Project Name: Soil Studies in the Lower Namoi Valley

Project Code: EDGEROI Site ID: ed186 Observation ID: 1

Agency Name: CSIRO Division of Soils (QLD)

Site Information

Desc. By: K.J. Smith Locality: W.F. Buchanan, Killarney

Date Desc.: Elevation: 02/06/86 229 metres Map Ref.: Sheet No.: 8837 N 1:50000 Rainfall: No Data Northing/Long.: 6653400 AMG zone: 55 Runoff: No Data 768800 Datum: AGD66 Easting/Lat.: Drainage: No Data

<u>Geology</u>

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 DataElem. Type:Terrace flatSlope Category:LevelSlope:0 %Aspect:No Data

Surface Soil Condition (dry): Self-mulching

Erosion:

Soil Classification

Australian Soil Classification: Mapping Unit: N/A
N/A Principal Profile Form: Ug5.16
ASC Confidence: Great Soil Group: Grey clay

Confidence level not specified

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

Vegetation:

Surface Coarse Fragments:

<u>Profile</u>	<u>Morph</u>	<u>ology</u>
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A11 0 - 0.05 m Very dark greyish brown (10YR3/2-Moist); Very dark grey (10YR3/1-Dry); ; Medium heavy clay; Weak grade of structure, 20-50 mm, Subangular blocky; Moderate grade of structure, 2-5 mm, Granular; Rough-ped fabric; Fine, (0 - 5) mm crack; Moderately moist; Firm consistence; Field pH 7 (pH meter); Common, very fine (0-1mm) roots; Abrupt, Wavy change to -

A12 0.05 - 0.1 m Very dark greyish brown (10YR3/2-Moist); Very dark greyish brown (10YR3/2-Dry); ; Medium heavy clay; Strong grade of structure, 10-20 mm, Subangular blocky; Moderate grade of structure, 5-10 mm, Platy; Smooth-ped fabric; Fine, (0 - 5) mm crack; Few (<1 per 100mm2) Very fine (0.075-1mm) macropores, Moderately moist; Strong consistence; Field pH 7.5 (pH meter); Common, very fine (0-1mm) roots;

A13 0.1 - 0.25 m Dark grey (10YR4/1-Moist); Very dark grey (10YR3/1-Dry); , 10YR33, 0-2% , 0-5mm, Distinct; Light medium clay; Moderate grade of structure, 20-50 mm, Angular blocky; Smooth-ped fabric; Fine, (0 - 5) mm crack; Moderately moist; Strong consistence; Field pH 8.3 (pH meter); Common,

very fine (0-1mm) roots;

A14 0.25 - 0.55 m Very dark grey (10YR3/1-Moist); Very dark grey (10YR3/1-Dry); , 10YR33, 0-2% , 0-5mm,

Distinct; Heavy clay; Moderate grade of structure, 20-50 mm, Subangular blocky; Smooth-ped fabric; Fine, (0 - 5) mm crack; Few (<1 per 100mm2) Very fine (0.075-1mm) macropores, Moderately moist; Very strong consistence; Field pH 8.8 (pH meter); Few, very fine (0-1mm)

roots;

A15 0.55 - 1.05 m Very dark grey (10YR3/1-Moist); , 10YR42, 0-2% , 0-5mm, Distinct; , 10YR82, 0-2% , 0-5mm,

Faint; Heavy clay; Moderate 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 100mm2) Very fine (0.075-1mm) macropores, Moderately moist; Very strong consistence; Very few (0 - 2 %), Calcareous, Fine (0 - 2 mm), Soft segregations; Field pH 9 (pH meter); Common,

very fine (0-1mm) roots; Diffuse, Smooth change to -

B21 1.05 - 1.9 m Brown (7.5YR4/2-Moist); , 10YR31, 0-2% , 0-5mm, Distinct; , 10YR82, 2-10% , 0-5mm, Distinct;

Light medium clay; Weak grade of structure, 50-100 mm, Subangular blocky; Smooth-ped fabric; Fine, (0 - 5) mm crack; Few (<1 per 100mm2) Very fine (0.075-1mm) macropores, Moderately moist; Strong consistence; Few (2 - 10 %), Calcareous, Fine (0 - 2 mm), Nodules; Field pH 9 (pH

meter); Few, very fine (0-1mm) roots;

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B22 1.9 - 3.41 m Greyish brown (10YR5/2-Moist); , 10YR31, 0-2% , 0-5mm, Distinct; , 10YR82, 0-2% , 0-5mm,

Distinct; Heavy clay; Moderate grade of structure, 100-200 mm, Lenticular; Moderate grade of structure, 10-20 mm, Cast; Smooth-ped fabric; Fine, (0 - 5) mm crack; Few (<1 per 100mm2) Very fine (0.075-1mm) macropores, Moderately moist; Very firm consistence; Very few (0 - 2%), Calcareous, Fine (0 - 2 mm), Nodules; Field pH 9 (pH meter); Few, very fine (0-1mm) roots;

Morphological Notes

A11 Ground surface seems trampled or weakly poached or slaked. 1cm polyhedral peds

from 250 down. Subsoil is a dull yellowish brown.

Observation Notes

Parent Rock: alluvial sediment, mixed texture, with lime, parna on third fan

Site Notes

Spring Creek is 300m E in a 1m deep channel which shows 5cm brown alluvial clay over prior black cracking clay.

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Laboratory Test Results:

Depth	рН	1:5 EC		changeable Cations		Exchangeat		CEC		ECEC	ES	SP.
m		dS/m	Ca	Mg	N.	Cmol (Acidity +)/kg				%	
0 - 0.02	7.1A	0.11A	18.33B	13.99	2.66	0.23						
0 - 0.05	7.16A	0.183A	20.37B	15.65	2.95	0.42						
0.05 - 0.1	7.38A	0.129A	22.04B	15.64	1.71	0.78						
0.1 - 0.2	7.96A	0.13A	22.66B	17.58	0.91	1.15						
0.3 - 0.4	8.77A	0.135A	21.08B	18.85	0.81000 01	2.44						
0.7 - 0.8	9.04A	0.26A	19.66B	20.76	0.85	4.39						
1.2 - 1.3	9.07A	0.236A	17.47B	20.53	0.92	4.09						
2.5 - 2.6	8.97A	0.205A	11.23B	18.15	0.64	6.19						
Depth	CaCO3	Organic C	Avail. P	Tota P	ıl Total N	Tota K		P: GV	article CS	Size FS	Analysis	la.,
m	%	%	mg/kg	Р %	N %	%	Density Mg/m3	GV	CS	гэ %	Silt C	iay
	,,	,,		,,,	,,	,,	9,			,,		
0 - 0.02	<0.1B	1.89C									23.5	48.1
0 - 0.05	<0.1B	1.9C	34.8J								22.8	49.3
0.05 - 0.1	<0.1B	1.28C	10.3J								23.2	50.3
0.1 - 0.2	<0.1B	0.91C	4.6J								22.4	50.7
0.3 - 0.4	0.2B	0.91C	2.6J								23.3	51.4
0.7 - 0.8	0.3B	0.77C	15.8J								24.2	53.8
1.2 - 1.3	0.5B	0.39C	20.4J								22.4	49.7
2.5 - 2.6	0.3B	0.19C	6.4J								18.9	49.8
Depth	COLE				/olumetric V				K s	at	K unsat	
m		Sat.	0.05 Bar		0.5 Bar g/g - m3/m	1 Bar 3	5 Bar 1	5 Bar	mm	/h	mm/h	

^{0 - 0.02} 0 - 0.05 0.05 - 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 Silt (%) - Coventry and Fett pipette method