profile Form:** Dr2.23
**Great Soil Group:** Red-brown earth

**Site Disturbance:** Cultivation. Rainfed

**Vegetation:**

**Surface Coarse Fragments:**

## Profile Morphology

| | | |
|---|---|---|
| A11 | 0 - 0.1 m | Dark brown (7.5YR3/2-Moist); Dark greyish brown (10YR4/2-Dry); ; Sandy loam; Massive grade of structure; Earthy fabric; Few (<1 per 100mm2) Fine (1-2mm) macropores, Moderately moist; Strong consistence; Field pH 6.2 (pH meter); Few, very fine (0-1mm) roots; |
| A12 | 0.1 - 0.25 m | Dark brown (7.5YR3/2-Moist); , 5YR46, 0-2% , 0-5mm, Distinct; Sandy loam; Massive grade of structure; Earthy fabric; Few (<1 per 100mm2) Very fine (0.075-1mm) macropores, Moderately moist; Strong consistence; Field pH 6.2 (pH meter); Few, very fine (0-1mm) roots; Clear, Smooth change to - |
| A2 | 0.25 - 0.42 m | Brown (7.5YR4/4-Moist); , 5YR46, 0-2% , 0-5mm, Distinct; , 5YR53, 2-10% , 5-15mm, Faint; Sandy loam; Massive grade of structure; Weak grade of structure, 2-5 mm, Cast; Earthy fabric; Few (<1 per 100mm2) Fine (1-2mm) macropores, Moderately moist; Strong consistence; Field pH 7 (pH meter); Few, very fine (0-1mm) roots; Clear, Smooth change to - |
| B21 | 0.42 - 1.25 m | Yellowish red (5YR4/8-Moist); , 7.5YR42, 0-2% , 0-5mm, Distinct; Light clay; Moderate grade of structure, 20-50 mm, Columnar; Weak grade of structure, 2-5 mm, Cast; Smooth-ped fabric; Fine, (0 - 5) mm crack; Few (<1 per 100mm2) Fine (1-2mm) macropores, Moderately moist; Strong consistence; Field pH 7.5 (pH meter); Few, very fine (0-1mm) roots; |
| B22 | 1.25 - 1.9 m | Dark red (2.5YR3/6-Moist); , 10YR53, 20-50% , 5-15mm, Prominent; , 5YR34, 0-2% , 0-5mm, Distinct; Light clay; Moderate grade of structure, 20-50 mm, Columnar; Smooth-ped fabric; Fine, (0 - 5) mm crack; Few (<1 per 100mm2) Fine (1-2mm) macropores, Moderately moist; Strong consistence; Field pH 8.5 (pH meter); Few, very fine (0-1mm) roots; Diffuse, Smooth change to |
| C | 1.9 - 2.87 m | Reddish brown (5YR5/4-Moist); , 10YR58, 20-50% , 5-15mm, Prominent; , 10YR43, 0-2% , 5-15mm, Distinct; Light clay; Weak grade of structure, 50-100 mm, Columnar; Smooth-ped fabric; Earthy fabric; Fine, (0 - 5) mm crack; Few (<1 per 100mm2) Very fine (0.075-1mm) macropores, Moderately moist; Very firm consistence; 0-2%, fine gravelly, 2-6mm, subangular, Quartz, coarse fragments; Very few (0 - 2 %), Calcareous, Medium (2 -6 mm), Nodules; Field pH 8.5 (pH meter); Few, very fine (0-1mm) roots; |

## Morphological Notes

| | |
|---|---|
| A11 | Tertiary sandstone. This soil has a prominent red subsoil. Hard setting surface. The bleach in the A2 is hardly enough to be sporadic. Several vertical empty worm holes in B2, providing access to organic stain and roots. The B2 red colour i |

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A12 s ped centre, gives way to yellow brown with depth. Carbonate at 190. Worm channels infilled with cast granular from 170cm. Site 067 profile 2: Fine quartz gravels occur from 145-220cm, small quantity. C horizon also has few 10YR7/3 carbona

A2 te nodules. A red palaeosol on Tertiary sandstone. Third texture is sandy loam with clay. Slope facet at end of spur protected by high terrace at foot.

## Observation Notes

Parent Rock: residual, sandstone, Tertiary beds, weathered

## Site Notes

Surface condition 2 is old cultivation. Stipa verticellata is doubtful; there is also variegated thistle and wilga. Chart penetrometer not attempted because of hard ground. Parent material is old alluvium, eroded, no lime.

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## Laboratory Test Results:

| Depth | pH | 1:5 EC | Exchangeable Cations | | | | Exchangeable Acidity | CEC | ECEC | ESP |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Ca | Mg | K | Na | | | | |
| m | | dS/m | Cmol (+)/kg | | | | | | | % |
| 0 - 0.02 | 7A | 0.087A | 2.23B | 1.25 | 1 | <0.01 | | | | |
| 0 - 0.1 | 7.18A | 0.086A | 2.36B | 0.9399999 | 1.14 | 0.02 | | | | |
| 0.1 - 0.2 | 6.75A | 0.122A | 4.06B | 1.24 | 1.13 | 0.01 | | | | |
| 0.3 - 0.4 | 7.24A | 0.062A | 2.73B | 0.92 | 0.73 | <0.01 | | | | |
| 0.7 - 0.8 | 7.03A | 0.078A | 8.73B | 3.07 | 2.69 | 0.23 | | | | |
| 1.2 - 1.3 | 7.41A | 0.168A | 13.61B | 5.14 | 0.72 | 0.2 | | | | |
| 2.5 - 2.6 | 7.71A | 0.295A | 11.96B | 8.030001 | 0.44 | 0.12 | | | | |

| Depth | CaCO3 | Organic C | Avail. P | Total P | Total N | Total K | Bulk Density | Particle Size Analysis GV | CS | FS | Silt | Clay |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| m | % | % | mg/kg | % | % | % | Mg/m3 | | | % | | |
| 0 - 0.02 | <0.1B | 1.33C | | | | | | | | | 3.8 | 9.4 |
| 0 - 0.1 | <0.1B | 0.93C | 37J | | | | | | | | 3.6 | 10.2 |
| 0.1 - 0.2 | <0.1B | 0.99C | 49.6J | | | | | | | | 4.1 | 13.8 |
| 0.3 - 0.4 | <0.1B | 0.33C | 37.8J | | | | | | | | 4.3 | 11.1 |
| 0.7 - 0.8 | <0.1B | 0.33C | 4J | | | | | | | | 2.3 | 44.9 |
| 1.2 - 1.3 | <0.1B | 0.32C | 1.9J | | | | | | | | 2.6 | 49.2 |
| 2.5 - 2.6 | <0.1B | 0.07C | 1.5J | | | | | | | | 5.4 | 28.9 |

| Depth | COLE | Gravimetric/Volumetric Water Contents | | | | | | K sat | K unsat |
|---|---|---|---|---|---|---|---|---|---|
| | | Sat. | 0.05 Bar | 0.1 Bar | 0.5 Bar | 1 Bar | 5 Bar | 15 Bar | |
| m | | g/g - m3/m3 | | | | | | mm/h | mm/h |
| 0 - 0.02 | | | | | | | | | |
| 0 - 0.1 | | | | | | | | | |
| 0.1 - 0.2 | | | | | | | | | |
| 0.3 - 0.4 | | | | | | | | | |
| 0.7 - 0.8 | | | | | | | | | |
| 1.2 - 1.3 | | | | | | | | | |
| 2.5 - 2.6 | | | | | | | | | |

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**Laboratory Analyses Completed for this profile**

| | |
|---|---|
| 15A2_CA | Exchangeable bases (Ca2+,Mg2+,Na+,K+) - 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 |