Project Name: Soil Studies in the Lower Namoi Valley

Project Code: EDGEROI Site ID: ed209 Observation ID: 1

Agency Name: CSIRO Division of Soils (QLD)

Site Information

Desc. By: W.T. Ward Locality: Frank Atkinson, Fairlight

Date Desc.: Elevation: 30/01/86 352 metres Map Ref.: Sheet No.: 8837 N 1:50000 Rainfall: No Data Northing/Long.: 6650600 AMG zone: 55 Runoff: No Data 783800 Datum: AGD66 Easting/Lat.: 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 DataPattern Type:No DataMorph. Type:No DataRelief:No Data

Elem. Type: Pediment Slope Category: Very gently sloped Slope: 3 % Aspect: 200 degrees

Surface Soil Condition (dry): Surface crust, Recently cultivated

**Erosion:** 

**Soil Classification** 

Australian Soil Classification: Mapping Unit: N/A
N/A Principal Profile Form: Ug5.12
ASC Confidence: Great Soil Group: Black earth

Confidence level not specified

Site Disturbance: Cultivation. Rainfed, Complete clearing. Pasture, native or improved, cultivated at some stage,

Vegetation:

**Surface Coarse Fragments:** 

**Profile Morphology** 

A11 0 - 0.1 m Dark brown (7.5YR3/2-Moist); Dark reddish brown (5YR2/2-Dry); ; Medium heavy clay; Moderate grade of structure, 10-20 mm, Subangular blocky; Moderate grade of structure, <2 mm, Granular; Earthy fabric; Fine, (0 - 5) mm crack; Moderately moist; Weak consistence; Field

pH 8.5 (pH meter); Few, very fine (0-1mm) roots; Gradual, Smooth change to -

A12 0.1 - 0.25 m Dark brown (7.5YR3/2-Moist); ; Medium heavy clay; Weak grade of structure, 50-100 mm,

Subangular blocky; Moderate grade of structure, <2 mm, Granular; Earthy fabric; Smooth-ped fabric; Fine, (0 - 5) mm crack; Moderately moist; Weak consistence; 0-2%, fine gravelly, 2-6mm, subrounded, Basalt, coarse fragments; Field pH 8.5 (pH meter); Few, very fine (0-1mm) roots;

A13 0.25 - 0.55 m Dark brown (7.5YR3/2-Moist); , 7.5YR74, 0-2% , 5-15mm, Prominent; Medium heavy clay; Weak

grade of structure, 50-100 mm, Subangular blocky; Weak grade of structure, <2 mm, Granular; Earthy fabric; Smooth-ped fabric; Fine, (0 - 5) mm crack; Moderately moist; Weak consistence; 0-2%, medium gravelly, 6-20mm, subrounded, Basalt, coarse fragments; Very few (0 - 2 %), Calcareous, Medium (2 -6 mm), Soft segregations; Field pH 8.5 (pH meter); Few, very fine (0-

1mm) roots; Gradual, Smooth change to -

Ck 0.55 - 1.2 m Light olive grey (5Y6/2-Moist); , 5YR44, 10-20% , 5-15mm, Prominent; , 10YR82, 20-50% , 15-

30mm, Prominent; Medium clay; Massive grade of structure; Weak grade of structure, 10-20 mm, Subangular blocky; Earthy fabric; Fine, (0 - 5) mm crack; Few (<1 per 100mm2) Very fine (0.075-1mm) macropores, Moderately moist; Strong consistence; 50-90%, coarse gravelly, 20-60mm, angular, Basalt, coarse fragments; Many (20 - 50 %), Calcareous, Coarse (6 - 20 mm),

Soft segregations; Field pH 8.7 (pH meter);

**Morphological Notes** 

A11 Carbonate is whiter than 10YR8/2. 5Y6/2 colour for 70-80cm is weathering rock. Soil

darkens on drying. A shallow black earth on weathering basalt or ?trachyte.

**Observation Notes** 

Parent Rock: residual, trachyte, Garrawilla Volcanics

Site Notes

Pediment, middle part. Surface stones (basaltic) cover 5% of surface. Weathered rock at 50cm depth. Drilling stopped in rock at 120cm. Surface has weak surface skin which breaks readily to coarse self mulching. Quite similar to Green Timber

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## **Laboratory Test Results:**

m         dS/m         Cmol (+)/kg         %           0 - 0.02         8.21A         0.169A         49.81B         16.63         2.55         0.21           0 - 0.1         8.05A         0.065A         54.08B         19.72         1.82         0.62           0.1 - 0.2         8.27A         0.195A         50.39B         18.74         0.82         0.6           0.3 - 0.4         8.42A         0.178A         40.26B         20.94         0.69         0.61           0.7 - 0.8         8.47A         0.179A         13.08B         11.25         0.28         0.38           Depth         CaCO3         Organic         Avail.         Total         Total         Bulk         Particle         Size         Analysis           m         %         %         mg/kg         %         %         Mg/m3         %         CS         FS         Silt         Clay           0 - 0.02         1.6B         2.37C         10.9J         9.4         62.1           0.1 - 0.2         6.6B         1.58C         1J         8.5         61.5           0.3 - 0.4         12.4B         1.35C         <1J         7.9         59.2           0.	Depth	рН	1:5 EC		hangeable			Exchangeable	CEC		ECEC		ESP
0 - 0.1         8.05A         0.065A         54.08B         19.72         1.82         0.62           0.1 - 0.2         8.27A         0.195A         50.39B         18.74         0.82         0.6           0.3 - 0.4         8.42A         0.178A         40.26B         20.94         0.69         0.61           0.7 - 0.8         8.47A         0.179A         13.08B         11.25         0.28         0.38           Depth         CaCO3         Organic         Avail.         Total         Total         Bulk         Particle         Size         Analysis           m         %         %         mg/kg         %         %         Mg/m3         W         CS         FS         Silt         Clay           0 - 0.02         1.6B         2.37C         10.2         6.68         1.58C         1J         9.4         62.1           0.1 - 0.2         6.6B         1.58C         1J         8.5         61.5         7.9         59.2           0.7 - 0.8         39.3B         0.63C         <1J         11.6         28.4           Depth         COLE         Gravimetric/Volumetric Water Contents         K sat         K unsat	m			Ca	Mg	К	Na Cmol (+)	Acidity )/kg					%
0.1 - 0.2       8.27A       0.195A       50.39B       18.74       0.82       0.6         0.3 - 0.4       8.42A       0.178A       40.26B       20.94       0.69       0.61         0.7 - 0.8       8.47A       0.179A       13.08B       11.25       0.28       0.38     Depth  CaCO3  Organic  C  P  P  P  N  K  Density Mg/m3  For VCS  FS  Silt Clay  Mg/m3  O-0.02  1.6B  2.37C  0-0.1  1.6B  2.37C  0-0.1  1.6B  2.04C  10.9J  0.1 - 0.2  6.6B  1.58C  1J  0.3 - 0.4  12.4B  1.35C  -1J  0.7 - 0.8  39.3B  0.63C  -1J  Depth  COLE  Gravimetric/Volumetric Water Contents  Sat.  0.05 Bar  0.1 Bar  0.5 Bar  1 Bar  5 Bar  15 Bar  mm/h		-											
Depth   CaCO3   Organic   Avail.   Total   Total   Total   Bulk   Particle   Size   Analysis   Silt   Clay	0 - 0.1	8.05A	0.065A	54.08B	19.72	1.82	0.62						
Depth   CaCO3   Organic   Avail.   Total   Total   Total   Bulk   Particle   Size   Analysis   Silt   Clay	0.1 - 0.2	8.27A	0.195A	50.39B	18.74	0.82	0.6						
Depth         CaCO3         Organic C P P P N N K Mg/m3         Avail. Total P P N N K Mg/m3         Bulk Particle Size GV CS FS Silt Clay         Analysis Silt Clay           0 - 0.02         1.6B 2.37C 0 1.6B 2.04C 10.9J 1.6	0.3 - 0.4	8.42A	0.178A	40.26B	20.94	0.69	0.61						
m         C m         P mg/kg         P mg/kg         N mg/kg         K mg/kg         Density Mg/m3         GV CS FS will Clay         Silt Clay           0 - 0.02         1.6B 2.37C         10.2 66.8           0 - 0.1         1.6B 2.04C         10.9J         9.4 62.1           0.1 - 0.2         6.6B 1.58C         1J         8.5 61.5           0.3 - 0.4         12.4B 1.35C         <1J         7.9 59.2           0.7 - 0.8         39.3B 0.63C         <1J         11.6 28.4           Depth         COLE         Gravimetric/Volumetric Water Contents         K sat K unsat           m         g/g - m3/m3         1 Bar 5 Bar 15 Bar mm/h mm/h         mm/h mm/h	0.7 - 0.8	8.47A	0.179A	13.08B	11.25	0.28	0.38						
m         C %         P mg/kg         P mg/kg         N % % %         K Density Mg/m3         GV CS FS %         Silt Clay           0 - 0.02         1.6B 2.37C         10.2 66.8           0 - 0.1         1.6B 2.04C         10.9J         9.4 62.1           0.1 - 0.2         6.6B 1.58C         1J         8.5 61.5           0.3 - 0.4         12.4B 1.35C         <1J         7.9 59.2           0.7 - 0.8         39.3B 0.63C         <1J         11.6 28.4           Depth         COLE         Gravimetric/Volumetric Water Contents         K sat K unsat           m         36.5 Bar 0.1 Bar 0.5 Bar 1 Bar 5 Bar 15 Bar mm/h mm/h         mm/h mm/h	Depth	CaCO3	Organic	Avail.	Total	Total	Total	Bulk	P	article	Size	Analysi	S
0 - 0.02	•		c	Р	Р	N	K	Density	G۷	cs			
0 - 0.1       1.6B       2.04C       10.9J       9.4       62.1         0.1 - 0.2       6.6B       1.58C       1J       8.5       61.5         0.3 - 0.4       12.4B       1.35C       <1J       7.9       59.2         0.7 - 0.8       39.3B       0.63C       <1J       11.6       28.4     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 mm/h mm/h  mm/h  mm/h  mm/h	m	%	%	mg/kg	%	%	%	Mg/m3			%		-
0 - 0.1       1.6B       2.04C       10.9J       9.4       62.1         0.1 - 0.2       6.6B       1.58C       1J       8.5       61.5         0.3 - 0.4       12.4B       1.35C       <1J													
0.1 - 0.2       6.6B       1.58C       1J       8.5       61.5         0.3 - 0.4       12.4B       1.35C       <1J	0 - 0.02	1.6B	2.37C									10.2	66.8
0.3 - 0.4       12.4B       1.35C       <1J	0 - 0.1	1.6B	2.04C	10.9J								9.4	62.1
0.7 - 0.8       39.3B       0.63C       <1J	0.1 - 0.2	6.6B	1.58C	1J								8.5	61.5
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	0.3 - 0.4	12.4B	1.35C	<1J								7.9	59.2
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	0.7 - 0.8	39.3B	0.63C	<1J								11.6	28.4
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													
m g/g - m3/m3 mm/h mm/h	Depth	COLE		Grav	vimetric/V	olumetric V	Vater Con	tents		Ks	at	K unsa	t
			Sat.	0.05 Bar				5 Bar 15 B	3ar				
0. 0.00	m				g/	/g - m3/m	3			mm	/h	mm/h	
	0 - 0.02												

<sup>0 - 0.02</sup> 0 - 0.1 0.1 - 0.2 0.3 - 0.4 0.7 - 0.8

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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 Silt (%) - Coventry and Fett pipette method