Project Name: Soil Studies in the Lower Namoi Valley

Project Code: EDGEROI Site ID: na020 Observation ID: 1

Agency Name: **CSIRO Division of Soils (QLD)**

Site Information

Desc. By: W.T. Ward Locality: University of Sydney, I.A.Watson Research Farm

Date Desc.: Elevation: 25/05/88 221 metres Map Ref.: Sheet No.: 8837 S 1:50000 Rainfall: No Data Northing/Long.: 6647080 AMG zone: 55 Runoff: No Data 769450 Datum: AGD66 No Data Easting/Lat.: Drainage:

Geology

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

Land Form

Rel/Slope Class: No Data Pattern Type: No Data Morph. Type: No Data Relief: No Data

Very gently sloped Elem. Type: Slope Category: Hillslope Aspect: 180 degrees Slope: 1 %

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

Erosion:

Soil Classification

Australian Soil Classification: N/A Mapping Unit: Principal Profile Form: Ua5.16 ASC Confidence: **Great Soil Group:** Grey clay

Confidence level not specified

Site Disturbance: Cultivation. Rainfed

Vegetation:

Surface Coarse Fragments:

Profile Morphology

A11p 0 - 0.1 m Very dark greyish brown (10YR3/2-Moist); Dark grey (10YR4/1-Dry); ; Light clay; Strong grade of structure, 2-5 mm, Granular; Smooth-ped fabric; Fine, (0 - 5) mm crack; Few (<1 per 100mm2) Very fine (0.075-1mm) macropores, Moderately moist; Firm consistence; Field pH 7 (pH meter); Sharp, Smooth change to -

Dark brown (7.5YR3/2-Moist); , 7.5YR62, 0-2% , 5-15mm, Distinct; Light clay; Massive grade of A₁₂x 0.1 - 0.25 m structure; Earthy fabric; Fine, (0 - 5) mm crack; Moderately moist; Firm consistence; 0-2%, coarse gravelly, 20-60mm, subrounded, Quartz, coarse fragments; Field pH 6.6 (pH meter);

A13x 0.25 - 0.55 m Dark brown (7.5YR3/2-Moist); ; Light clay; Weak grade of structure, 50-100 mm, Lenticular; Massive grade of structure; Smooth-ped fabric; Moderately moist; Firm consistence; Field pH 8

(pH meter);

Dark brown (7.5YR3/2-Moist); , 7.5YR62, 0-2% , 0-5mm, Distinct; Medium clay; Weak grade of A14 0.55 - 1 mstructure, 50-100 mm, Lenticular; Massive grade of structure; Smooth-ped fabric; Moderately

moist; Firm consistence; Field pH 8.6 (pH meter); Diffuse, Smooth change to -

Grey (10YR5/1-Moist); , 7.5YR32, 0-2% , 5-15mm, Distinct; Light clay; Massive grade of 2B2 1 - 1.9 m structure; Weak grade of structure, 20-50 mm, Angular blocky; Earthy fabric; Moderately moist;

Firm consistence; Very few (0 - 2 %), Calcareous, Medium (2 -6 mm), Nodules; Field pH 8.8 (pH

meter):

B2 Greyish brown (10YR5/2-Moist); , 7.5YR32, 0-2% , 0-5mm, Distinct; Light clay; Massive grade 1.9 - 2.89 m

of structure; Weak grade of structure, 20-50 mm, Angular blocky; Earthy fabric; Moderately moist; Firm consistence; 0-2%, medium gravelly, 6-20mm, angular, Quartz, coarse fragments;

Few (2 - 10 %), Calcareous, Coarse (6 - 20 mm), Nodules; Field pH 8.8 (pH meter);

Morphological Notes

0-10cm structure formed by cultivation. The top metre is very moist through irrigation and A11p

difficult to describe well. The dense character above 50cm indicates structural collapse

under cultivation. Small stones occur in the profile down to

150cm. Patches of yellowish brown (10YR5/4) sand occur below 250cm, suggesting A₁₂x

transition to parent sediment. Fragments of ironstone occur with angular quartz below

250cm. Field textures and field pH estimated from lab results.

Observation Notes

Parent Rock: residual, mixed texture, with lime, Rolling Downs Group

Site Notes

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Slope 1. Tilth suggests that the soil was tilled wet to give big lumps plus fine material. No visible cracks.

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Laboratory Test Results:

Depth	рН	1:5 EC		hangeable			Exchangeable	CEC	E	ECEC	ESP
m		dS/m	Ca	Mg	К	Na Cmol (+	Acidity)/kg				%
0 - 0.02	7.71A	0.11A	12.21B	10.11	1.38	0.21					
0 - 0.1	7.03A	0.081A	14.11B	8.48	0.73	< 0.01					
0.1 - 0.2	6.62A	0.045A	11.66B	6.62	0.69	< 0.01					
0.3 - 0.4	8.1A	0.072A	16.65B	12.9	0.27	0.5					
0.7 - 0.8	8.86A	0.142A	17.35B	21.34	0.29	3.28					
1.2 - 1.3	9.33A	0.241A	7.73B	14.23	0.34	3.84					
2.5 - 2.6	9.25A	0.323A	5.45B	13.82	0.31	3.83					
Depth	CaCO3	Organic	Avail.	Total	Total	Total	Bulk	Par	ticle	Size	Analysis
•		Ċ	Р	Р	N	K	Density	G۷	cs	FS	Silt Clay
m	%	%	mg/kg	%	%	%	Mg/m3			%	
0 000	0.45	4.040									440.040
0 - 0.02	<0.1B	_	25.01								14.6 34.9
0 - 0.1	0.2B	1.05C	35.8J								16.6 38.2
0.1 - 0.2 0.3 - 0.4	<0.1B <0.1B	_	35.3J								16.4 35 12.3 44.5
0.3 - 0.4	0.5B	0.79C 0.58C	8.5J 3.4J								12.5 44.5
1.2 - 1.3	4.7B	0.56C 0.13C	3.4J 1.9J								13.8 37.1
2.5 - 2.6	8.1B	0.13C 0.41C	3.5J								10.2 34.2
2.5 - 2.0	0.10	0.410	3.33								10.2 34.2
5	2015		•						14		16
Depth	COLE	Sat.		/imetric/Vo 0.1 Bar	olumetric \ 0.5 Bar	Nater Con 1 Bar	tents 5 Bar 15 I	Bar	K sa	t	K unsat
m		Jai.	U.UJ Dai		g - m3/m		3 Bai 13 i	Dai	mm/l	n	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_C Clay (%) - Coventry and Fett pipette method Silt (%) - Coventry and Fett pipette method