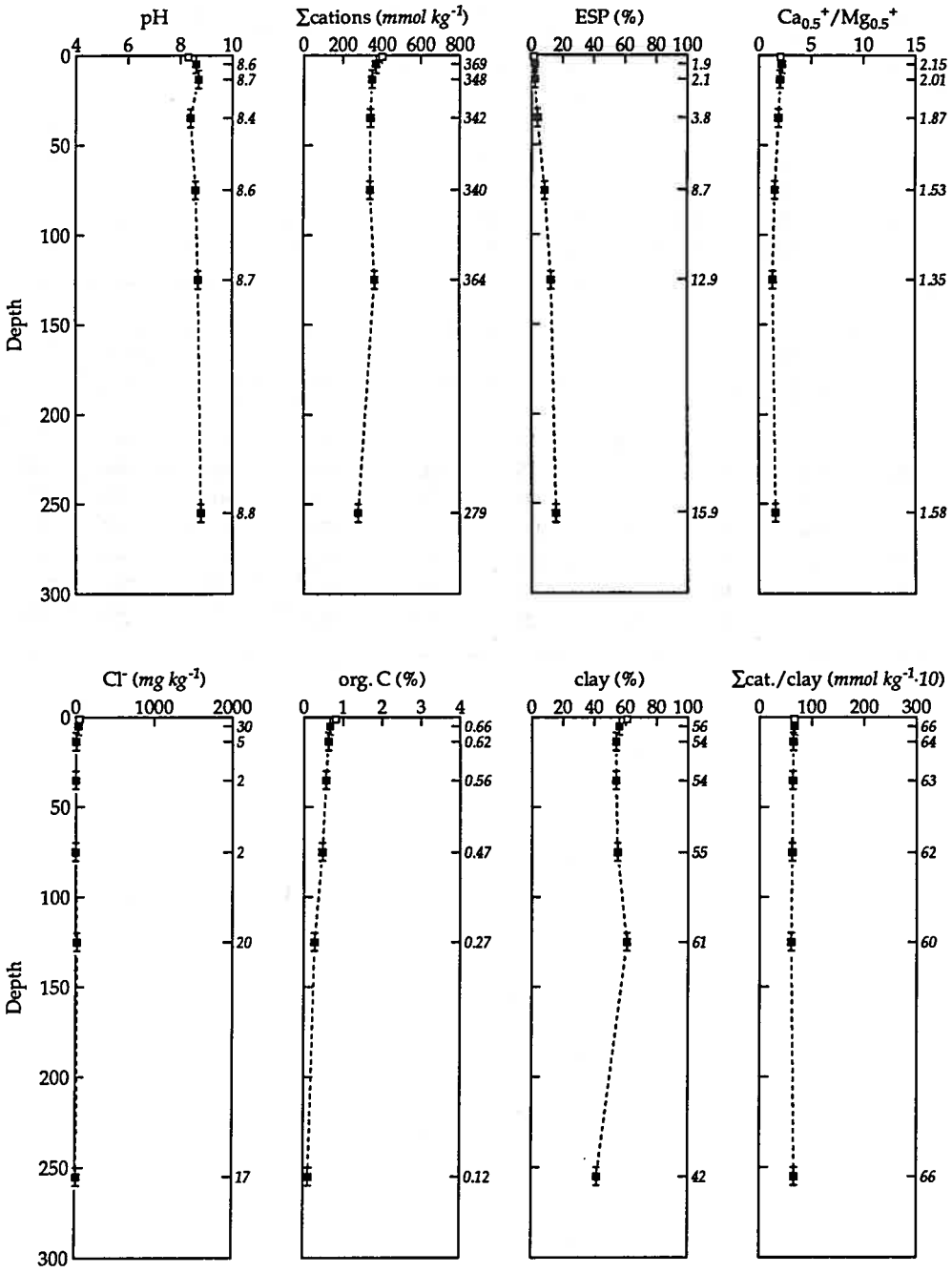
## Soil chemistry profiles



# Namoi Valley soil study: Edgeroi Sheet

**Site** ed163

**Site location**

Grid reference: 753800mE 6656200mN
Elevation: 201m
Farmer: Auscott Ltd
Farm name: Auscott
Site described by G. M. Roberts on 24 April, 1985
The site is located at a grid point

**Site description**

Slope: 0°
Topography: flat
Landform: middle terrace
Surface dry when sampled
Fine self-mulching surface, cultivated
Use: irrigated cotton
Visible cracks: width 2mm

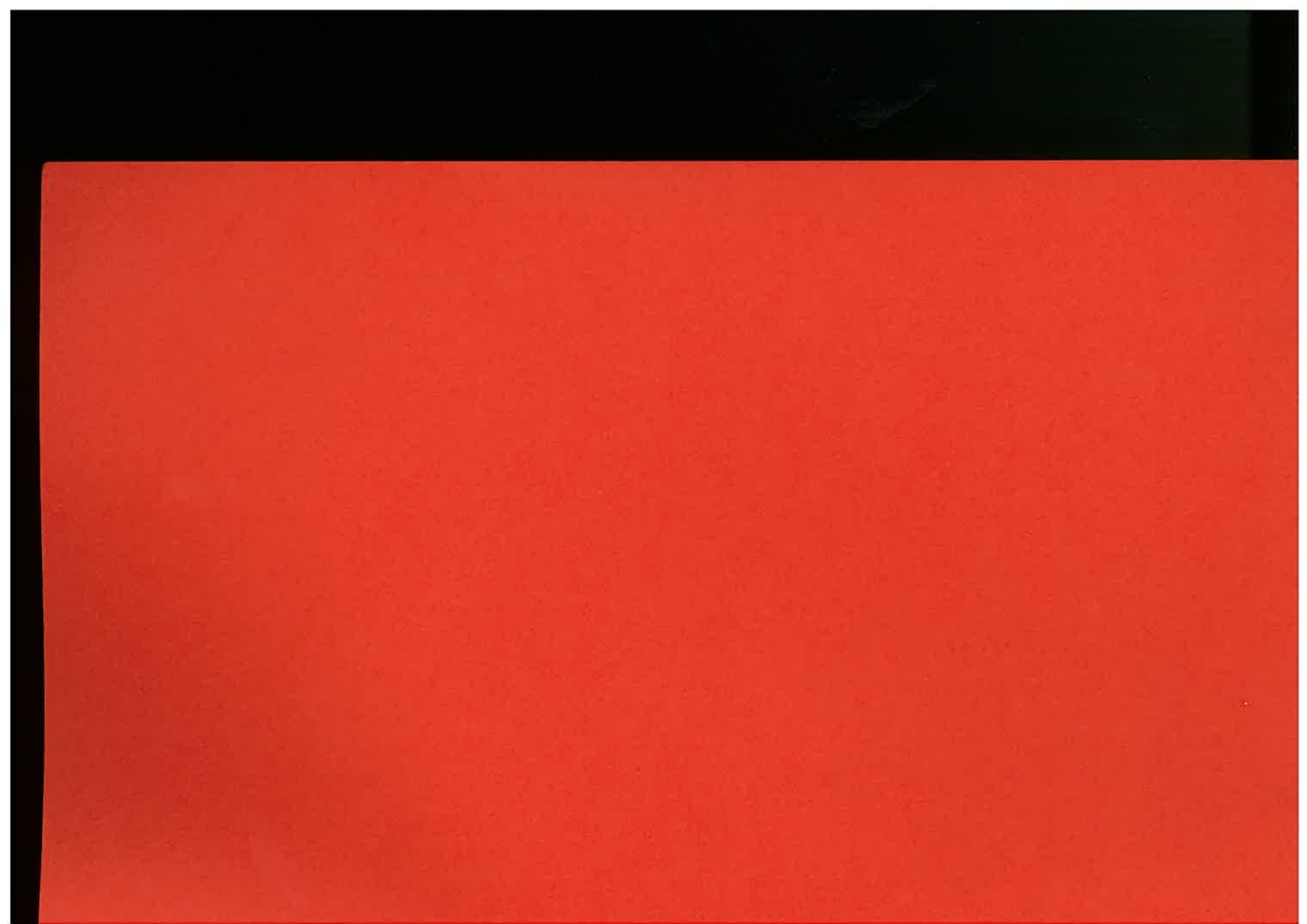
**Site vegetation**

The site was under cotton.

**Profile description**

Soil described by D. McGarry on 10 May, 1985. Drilled depth 285cm

| Horizon | (cm) | (Sample; depth) |
|---|---|---|
| $A_1p$ | 0–6 | (1; 0–6) Very dark greyish brown (10YR3/2) light medium clay; weak 50–100mm subangular blocky structure; very firm; rough fracture; rough–ped fabric; <2% 5–10mm cracks; <2% 0.075–1mm pores; pH 8.2; arbitrary boundary, |
| $A_1$ | 6–165 | (2; 10–20) Very dark greyish brown (10YR3/2) medium heavy clay; weak >100mm subangular blocky structure; very firm; rough fracture; rough–ped fabric; <2% <5mm cracks; <2% 0.075–1mm pores; pH 8.2; |
| $A_1$ | | (3; 30–40) Very dark greyish brown (10YR3/2) medium heavy clay; weak >100mm subangular blocky structure; moderately firm; rough fracture; rough–ped fabric; <2% <5mm cracks; <2% 0.075–1mm pores; pH 9.0; |
| $A_1$ | | (4; 70–80) Very dark greyish brown (10YR3/2) medium heavy clay; weak >100mm subangular blocky structure; moderately firm; nodular fracture; rough–ped fabric; <2% <5mm cracks; <2% 0.075–1mm pores; pH 9.2; |
| $A_1$ | | (5; 120–130) Very dark greyish brown (10YR3/2) medium heavy clay; weak >100mm subangular blocky structure; moderately firm; rough fracture; rough–ped fabric; <2% <5mm cracks; <2% 0.075–1mm pores; pH 9.2; genetic boundary, diffuse, tongued change to |



# SOIL STUDIES IN THE LOWER NAMOI VALLEY : METHODS AND DATA
# 1 : The Edgeroi Data Set

D. McGarry, W.T. Ward and A.B. McBratney

The complete Edgeroi Data Set is contained in Volumes 1 and 2.

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Bibliography.
ISBN 0 643 04974 6.

1. Clay soils – New South Wales – Edgeroi Region.

2. Soil surveys – New South Wales – Edgeroi Region.
I. Ward, W.T. II. McBratney, A.B. (Alexander Broadfoot). III. CSIRO. Division of Soils. IV. Title. V. Title : The Edgeroi data set.

631.479444

# Namoi Valley soil study: Edgeroi Sheet

**Site** ed104

**Site location**

Grid reference: 784200mE 6664750mN
Farmer: Bill Guest
Site described by W. T. Ward on 14 July, 1985
The site is located at a grid point

Elevation: 387m
Farm name: Glen Cairn

**Site description**

Slope: 3° Slope direction: 350°
Landform: pediment
Surface dry when sampled
Firm surface, virgin state
Use: native pasture, sheep pasture

Topography: easy sloping

**Site comments**

Landform ? norm. Slope steepens to 5 degrees uphill and ferruginous sandstone flags crop out. Core enters sandstone in second metre.

**Site vegetation**

The site included bare ground.

The following species were noted:

*Eucalyptus crebra, Acacia salicina, Acacia deanei, Acacia concurrens, Callitris columellaris, ?Clareodendron, Aristida ramosa, Cheilanthes tenuifolia ssp. tenuifolia.*

**Profile description**

Soil described by G. M. Roberts on 9 October, 1985. Drilled depth 170cm

| Horizon | (cm) | (Sample; depth) |
|---|---|---|
| $A_1$ | 0–22 | (1; 0–10) Dark reddish brown (5YR2/2) loamy fine sand; weak 5–10mm granular structure, with apedal massive; very weak; nodular fracture; earthy and sandy fabric; <2% <5mm cracks; 5–10% 0.075–1mm pores; common fine roots; <2% 2–6mm rounded quartz fragments; pH 5.5; |
| $A_1$ | | (2; 10–20) Dark reddish brown (5YR3/2) loamy sand; 2–10% prominent medium black (10YR2/1) charcoal fragments; weak 5–10mm granular structure, with apedal massive; very weak; nodular fracture; earthy and sandy fabric; <2% <5mm cracks; 5–10% 0.075–1mm pores; common fine roots; <2% 2–6mm rounded quartz fragments; pH 5.5; genetic boundary, gradual, smooth change to |

| | | |
|---|---|---|
| $A_2$ | 22–40 | (3; 30–40) Dark brown (7.5YR4/2) loamy sand; 2–10% prominent medium black (10YR2/1) charcoal fragments; apedal single–grained structure; very weak; nodular fracture; earthy and sandy fabric; <2% <5mm cracks; 5–10% 0.075–1mm pores; few very fine roots; <2% 2–6mm rounded quartz fragments; pH 5.5; genetic boundary, gradual, smooth change to |
| $A_2c$ | 40–53 | (4; 40–53) Brown (10YR5/3) sandy loam; apedal single–grained structure; smooth fracture; sandy and earthy fabric; 2–10% fine ferruginous soft segregations; <2% <5mm cracks; 5–10% 0.075–1mm pores; few very fine roots; <2% 20–60mm subangular tabular rock fragments; pH 5.5; genetic boundary, clear, smooth change to |
| $B_2t$ | 53–116 | (5; 70–80) Greyish brown (10YR5/2) light medium clay; 10–20% prominent coarse strong brown (7.5YR4/6) mottles; 10–20% prominent coarse pinkish white (7.5YR8/2) inherited stains; strong 20–50mm angular blocky structure; moderately strong; smooth–ped fabric; 10–20% coarse ferruginous veins; <2% <5mm cracks; <2% 0.075–1mm pores; few very fine roots; <2% 2–6mm rounded quartz fragments; pH 6.4; genetic boundary, sharp, smooth change to |
| R | 116+ | (6; 120–130) Brown (10YR4/3) coarse sand; 10–20% prominent very coarse white (10YR8/1) stains of unknown origin; apedal massive; sandy fabric; 5–10% 0.075–1mm pores; pH 6.3; |

Parent rock: residual, sandstone

### Comments

Unknown gravel lithology; strong coarse columnar structure at 53cm depth; pH 6.2 at top of B2; tensile strength not determined. Uncertainty about horizon distinctness, shape, origin – appear all to be displaced down one.

### Soil classification

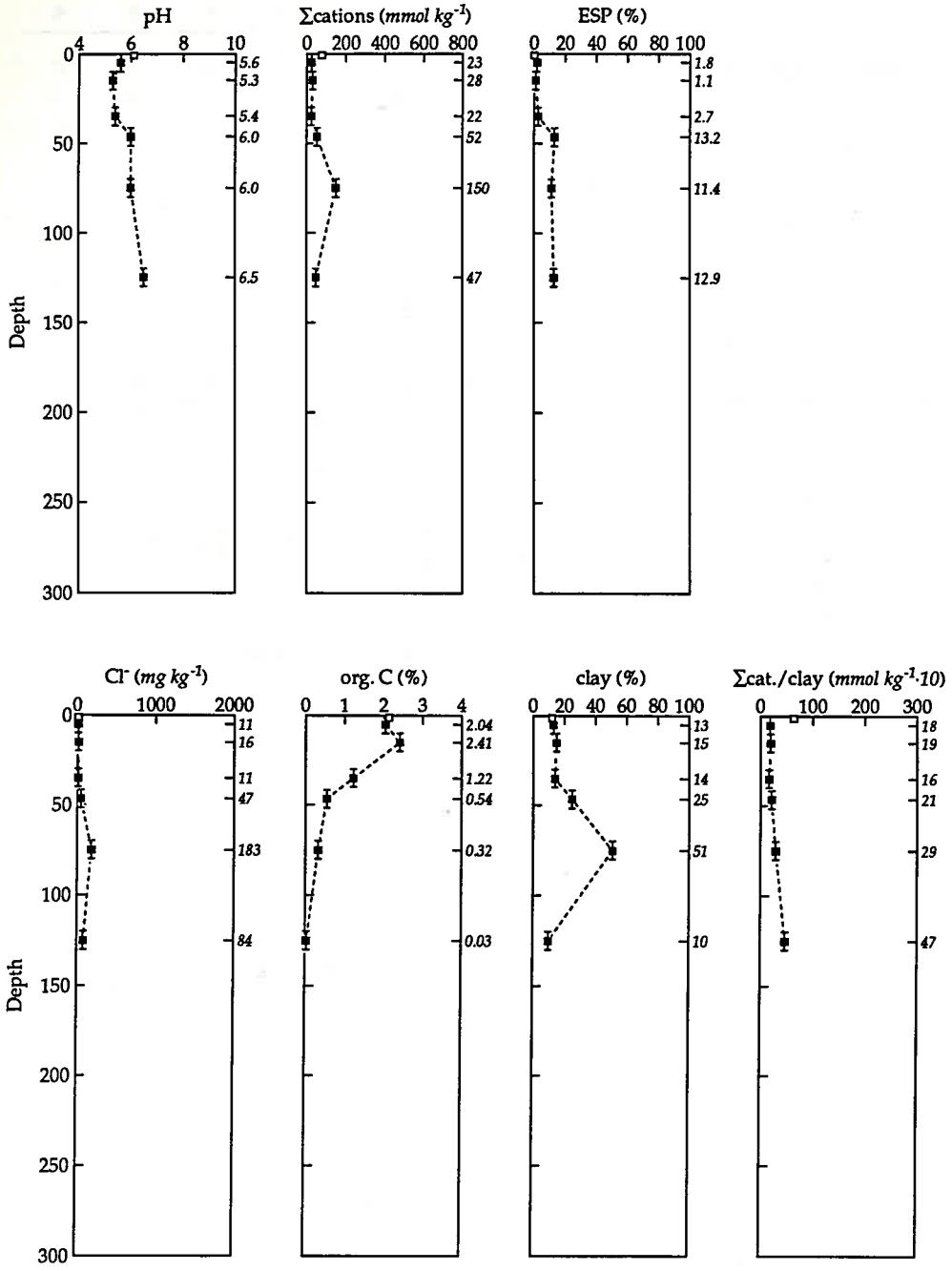
Principal profile form: Dy5.41
Great soil group: Soloths

## Soil chemical and particle-size analyses

| Sample | Horizon | Depth *cm* | pH | E. C. *mS m$^{-1}$* | org. C % | $CaCO_3$ % | sand % | silt % | clay % |
|---|---|---|---|---|---|---|---|---|---|
| 0 | $A_1$1 | 0–2 | 6.1 | 1.6 | 2.13 | <0.1 | 80 | 4 | 12 |
| 1 | $A_1$1 | 0–10 | 5.6 | 1.8 | 2.04 | <0.1 | 80 | 4 | 13 |
| 2 | $A_1$2 | 10–20 | 5.3 | 2.2 | 2.41 | <0.1 | 76 | 5 | 15 |
| 3 | $A_2$ | 30–40 | 5.4 | 1.9 | 1.22 | <0.1 | 80 | 4 | 14 |
| 4 | $A_2$c | 40–53 | 6.0 | 5.5 | 0.54 | <0.1 | 69 | 5 | 25 |
| 5 | $B_2$t | 70–80 | 6.0 | 16.3 | 0.32 | <0.1 | 44 | 5 | 51 |
| 6 | R | 120–130 | 6.5 | 6.8 | 0.03 | <0.1 | 87 | 3 | 10 |

| $Cl^-$ *mg kg$^{-1}$* | $NO_3^-$–N *mg kg$^{-1}$* | P *mg kg$^{-1}$* | $Ca_{0.5}^+$ *mmol kg$^{-1}$* | $Mg_{0.5}^+$ *mmol kg$^{-1}$* | $K^+$ *mmol kg$^{-1}$* | $Na^+$ *mmol kg$^{-1}$* | $Al_{0.33}^+$ *mmol kg$^{-1}$* | Σcations *mmol kg$^{-1}$* | ESP % |
|---|---|---|---|---|---|---|---|---|---|
| 10 | – | – | 62 | 5 | 6.9 | <0.1 | <1 | 75 | <0.1 |
| 11 | 0.9 | 9 | 3 | 2 | 5.3 | 0.4 | 12 | 23 | 1.8 |
| 16 | <0.1 | 3 | 3 | 3 | 4.4 | 0.3 | 17 | 28 | 1.1 |
| 11 | <0.1 | 3 | <1 | 5 | 3.6 | 0.6 | 13 | 22 | 2.7 |
| 47 | <0.1 | 2 | <1 | 35 | 5.8 | 6.9 | 4 | 52 | 13.2 |
| 183 | <0.1 | <1 | 2 | 106 | 23.7 | 17.1 | 1 | 150 | 11.4 |
| 84 | <0.1 | <1 | 2 | 32 | 7.1 | 6.1 | <1 | 47 | 12.9 |

## Soil chemistry profiles



# Namoi Valley soil study: Edgeroi Sheet

**Site** ed105

**Site location**

Grid reference: 786850mE 6664700mN
Farmer: Bill Guest
Site described by W. T. Ward on 15 July, 1985
The site is located at a grid point

Elevation: 434m
Farm name: Glen Cairn

**Site description**

Slope: 2° Slope direction: 180°
Landform: upper slope
Surface moist when sampled
Firm surface, virgin state
Use: native pasture, native forest, cattle pasture

Topography: easy undulating

**Site comments**

Site is being cleared of native forest. About 60cm of sand on reddish grading to yellowish subsoil on sandstone encountered in second metre. This sandstone is below structural escarpment of basalt. The col to north is probably veneered with basalt debris, but the site here is sandstone, with incised drainageways exporting basaltic sediment to plains. Ground rises west to escarpment, conglomerate, with gravel weathered out, no basalt in conglomerate or on crest.

**Site vegetation**

The following species were noted:

*Elaeodendron australe, Geijera parviflora, Eucalyptus crebra, Acacia deanei, Callitris columellaris, ?Clareodendron, Aristida, Aristida ramosa, Asteraceae, Cheilanthes tenuifolia ssp. tenuifolia.*

These specimens were observed but not identified:

106, 115.

**Profile description**

Soil described by D. McGarry on 10 October, 1985. Drilled depth 263cm

| Horizon | (cm) | (Sample; depth) |
|---|---|---|
| $A_1$ | 0–25 | (1; 0–10) Very dark grey (10YR3/1) loamy sand; apedal massive; very weak; smooth fracture; earthy and sandy fabric; <2% <5mm cracks; 2–5% 0.075–1mm pores; common fine roots; pH 6.0; |

| | | |
|---|---|---|
| $A_1$ | | (2; 10–20) Very dark grey (10YR3/1) loamy sand; apedal massive; very weak; smooth fracture; earthy and sandy fabric; <2% <5mm cracks; 2–5% 0.075–1mm pores; common fine roots; pH 6.0; genetic boundary, gradual, wavy change to |
| $A_2$ | 25–40 | (3; 30–40) Strong brown (7.5YR4/6) loamy sand; 2–10% prominent medium very dark grey (10YR3/1) patches of soil, filling cracks; apedal massive; very weak; smooth fracture; earthy and sandy fabric; <2% <5mm cracks; 2–5% 0.075–1mm pores; common fine roots; 2–10% 6–20mm rounded quartz fragments; pH 5.5; genetic boundary, clear, smooth change to |
| $B_2$ | 40–60 | (4; 45–55) Yellowish red (5YR5/6) sandy clay; 2–10% distinct medium very dark grey (10YR3/1) patches of soil, filling cracks; weak 10–20mm subangular blocky structure; moderately weak; earthy and sandy fabric; <2% <5mm cracks; 5–10% 0.075–1mm pores; common fine roots; <2% 2–6mm rounded quartz fragments; pH 5.5; genetic boundary, gradual, smooth change to |
| $B_2$ | 60–95 | (5; 70–80) Brownish yellow (10YR6/6) medium heavy clay; 10–20% prominent coarse red (2.5YR4/6) mottles; 2–10% prominent medium pinkish grey (7.5YR6/2) organic stains; strong 50–100mm prismatic structure, breaking to moderate 5–10mm angular blocky structure; very firm; earthy and smooth-ped fabric; 10–20% coarse ferruginous soft segregations; 2–5% 5–10mm cracks; <2% 0.075–1mm pores; few fine roots; <2% 2–6mm rounded quartz fragments; pH 5.5; genetic boundary, sharp, wavy change to |
| $B_2$ | 95–155 | (6; 120–130) Pale brown (10YR6/3) clayey coarse sand; 10–20% prominent coarse red (2.5YR4/6) mottles; 2–10% prominent medium pinkish grey (7.5YR6/2) organic stains; moderate 10–20mm angular blocky structure, with apedal >100mm massive; moderately strong; earthy and smooth-ped fabric; 2–10% coarse ferruginous soft segregations; <2% 5–10mm cracks; 5–10% 0.075–1mm pores; few medium roots; 2–10% 2–6mm rounded quartz fragments; pH 6.2; genetic boundary, sharp, wavy change to |
| R | 155+ | (7; 250–260) Light grey (10YR7/2) coarse sand; 10–20% distinct coarse strong brown (7.5YR5/6) inherited stains; apedal massive; moderately strong; earthy fabric; 5–10% 0.075–1mm pores; pH 8.5; |

Parent rock: residual, sandstone

### Comments

Large, 25mm waterworn quartz gravels adjacent to break between B22 and B23.

### Soil classification

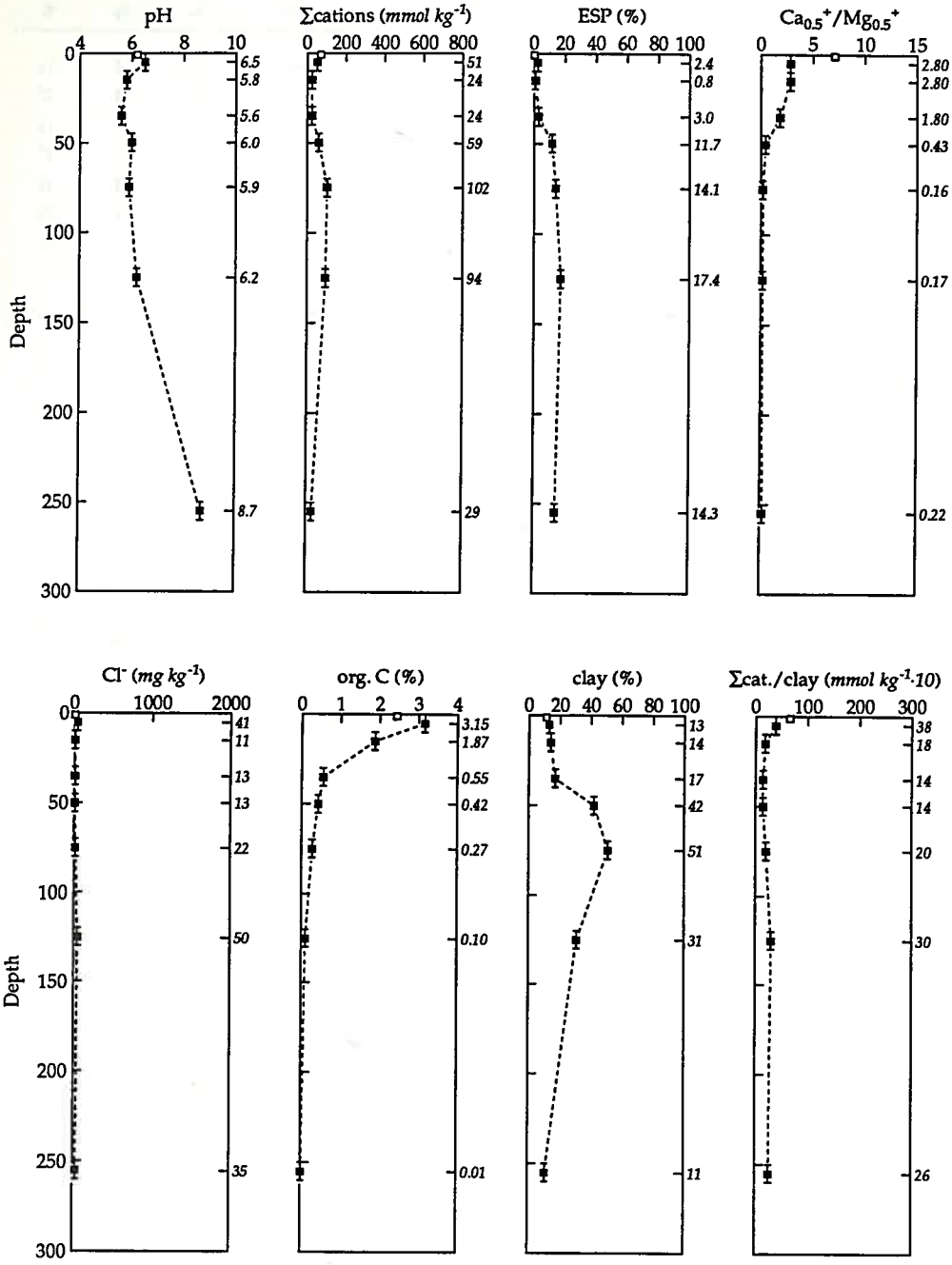
Principal profile form: Dr4.22
Great soil group: Soloths

## Soil chemical and particle-size analyses

| Sample | Horizon | Depth *cm* | pH | E.C. *mS m$^{-1}$* | org. C % | $CaCO_3$ % | sand % | silt % | clay % |
|---|---|---|---|---|---|---|---|---|---|
| 0 | $A_1$1 | 0–2 | 6.2 | 3.0 | 2.43 | <0.1 | 81 | 4 | 11 |
| 1 | $A_1$1 | 0–10 | 6.5 | 7.0 | 3.15 | <0.1 | 78 | 4 | 13 |
| 2 | $A_1$2 | 10–20 | 5.8 | 3.6 | 1.87 | <0.1 | 80 | 4 | 14 |
| 3 | $A_2$ | 30–40 | 5.6 | 2.4 | 0.55 | <0.1 | 78 | 4 | 17 |
| 4 | $B_2$1 | 45–55 | 6.0 | 3.2 | 0.42 | <0.1 | 54 | 4 | 42 |
| 5 | $B_2$2 | 70–80 | 5.9 | 3.9 | 0.27 | <0.1 | 44 | 4 | 51 |
| 6 | $B_2$3 | 120–130 | 6.2 | 6.0 | 0.10 | <0.1 | 63 | 5 | 31 |
| 7 | R | 250–260 | 8.7 | 4.9 | 0.01 | <0.1 | 84 | 5 | 11 |

| $Cl^-$ *mg kg$^{-1}$* | $NO_3^-$–N *mg kg$^{-1}$* | P *mg kg$^{-1}$* | $Ca_{0.5}^+$ *mmol kg$^{-1}$* | $Mg_{0.5}^+$ *mmol kg$^{-1}$* | $K^+$ *mmol kg$^{-1}$* | $Na^+$ *mmol kg$^{-1}$* | $Al_{0.33}^+$ *mmol kg$^{-1}$* | Σcations *mmol kg$^{-1}$* | ESP % |
|---|---|---|---|---|---|---|---|---|---|
| 6 | – | – | 57 | 8 | 3.3 | <0.1 | 1 | 69 | <0.1 |
| 41 | 2.1 | 5 | 36 | 13 | <0.1 | 1.2 | <1 | 51 | 2.4 |
| 11 | <0.1 | 2 | 17 | 6 | <0.1 | 0.2 | 1 | 24 | 0.8 |
| 13 | <0.1 | 1 | 12 | 6 | <0.1 | 0.7 | 5 | 24 | 3.0 |
| 13 | <0.1 | 2 | 11 | 26 | <0.1 | 6.9 | 14 | 59 | 11.7 |
| 22 | 0.1 | 6 | 11 | 68 | <0.1 | 14.4 | 8 | 102 | 14.1 |
| 50 | 0.1 | 1 | 11 | 66 | <0.1 | 16.3 | 1 | 94 | 17.4 |
| 35 | 0.1 | 1 | 5 | 21 | <0.1 | 4.2 | <1 | 29 | 14.3 |

## Soil chemistry profiles



# Namoi Valley soil study: Edgeroi Sheet

**Site** ed106

**Site location**

Grid reference: 741600mE 6663600mN
Farmer: M.A. & L.A. Fromm
Site described by G. M. Roberts on 26 June, 1985
The site is located at a grid point

Elevation: 193m
Farm name: Longview

**Site description**

Slope: 0°
Landform: middle terrace
Surface dry when sampled
Fine self-mulching surface, cultivated
Use: wheat, irrigated cotton, native pasture

Topography: flat

**Site comments**

Light reddish brown surface.

**Site vegetation**

The site was under wheat.

**Profile description**

Soil described by W. T. Ward on 11 December, 1986. Drilled depth 269cm

| Horizon | (cm) | (Sample; depth) |
|---|---|---|
| $A_1p$ | 0–10 | (1; 0–10) Dark brown (10YR3/3, 10YR4/2 dry) heavy clay; moderate 5–10mm granular structure, with moderate 10–20mm angular blocky structure; moderately strong; smooth-ped fabric; <2% <5mm cracks; <2% 0.075–1mm pores; few very fine roots; pH 8.0; plough sole, abrupt, smooth change to |
| $A_1$ | 10–75 | (2; 10–20) Dark brown (7.5YR3/2) heavy clay; moderate 10–20mm angular blocky structure; moderately strong; smooth-ped fabric; <2% distinct fine light brown (7.5YR6/4) calcareous nodules; <2% <5mm cracks; <2% 0.075–1mm pores; few very fine roots; pH 8.5; |
| $A_1$ | | (3; 30–40) Dark brown (7.5YR3/2) medium clay; moderate 50–100mm angular blocky structure; very firm; smooth-ped fabric; <2% distinct fine light brown (7.5YR6/4) calcareous nodules; <2% <5mm cracks; <2% 0.075–1mm pores; few very fine roots; pH 9.0; |
| $B_2v$ | | (4; 70–80) Dark reddish brown (5YR3/2) light medium clay; moderate 20–50mm prismatic structure; moderately strong; smooth-ped fabric; <2% distinct fine light |

| | | |
|---|---|---|
| | | brown (7.5YR6/4) calcareous nodules; <2% <5mm cracks; <2% 0.075–1mm pores; few very fine roots; pH 9.0; genetic boundary, diffuse, smooth change to |
| $B_2$ | 75+ | (5; 120–130) Dark reddish brown (5YR3/2) light medium clay; weak 20–50mm prismatic structure; very firm; nodular fracture; smooth–ped fabric; <2% distinct fine light brown (7.5YR6/4) calcareous nodules; <2% <5mm cracks; <2% 0.075–1mm pores; pH 9.0; |
| $B_2$ | | (6; 250–260) Dark reddish grey (5YR4/2) light medium clay; <2% faint fine reddish brown (5YR4/3) flecks produced by faunal mixing; weak 50–100mm prismatic structure; very firm; nodular fracture; polished ped and smooth–ped fabric; <2% distinct fine light brown (7.5YR6/4) calcareous nodules; <2% <5mm cracks; <2% 0.075–1mm pores; few very fine roots; pH 8.5; |

Parent rock: alluvial sediment, clay

### Comments

Structure at 30–40cm is tending towards prismatic. Soil from red terrace Q. A thin discontinuous band of coarse fragments at 145cm ?marks a change in deposition? There is possibly another subtle break around 230cm, going by darker appearance. Ug5.16 is closest key.

### Soil classification

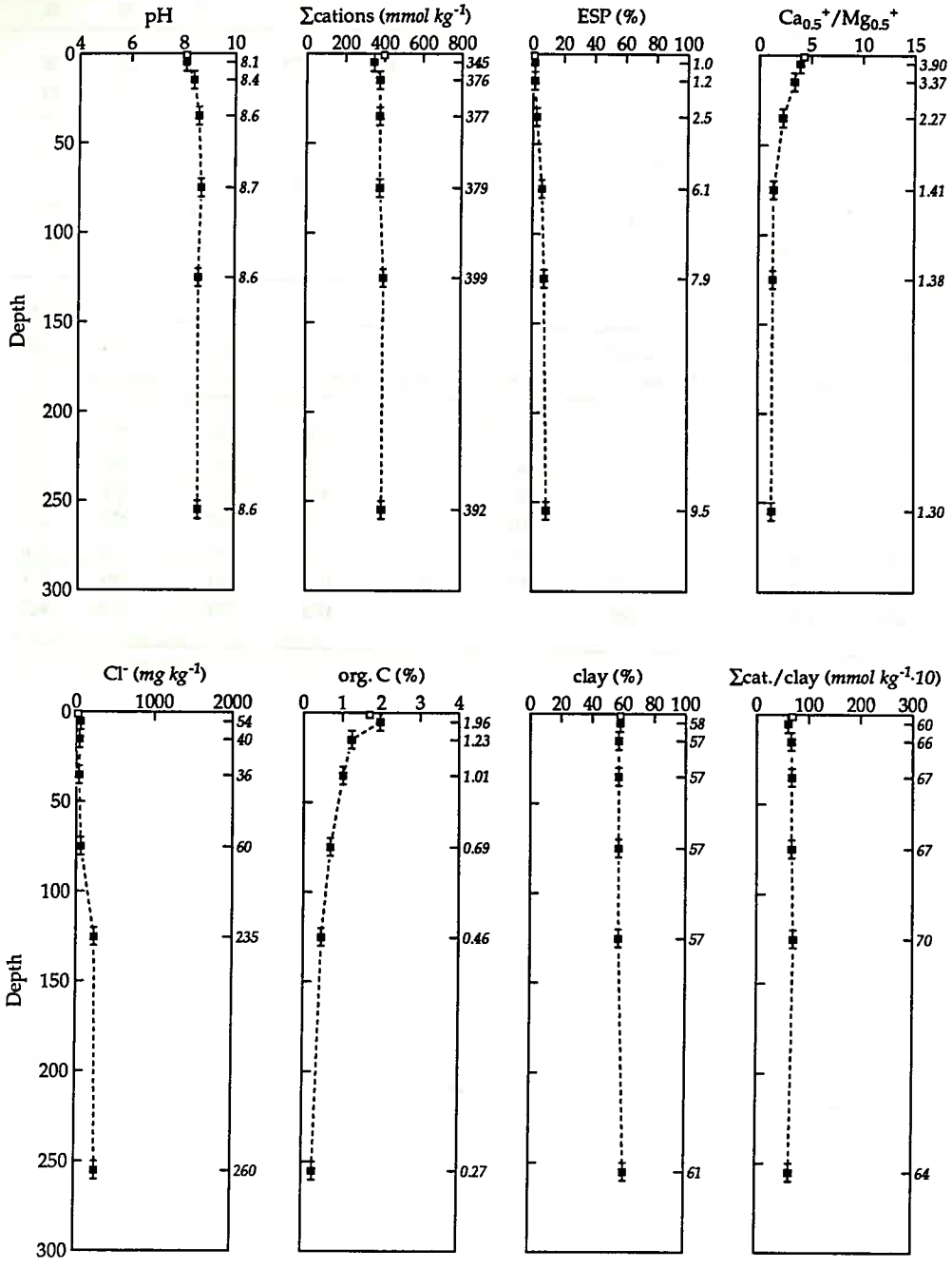
Principal profile form: Ug5.16
Great soil group: Brown clays
Soil taxonomy unit: Pellusterts

## Soil chemical and particle-size analyses

| Sample | Horizon | Depth *cm* | pH | E.C. *mS m$^{-1}$* | org. C % | $CaCO_3$ % | sand % | silt % | clay % |
|---|---|---|---|---|---|---|---|---|---|
| 0 | $A_1P$ | 0–2 | 8.1 | 19.2 | 1.69 | 0.3 | 15 | 24 | 58 |
| 1 | $A_1P$ | 0–10 | 8.1 | 17.3 | 1.96 | 1.5 | 15 | 22 | 58 |
| 2 | $A_11$ | 10–20 | 8.4 | 15.4 | 1.23 | 3.5 | 15 | 23 | 57 |
| 3 | $A_12$ | 30–40 | 8.6 | 16.2 | 1.01 | 4.4 | 14 | 24 | 57 |
| 4 | $B_2v$ | 70–80 | 8.7 | 25.0 | 0.69 | 4.9 | 12 | 25 | 57 |
| 5 | $B_21$ | 120–130 | 8.6 | 43.7 | 0.46 | 1.9 | 12 | 28 | 57 |
| 6 | $B_22$ | 250–260 | 8.6 | 33.5 | 0.27 | 0.2 | 10 | 28 | 61 |

| $Cl^-$ *mg kg$^{-1}$* | $NO_3^-$–N *mg kg$^{-1}$* | P *mg kg$^{-1}$* | $Ca_{0.5}^+$ *mmol kg$^{-1}$* | $Mg_{0.5}^+$ *mmol kg$^{-1}$* | $K^+$ *mmol kg$^{-1}$* | $Na^+$ *mmol kg$^{-1}$* | $Al_{0.33}^+$ *mmol kg$^{-1}$* | Σcations *mmol kg$^{-1}$* | ESP % |
|---|---|---|---|---|---|---|---|---|---|
| 18 | – | – | 302 | 71 | 21.5 | 2.8 | <1 | 397 | 0.7 |
| 54 | 21.3 | 63 | 257 | 66 | 18.2 | 3.4 | <1 | 345 | 1.0 |
| 40 | 17.1 | 17 | 278 | 83 | 10.6 | 4.6 | <1 | 376 | 1.2 |
| 36 | 10.7 | 10 | 251 | 110 | 6.9 | 9.5 | <1 | 377 | 2.5 |
| 60 | 15.6 | 6 | 205 | 146 | 5.7 | 23.0 | <1 | 379 | 6.1 |
| 235 | 11.2 | 9 | 210 | 152 | 6.2 | 31.7 | <1 | 399 | 7.9 |
| 260 | 1.4 | 23 | 198 | 152 | 5.7 | 37.2 | <1 | 392 | 9.5 |

## Soil chemistry profiles



# Namoi Valley soil study: Edgeroi Sheet

**Site** ed107

**Site location**

Grid reference: 744300mE 6663500mN
Elevation: 194m
Farmer: Auscott(Togo)
Farm name: Togo
Site described by G. M. Roberts on 26 June, 1985
The site is located at a grid point

**Site description**

Slope: 0°
Topography: flat
Landform: middle terrace
Surface dry when sampled
Fine self-mulching surface, cultivated
Use: irrigated cotton
Visible cracks: width 1mm

**Site vegetation**

The site was under cotton.

**Profile description**

Soil described by D. McGarry on 15 July, 1986. Drilled depth 269cm

| Horizon | (cm) | (Sample; depth) |
|---|---|---|
| $A_1p$ | 0–12 | (1; 0–10) Very dark greyish brown (10YR3/2, 10YR3/2 dry) light medium clay; moderate 5–10mm subangular blocky structure, with moderate <2mm granular structure; moderately firm; earthy and smooth-ped fabric; <2% fine calcareous nodules; <2% 0.075–1mm pores; few very fine roots; pH 8.5; |
| $A_1$ | 12–110 | (2; 12–20) Dark brown (7.5YR3/2) medium heavy clay; strong 5–10mm lenticular structure, breaking to moderate 5–10mm angular blocky structure; very firm; smooth-ped fabric; <2% distinct fine white (10YR8/2) calcareous nodules; <2% <5mm cracks; <2% 0.075–1mm pores; few very fine roots; pH 8.7; |
| $A_1$ | | (3; 30–40) Dark brown (7.5YR3/2) medium heavy clay; strong 5–10mm lenticular structure, breaking to moderate 5–10mm angular blocky structure; moderately strong; smooth-ped and polished ped fabric; <2% distinct fine white (10YR8/2) calcareous nodules; <2% <5mm cracks; <2% 0.075–1mm pores; few very fine roots; pH 8.7; |
| $A_1$ | | (4; 70–80) Very dark greyish brown (10YR3/2) medium heavy clay; moderate 20–50mm wedge structure, breaking to moderate 5–10mm angular blocky structure; moderately strong; smooth-ped fabric; <2% distinct fine white (10YR8/2) calcareous nodules; <2% <5mm cracks; <2% 0.075–1mm pores; few very |

| | | |
|---|---|---|
| | | fine roots; pH 8.7; genetic boundary, gradual, smooth change to |
| $B_2$ | 110+ | (5; 120–130) Dark yellowish brown (10YR3/4) medium heavy clay; weak 50–100mm subangular blocky structure; very firm; smooth-ped and earthy fabric; <2% distinct fine white (10YR8/2) calcareous nodules; <2% 0.075–1mm pores; pH 8.7; |
| $B_2$ | | (6; 250–260) Brown (10YR4/3) medium heavy clay; <2% distinct medium very dark grey (N3/) patches of soil, filling cracks; moderate 20–50mm subangular blocky structure; very firm; smooth-ped fabric; <2% 0.075–1mm pores; pH 8.7; |

Parent rock: alluvial sediment, clay

**Comments**

Top 12cm is apparently a plough layer – deep self mulching. The profile to 100cm (approx ) is a dark brown colour, definitely not grey or black. Lenticular structure gives way to coarser wedges at 50cm. The B2 horizon becomes gradually lighter brown/red with depth. Carbonate very rare below 160cm. There is inwashed (? ) or in situ sand (yellow ) at 190–200cm – possibly an included sedimentary feature.

**Soil classification**

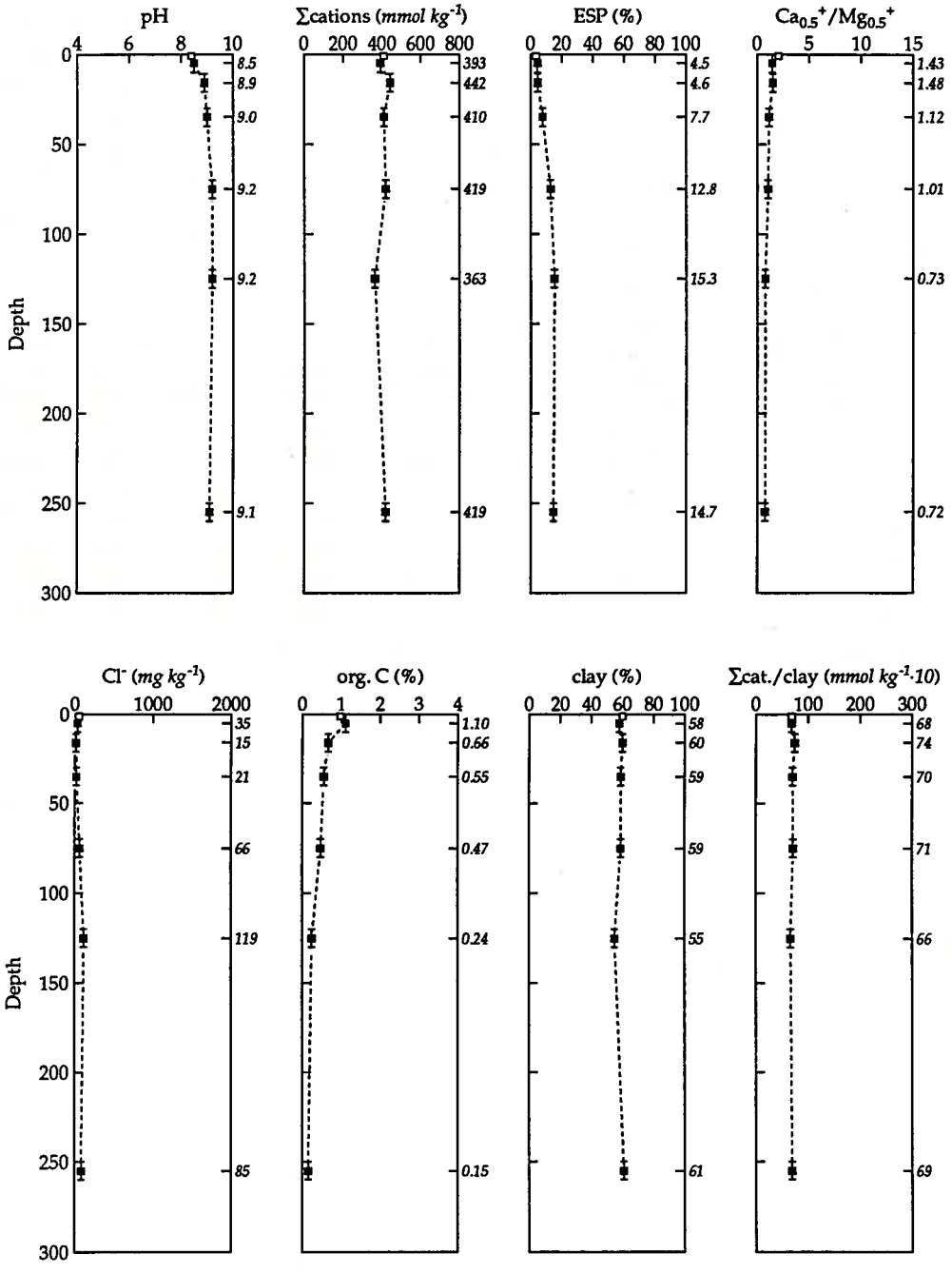
Principal profile form: Ug5.15
Great soil group: Brown clays
Soil taxonomy unit: Pellusterts

## Soil chemical and particle-size analyses

| Sample | Horizon | Depth *cm* | pH | E. C. *mS m$^{-1}$* | org. C % | $CaCO_3$ % | sand % | silt % | clay % |
|---|---|---|---|---|---|---|---|---|---|
| 0 | $A_1p$ | 0–2 | 8.4 | 19.2 | 0.97 | 0.1 | 19 | 20 | 60 |
| 1 | $A_1p$ | 0–10 | 8.5 | 13.9 | 1.10 | 0.1 | 21 | 20 | 58 |
| 2 | $A_11$ | 12–20 | 8.9 | 13.2 | 0.66 | 0.4 | 19 | 20 | 60 |
| 3 | $A_12$ | 30–40 | 9.0 | 19.5 | 0.55 | 1.2 | 19 | 20 | 59 |
| 4 | $A_13$ | 70–80 | 9.2 | 26.5 | 0.47 | 0.9 | 18 | 22 | 59 |
| 5 | $B_21$ | 120–130 | 9.2 | 28.2 | 0.24 | 0.6 | 18 | 26 | 55 |
| 6 | $B_22$ | 250–260 | 9.1 | 17.1 | 0.15 | 0.1 | 17 | 22 | 61 |

| $Cl^-$ *mg kg$^{-1}$* | $NO_3^-$–N *mg kg$^{-1}$* | P *mg kg$^{-1}$* | $Ca_{0.5}^+$ *mmol kg$^{-1}$* | $Mg_{0.5}^+$ *mmol kg$^{-1}$* | $K^+$ *mmol kg$^{-1}$* | $Na^+$ *mmol kg$^{-1}$* | $Al_{0.33}^+$ *mmol kg$^{-1}$* | Σcations *mmol kg$^{-1}$* | ESP % |
|---|---|---|---|---|---|---|---|---|---|
| 52 | – | – | 254 | 125 | 14.5 | 14.4 | <1 | 409 | 3.5 |
| 35 | 0.3 | 33 | 212 | 148 | 14.0 | 17.7 | <1 | 393 | 4.5 |
| 15 | 1.1 | 12 | 246 | 166 | 9.5 | 20.2 | <1 | 442 | 4.6 |
| 21 | 0.3 | 11 | 196 | 175 | 7.1 | 31.5 | <1 | 410 | 7.7 |
| 66 | 0.2 | 28 | 180 | 178 | 7.9 | 53.6 | <1 | 419 | 12.8 |
| 119 | <0.1 | 26 | 127 | 173 | 7.6 | 55.4 | <1 | 363 | 15.3 |
| 85 | <0.1 | 20 | 147 | 203 | 7.7 | 61.8 | <1 | 419 | 14.7 |

## Soil chemistry profiles



# Namoi Valley soil study: Edgeroi Sheet

**Site** ed108

**Site location**

Grid reference: 747100mE 6663500mN
Elevation: 196m
Farmer: Auscott Ltd
Farm name: Auscott
Site described by M. Korevaar on 25 April, 1985
The site is located at a grid point

**Site description**

Slope: 0°
Topography: flat
Landform: middle terrace
Surface dry when sampled
Weak surface crust, cultivated
Use: fallow, irrigated cotton

**Site comments**

Height of cotton hills 15cm. Site description after rain but the cores were collected a day earlier.

**Site vegetation**

The site was under cotton, and included bare ground.

**Profile description**

Soil described by E. Veldhuis on 7 May, 1985. Drilled depth 282cm

| Horizon | (cm) | (Sample; depth) |
|---|---|---|
| $A_1P$ | 0–12 | (1; 0–10) Dark brown (7.5YR3/2) medium clay; moderate 2–5mm granular structure, breaking to moderate 5–10mm subangular blocky structure; moderately strong; earthy fabric; <2% <5mm cracks; 2–5% 0.075–1mm pores; few very fine roots; pH 8.2; plough sole, abrupt, smooth change to |
| $A_1$ | 12–90 | (2; 12–20) Dark brown (7.5YR3/2) medium heavy clay; weak 20–50mm subangular blocky structure; moderately strong; nodular fracture; smooth-ped fabric; <2% distinct fine light grey (10YR7/1) calcareous nodules; <2% <5mm cracks; <2% 0.075–1mm pores; few very fine roots; pH 8.5; |
| $A_1$ | | (3; 30–40) Dark brown (7.5YR3/2) medium heavy clay; weak 20–50mm subangular blocky structure; moderately strong; rough fracture; smooth-ped fabric; <2% distinct fine light grey (10YR7/1) calcareous nodules; <2% <5mm cracks; <2% 1–2mm pores; few fine roots; <2% 2–6mm subangular quartz fragments; pH 8.8; |
| $A_1$ | | (4; 70–80) Dark brown (7.5YR3/2) light medium clay; <2% faint medium dark |

# Namoi Valley soil study: Edgeroi Sheet

Site ed109

## Site location

Grid reference: 749800mE 6663400mN
Elevation: 198m
Farmer: W.H.(Warwick) Wall
Farm name: Appletrees
Site described by G. M. Roberts on 19 June, 1985
The site is located at a grid point

## Site description

Slope: 0°
Topography: flat
Landform: middle terrace
Surface wet when sampled
Coarse self-mulching surface
Use: irrigated cotton
Visible cracks: width 1mm

## Site comments

Recently flood irrigated. Dark grey/gingery brown/gingery brown with carbonate, drilled by first cotton hill off roadside. Self mulching. ? highest alluvium.

## Site vegetation

The site was under cotton, and included bare ground.

## Profile description

Soil described by D. McGarry on 8 January, 1987. Drilled depth 285cm

| Horizon | (cm) | (Sample; depth) |
|---|---|---|
| $A_1$ | 0–9 | (1; 0–9) Dark greyish brown (10YR4/2) medium clay; moderate 2–5mm granular structure; moderately weak; rough–ped fabric; <2% <5mm cracks; 2–5% 0.075–1mm pores; few very fine roots; pH 8.2; plough sole, sharp, smooth change to |
| $A_1p$ | 9–40 | (2; 10–20) Dark greyish brown (10YR4/2) medium heavy clay; weak 50–100mm angular blocky structure; very firm; smooth fracture; smooth–ped fabric; <2% <5mm cracks; <2% 0.075–1mm pores; pH 8.5; |
| $A_1p$ | | (3; 30–40) Dark greyish brown (10YR4/2) heavy clay; weak 50–100mm angular blocky structure; very firm; smooth fracture; smooth–ped fabric; <2% 5–10mm cracks; <2% 0.075–1mm pores; pH 8.5; genetic boundary, sharp, smooth change to |
| $A_1$ | 40–100 | (4; 70–80) Very dark greyish brown (10YR3/2) heavy clay; moderate 20–50mm lenticular structure, breaking to moderate 5–10mm angular blocky structure; very |

| | | |
|---|---|---|
| | | firm; polished ped and smooth–ped fabric; <2% faint fine very pale brown (10YR8/4) calcareous nodules; <2% 5–10mm cracks; <2% 0.075–1mm pores; few very fine roots; pH 8.5; genetic boundary, clear, smooth change to |
| $B_2$ | 100+ | (5; 120–130) Dark brown (7.5YR4/3) medium clay; 2–10% distinct medium very dark greyish brown (10YR3/2) patches of soil, filling cracks; weak 20–50mm wedge structure, breaking to weak 10–20mm subangular blocky structure; very firm; smooth–ped fabric; <2% <5mm cracks; <2% 0.075–1mm pores; few very fine roots; pH 8.5; |
| $B_2$ | | (6; 250–260) Dark brown (7.5YR4/3) light medium clay; 2–10% distinct medium dark brown (7.5YR3/2) patches of soil, filling cracks; strong 20–50mm wedge structure, breaking to weak 5–10mm angular blocky structure; very firm; weak slickensides, polished ped and smooth–ped fabric; <2% faint medium very pale brown (10YR8/4) calcareous nodules; 2–5% <5mm cracks; <2% 0.075–1mm pores; few very fine roots; pH 8.5; |

Parent rock: alluvial sediment, clay

### Comments

The top 40cm is well compacted, but has low strength because of moisture. Carbonate from 190cm.

### Soil classification

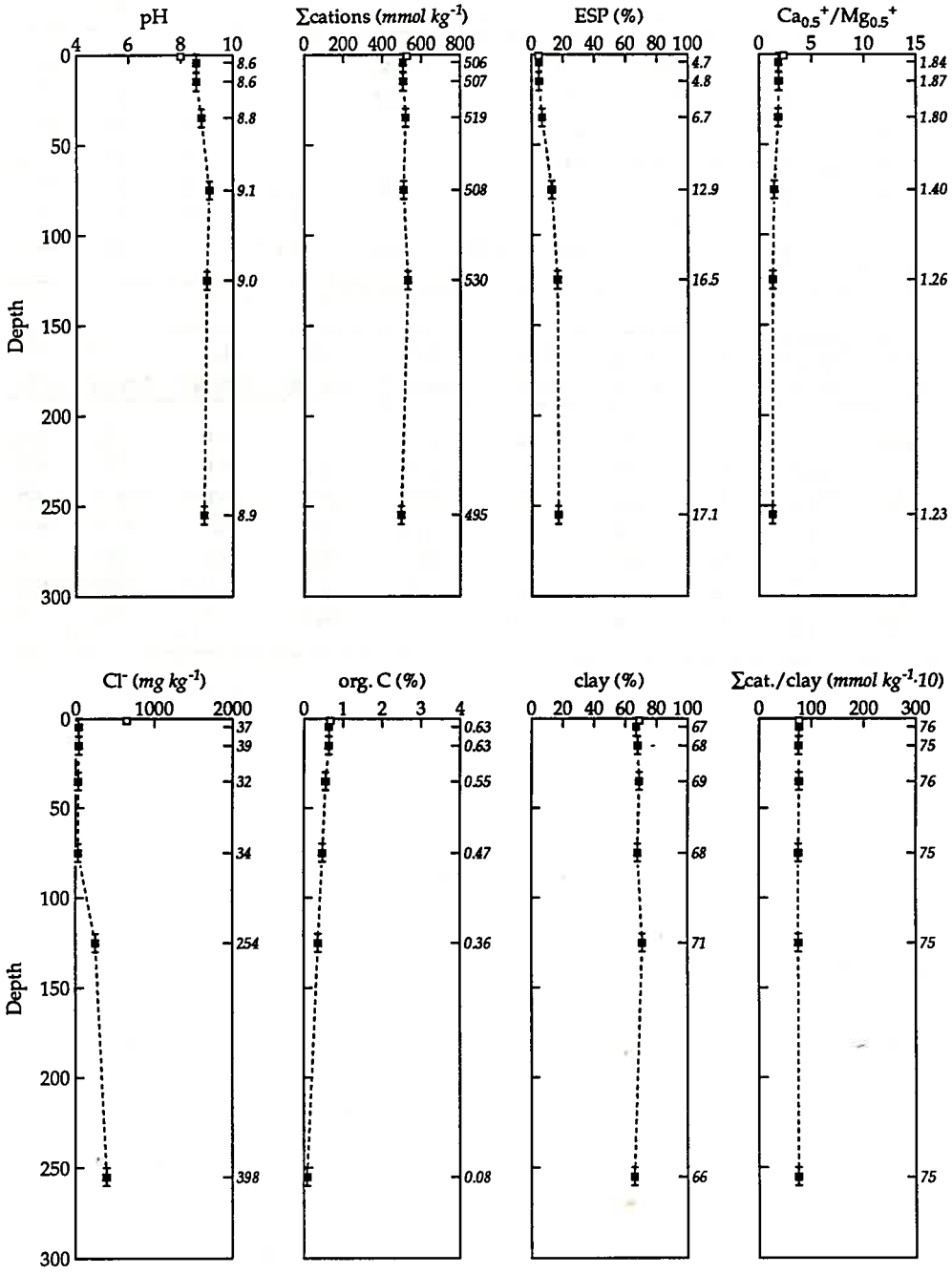
Principal profile form: Ug5.25
Great soil group: Grey clays
Soil taxonomy unit: Pellusterts

## Soil chemical and particle-size analyses

| Sample | Horizon | Depth *cm* | pH | E. C. *mS m$^{-1}$* | org. C % | $CaCO_3$ % | sand % | silt % | clay % |
|---|---|---|---|---|---|---|---|---|---|
| 0 | $A_1$1 | 0–2 | 8.0 | 83.2 | 0.67 | <0.1 | 13 | 17 | 69 |
| 1 | $A_1$1 | 0–9 | 8.6 | 17.0 | 0.63 | 0.1 | 15 | 17 | 67 |
| 2 | $A_1$p | 10–20 | 8.6 | 17.1 | 0.63 | <0.1 | 14 | 17 | 68 |
| 3 | $A_1$p | 30–40 | 8.8 | 18.6 | 0.55 | 0.2 | 13 | 17 | 69 |
| 4 | $A_1$2 | 70–80 | 9.1 | 26.6 | 0.47 | 0.9 | 14 | 17 | 68 |
| 5 | $B_2$1 | 120–130 | 9.0 | 45.9 | 0.36 | 1.0 | 11 | 17 | 71 |
| 6 | $B_2$2 | 250–260 | 8.9 | 58.8 | 0.08 | 1.2 | 13 | 19 | 66 |

| $Cl^-$ *mg kg$^{-1}$* | $NO_3^-$–N *mg kg$^{-1}$* | P *mg kg$^{-1}$* | $Ca_{0.5}^+$ *mmol kg$^{-1}$* | $Mg_{0.5}^+$ *mmol kg$^{-1}$* | $K^+$ *mmol kg$^{-1}$* | $Na^+$ *mmol kg$^{-1}$* | $Al_{0.33}^+$ *mmol kg$^{-1}$* | Σcations *mmol kg$^{-1}$* | ESP % |
|---|---|---|---|---|---|---|---|---|---|
| 648 | – | – | 336 | 146 | 21.2 | 23.6 | <1 | 527 | 4.5 |
| 37 | 21.1 | 41 | 298 | 163 | 21.2 | 23.8 | <1 | 506 | 4.7 |
| 39 | 21.0 | 33 | 303 | 162 | 18.4 | 24.2 | <1 | 507 | 4.8 |
| 32 | 9.8 | 8 | 302 | 168 | 14.6 | 35.0 | <1 | 519 | 6.7 |
| 34 | 4.8 | 20 | 250 | 179 | 14.2 | 65.4 | <1 | 508 | 12.9 |
| 254 | 14.0 | 26 | 238 | 188 | 16.8 | 87.4 | <1 | 530 | 16.5 |
| 398 | 2.2 | 17 | 219 | 178 | 13.8 | 84.7 | <1 | 495 | 17.1 |

## Soil chemistry profiles



# Namoi Valley soil study: Edgeroi Sheet

**Site** ed110

**Site location**

Grid reference: 752600mE 6663400mN
Elevation: 199m
Farmer: Auscott Ltd
Farm name: Auscott
Site described by G. M. Roberts on 24 April, 1985
The site is located at a grid point

**Site description**

Slope: 0°
Topography: flat
Landform: middle terrace
Surface dry when sampled
Coarse self-mulching surface, cultivated
Use: irrigated cotton

**Site comments**

Crackspace 300.

**Site vegetation**

The site was under cotton.

**Profile description**

Soil described by W. T. Ward on 8 December, 1986. Drilled depth 284cm

| Horizon | (cm) | (Sample; depth) |
|---|---|---|
| $A_1p$ | 0–10 | (1; 0–10) Dark brown (7.5YR3/2, 10YR4/1 dry) medium heavy clay; moderate 20–50mm subangular blocky structure, with moderate 2–5mm granular structure; very firm; smooth-ped fabric; 2–5% <5mm cracks; <2% 0.075–1mm pores; few very fine roots; pH 8.5; genetic boundary, clear, smooth change to |
| $A_1$ | 10–130 | (2; 10–20) Dark brown (7.5YR3/2) medium clay; moderate 20–50mm subangular blocky structure; very firm; smooth-ped fabric; <2% <5mm cracks; <2% 0.075–1mm pores; few very fine roots; pH 8.5; |
| $A_1$ | | (3; 30–40) Dark brown (7.5YR4/2) medium heavy clay; weak 20–50mm subangular blocky structure; very firm; granular fracture; smooth-ped fabric; <2% <5mm cracks; <2% 0.075–1mm pores; few very fine roots; pH 8.5; |
| $A_1$ | | (4; 70–80) Dark brown (7.5YR4/2) medium clay; moderate 10–20mm wedge structure, with moderate 2–5mm subangular blocky structure; very firm; smooth-ped and polished ped fabric; <2% <5mm cracks; <2% 0.075–1mm pores; few very fine roots; pH 9.0; |

| | | |
|---|---|---|
| $A_1v$ | | (5; 120–130) Dark brown (7.5YR4/4) medium clay; 20–50% distinct medium dark brown (7.5YR4/2) organic stains; moderate 2–5mm wedge structure, with moderate 2–5mm subangular blocky structure; moderately firm; smooth–ped and polished ped fabric; <2% distinct medium pink (7.5YR7/4) calcareous nodules; <2% <5mm cracks; <2% 0.075–1mm pores; pH 8.5; genetic boundary, clear, smooth change to |
| $B_2$ | 130+ | (6; 250–260) Dark brown (7.5YR4/4) light medium clay; moderate 2–5mm wedge structure, with moderate 2–5mm subangular blocky structure; moderately firm; weak slickensides, polished ped and smooth–ped fabric; <2% distinct medium pink (7.5YR7/4) calcareous nodules; <2% <5mm cracks; pH 9.0; |

Parent rock: alluvial sediment, clay

### Comments

At 96cm a small lens of inwashed sand suggests that some part of the topsoil may be of recent alluvial origin. In B2 horizon there are some patches of diffuse carbonate. Vuspe or vusch? Darker colours below 260cm are possibly manganese.

### Soil classification

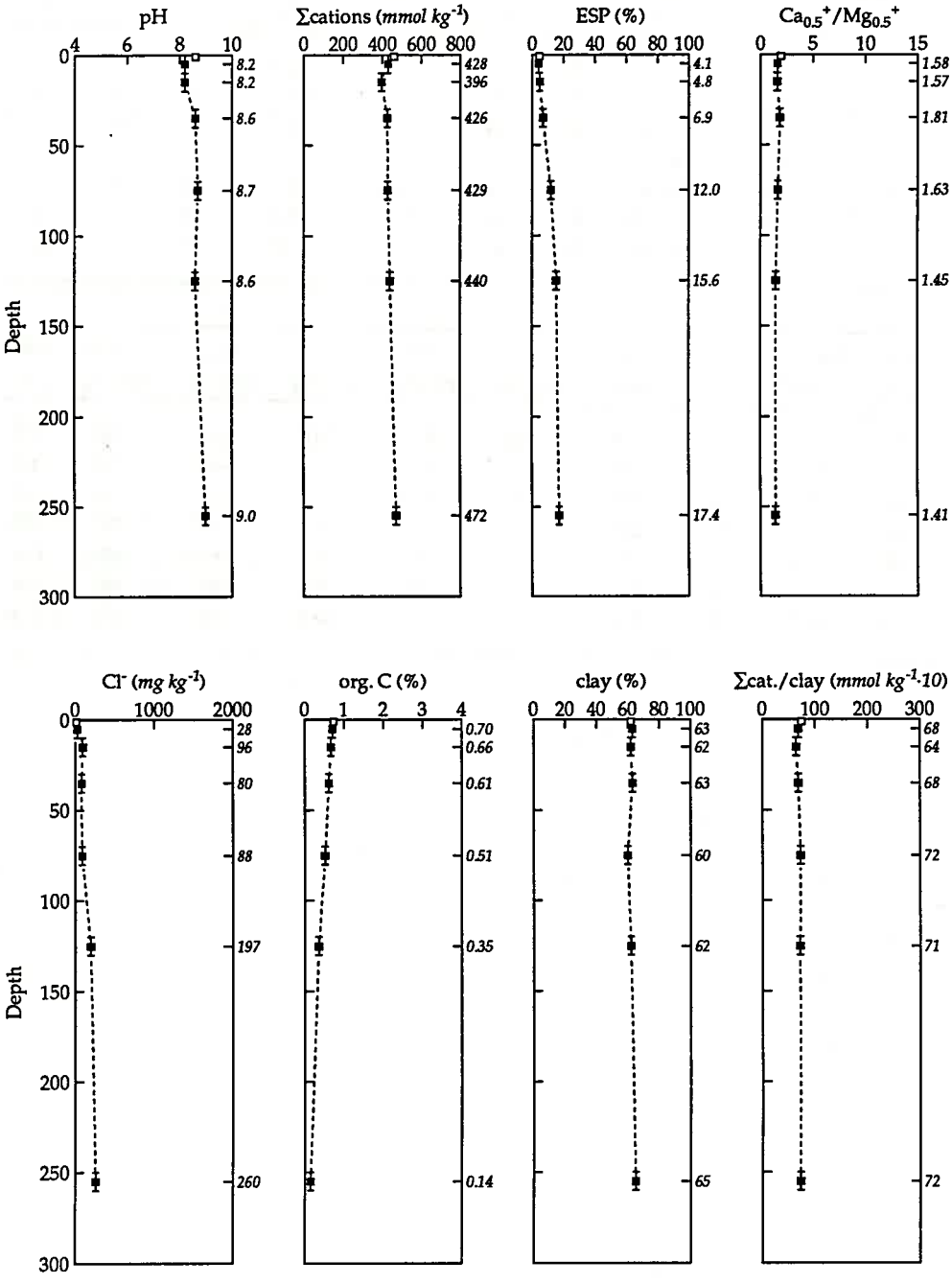
Principal profile form: Ug5.23
Great soil group: Grey clays
Soil taxonomy unit: Pellusterts

## Soil chemical and particle-size analyses

| Sample | Horizon | Depth *cm* | pH | E. C. *mS m$^{-1}$* | org. C % | $CaCO_3$ % | sand % | silt % | clay % |
|---|---|---|---|---|---|---|---|---|---|
| 0 | $A_1p$ | 0–2 | 8.6 | 15.1 | 0.73 | <0.1 | 17 | 20 | 62 |
| 1 | $A_1p$ | 0–10 | 8.2 | 20.0 | 0.70 | 0.1 | 17 | 19 | 63 |
| 2 | $A_11$ | 10–20 | 8.2 | 16.0 | 0.66 | 0.1 | 18 | 18 | 62 |
| 3 | $A_12$ | 30–40 | 8.6 | 12.8 | 0.61 | <0.1 | 17 | 19 | 63 |
| 4 | $A_13$ | 70–80 | 8.7 | 17.6 | 0.51 | <0.1 | 20 | 19 | 60 |
| 5 | $A_1v$ | 120–130 | 8.6 | 35.0 | 0.35 | 0.2 | 18 | 19 | 62 |
| 6 | $B_2$ | 250–260 | 9.0 | 45.5 | 0.14 | 1.0 | 19 | 15 | 65 |

| $Cl^-$ *mg kg$^{-1}$* | $NO_3^-$–N *mg kg$^{-1}$* | P *mg kg$^{-1}$* | $Ca_{0.5}^+$ *mmol kg$^{-1}$* | $Mg_{0.5}^+$ *mmol kg$^{-1}$* | $K^+$ *mmol kg$^{-1}$* | $Na^+$ *mmol kg$^{-1}$* | $Al_{0.33}^+$ *mmol kg$^{-1}$* | Σcations *mmol kg$^{-1}$* | ESP % |
|---|---|---|---|---|---|---|---|---|---|
| 15 | – | – | 274 | 144 | 20.2 | 20.5 | <1 | 459 | 4.5 |
| 28 | 11.2 | 43 | 240 | 151 | 19.0 | 17.7 | <1 | 428 | 4.1 |
| 96 | 27.7 | 39 | 220 | 141 | 16.3 | 19.1 | <1 | 396 | 4.8 |
| 80 | 11.9 | 36 | 248 | 137 | 11.5 | 29.5 | <1 | 426 | 6.9 |
| 88 | 5.9 | 57 | 227 | 139 | 11.1 | 51.6 | <1 | 429 | 12.0 |
| 197 | 12.0 | 49 | 212 | 146 | 12.6 | 68.6 | <1 | 440 | 15.6 |
| 260 | 18.3 | 18 | 221 | 156 | 12.9 | 82.0 | <1 | 472 | 17.4 |

## Soil chemistry profiles



# Namoi Valley soil study: Edgeroi Sheet

**Site** ed111

**Site location**

Grid reference: 755300mE 6663200mN
Elevation: 202m
Farmer: B.M.(Bruce) Foster
Farm name: Wengellabah
Site described by G. M. Roberts on 22 June, 1985
The site is located at a grid point

**Site description**

Slope: 1° Slope direction: 360°
Topography: gently sloping
Landform: levee
Surface dry when sampled
Fine self-mulching surface, trampled
Use: native pasture, sheep pasture, wheat
Visible cracks: width 1mm, 3 per metre, depth 450mm

**Site comments**

Weak surface crust, heavily trampled. A dense hardpan at 5–8cm under a self mulching top. Profile development suggests middle terrace but reddish brown; this colour might be due to better drainage near donga.

**Site vegetation**

The following species were noted:

*Eucalyptus camaldulensis, Bassia quinquecuspis.*

**Profile description**

Soil described by W. T. Ward on 11 December, 1986. Drilled depth 271cm

| Horizon | (cm) | (Sample; depth) |
|---|---|---|
| $A_1a$ | 0–50 | (1; 0–10) Dark greyish brown (10YR4/2, 10YR4/2 dry) medium heavy clay; <2% distinct fine pale brown (10YR6/3) patches of soil, filling cracks; moderate 2–5mm platy structure, with moderate 20–50mm angular blocky structure; moderately strong; smooth-ped fabric; <2% <5mm cracks; <2% 0.075–1mm pores; few very fine roots; pH 7.5; |
| $A_1a$ | | (2; 10–20) Dark brown (7.5YR4/2) medium heavy clay; weak 50–100mm angular blocky structure; very strong; smooth fracture; smooth-ped fabric; <2% distinct fine very pale brown (10YR8/3) calcareous nodules; <2% <5mm cracks; <2% 0.075–1mm pores; few very fine roots; pH 8.0; |
| $A_1a$ | | (3; 30–40) Dark brown (7.5YR4/2) medium clay; moderate 50–100mm angular |

| | | |
|---|---|---|
| | | blocky structure; very strong; smooth–ped fabric; <2% distinct fine very pale brown (10YR8/3) calcareous nodules; <2% 5–10mm cracks; <2% 0.075–1mm pores; few very fine roots; pH 8.5; stratigraphic boundary, diffuse, smooth change to |
| $A_1$ | 50–160 | (4; 70–80) Dark brown (7.5YR4/2) heavy clay; moderate 20–50mm subangular blocky structure; moderately strong; smooth–ped fabric; <2% distinct fine very pale brown (10YR8/3) calcareous nodules; <2% <5mm cracks; <2% 0.075–1mm pores; few very fine roots; pH 9.0; |
| $A_1$ | | (5; 120–130) Dark brown (7.5YR4/2) heavy clay; 2–10% distinct medium dark brown (7.5YR3/2) organic stains; weak 20–50mm prismatic structure, breaking to moderate 5–10mm angular blocky structure; moderately strong; nodular fracture; smooth–ped and polished ped fabric; <2% distinct fine very pale brown (10YR8/3) calcareous nodules; <2% <5mm cracks; <2% 0.075–1mm pores; few very fine roots; pH 9.0; genetic boundary, very diffuse, smooth change to |
| $B_2$ | 160+ | (6; 250–260) Dark reddish grey (5YR4/2) medium clay; 2–10% prominent coarse dark brown (7.5YR3/2) organic stains; moderate 20–50mm wedge structure, breaking to moderate 10–20mm subangular blocky structure; very firm; weak slickensides, smooth–ped and polished ped fabric; <2% distinct coarse light brown (7.5YR6/4) calcareous nodules; <2% <5mm cracks; <2% 0.075–1mm pores; pH 9.0; |

Parent rock: alluvial sediment, clay

**Comments**

The platy structure in the top 5cm represents a recent flood episode. The soil beneath appears to be reasonably developed; certainly below 50cm. 0–5 is recent flood; 5–50 is possibly recent flood material. ? Alluvial soil on grey clay. Gendepth Hordesig D.,S.,O., not entered at time of description but taken from photo plus accurate human memory recall. Classed as A1a by analogy with Noelurma.

**Soil classification**

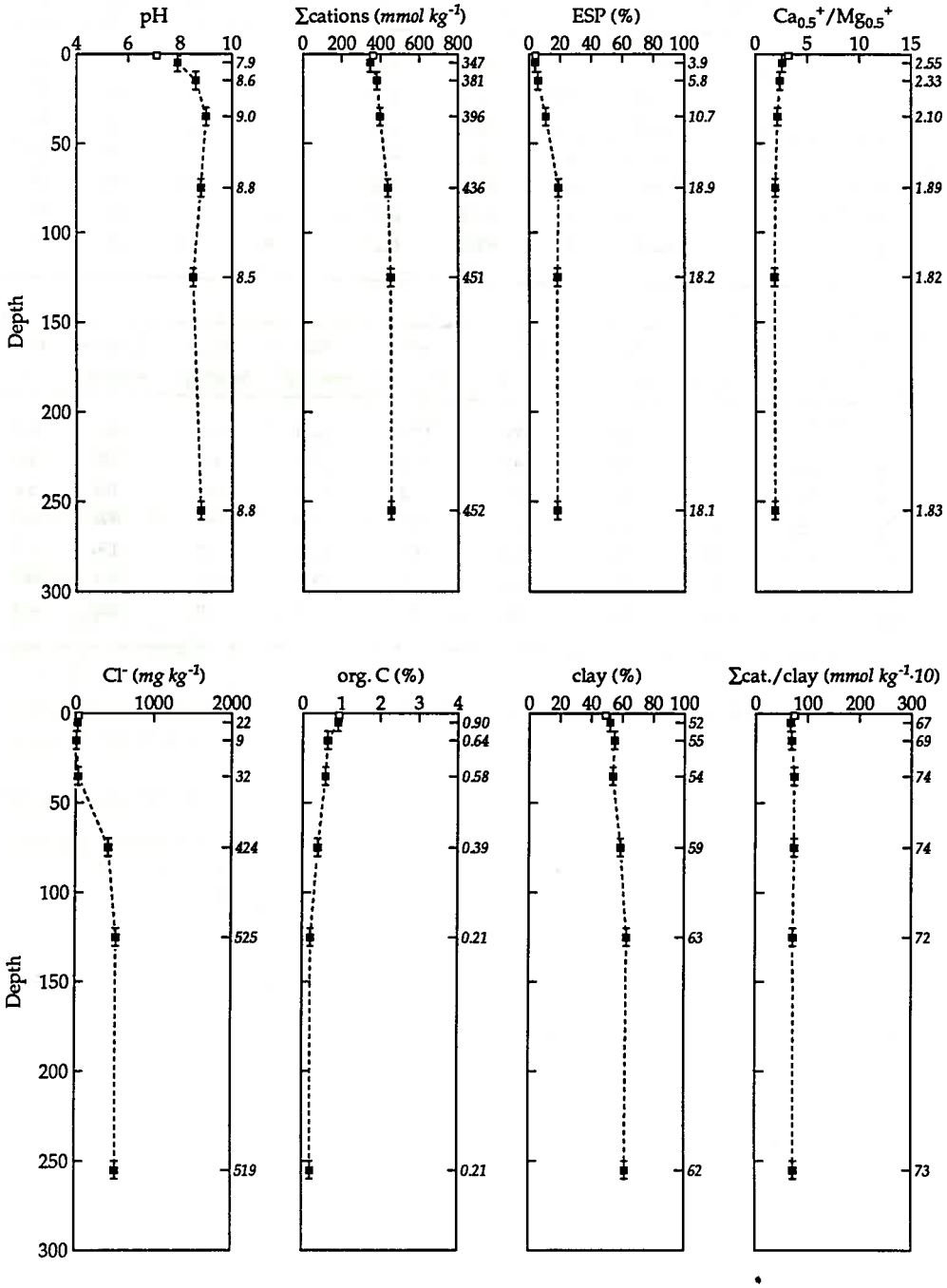
Principal profile form: Ug5.24
Great soil group: Grey clays
Soil taxonomy unit: Pellusterts

## Soil chemical and particle-size analyses

| Sample | Horizon | Depth *cm* | pH | E.C. *mS m$^{-1}$* | org. C % | $CaCO_3$ % | sand % | silt % | clay % |
|---|---|---|---|---|---|---|---|---|---|
| 0 | $A_1a1$ | 0–2 | 7.1 | 29.7 | 0.92 | <0.1 | 28 | 22 | 49 |
| 1 | $A_1a1$ | 0–10 | 7.9 | 10.4 | 0.90 | <0.1 | 26 | 21 | 52 |
| 2 | $A_1a2$ | 10–20 | 8.6 | 10.1 | 0.64 | <0.1 | 22 | 22 | 55 |
| 3 | $A_1a3$ | 30–40 | 9.0 | 14.2 | 0.58 | 0.3 | 21 | 24 | 54 |
| 4 | $A_11$ | 70–80 | 8.8 | 57.9 | 0.39 | 0.5 | 16 | 24 | 59 |
| 5 | $A_12$ | 120–130 | 8.5 | 65.2 | 0.21 | 0.4 | 15 | 21 | 63 |
| 6 | $B_2$ | 250–260 | 8.8 | 69.7 | 0.21 | 2.3 | 14 | 21 | 62 |

| $Cl^-$ *mg kg$^{-1}$* | $NO_3^-$–N *mg kg$^{-1}$* | P *mg kg$^{-1}$* | $Ca_{0.5}^+$ *mmol kg$^{-1}$* | $Mg_{0.5}^+$ *mmol kg$^{-1}$* | $K^+$ *mmol kg$^{-1}$* | $Na^+$ *mmol kg$^{-1}$* | $Al_{0.33}^+$ *mmol kg$^{-1}$* | Σcations *mmol kg$^{-1}$* | ESP % |
|---|---|---|---|---|---|---|---|---|---|
| 34 | – | – | 249 | 79 | 17.0 | 14.9 | <1 | 360 | 4.1 |
| 22 | 14.3 | 24 | 229 | 90 | 15.2 | 13.5 | <1 | 347 | 3.9 |
| 9 | 5.4 | 11 | 245 | 105 | 9.0 | 22.3 | <1 | 381 | 5.8 |
| 32 | 2.9 | 13 | 234 | 111 | 8.0 | 42.5 | <1 | 396 | 10.7 |
| 424 | 1.1 | 18 | 226 | 119 | 8.8 | 82.6 | <1 | 436 | 18.9 |
| 525 | 6.6 | 17 | 230 | 126 | 12.5 | 81.9 | <1 | 451 | 18.2 |
| 519 | 10.6 | 16 | 232 | 127 | 11.3 | 81.9 | <1 | 452 | 18.1 |

## Soil chemistry profiles



# Namoi Valley soil study: Edgeroi Sheet

Site ed112

## Site location

Grid reference: 758100mE 6663200mN
Elevation: 207m
Farm name: Vieta
Site described by G. M. Roberts on 22 June, 1985
The site is located at a grid point

## Site description

Slope: 0°
Topography: flat
Landform: middle terrace
Surface dry when sampled
Strong surface crust, trampled
Use: native pasture, sheep pasture
Visible cracks: width 1mm, 2 per metre, depth 200mm

## Site comments

Hardset, poached, trampled. The major cracks have been covered over by intense trampling. Described at collection as htpl by WTW.

## Site vegetation

The site included bare ground.

The following species were noted:

*Stipa ?scabra, Bassia quinquecuspis, Bassia quinquecuspis ssp. semiglabra, Juncus usitatus.*

## Profile description

Soil described by W. T. Ward on 18 December, 1986. Drilled depth 278cm

| Horizon | (cm) | (Sample; depth) |
|---|---|---|
| $A_1$ | 0–70 | (1; 0–10) Very dark grey (10YR3/1, 10YR4/1 dry) light medium clay; <2% distinct medium light brownish grey (10YR6/2) bleached surface crust; moderate 10–20mm angular blocky structure, with weak 2–5mm platy structure; moderately strong; smooth-ped fabric; <2% <5mm cracks; <2% 0.075–1mm pores; few very fine roots; <2% 2–6mm subangular quartz fragments; pH 6.5; |
| $A_1$ | | (2; 10–20) Dark grey (10YR4/1) medium clay; <2% distinct fine greyish brown (10YR5/2) patches of sediment, filling cracks; moderate 10–20mm angular blocky structure; moderately strong; smooth-ped fabric; <2% 5–10mm cracks; <2% 0.075–1mm pores; few very fine roots; <2% 2–6mm subangular quartz fragments; pH 7.5; |

| | | |
|---|---|---|
| $A_1$ | | (3; 30–40) Very dark grey (10YR3/1) medium clay; <2% distinct fine greyish brown (10YR5/2) patches of sediment, filling cracks; moderate 10–20mm angular blocky structure; moderately strong; smooth–ped fabric; <2% faint fine pinkish grey (7.5YR6/2) calcareous nodules; <2% 5–10mm cracks; <2% 0.075–1mm pores; few very fine roots; <2% 2–6mm subangular quartz fragments; pH 8.5; genetic boundary, gradual, smooth change to |
| $B_2v$ | 70+ | (4; 70–80) Dark brown (7.5YR4/2) medium clay; moderate 20–50mm angular blocky structure; moderately strong; smooth–ped fabric; <2% faint fine very dark grey (N3/) manganese stains; <2% distinct fine brown (7.5YR5/2) calcareous nodules; <2% <5mm cracks; <2% 0.075–1mm pores; <2% 2–6mm subangular quartz fragments; pH 8.5; |
| $B_2$ | | (5; 120–130) Dark brown (7.5YR4/2) medium clay; moderate 50–100mm wedge structure, breaking to moderate 10–20mm angular blocky structure; moderately strong; weak slickensides, smooth–ped and polished ped fabric; 2–10% prominent coarse pink (7.5YR7/4) calcareous nodules; <2% faint fine very dark grey (N3/) manganese stains; <2% <5mm cracks; <2% 1–2mm pores; pH 8.5; |
| $B_2$ | | (6; 250–260) Dark brown (7.5YR4/2) medium clay; <2% distinct coarse very dark brown (10YR2/2) organic stains; moderate 50–100mm wedge structure, breaking to moderate 20–50mm angular blocky structure; moderately strong; moderate slickensides, polished ped and smooth–ped fabric; 2–10% prominent medium pinkish grey (7.5YR6/2) calcareous nodules; <2% <5mm cracks; <2% 0.075–1mm pores; pH 8.0; |

Parent rock: alluvial sediment, mixed texture, with lime

**Comments**

The A1 horizon includes a thin surface crust. Weak platy structure above the blocky structure in 0–10cm. Note the darkening in colour below topsoil, and good structure also, and roots on ped faces. I am reminded of the red spot, lowest level. Oldest alluvium?

**Soil classification**

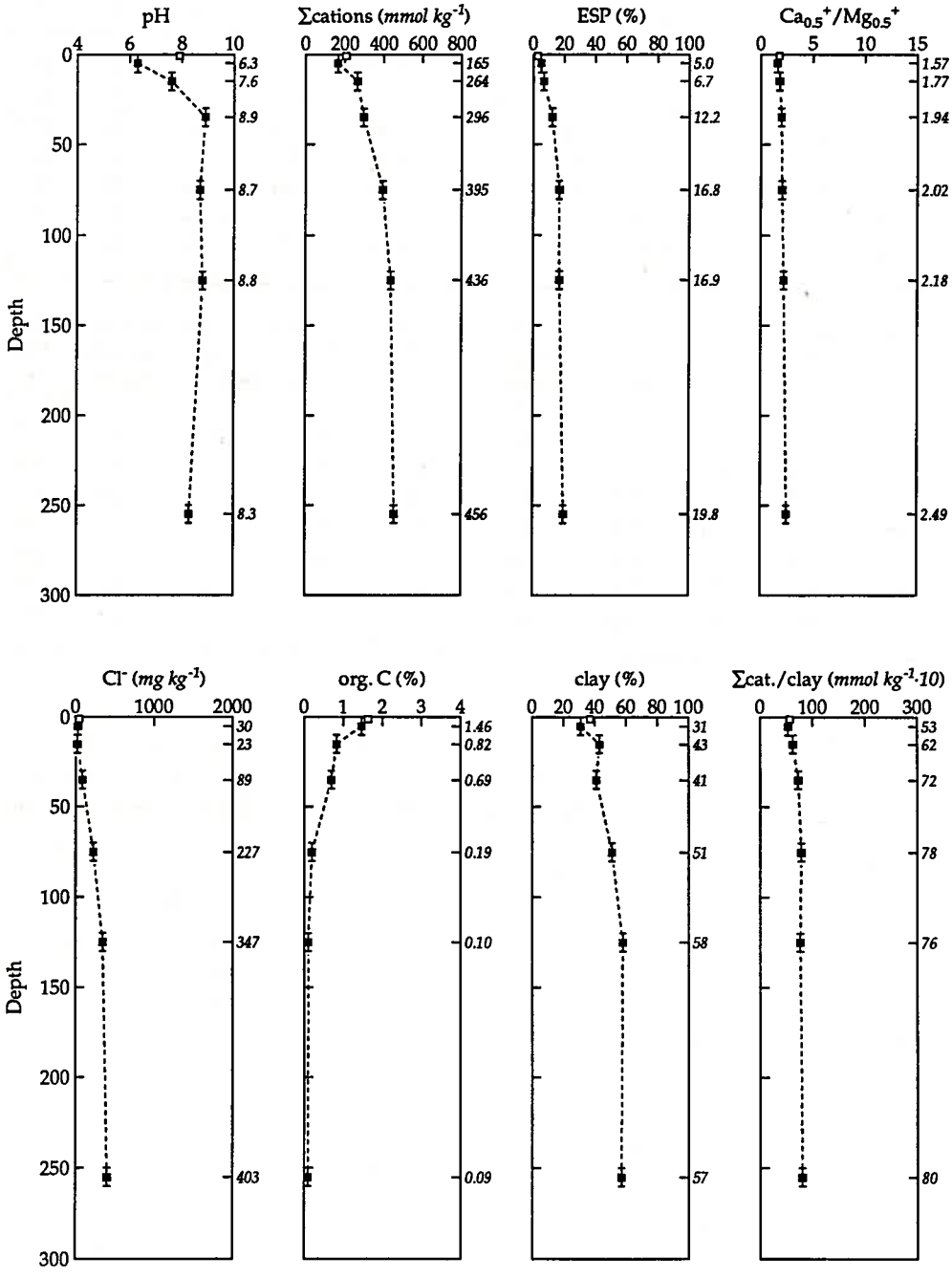
Principal profile form: Ug5.16
Great soil group: Grey clays
Soil taxonomy unit: Pellusterts

## Soil chemical and particle-size analyses

| Sample | Horizon | Depth *cm* | pH | E. C. *mS m$^{-1}$* | org. C % | $CaCO_3$ % | sand % | silt % | clay % |
|---|---|---|---|---|---|---|---|---|---|
| 0 | $A_1$1 | 0–2 | 7.9 | 11.2 | 1.63 | <0.1 | 43 | 17 | 37 |
| 1 | $A_1$1 | 0–10 | 6.3 | 11.0 | 1.46 | <0.1 | 50 | 17 | 31 |
| 2 | $A_1$2 | 10–20 | 7.6 | 7.4 | 0.82 | <0.1 | 34 | 23 | 43 |
| 3 | $A_1$3 | 30–40 | 8.9 | 20.0 | 0.69 | 0.3 | 35 | 22 | 41 |
| 4 | $B_2$v | 70–80 | 8.7 | 47.0 | 0.19 | 0.3 | 28 | 20 | 51 |
| 5 | $B_2$1 | 120–130 | 8.8 | 70.7 | 0.10 | 1.2 | 20 | 21 | 58 |
| 6 | $B_2$2 | 250–260 | 8.3 | 66.6 | 0.09 | <0.1 | 25 | 18 | 57 |

| $Cl^-$ *mg kg$^{-1}$* | $NO_3^-$–N *mg kg$^{-1}$* | P *mg kg$^{-1}$* | $Ca_{0.5}^+$ *mmol kg$^{-1}$* | $Mg_{0.5}^+$ *mmol kg$^{-1}$* | $K^+$ *mmol kg$^{-1}$* | $Na^+$ *mmol kg$^{-1}$* | $Al_{0.33}^+$ *mmol kg$^{-1}$* | Σcations *mmol kg$^{-1}$* | ESP % |
|---|---|---|---|---|---|---|---|---|---|
| 45 | – | – | 118 | 68 | 15.0 | 5.6 | <1 | 206 | 2.7 |
| 30 | 15.7 | 20 | 90 | 57 | 8.5 | 8.3 | 1 | 165 | 5.0 |
| 23 | 3.7 | 6 | 154 | 87 | 5.4 | 17.7 | <1 | 264 | 6.7 |
| 89 | 2.2 | 1 | 169 | 87 | 3.3 | 36.3 | <1 | 296 | 12.2 |
| 227 | 1.8 | 11 | 215 | 106 | 7.4 | 66.3 | <1 | 395 | 16.8 |
| 347 | 1.8 | 7 | 243 | 112 | 8.0 | 73.6 | <1 | 436 | 16.9 |
| 403 | 0.2 | 1 | 256 | 103 | 7.0 | 90.3 | <1 | 456 | 19.8 |

## Soil chemistry profiles



# Namoi Valley soil study: Edgeroi Sheet

**Site** ed113

**Site location**

Grid reference: 760800mE 6663100mN
stock route
Site described by M. Korevaar on 9 March, 1985
The site is located at a grid point

Elevation: 213m
near Green Timbers

**Site description**

Slope: 1°
Landform: high terrace
Surface dry when sampled
Coarse self-mulching surface
Use: stock route
Visible cracks: width 1mm

Topography: flat

**Profile description**

Soil described by M. Korevaar on 9 March, 1985. Drilled depth 430cm

| Horizon | (cm) | (Sample; depth) |
|---|---|---|
| $A_1$ | 0–6 | (1; 0–6) Very dark grey (10YR3/1, 10YR3/1 dry) medium heavy clay; strong 20–50mm subangular blocky structure; moderately strong; rough-ped fabric; 2–5% <5mm cracks; <2% 0.075–1mm pores; few very fine roots; pH 7.2; genetic boundary, abrupt, smooth change to |
| $A_1$ | 6–20 | (2; 10–20) Very dark greyish brown (10YR3/2, 10YR3/2 dry) medium heavy clay; weak 20–50mm subangular blocky structure; moderately strong; granular fracture; rough-ped fabric; <2% 5–10mm cracks; <2% 0.075–1mm pores; common very fine roots; pH 6.7; genetic boundary, clear, wavy change to |
| $A_1$ | 20–65 | (3; 30–40) Very dark greyish brown (10YR3/2) medium heavy clay; weak 20–50mm subangular blocky structure; very strong; nodular fracture; rough-ped fabric; <2% distinct fine white (10YR8/2) calcareous nodules; <2% <5mm cracks; <2% 0.075–1mm pores; few very fine roots; pH 8.2; genetic boundary, diffuse, smooth change to |
| $B_2$ | 65–95 | (4; 70–80) Dark brown (10YR3/3) medium heavy clay; weak 20–50mm subangular blocky structure; very strong; nodular fracture; rough-ped fabric; <2% distinct medium light grey (10YR7/2) calcareous soft segregations; <2% distinct fine white (10YR8/1) calcareous nodules; <2% <5mm cracks; <2% 0.075–1mm pores; few very fine roots; pH 8.5; genetic boundary, diffuse, smooth change to |
| $B_2$ | 95–300 | (5; 120–130) Dark brown (7.5YR3/4) medium heavy clay; 20–50% distinct coarse very dark greyish brown (10YR3/2) organic stains; apedal massive; very firm; |

| | | |
|---|---|---|
| | | rough fracture; earthy fabric; 20–50% distinct coarse very dark greyish brown (10YR3/2) organic veins; <2% distinct fine white (10YR8/1) calcareous nodules; <2% <5mm cracks; few very fine roots; pH 8.2; |
| $B_2$ | | (6; 250–260) Dark brown (7.5YR4/4) sandy clay; 20–50% distinct coarse dark grey (10YR4/1) organic stains; moderate 10–20mm subangular blocky structure; very firm; smooth-ped fabric; 20–50% distinct very coarse dark grey (10YR4/1) organic stains; <2% distinct fine very pale brown (10YR8/3) calcareous nodules; <2% <5mm cracks; <2% 0.075–1mm pores; few very fine roots; pH 8.3; very diffuse, smooth change to |
| C | 300+ | (7; 400–410) Strong brown (7.5YR5/6) coarse sandy clay; 10–20% distinct coarse very dark greyish brown (2.5Y3/2) organic stains; apedal massive moderate 20–50mm cast granular structure; very firm; nodular fracture; sandy fabric; 10–20% coarse organic veins; <2% <5mm cracks; 2–5% 1–2mm pores; pH 8.5; |

Parent rock: alluvial sediment, mixed texture, with lime, basalt

**Comments**

Epipedon, colour break at 95cm. Does not fit key well as peds more e than s. Visible sedimentary structures at ~3m. At 120cm medium heavy clay has coarse sand in it.

**Soil classification**

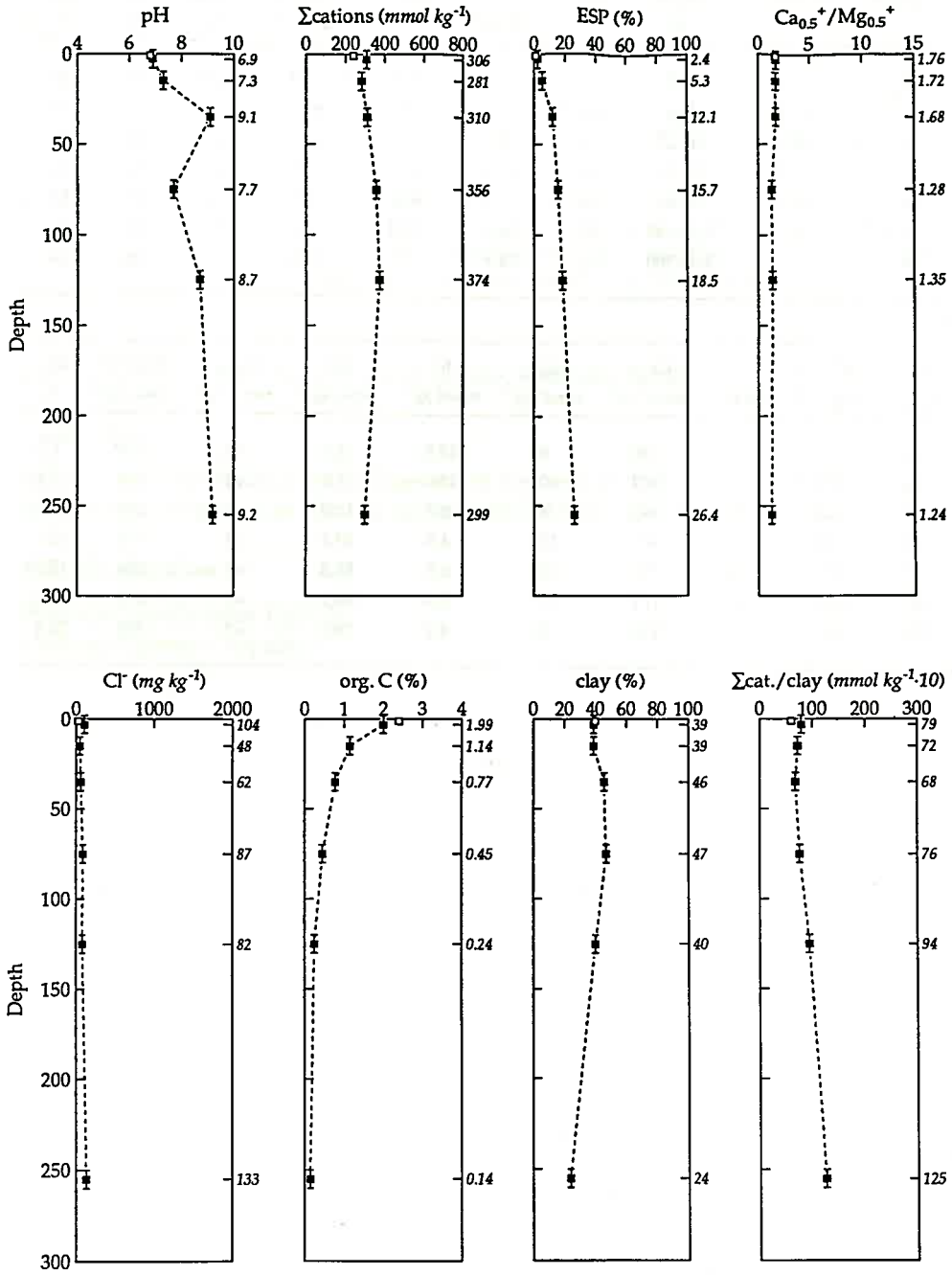
Principal profile form: Ug5.15
Great soil group: Grey clays

## Soil chemical and particle-size analyses

| Sample | Horizon | Depth *cm* | pH | E. C. *mS m$^{-1}$* | org. C % | $CaCO_3$ % | sand % | silt % | clay % |
|---|---|---|---|---|---|---|---|---|---|
| 0 | $A_1$1 | 0–2 | 6.8 | 16.3 | 2.39 | <0.1 | 29 | 27 | 40 |
| 1 | $A_1$1 | 0–6 | 6.9 | 17.5 | 1.99 | <0.1 | 38 | 19 | 39 |
| 2 | $A_1$2 | 10–20 | 7.3 | 9.9 | 1.14 | <0.1 | 39 | 20 | 39 |
| 3 | $A_1$3 | 30–40 | 9.1 | 21.9 | 0.77 | 0.5 | 28 | 25 | 46 |
| 4 | $B_2$1 | 70–80 | 7.7 | 340.0 | 0.45 | 1.1 | 28 | 23 | 47 |
| 5 | $B_2$2 | 120–130 | 8.7 | 46.0 | 0.24 | 0.1 | 43 | 16 | 40 |
| 6 | $B_2$3 | 250–260 | 9.2 | 54.3 | 0.14 | 0.6 | 57 | 18 | 24 |

| $Cl^-$ *mg kg$^{-1}$* | $NO_3^-$–N *mg kg$^{-1}$* | P *mg kg$^{-1}$* | $Ca_{0.5}^+$ *mmol kg$^{-1}$* | $Mg_{0.5}^+$ *mmol kg$^{-1}$* | $K^+$ *mmol kg$^{-1}$* | $Na^+$ *mmol kg$^{-1}$* | $Al_{0.33}^+$ *mmol kg$^{-1}$* | Σcations *mmol kg$^{-1}$* | ESP % |
|---|---|---|---|---|---|---|---|---|---|
| 26 | – | – | 138 | 80 | 18.9 | 2.5 | <1 | 239 | 1.0 |
| 104 | 27.7 | 31 | 179 | 101 | 18.6 | 7.5 | <1 | 306 | 2.4 |
| 48 | 4.2 | 8 | 163 | 95 | 8.0 | 15.0 | <1 | 281 | 5.3 |
| 62 | 1.6 | 2 | 168 | 100 | 4.9 | 37.7 | <1 | 310 | 12.1 |
| 87 | 0.5 | 14 | 165 | 129 | 6.5 | 55.8 | <1 | 356 | 15.7 |
| 82 | <0.1 | 12 | 171 | 127 | 6.8 | 69.1 | <1 | 374 | 18.5 |
| 133 | <0.1 | 9 | 119 | 96 | 4.9 | 78.9 | <1 | 299 | 26.4 |

## Soil chemistry profiles



# Namoi Valley soil study: Edgeroi Sheet

**Site** ed114

**Site location**

Grid reference: 763600mE 6663200mN
Elevation: 220m
Farm name: north of Green Timbers
Site described by G. M. Roberts on 27 June, 1985
The site is located at a grid point

**Site description**

Slope: 0°
Topography: flat
Landform: high terrace, eroded
Surface dry when sampled
Weak surface crust, trampled
Use: native pasture, cattle pasture, sheep pasture
Visible cracks: width 1mm, 2 per metre, depth 600mm

**Site comments**

Large deep open cracks.

**Site vegetation**

The site included bare ground.

The following species were noted:

*Paspalidium, Bassia quinquecuspis, Juncus usitatus.*

**Profile description**

Soil described by K. J. Smith on 9 January, 1987. Drilled depth 267cm

| Horizon | (cm) | (Sample; depth) |
|---|---|---|
| $A_1$ | 0–10 | (1; 0–10) Very dark grey (10YR3/1, 10YR3/1 dry) medium clay; weak 10–20mm subangular blocky structure, breaking to moderate 2–5mm granular structure; moderately strong; rough-ped fabric; 2–5% <5mm cracks; <2% 0.075–1mm pores; few fine roots; pH 6.7; genetic boundary, clear, smooth change to |
| $A_1$ | 10–50 | (2; 10–20) Very dark grey (10YR3/1, 10YR3/1 dry) medium clay; weak 10–20mm subangular blocky structure; moderately strong; smooth-ped fabric; 2–5% <5mm cracks; <2% 0.075–1mm pores; few fine roots; pH 6.7; |
| $A_1$ | | (3; 30–40) Very dark grey (10YR3/1) medium heavy clay; weak 10–20mm angular blocky structure; very strong; smooth-ped fabric; 2–5% <5mm cracks; <2% 0.075–1mm pores; common very fine roots; pH 7.5; genetic boundary, abrupt, smooth change to |

| | | |
|---|---|---|
| $A_1$ | 50–110 | (4; 70–80) Very dark grey (10YR3/1) medium clay; moderate 20–50mm wedge structure, breaking to moderate 10–20mm angular blocky structure; very strong; weak slickensides, polished ped and smooth–ped fabric; <2% faint fine very pale brown (10YR7/3) calcareous nodules; 2–5% <5mm cracks; <2% 0.075–1mm pores; common very fine roots; pH 8.5; genetic boundary, gradual, smooth change to |
| $B_2$ | 110+ | (5; 120–130) Dark reddish grey (5YR4/2) medium heavy clay; 2–10% distinct medium very dark grey (10YR3/1) patches of soil, filling cracks; moderate 50–100mm wedge structure, breaking to moderate 10–20mm angular blocky structure; moderately strong; weak slickensides, polished ped and smooth–ped fabric; 2–10% faint medium very pale brown (10YR7/3) calcareous nodules; <2% <5mm cracks; <2% 0.075–1mm pores; few very fine roots; pH 8.5; |
| $B_2$ | | (6; 250–260) Dark reddish grey (5YR4/2) medium clay; <2% distinct fine very dark grey (10YR3/1) patches of soil, filling cracks; moderate 50–100mm wedge structure, breaking to moderate 10–20mm angular blocky structure; very strong; moderate slickensides, polished ped and smooth–ped fabric; 2–10% faint medium very pale brown (10YR7/3) calcareous nodules; <2% <5mm cracks; <2% 0.075–1mm pores; pH 8.5; |

Parent rock: alluvial sediment, clay, mixed texture, with lime

**Comments**

Layer.04 represents the wedge–structure and slickensides A13 horizon. This profile is very dry to at least 1m. Carbonate is small and very rare to 1m. MVpH.

**Soil classification**

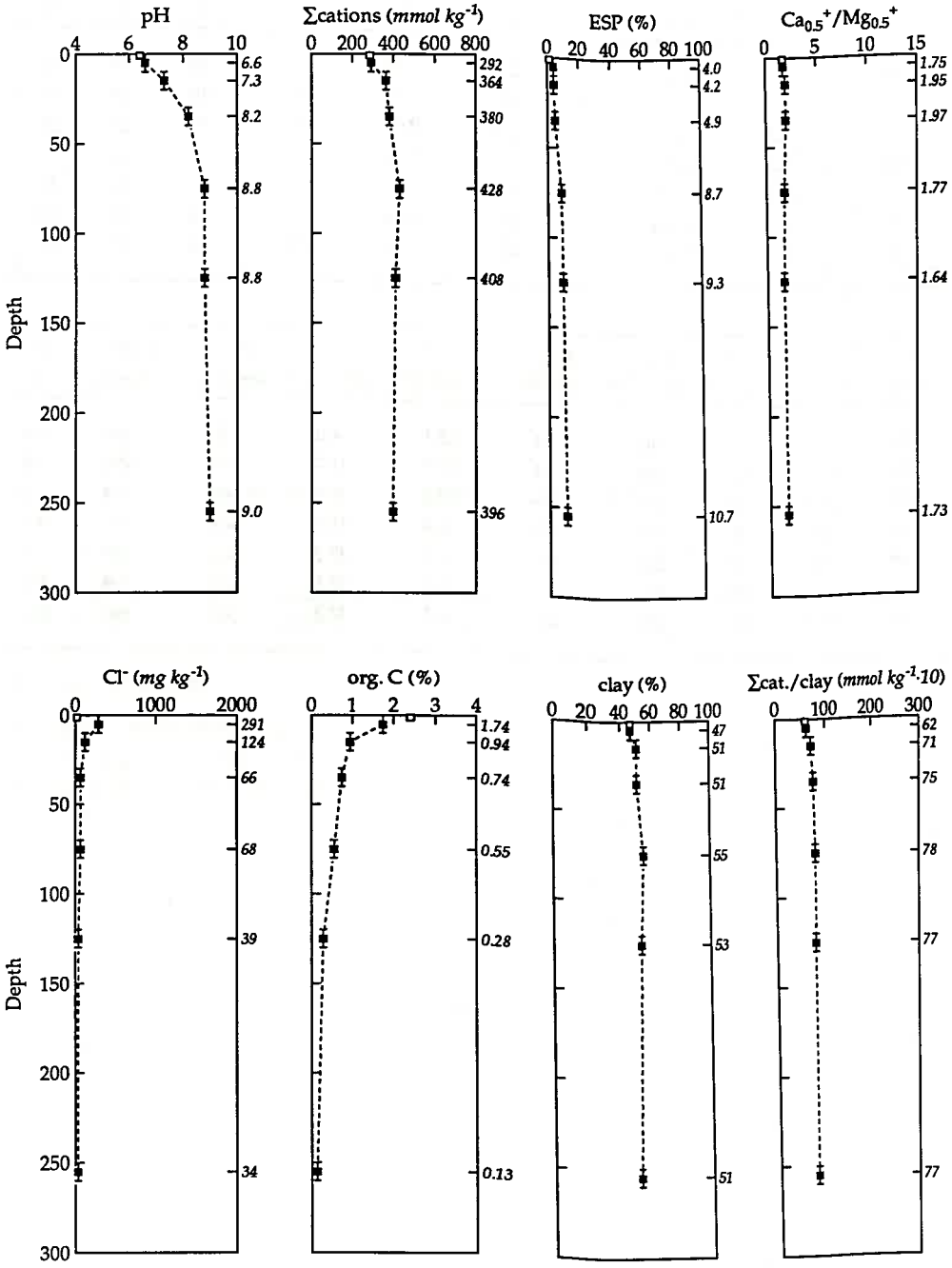
Principal profile form: Ug5.16
Great soil group: Grey clays
Soil taxonomy unit: Pellusterts

## Soil chemical and particle-size analyses

| Sample | Horizon | Depth *cm* | pH | E.C. *mS m$^{-1}$* | org. C % | $CaCO_3$ % | sand % | silt % | clay % |
|---|---|---|---|---|---|---|---|---|---|
| 0 | $A_1$1 | 0–2 | 6.4 | 27.7 | 2.40 | <0.1 | 26 | 22 | 47 |
| 1 | $A_1$1 | 0–10 | 6.6 | 44.2 | 1.74 | <0.1 | 28 | 22 | 47 |
| 2 | $A_1$2 | 10–20 | 7.3 | 18.6 | 0.94 | <0.1 | 25 | 22 | 51 |
| 3 | $A_1$3 | 30–40 | 8.2 | 13.0 | 0.74 | <0.1 | 25 | 24 | 51 |
| 4 | $A_1$4 | 70–80 | 8.8 | 20.8 | 0.55 | 0.1 | – | 24 | 55 |
| 5 | $B_2$ | 120–130 | 8.8 | 29.2 | 0.28 | 0.4 | 22 | 24 | 53 |
| 6 | $B_2$ | 250–260 | 9.0 | 32.0 | 0.13 | 0.8 | 29 | 18 | 51 |

| $Cl^-$ *mg kg$^{-1}$* | $NO_3^-$–N *mg kg$^{-1}$* | P *mg kg$^{-1}$* | $Ca_{0.5}^+$ *mmol kg$^{-1}$* | $Mg_{0.5}^+$ *mmol kg$^{-1}$* | $K^+$ *mmol kg$^{-1}$* | $Na^+$ *mmol kg$^{-1}$* | $Al_{0.33}^+$ *mmol kg$^{-1}$* | Σcations *mmol kg$^{-1}$* | ESP % |
|---|---|---|---|---|---|---|---|---|---|
| 22 | – | – | 162 | 94 | 23.1 | 4.0 | 2 | 286 | 1.4 |
| 291 | 65.5 | 63 | 164 | 94 | 22.8 | 11.7 | <1 | 292 | 4.0 |
| 124 | 21.7 | 14 | 222 | 114 | 12.5 | 15.2 | <1 | 364 | 4.2 |
| 66 | 3.8 | 8 | 235 | 119 | 6.9 | 18.7 | <1 | 380 | 4.9 |
| 68 | 1.0 | 18 | 246 | 139 | 6.7 | 37.3 | <1 | 428 | 8.7 |
| 39 | 0.1 | 19 | 225 | 137 | 7.8 | 37.8 | <1 | 408 | 9.3 |
| 34 | <0.1 | 5 | 220 | 127 | 6.7 | 42.4 | <1 | 396 | 10.7 |

## Soil chemistry profiles



# Namoi Valley soil study: Edgeroi Sheet

**Site** ed115

**Site location**

Grid reference: 766300mE 6663000mN
stock route
Site described by D. McGarry on 1 September, 1985
The site is located at a grid point

Elevation: 226m
near Lockslea

**Site description**

Slope: 0°
Landform: high terrace, eroded
Surface dry when sampled
Weak surface crust, trampled
Use: stock route, wheat, sorghum
Visible cracks: width 1mm

Topography: gently sloping

**Site comments**

Surface seems a little dispersive and crusty.

**Site vegetation**

The following species were noted:

*Atriplex pseudocampanulata, Stipa ?setacea, Brassica tournefortii, Convolvulus erubescens, Bassia quinquecuspis ssp. semiglabra, Chenopodium pseudomicrophyllum.*

**Profile description**

Soil described by D. McGarry on 1 January, 1900. Drilled depth 269cm

| Horizon | (cm) | (Sample; depth) |
|---|---|---|
| $A_1$ | 0–12 | (1; 0–10) Very dark grey (10YR3/1, 10YR4/1 dry) light medium clay; moderate 20–50mm subangular blocky structure; very strong; rough–ped fabric; <2% 5–10mm cracks; <2% 2–5mm pores; common fine roots; <2% 2–6mm subrounded quartz fragments; pH 6.8; genetic boundary, clear, smooth change to |
| $A_1$ | 12–70 | (2; 12–20) Very dark grey (10YR3/1, 10YR3/1 dry) light medium clay; weak 20–50mm subangular blocky structure; very strong; smooth–ped fabric; 2–5% 5–10mm cracks; <2% 0.075–1mm pores; common very fine roots; pH 7.0; |
| $A_1$ | | (3; 30–40) Very dark greyish brown (10YR3/2) medium clay; <2% distinct medium pale brown (10YR6/3) patches of sediment, filling cracks; weak 50–100mm subangular blocky structure; very strong; nodular fracture; smooth–ped fabric; 2–5% 5–10mm cracks; <2% 0.075–1mm pores; common very fine roots; <2% 2–6mm |

| | | |
|---|---|---|
| | | subrounded quartz fragments; pH 8.3; genetic boundary, abrupt, smooth change to |
| $B_2$ | 70–118 | (4; 70–80) Dark brown (10YR3/3) light medium clay; weak 50–100mm subangular blocky structure; moderately strong; nodular fracture; rough–ped fabric; 2–10% distinct coarse pale brown (10YR6/3) calcareous nodules; <2% <5mm cracks; <2% 0.075–1mm pores; few very fine roots; pH 8.7; stratigraphic boundary, abrupt, smooth change to |
| $2B_2$ | 118–190 | (5; 120–130) Dark brown (7.5YR4/4) light medium clay; 2–10% distinct fine dark grey (N4/) organic stains; moderate 10–20mm angular blocky structure; moderately strong; smooth–ped fabric; 2–10% distinct coarse very pale brown (10YR7/3) calcareous nodules; <2% fine manganese nodules; 2–5% <5mm cracks; <2% 1–2mm pores; few very fine roots; pH 8.7; genetic boundary, gradual, smooth change to |
| $2B_2$ | 190+ | (6; 250–260) Strong brown (7.5YR5/6) light medium clay; 2–10% distinct fine dark brown (7.5YR4/2) organic stains; <2% distinct fine very dark grey (N3/) organic stains; weak 50–100mm angular blocky structure; moderately firm; nodular fracture; smooth–ped fabric; <2% <5mm cracks; <2% 0.075–1mm pores; pH 7.8; |

### Comments

It was not possible to sample an immediate surface horizon, though the surface had 1–2mm dispersed material of 10YR5/2. Differentiation of A11 and A12 layers on basis of looseness. A12 being most dense. Dark clay stops abruptly at a shallow depth, i.e. 70cm. The buried B21b is very well structured. B22b appeeared more sandy than B21b but this was not evident in the texture.

### Soil classification

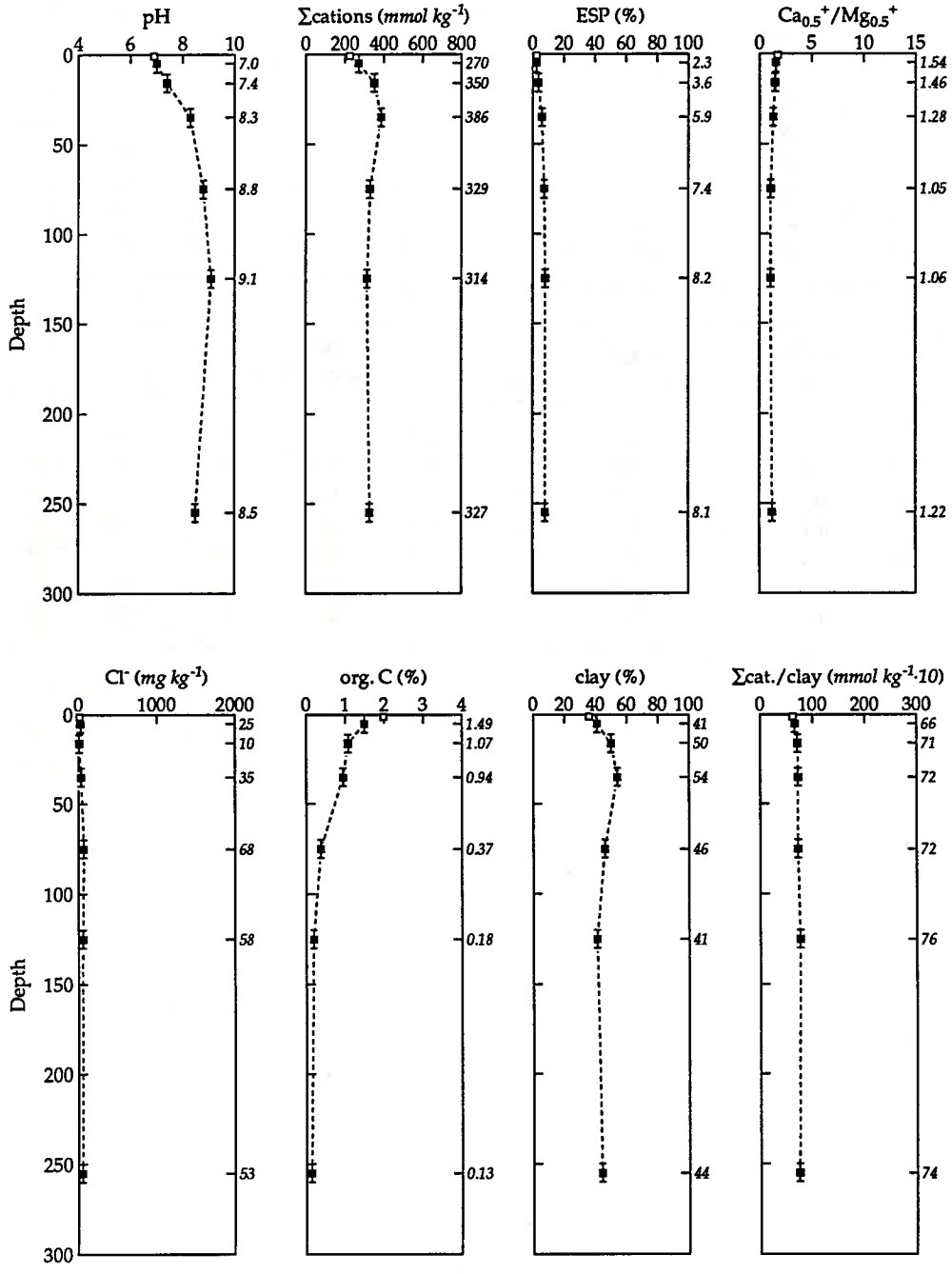
Principal profile form: Ug5.15
Great soil group: Grey clays

## Soil chemical and particle-size analyses

| Sample | Horizon | Depth *cm* | pH | E.C. *mS m$^{-1}$* | org. C % | $CaCO_3$ % | sand % | silt % | clay % |
|---|---|---|---|---|---|---|---|---|---|
| 0 | $A_1$1 | 0–2 | 6.9 | 6.8 | 1.98 | <0.1 | 44 | 16 | 36 |
| 1 | $A_1$1 | 0–10 | 7.0 | 10.0 | 1.49 | <0.1 | 40 | 16 | 41 |
| 2 | $A_1$2 | 12–20 | 7.4 | 8.1 | 1.07 | <0.1 | 33 | 16 | 50 |
| 3 | $A_1$2 | 30–40 | 8.3 | 10.6 | 0.94 | <0.1 | 28 | 17 | 54 |
| 4 | $B_2$ | 70–80 | 8.8 | 25.1 | 0.37 | 4.9 | 26 | 23 | 46 |
| 5 | $2B_2$1 | 120–130 | 9.1 | 20.5 | 0.18 | 2.1 | 33 | 23 | 41 |
| 6 | $2B_2$2 | 250–260 | 8.5 | 11.2 | 0.13 | <0.1 | 35 | 20 | 44 |

| $Cl^-$ *mg kg$^{-1}$* | $NO_3^-$–N *mg kg$^{-1}$* | P *mg kg$^{-1}$* | $Ca_{0.5}^+$ *mmol kg$^{-1}$* | $Mg_{0.5}^+$ *mmol kg$^{-1}$* | $K^+$ *mmol kg$^{-1}$* | $Na^+$ *mmol kg$^{-1}$* | $Al_{0.33}^+$ *mmol kg$^{-1}$* | Σcations *mmol kg$^{-1}$* | ESP % |
|---|---|---|---|---|---|---|---|---|---|
| 15 | – | – | 128 | 75 | 17.7 | 5.3 | <1 | 225 | 2.4 |
| 25 | 9.6 | 65 | 150 | 98 | 16.2 | 6.3 | <1 | 270 | 2.3 |
| 10 | 4.5 | 16 | 194 | 133 | 10.6 | 12.7 | <1 | 350 | 3.6 |
| 35 | 0.6 | 16 | 200 | 156 | 8.2 | 22.6 | <1 | 386 | 5.9 |
| 68 | 0.2 | 26 | 153 | 145 | 6.9 | 24.4 | <1 | 329 | 7.4 |
| 58 | 0.2 | 11 | 145 | 137 | 6.0 | 25.8 | <1 | 314 | 8.2 |
| 53 | 0.2 | 17 | 162 | 133 | 5.0 | 26.6 | <1 | 327 | 8.1 |

## Soil chemistry profiles



# Namoi Valley soil study: Edgeroi Sheet

**Site** ed116

**Site location**

Grid reference: 769000mE 6662900mN
Elevation: 235m
Farmer: A.R.(Alan) & A.E.Campbell
Farm name: Avondale
Site described by D. McGarry on 15 September, 1985
The site is located at a grid point

**Site description**

Slope: 0°
Topography: flat
Landform: middle terrace
Surface dry when sampled
Weak surface crust, cultivated
Use: wheat, cattle pasture
Visible cracks: width 1mm

**Site comments**

This site is 200m upslope from a small stream. The surface is quite crusty, a little dispersive perhaps. Gypsum crystals at 100cm.

**Site vegetation**

The site was under wheat.

**Profile description**

Soil described by W. T. Ward on 3 February, 1986. Drilled depth 279cm

| Horizon | (cm) | (Sample; depth) |
|---|---|---|
| $A_1p$ | 0–10 | (1; 0–10) Dark brown (7.5YR3/2, 7.5YR3/2 dry) light medium clay; weak 10–20mm angular blocky structure, with weak 2–5mm granular structure; moderately weak; earthy fabric; <2% <5mm cracks; <2% 0.075–1mm pores; few very fine roots; pH 7.5; plough sole, diffuse, smooth change to |
| $A_1$ | 10–50 | (2; 10–20) Dark brown (7.5YR3/2) medium clay; moderate 20–50mm prismatic structure; very firm; earthy fabric; <2% <5mm cracks; few very fine roots; pH 8.0; |
| $A_1$ | | (3; 30–40) Dark brown (7.5YR3/2) medium clay; moderate 20–50mm prismatic structure, breaking to weak 10–20mm subangular blocky structure; moderately strong; earthy fabric; <2% <5mm cracks; <2% 0.075–1mm pores; few very fine roots; pH 8.8; genetic boundary, diffuse, smooth change to |
| $B_2$ | 50–100 | (4; 70–80) Dark reddish brown (5YR3/2) medium clay; moderate 20–50mm prismatic structure, breaking to moderate 10–20mm subangular blocky structure; |

| | | |
|---|---|---|
| | | moderately strong; earthy fabric; 10–20% distinct fine reddish grey (5YR5/2) calcareous nodules; <2% <5mm cracks; <2% 0.075–1mm pores; few very fine roots; pH 8.8; genetic boundary, diffuse, smooth change to |
| $2A_1$ | 100–230 | (5; 120–130) Dark brown (7.5YR3/2) medium heavy clay; <2% distinct fine brown (7.5YR5/4) patches of sediment, filling cracks; moderate 20–50mm angular blocky structure, with moderate 2–5mm cast granular structure; moderately firm; smooth–ped and earthy fabric; 2–10% distinct fine pinkish grey (7.5YR6/2) calcareous nodules; <2% fine gypsum crystals; <2% <5mm cracks; <2% 2–5mm pores; <2% 6–20mm subrounded sandstone fragments; pH 8.8; genetic boundary, gradual, smooth change to |
| $2B_2m$ | 230+ | (6; 250–260) Brown (7.5YR5/2) medium heavy clay; 10–20% faint medium dark brown (7.5YR4/2) mottles; strong 20–50mm prismatic structure, breaking to weak 20–50mm wedge structure moderate slickensides, smooth–ped fabric; 2–10% prominent fine black (N2/) manganese laminae; <2% fine gypsum crystals; <2% <5mm cracks; few very fine roots; <2% 2–6mm subrounded quartz fragments; pH 6.5; |

Parent rock: alluvial sediment, mixed texture, non-calcareous

### Comments

A friable, weak fine crumb structure occurs in 0–10cm. 120–130 is generally a dull grey 7.5YR3/2–4/2 with browner inwashed sand. There are infilled cracks still occuring at 250–260cm. Gypsum continues down to 230, after which the manganese occurs. The soil below 110 is possibly a buried A, guessing from the improved structure and common infilled cracks, but infilled cracks at 70–80 also. Notice low CO3 content v.high gypsum, ?paludal deposition. ?Red soil over buried prior soil.

### Soil classification

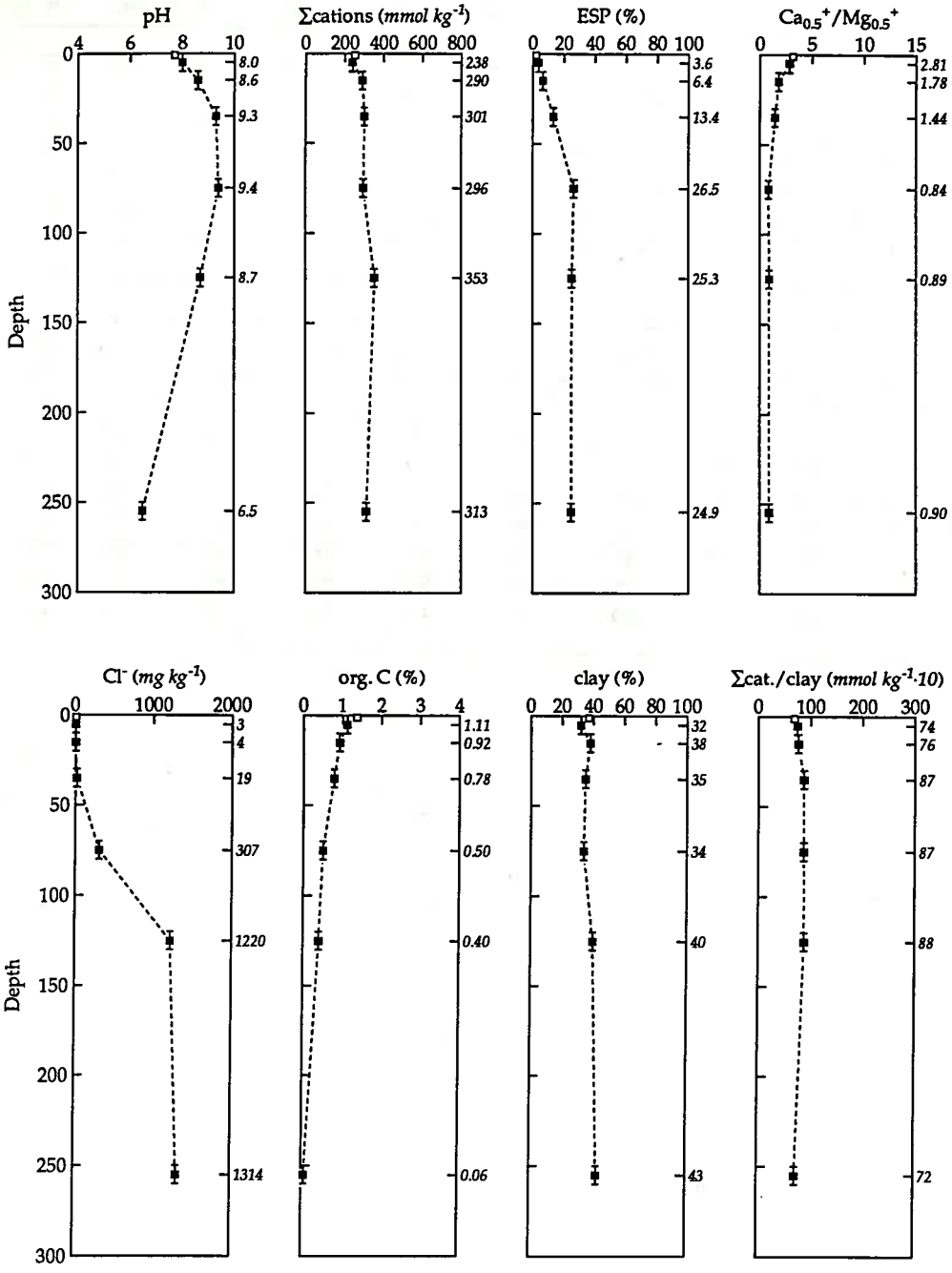
Principal profile form: Ug6.1
Great soil group: Brown clays

## Soil chemical and particle-size analyses

| Sample | Horizon | Depth *cm* | pH | E.C. *mS m$^{-1}$* | org. C % | $CaCO_3$ % | sand % | silt % | clay % |
|---|---|---|---|---|---|---|---|---|---|
| 0 | $A_1p$ | 0–2 | 7.7 | 6.1 | 1.36 | <0.1 | 40 | 20 | 37 |
| 1 | $A_1p$ | 0–10 | 8.0 | 13.3 | 1.11 | 0.2 | 50 | 15 | 32 |
| 2 | $A_11$ | 10–20 | 8.6 | 11.6 | 0.92 | <0.1 | 47 | 13 | 38 |
| 3 | $A_12$ | 30–40 | 9.3 | 26.2 | 0.78 | 5.9 | 45 | 13 | 35 |
| 4 | $B_2$ | 70–80 | 9.4 | 60.6 | 0.50 | 7.1 | 41 | 17 | 34 |
| 5 | $2A_1$ | 120–130 | 8.7 | 154.2 | 0.40 | 3.3 | 37 | 18 | 40 |
| 6 | $2B_2m$ | 250–260 | 6.5 | 121.5 | 0.06 | <0.1 | 39 | 17 | 43 |

| $Cl^-$ *mg kg$^{-1}$* | $NO_3^-$–N *mg kg$^{-1}$* | P *mg kg$^{-1}$* | $Ca_{0.5}^+$ *mmol kg$^{-1}$* | $Mg_{0.5}^+$ *mmol kg$^{-1}$* | $K^+$ *mmol kg$^{-1}$* | $Na^+$ *mmol kg$^{-1}$* | $Al_{0.33}^+$ *mmol kg$^{-1}$* | Σcations *mmol kg$^{-1}$* | ESP % |
|---|---|---|---|---|---|---|---|---|---|
| 7 | – | – | 173 | 55 | 17.7 | 5.2 | <1 | 251 | 2.1 |
| 3 | 18.8 | 26 | 159 | 57 | 13.9 | 8.6 | <1 | 238 | 3.6 |
| 4 | 4.4 | 8 | 168 | 94 | 9.0 | 18.4 | <1 | 290 | 6.4 |
| 19 | 2.6 | 7 | 151 | 105 | 5.0 | 40.4 | <1 | 301 | 13.4 |
| 307 | 9.8 | 18 | 97 | 116 | 4.1 | 78.5 | <1 | 296 | 26.5 |
| 1220 | 9.5 | 14 | 121 | 137 | 5.8 | 89.3 | <1 | 353 | 25.3 |
| 1314 | 1.1 | 20 | 109 | 121 | 4.7 | 78.0 | <1 | 313 | 24.9 |

## Soil chemistry profiles



# Namoi Valley soil study: Edgeroi Sheet

**Site** ed117

**Site location**

Grid reference: 771800mE 6662900mN
Elevation: 248m
Farmer: P.E.(Phil) Tout
Farm name: Belbowrie
Site described by D. McGarry on 16 April, 1985
The site is located at a grid point

**Site description**

Slope: 0°
Topography: flat
Landform: floodplain
Surface dry when sampled
Hard-setting surface, poached
Use: cattle pasture, wheat
Visible cracks: width 1mm

**Site comments**

This site is beside a small stream, at base of basaltic [sic] ridge (where Belbowrie house is built ). Hard surface, very like ?site 211.

**Site vegetation**

The following species were noted:

*Eucalyptus populnea, Enteropogon acicularis, Aristida, Asteraceae, Brassica tournefortii, Solanum, Bassia quinquecuspis var. villosa, Silybum marianum.*

These specimens were observed but not identified:

103.

**Profile description**

Soil described by M. E. Heape on 13 February, 1986. Drilled depth 261cm

| Horizon | (cm) | (Sample; depth) |
|---|---|---|
| $A_1$ | 0–15 | (1; 0–10) Very dark greyish brown (10YR3/2, 10YR5/1 dry) sandy clay loam; weak 20–50mm subangular blocky structure; very weak; nodular fracture; earthy and sandy fabric; <2% <5mm cracks; common very fine roots; pH 7.5; |
| $A_1$ | | (2; 10–15) Grey (10YR5/1) sandy light clay; weak 20–50mm subangular blocky structure; moderately weak; nodular fracture; earthy and sandy fabric; <2% <5mm cracks; <2% 0.075–1mm pores; few very fine roots; pH 7.5; genetic boundary, abrupt, wavy change to |

| | | |
|---|---|---|
| $B_2$ | 15–40 | (3; 15–20) Very dark brown (10YR2/2) medium clay; weak >100mm prismatic structure; very firm; nodular fracture; earthy and sandy fabric; <2% <5mm cracks; <2% 0.075–1mm pores; few very fine roots; pH 7.5; |
| $B_2$ | | (4; 30–40) Dark grey (10YR4/1) medium heavy clay; moderate 50–100mm platy structure, breaking to moderate 20–50mm subangular blocky structure; moderately firm; earthy and sandy fabric; <2% <5mm cracks; <2% 0.075–1mm pores; few very fine roots; pH 8.0; genetic boundary, gradual, smooth change to |
| $B_2k$ | 40–200 | (5; 70–80) Grey (10YR5/1) medium heavy clay; strong 20–50mm prismatic structure; moderately strong; earthy and smooth-ped fabric; 2–10% prominent medium white (10YR8/1) calcareous soft segregations; <2% <5mm cracks; <2% 0.075–1mm pores; few very fine roots; pH 8.5; |
| $B_2k$ | | (6; 120–130) Greyish brown (10YR5/2) medium clay; 20–50% distinct very coarse dark grey (10YR4/1) organic stains; moderate 10–20mm prismatic structure; moderately strong; earthy fabric; <2% prominent medium white (10YR8/2) calcareous soft segregations; <2% <5mm cracks; pH 8.0; genetic boundary, diffuse, smooth change to |
| C | 200+ | (7; 250–260) Brown (10YR5/3) medium clay; 10–20% distinct medium dark grey (10YR4/1) organic stains; 20–50% distinct coarse grey (10YR5/1) mottles; apedal massive; very strong; nodular fracture; earthy fabric; pH 6.5; |

Parent rock: alluvial sediment, clay, sand

**Comments**

167–261 (3 inch core ) B2/C contact marked by manganese. Notice degraded top and dark B horizon.

**Soil classification**

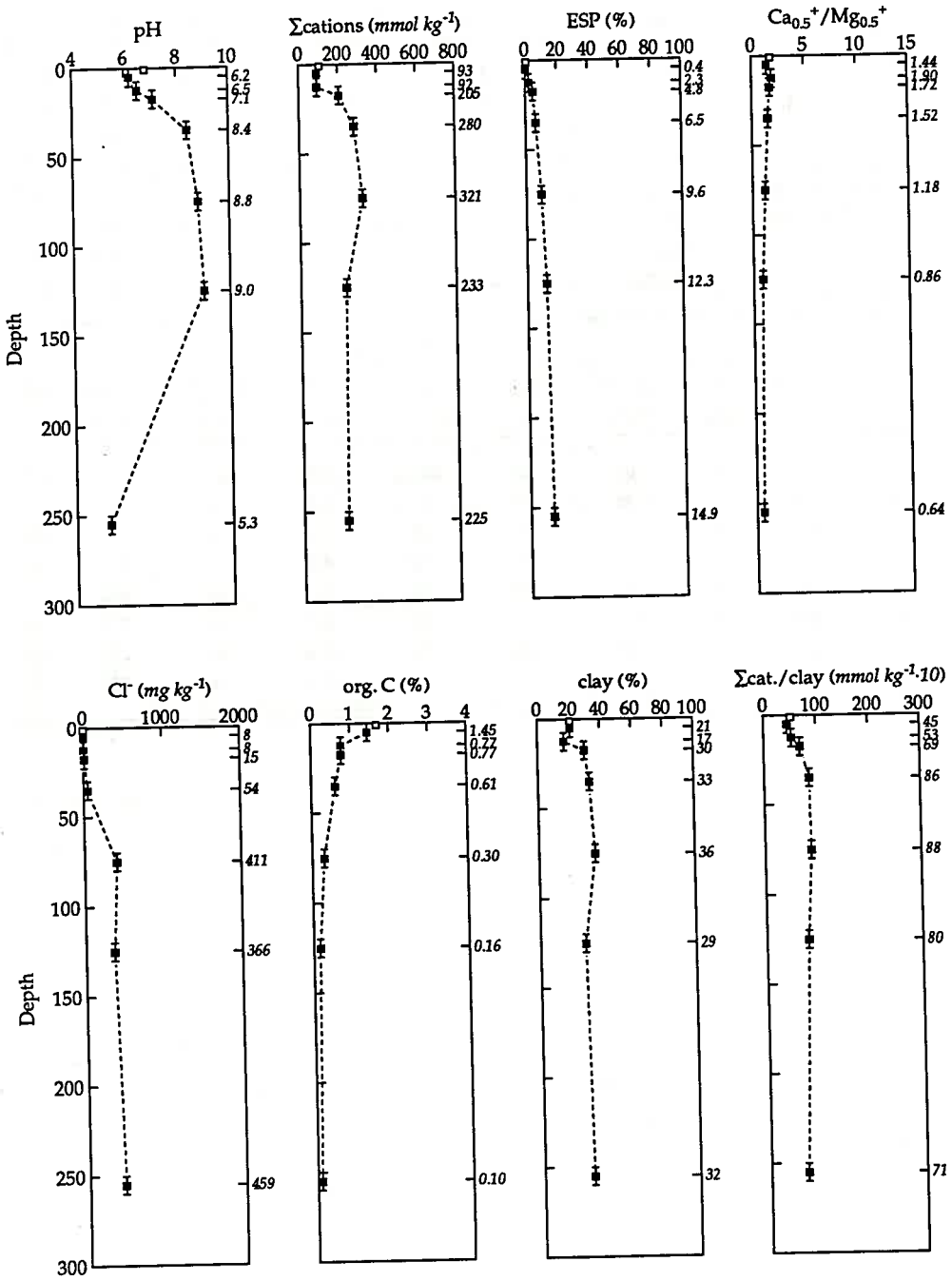
Principal profile form: Dd1.41
Great soil group: Solonetz

## Soil chemical and particle-size analyses

| Sample | Horizon | Depth *cm* | pH | E. C. *mS m$^{-1}$* | org. C % | $CaCO_3$ % | sand % | silt % | clay % |
|---|---|---|---|---|---|---|---|---|---|
| 0 | $A_1$1 | 0–2 | 6.8 | 4.8 | 1.69 | <0.1 | 64 | 13 | 21 |
| 1 | $A_1$1 | 0–10 | 6.2 | 14.2 | 1.45 | <0.1 | 65 | 12 | 21 |
| 2 | $A_1$2 | 10–15 | 6.5 | 4.9 | 0.77 | <0.1 | 70 | 11 | 17 |
| 3 | $B_2$1 | 15–20 | 7.1 | 4.6 | 0.77 | <0.1 | 58 | 11 | 30 |
| 4 | $B_2$2 | 30–40 | 8.4 | 8.6 | 0.61 | <0.1 | 55 | 11 | 33 |
| 5 | $B_2$k1 | 70–80 | 8.8 | 48.1 | 0.30 | 1.4 | 51 | 10 | 36 |
| 6 | $B_2$k2 | 120–130 | 9.0 | 44.2 | 0.16 | 0.3 | 61 | 9 | 29 |
| 7 | C | 250–260 | 5.3 | 44.3 | 0.10 | <0.1 | 60 | 8 | 32 |

| $Cl^-$ *mg kg$^{-1}$* | $NO_3^-$–N *mg kg$^{-1}$* | P *mg kg$^{-1}$* | $Ca_{0.5}^+$ *mmol kg$^{-1}$* | $Mg_{0.5}^+$ *mmol kg$^{-1}$* | $K^+$ *mmol kg$^{-1}$* | $Na^+$ *mmol kg$^{-1}$* | $Al_{0.33}^+$ *mmol kg$^{-1}$* | Σcations *mmol kg$^{-1}$* | ESP % |
|---|---|---|---|---|---|---|---|---|---|
| 5 | – | – | 61 | 34 | 10.4 | 0.7 | <1 | 106 | 0.7 |
| 8 | 50.9 | 14 | 48 | 33 | 9.3 | 0.4 | 2 | 93 | 0.4 |
| 8 | 12.3 | 5 | 55 | 29 | 4.5 | 2.1 | 1 | 92 | 2.3 |
| 15 | 3.1 | 3 | 121 | 70 | 3.7 | 9.8 | <1 | 205 | 4.8 |
| 54 | 0.9 | <1 | 157 | 103 | 2.2 | 18.3 | <1 | 280 | 6.5 |
| 411 | 0.9 | <1 | 156 | 132 | 1.9 | 30.7 | <1 | 321 | 9.6 |
| 366 | 1.7 | <1 | 93 | 109 | 2.6 | 28.6 | <1 | 233 | 12.3 |
| 459 | 0.6 | 6 | 72 | 114 | 1.5 | 33.5 | 4 | 225 | 14.9 |

## Soil chemistry profiles



# Namoi Valley soil study: Edgeroi Sheet

**Site** ed118

**Site location**

Grid reference: 774600mE 6662800mN
Elevation: 271m
Farmer: Bruce Foster
Farm name: Newlands
Site described by E. Veldhuis on 27 August, 1985
The site is located at a grid point

**Site description**

Slope: 1° Slope direction: 060°
Topography: gently sloping
Landform: fan
Surface moist when sampled
Loose surface, cultivated
Use: fallow, wheat

**Site vegetation**

The site was under wheat.

The following species were noted:

*Stipa ?scabra, Malvaceae ?Emex, Polygonum lapathifolium, Wahlenbergia fluminalis, Bassia quinquecuspis, Polygonum arenastrum, Carthamus lanatus.*

**Profile description**

Soil described by G. M. Roberts on 30 April, 1985. Drilled depth 273cm

| Horizon | (cm) | (Sample; depth) |
|---|---|---|
| $A_1$ | 0–16 | (1; 0–10) Very dark greyish brown (10YR3/2, 10YR5/3 dry) loamy sand; weak 5–10mm subangular blocky structure; very weak; smooth-ped fabric; <2% 0.075–1mm pores; common fine roots; pH 6.0; genetic boundary, clear, smooth change to |
| $A_2$ | 16–30 | (2; 10–20) Very dark greyish brown (10YR3/2, 10YR5/3 dry) loamy sand; 2–10% faint fine very dark grey (10YR3/1) organic stains; weak 5–10mm subangular blocky structure; very weak; smooth-ped fabric; <2% 0.075–1mm pores; few very fine roots; pH 7.0; |
| $A_2$ | | (3; 20–30) Very dark greyish brown (10YR3/2, 10YR5/3 dry) sandy clay; moderate biscuitty structure, breaking to weak 10–20mm subangular blocky structure; moderately weak; rough fracture; earthy fabric; 2–5% 1–2mm pores; few very fine roots; pH 8.0; genetic boundary, sharp, smooth change to |
| $B_2$ | 30–90 | (4; 30–40) Dark greyish brown (10YR4/2, 10YR5/2 dry) coarse sandy clay; moderate biscuitty structure, breaking to moderate 10–20mm subangular blocky |

| | | |
|---|---|---|
| | | structure; moderately strong; earthy fabric; <2% faint fine yellowish brown (10YR5/6) ferruginous soft segregations; <2% <5mm cracks; 2–5% 1–2mm pores; few very fine roots; <2% 2–6mm rounded tabular quartz fragments; pH 8.5; |
| $B_2$ | | (5; 70–80) Dark greyish brown (10YR4/2, 10YR4/3 dry) medium heavy clay; moderate biscuitty structure, breaking to moderate 10–20mm angular blocky structure; moderately strong; earthy and polished ped fabric; 10–20% distinct medium yellowish brown (10YR5/6) ferruginous stains; <2% <5mm cracks; <2% 0.075–1mm pores; few very fine roots; <2% 2–6mm rounded tabular quartz fragments; pH 8.8; genetic boundary, clear, smooth change to |
| $B_2$ | 90–160 | (6; 120–130) Greyish brown (10YR5/2) medium clay; 10–20% distinct fine brownish yellow (10YR6/8) patches of sediment, filling cracks; <2% faint fine yellowish brown (10YR5/6) flecks produced by faunal mixing; moderate biscuitty structure; very strong; earthy fabric; 10–20% coarse calcareous concretions; <2% fine ferruginous stains; <2% fine manganese nodules; <2% <5mm cracks; <2% 0.075–1mm pores; few very fine roots; pH 8.6; genetic boundary, clear, smooth change to |
| $B_2$ | 160+ | (7; 250–260) Greyish brown (10YR5/2) medium clay; moderate biscuitty structure; very strong; weak slickensides, earthy fabric; <2% prominent fine dusky red (5R3/2) unidentified stains; <2% fine ferruginous soft segregations; <2% <5mm cracks; few very fine roots; 2–10% 20–60mm rounded quartz fragments; pH 5.7; |

## Soil classification

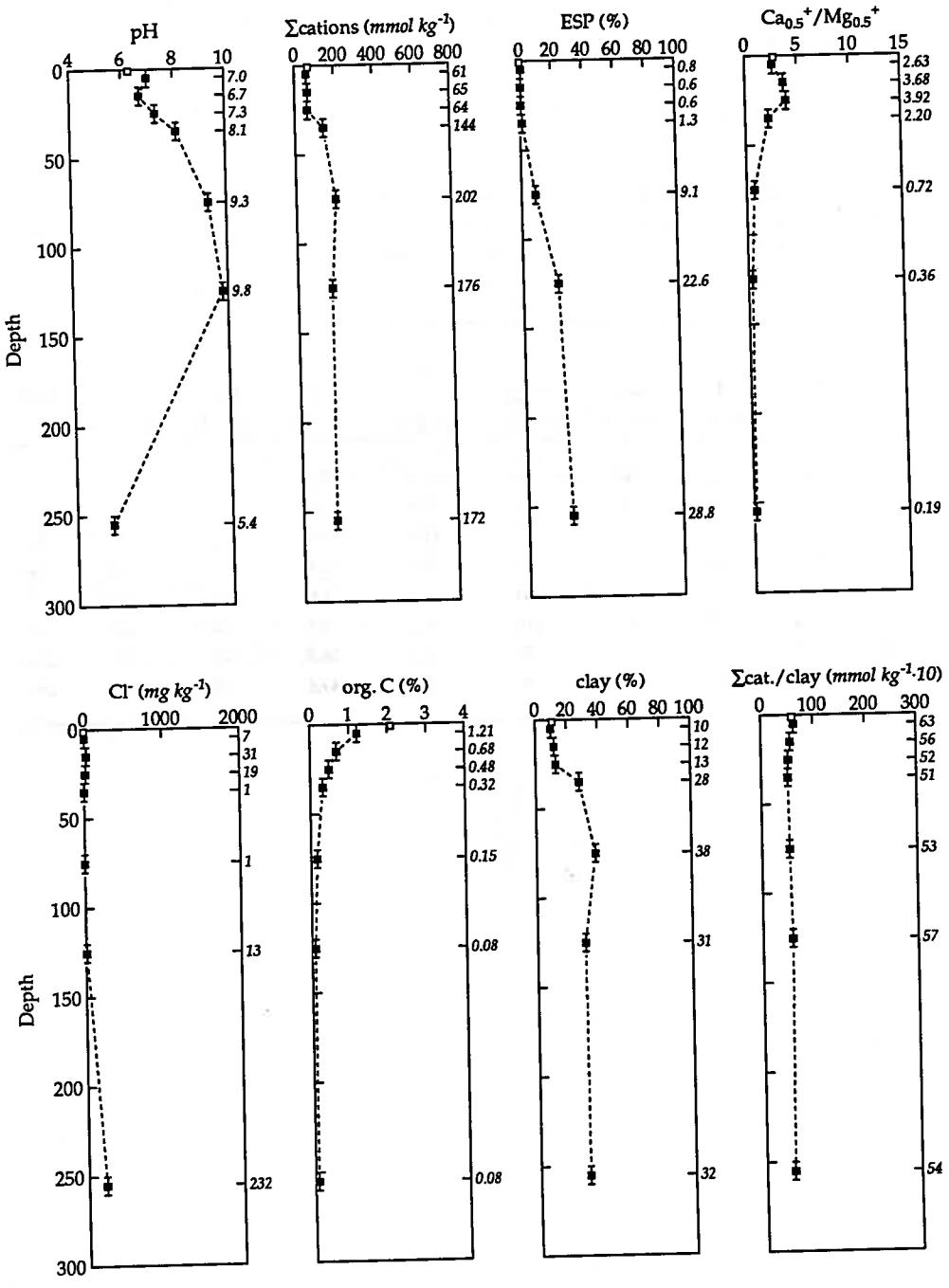
Principal profile form: Dy4.13
Great soil group: Solodic soils

## Soil chemical and particle-size analyses

| Sample | Horizon | Depth *cm* | pH | E.C. *mS m$^{-1}$* | org. C % | $CaCO_3$ % | sand % | silt % | clay % |
|---|---|---|---|---|---|---|---|---|---|
| 0 | $A_1$ | 0–2 | 6.3 | 13.3 | 2.09 | <0.1 | 76 | 9 | 11 |
| 1 | $A_1$ | 0–10 | 7.0 | 8.2 | 1.21 | <0.1 | 82 | 6 | 10 |
| 2 | $A_21$ | 10–20 | 6.7 | 16.8 | 0.68 | <0.1 | 81 | 6 | 12 |
| 3 | $A_22$ | 20–30 | 7.3 | 7.7 | 0.48 | 0.1 | 81 | 6 | 13 |
| 4 | $B_21$ | 30–40 | 8.1 | 4.8 | 0.32 | 0.1 | 65 | 6 | 28 |
| 5 | $B_22$ | 70–80 | 9.3 | 8.5 | 0.15 | 0.1 | 57 | 5 | 38 |
| 6 | $B_23$ | 120–130 | 9.8 | 34.0 | 0.08 | 1.5 | 62 | 5 | 31 |
| 7 | $B_24$ | 250–260 | 5.4 | 31.7 | 0.08 | <0.1 | 62 | 6 | 32 |

| $Cl^-$ *mg kg$^{-1}$* | $NO_3^-$–N *mg kg$^{-1}$* | P *mg kg$^{-1}$* | $Ca_{0.5}^+$ *mmol kg$^{-1}$* | $Mg_{0.5}^+$ *mmol kg$^{-1}$* | $K^+$ *mmol kg$^{-1}$* | $Na^+$ *mmol kg$^{-1}$* | $Al_{0.33}^+$ *mmol kg$^{-1}$* | Σcations *mmol kg$^{-1}$* | ESP % |
|---|---|---|---|---|---|---|---|---|---|
| 2 | – | – | 43 | 15 | 9.8 | 0.1 | <1 | 68 | 0.1 |
| 7 | 0.6 | <1 | 35 | 13 | 12.4 | 0.5 | <1 | 61 | 0.8 |
| 31 | 30.8 | 8 | 41 | 11 | 12.6 | 0.4 | <1 | 65 | 0.6 |
| 19 | 15.8 | 6 | 43 | 11 | 9.9 | 0.4 | <1 | 64 | 0.6 |
| 1 | 2.6 | 2 | 90 | 41 | 12.0 | 1.9 | <1 | 144 | 1.3 |
| 1 | 1.4 | <1 | 74 | 102 | 8.2 | 18.5 | <1 | 202 | 9.1 |
| 13 | 1.2 | 4 | 35 | 97 | 4.5 | 39.8 | <1 | 176 | 22.6 |
| 232 | 3.7 | 3 | 17 | 86 | 1.7 | 49.6 | 19 | 172 | 28.8 |

## Soil chemistry profiles



# Namoi Valley soil study: Edgeroi Sheet

**Site** ed119

**Site location**

Grid reference: 777000mE 6663000mN
Forestry Commission of NSW
Site described by W. T. Ward on 7 August, 1985
The site is located at a proximate grid point

Elevation: 294m
Bobbiwaa State Forest

**Site description**

Slope: 1° Slope direction: 225°
Landform: pediment
Surface moist when sampled
Firm surface, virgin state
Use: native forest, native pasture
Visible cracks: width 1mm

Topography: gently sloping

**Site comments**

Target is inaccessible, this site is 350m away. Note base pedisediment at 160cm, stone layer.

**Site vegetation**

The site included bare ground.

The following species were noted:

*Geijera parviflora, Casuarina cristata, Enteropogon acicularis, Stipa ?setacea, Cheilanthes tenuifolia ssp. tenuifolia.*

These specimens were observed but not identified:

102, 270.

**Profile description**

Soil described by M. E. Heape on 11 February, 1986. Drilled depth 290cm

| Horizon | (cm) | (Sample; depth) |
|---|---|---|
| $A_1$ | 0–10 | (1; 0–10) Dark brown (7.5YR4/2, 5YR4/2 dry) sandy medium clay; 2–10% distinct coarse pinkish grey (7.5YR6/2) sporadic bleach; weak 20–50mm subangular blocky structure, breaking to weak 2–5mm granular structure; very weak; granular fracture; earthy fabric; 2–5% <5mm cracks; few very fine roots; pH 6.5; genetic boundary, abrupt, wavy change to |
| $B_2$ | 10–60 | (2; 10–20) Dark brown (7.5YR3/2) sandy medium clay; moderate 20–50mm |

| | | |
|---|---|---|
| | | subangular blocky structure; moderately firm; earthy fabric; <2% <5mm cracks; <2% 0.075–1mm pores; few very fine roots; pH 7.0; |
| $B_2$ | | (3; 30–40) Brown (10YR4/3) sandy medium clay; 20–50% prominent very coarse dark brown (7.5YR3/2) organic stains; weak 20–50mm prismatic structure; very firm; smooth fracture; earthy fabric; <2% <5mm cracks; few fine roots; pH 7.5; |
| $B_2$ | | (4; 70–80) Brown (7.5YR5/4) sandy clay loam; 10–20% distinct coarse dark brown (7.5YR3/2) organic stains; moderate 10–20mm angular blocky structure, with moderate 2–5mm cast granular structure; moderately strong; earthy fabric; <2% prominent coarse white (10YR8/2) calcareous soft segregations; <2% <5mm cracks; few very fine roots; pH 8.5; genetic boundary, diffuse, smooth change to |
| $B_2v$ | 60–130 | (5; 120–130) Light yellowish brown (10YR6/4) medium heavy clay; 2–10% prominent coarse dark brown (7.5YR3/2) organic stains; weak 20–50mm angular blocky structure, with moderate 2–5mm cast granular structure; moderately strong; granular fracture; earthy fabric; 10–20% prominent coarse pinkish white (7.5YR8/2) calcareous soft segregations; <2% <5mm cracks; 2–5% 2–5mm pores; few coarse roots; pH 8.5; genetic boundary, diffuse, smooth change to |
| D | 130+ | (6; 250–260) Red (2.5YR4/6) medium clay; 20–50% prominent very coarse yellowish brown (10YR5/4) mottles; <2% prominent coarse dark reddish brown (5YR3/4) organic stains; moderate >100mm wedge structure, breaking to apedal massive; moderately strong; weak slickensides, nodular fracture; earthy and polished ped fabric; <2% <5mm cracks; few medium roots; pH 5.5; |

Parent rock: colluvial sediment, from sandstone, with lime, sandstone

### Comments

Sharp break at 165cm marks limit of pedisediment. The break is succeeded by 10cm sands and subangular fragments of sandstone and argillite. 2.5YR4/6 at 250–260 is 2–10%, the central colour of the peds. 250–260 has 2% 7.5YR2/0 charcoal, mostly as fine pieces. Slicks = polished ped faces at 250. Suspected stratigraphic break from non–calcareous sand to calcareous sandy clays at 60cm. A solodic soil with ?aeolian lime on pedisediment over weathering sandstone, the whole profile formerly red–weathered. Surprised to find slickensides below 200cm. The last two textures are "with sand". Topsoil texture in core looked sandy but felt sandy medium clay.

### Soil classification

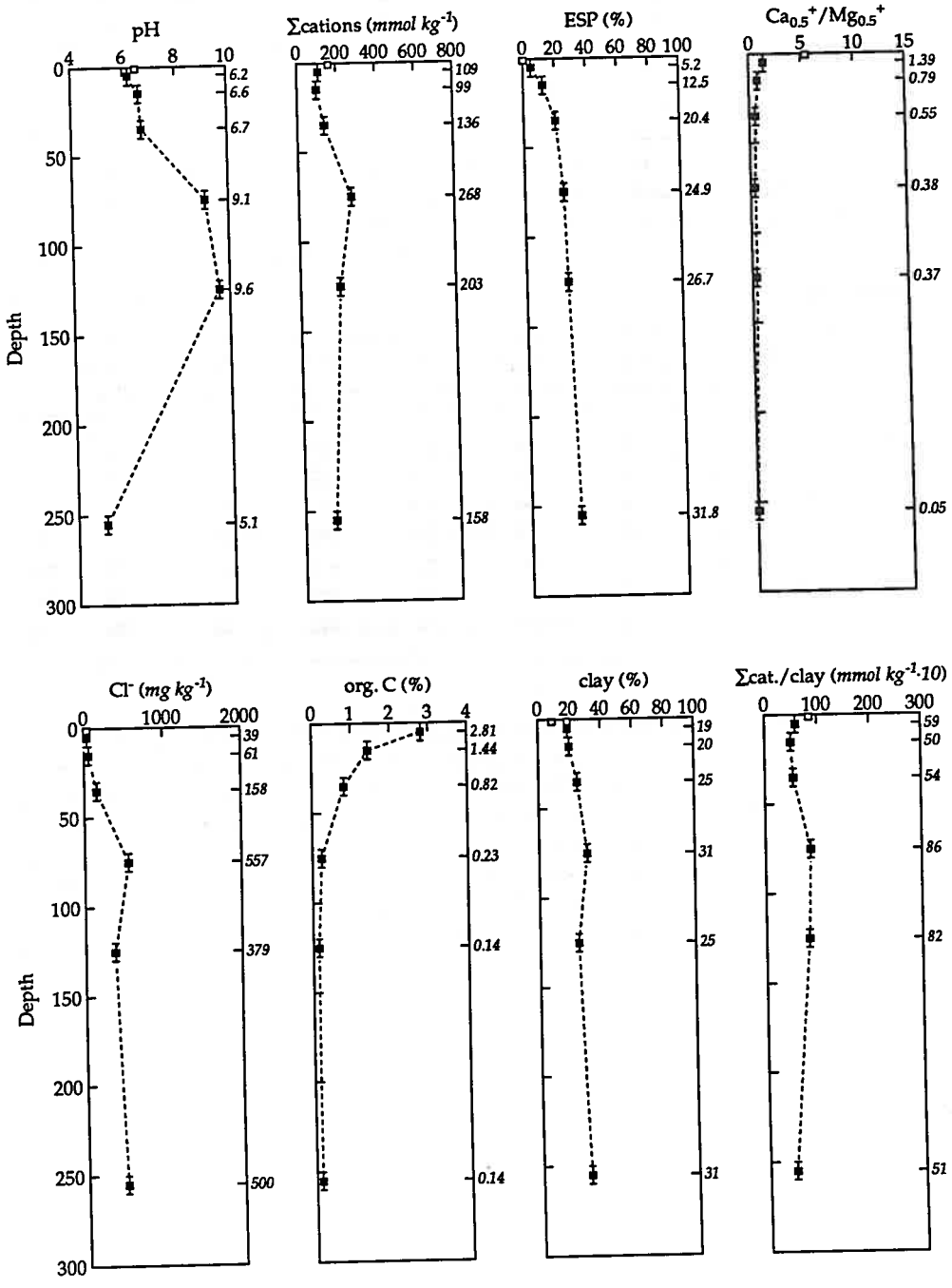
Principal profile form: Uf4.3
Great soil group: Solodic soils

## Soil chemical and particle-size analyses

| Sample | Horizon | Depth *cm* | pH | E. C. *mS m$^{-1}$* | org. C % | $CaCO_3$ % | sand % | silt % | clay % |
|---|---|---|---|---|---|---|---|---|---|
| 0 | $A_1$ | 0–2 | 6.5 | 12.3 | 6.20 | <0.1 | 60 | 10 | 19 |
| 1 | $A_1$ | 0–10 | 6.2 | 18.2 | 2.81 | <0.1 | 67 | 10 | 19 |
| 2 | $B_21$ | 10–20 | 6.6 | 9.4 | 1.44 | 0.2 | 67 | 10 | 20 |
| 3 | $B_22$ | 30–40 | 6.7 | 17.0 | 0.82 | <0.1 | 64 | 9 | 25 |
| 4 | $B_23$ | 70–80 | 9.1 | 66.8 | 0.23 | 0.4 | 60 | 8 | 31 |
| 5 | $B_2v$ | 120–130 | 9.6 | 56.9 | 0.14 | 1.4 | 64 | 9 | 25 |
| 6 | D | 250–260 | 5.1 | 45.0 | 0.14 | <0.1 | 59 | 9 | 31 |

| $Cl^-$ *mg kg$^{-1}$* | $NO_3^-$–N *mg kg$^{-1}$* | P *mg kg$^{-1}$* | $Ca_{0.5}^+$ *mmol kg$^{-1}$* | $Mg_{0.5}^+$ *mmol kg$^{-1}$* | $K^+$ *mmol kg$^{-1}$* | $Na^+$ *mmol kg$^{-1}$* | $Al_{0.33}^+$ *mmol kg$^{-1}$* | Σcations *mmol kg$^{-1}$* | ESP % |
|---|---|---|---|---|---|---|---|---|---|
| 39 | – | – | 128 | 24 | 9.2 | 0.4 | <1 | 162 | 0.2 |
| 39 | 50.8 | 13 | 56 | 40 | 7.2 | 5.7 | <1 | 109 | 5.2 |
| 61 | 2.0 | 5 | 36 | 46 | 5.3 | 12.4 | <1 | 99 | 12.5 |
| 158 | 2.8 | 2 | 37 | 69 | 2.2 | 27.7 | <1 | 136 | 20.4 |
| 557 | 0.9 | 1 | 55 | 144 | 2.2 | 66.8 | <1 | 268 | 24.9 |
| 379 | 0.8 | 2 | 39 | 108 | 1.3 | 54.0 | <1 | 203 | 26.7 |
| 500 | 0.4 | 3 | 3 | 69 | 1.5 | 50.2 | 34 | 158 | 31.8 |

## Soil chemistry profiles



# Namoi Valley soil study: Edgeroi Sheet

**Site** ed120

**Site location**

Grid reference: 780200mE 6662600mN
Elevation: 323m
Forestry Commission of NSW
Bobbiwaa State Forest
Site described by W. T. Ward on 7 July, 1985
The site is located at a grid point

**Site description**

Slope: 2° Slope direction: 200°
Topography: easy sloping
Landform: pediment
Surface moist when sampled
Soft surface, virgin state
Use: native forest
Visible cracks: width 1mm

**Site comments**

Soft after 50mm rain. Topography easy sloping as part of general easy undulating. 0–94 sand, mottled, porous at base with iron concretions. Also one specimen veg ?119. Plus Eucalyptus trachyphloia (sample ). Base of A2 is possibly 94 or 96, a slight concentration of gravel and iron concretions.

**Site vegetation**

The site included bare ground.

The following species were noted:

*Eucalyptus blakelyi, Angophora costata, Eucalyptus trachyphloia, Acacia deanei, Callitris columellaris, Platysace lanceolata, Epacris, Aristida ?ramosa, Cheilanthes tenuifolia ssp. tenuifolia.*

These specimens were observed but not identified:

339.

**Profile description**

Soil described by W. T. Ward on 26 June, 1986. Drilled depth 276cm

| Horizon | (cm) | (Sample; depth) |
|---|---|---|
| $A_1$ | 0–10 | (1; 0–10) Dark greyish brown (10YR4/2, 10YR5/2 dry) loamy sand; <2% distinct fine yellowish brown (10YR5/4) bleached surface crust; weak 20–50mm subangular blocky structure, with apedal; very weak; smooth fracture; sandy |

| | | |
|---|---|---|
| | | fabric; 2–5% 0.075–1mm pores; few very fine roots; pH 5.5; genetic boundary, clear, smooth change to |
| $A_2$ | 10–55 | (2; 10–20) Yellowish brown (10YR5/4) sand; 2–10% distinct medium brown (7.5YR5/4) organic stains; apedal single–grained structure; very weak; smooth fracture; sandy fabric; <2% 0.075–1mm pores; few very fine roots; pH 5.5; |
| $A_2$ | | (3; 30–40) Light yellowish brown (10YR6/4) sand; 2–10% faint medium brown (10YR5/3) organic stains; <2% distinct fine strong brown (7.5YR5/8) flecks produced by faunal mixing; apedal single–grained structure; very weak; granular fracture; sandy fabric; <2% 0.075–1mm pores; few very fine roots; pH 5.8; genetic boundary, abrupt, smooth change to |
| $A_2$ | 55–94 | (4; 70–80) Light yellowish brown (10YR6/4) loamy sand; 10–20% distinct medium light grey (10YR7/2) mottles; <2% distinct medium yellowish red (5YR5/8) mottles; apedal single–grained structure; very weak; granular fracture; sandy fabric; <2% 0.075–1mm pores; few very fine roots; pH 5.8; genetic boundary, abrupt, smooth change to |
| C | 94+ | (5; 120–130) Reddish yellow (7.5YR6/8) loamy sand; 2–10% distinct medium white (10YR8/1) mottles; apedal massive; rigid; fabric; <2% <5mm cracks; <2% 0.075–1mm pores; pH 6.5; |

Parent rock: residual, sandstone

### Comments

The surface "crust" is weak, and the sand also occurs in worm burrows in 0–10. A2 extends to 94cm and rests on weathered rock. Expected B horizon is not present. Grey and yellowish brown weathered rock continues to 276. A2 structure best termed single–grain than massive. Field texture of 12005 estimated from lab results.

### Soil classification

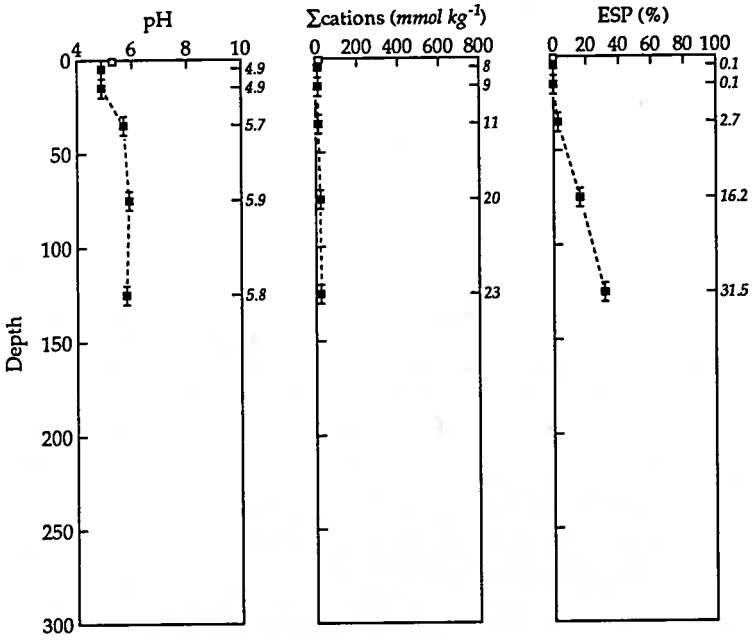
Principal profile form: Uc4.11
Great soil group: Siliceous sands
Soil taxonomy unit: Quartzipsamments

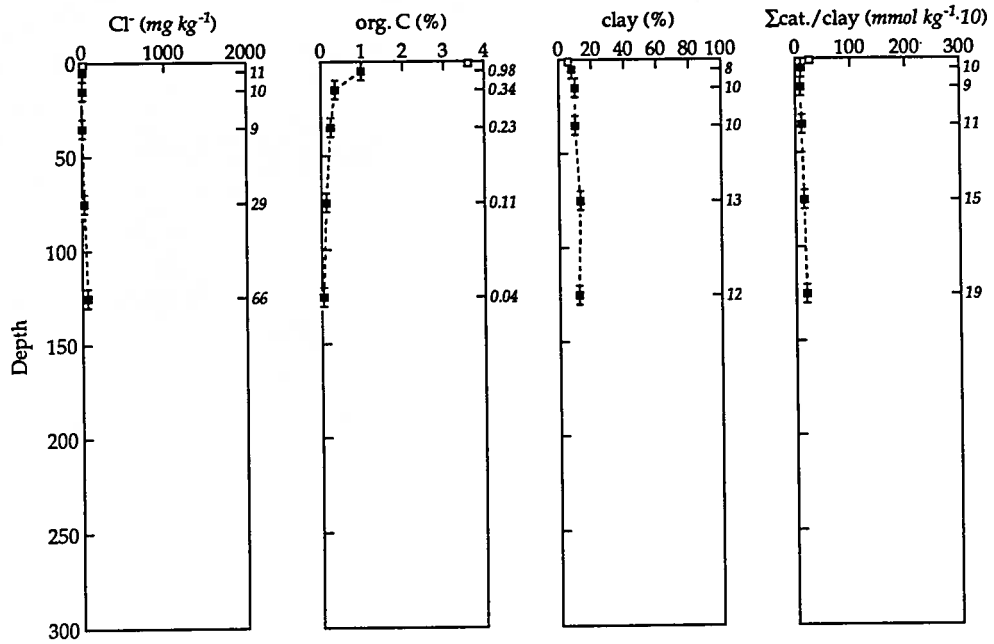
## Soil chemical and particle-size analyses

| Sample | Horizon | Depth *cm* | pH | E. C. *mS m$^{-1}$* | org. C % | $CaCO_3$ % | sand % | silt % | clay % |
|---|---|---|---|---|---|---|---|---|---|
| 0 | $A_1$1 | 0–2 | 5.3 | 3.1 | 3.61 | <0.1 | 86 | 3 | 6 |
| 1 | $A_1$1 | 0–10 | 4.9 | 6.9 | 0.98 | <0.1 | 86 | 4 | 8 |
| 2 | $A_2$1 | 10–20 | 4.9 | 2.8 | 0.34 | <0.1 | 86 | 4 | 10 |
| 3 | $A_2$2 | 30–40 | 5.7 | 1.0 | 0.23 | <0.1 | 85 | 5 | 10 |
| 4 | $A_2$3 | 70–80 | 5.9 | 3.0 | 0.11 | <0.1 | 82 | 5 | 13 |
| 5 | C | 120–130 | 5.8 | 5.8 | 0.04 | <0.1 | 82 | 6 | 12 |

| $Cl^-$ *mg kg$^{-1}$* | $NO_3^-$–N *mg kg$^{-1}$* | P *mg kg$^{-1}$* | $Ca_{0.5}^+$ *mmol kg$^{-1}$* | $Mg_{0.5}^+$ *mmol kg$^{-1}$* | $K^+$ *mmol kg$^{-1}$* | $Na^+$ *mmol kg$^{-1}$* | $Al_{0.33}^+$ *mmol kg$^{-1}$* | Σcations *mmol kg$^{-1}$* | ESP % |
|---|---|---|---|---|---|---|---|---|---|
| 17 | – | – | 3 | 3 | 1.8 | <0.1 | 6 | 14 | <0.1 |
| 11 | 24.2 | 12 | <1 | 1 | 1.3 | <0.1 | 6 | 8 | <0.1 |
| 10 | 9.3 | <1 | <1 | <1 | 1.7 | <0.1 | 7 | 9 | <0.1 |
| 9 | 0.4 | <1 | <1 | 5 | 1.9 | 0.3 | 4 | 11 | 2.7 |
| 29 | 0.1 | 1 | <1 | 11 | 3.4 | 3.3 | 3 | 20 | 16.2 |
| 66 | <0.1 | <1 | <1 | 12 | 1.7 | 7.3 | 2 | 23 | 31.5 |

## Soil chemistry profiles



# Namoi Valley soil study: Edgeroi Sheet

**Site** ed121

**Site location**

Grid reference: 782800mE 6662500mN
Farmer: Frank Griffiths
Site described by W. T. Ward on 15 July, 1985
The site is located at a grid point

Elevation: 366m
Farm name: Myall Valley

**Site description**

Slope: 2° Slope direction: 240°
Landform: upper slope
Surface moist when sampled
Loose surface, virgin state
Use: native forest
Visible cracks: width 1mm

Topography: easy undulating

**Site comments**

60cm sand on sandstone, with reddish rind at contact.

**Site vegetation**

The following species were noted:

*Acacia salicina, Angophora costata, Eucalyptus trachyphloia, Eucalyptus dealbata, Persoonia ?curvifolia, Grevillea, Cuscuta campestris, Xanthorrhoea resinosa.*

These specimens were observed but not identified:

95, 271.

**Profile description**

Soil described by G. M. Roberts on 8 October, 1985. Drilled depth 183cm

| Horizon | (cm) | (Sample; depth) |
|---|---|---|
| $A_1$ | 0–10 | (1; 0–10) Greyish brown (10YR5/2, 10YR6/1 dry) sand; apedal single–grained structure; loose; smooth fracture; sandy fabric; 5–10% 0.075–1mm pores; few very fine roots; <2% 2–6mm rounded quartz fragments; pH 6.0; genetic boundary, clear, wavy change to |
| $A_2$ | 10–47 | (2; 10–20) Light yellowish brown (10YR6/4) loamy sand; apedal >100mm single–grained structure; loose; smooth fracture; sandy fabric; 5–10% 0.075–1mm pores; few fine roots; <2% 20–60mm rounded tabular quartz fragments; pH 5.5; |
| $A_2$ | | (3; 30–40) Yellowish brown (10YR5/6) loamy sand; apedal single–grained |

| | | |
|---|---|---|
| | | structure; loose; sandy fabric; 5–10% 0.075–1mm pores; few very fine roots; 2–10% 20–60mm subrounded quartz fragments; pH 5.5; stratigraphic boundary, sharp, smooth change to |
| D | 47+ | (4; 70–80) Pinkish white (7.5YR8/2) sand; 20–50% prominent very coarse reddish yellow (7.5YR6/6) mottles; apedal massive; very strong; rough fracture; earthy and sandy fabric; 5–10% 0.075–1mm pores; <2% 2–6mm rounded quartz fragments; pH 5.5; |
| D | | (5; 120–130) Pinkish white (7.5YR8/2) sand; 20–50% prominent very coarse reddish yellow (7.5YR6/6) mottles; apedal massive; very strong; rough fracture; sandy and earthy fabric; 5–10% 0.075–1mm pores; <2% 2–6mm rounded quartz fragments; pH 5.0; |

Parent rock: residual, sandstone

### Comments

0–20 few iron–enriched gravels 10mm diam. Great soil group: deep lithosol? Profile earthy sand containing large quartz gravels to 25mm with sharp boundary to strongly bedded sandstone. (Colluvium over sandstone in situ ). At junction of burial there is 10mm ferruginous pan. Soil description had $ for strength below 47cm on original record.

### Soil classification

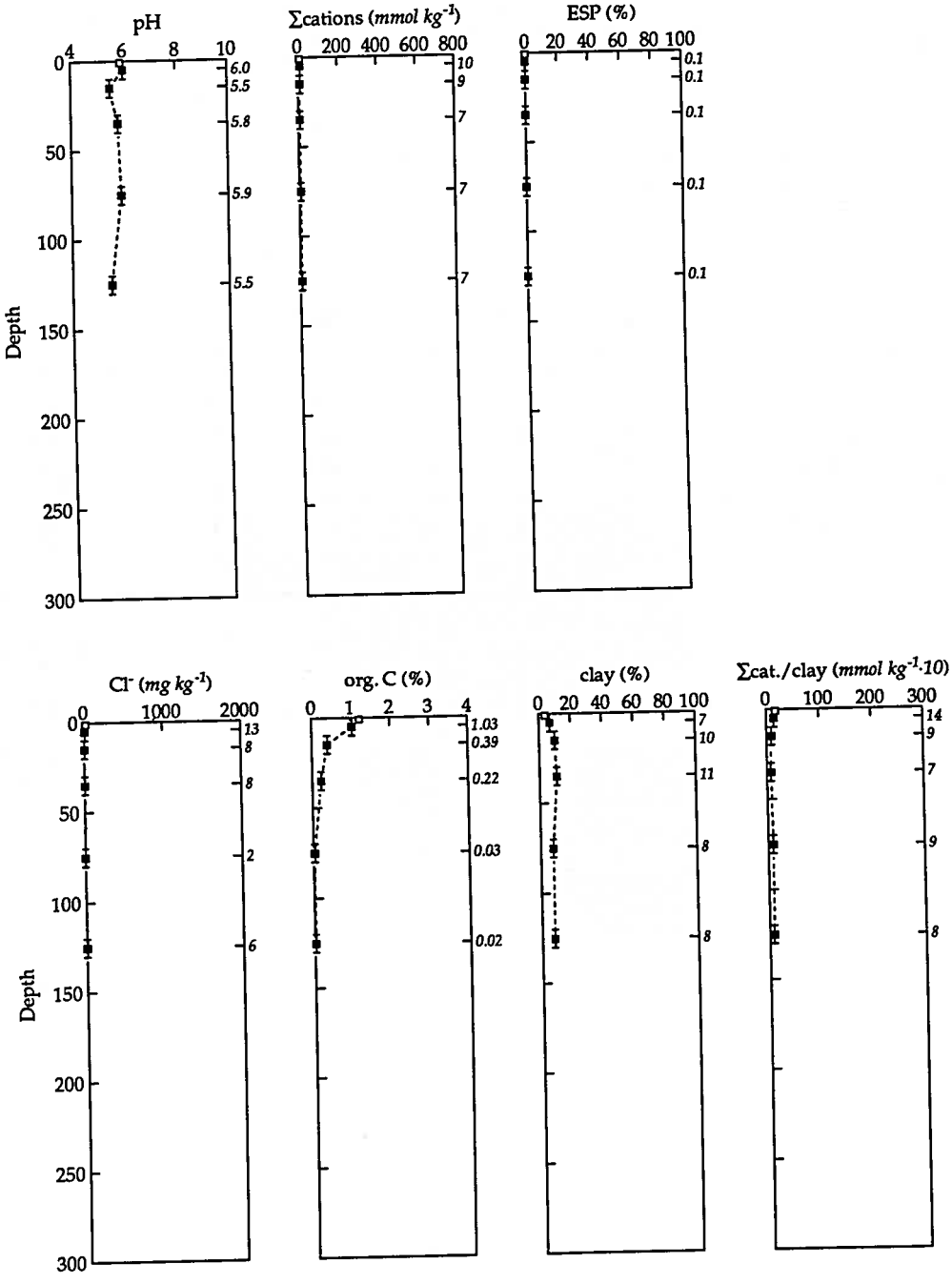
Principal profile form: Uc2.12
Great soil group: No suitable group

## Soil chemical and particle-size analyses

| Sample | Horizon | Depth *cm* | pH | E. C. *mS m$^{-1}$* | org. C % | $CaCO_3$ % | sand % | silt % | clay % |
|---|---|---|---|---|---|---|---|---|---|
| 0 | $A_1$ | 0–2 | 5.9 | 2.4 | 1.22 | <0.1 | 91 | 3 | 4 |
| 1 | $A_1$ | 0–10 | 6.0 | 3.3 | 1.03 | <0.1 | 86 | 5 | 7 |
| 2 | $A_21$ | 10–20 | 5.5 | 2.1 | 0.39 | <0.1 | 84 | 6 | 10 |
| 3 | $A_22$ | 30–40 | 5.8 | 1.2 | 0.22 | <0.1 | 83 | 6 | 11 |
| 4 | D1 | 70–80 | 5.9 | 0.8 | 0.03 | <0.1 | 85 | 7 | 8 |
| 5 | D2 | 120–130 | 5.5 | 0.8 | 0.02 | <0.1 | 85 | 7 | 8 |

| $Cl^-$ *mg kg$^{-1}$* | $NO_3^-$–N *mg kg$^{-1}$* | P *mg kg$^{-1}$* | $Ca_{0.5}^+$ *mmol kg$^{-1}$* | $Mg_{0.5}^+$ *mmol kg$^{-1}$* | $K^+$ *mmol kg$^{-1}$* | $Na^+$ *mmol kg$^{-1}$* | $Al_{0.33}^+$ *mmol kg$^{-1}$* | Σcations *mmol kg$^{-1}$* | ESP % |
|---|---|---|---|---|---|---|---|---|---|
| 26 | – | – | 2 | 2 | 2.8 | <0.1 | <1 | 7 | <0.1 |
| 13 | 0.9 | 2 | 5 | 1 | 1.6 | <0.1 | 2 | 10 | <0.1 |
| 8 | 0.1 | <1 | 1 | <1 | 1.6 | <0.1 | 5 | 9 | <0.1 |
| 8 | <0.1 | <1 | <1 | 2 | 1.8 | <0.1 | 4 | 7 | <0.1 |
| 2 | <0.1 | <1 | <1 | 3 | 0.3 | <0.1 | 4 | 7 | <0.1 |
| 6 | <0.1 | <1 | <1 | <1 | 0.1 | <0.1 | 6 | 7 | <0.1 |

## Soil chemistry profiles



# Namoi Valley soil study: Edgeroi Sheet

**Site** ed122

### Site location

Grid reference: 785600mE 6662450mN
Farmer: Denis Whiteman
Site described by W. T. Ward on 16 September, 1985
The site is located at a grid point

Elevation: 402m
Farm name: Dalman Downs

### Site description

Slope: 2° Slope direction: 260°
Landform: upper slope
Surface moist when sampled
Firm surface, virgin state
Use: native forest, cattle pasture

Topography: easy undulating

### Site comments

12 years after clearing and one crop. Second core is into sandstone plus clayey laminae. Curricabah.

### Site vegetation

The site included bare ground.

The following species were noted:

*Acacia deanei, Acacia concurrens, Callitris columellaris, Aristida.*

These specimens were observed but not identified:

119, 339.

### Profile description

Soil described by W. T. Ward on 20 January, 1986. Drilled depth 193cm

| Horizon | (cm) | (Sample; depth) |
|---|---|---|
| $A_1$ | 0–28 | (1; 0–10) Very dark brown (10YR2/2, 10YR3/2 dry) sand; <2% prominent fine pale brown (10YR6/3) bleached surface crust; apedal massive; very weak; nodular fracture; sandy fabric; few very fine roots; pH 4.0; |
| $A_1$ | | (2; 10–20) Dark brown (7.5YR3/2) sand; apedal massive; very weak; nodular fracture; sandy fabric; few medium roots; <2% 2–6mm subrounded quartz fragments; pH 5.5; genetic boundary, gradual, smooth change to |
| (B) | 28–50 | (3; 30–40) Yellowish brown (10YR5/4) sand; 2–10% prominent medium black |

| | | |
|---|---|---|
| | | (N2/) charcoal fragments; apedal massive; very weak; smooth fracture; smooth–ped fabric; few very fine roots; <2% 2–6mm angular charcoal; pH 5.5; genetic boundary, diffuse, smooth change to |
| $B_2$ | 50–117 | (4; 70–80) Red (2.5YR4/8) sand; 20–50% prominent very coarse light grey (10YR7/2) mottles; apedal massive, with weak 2–5mm cast granular structure; very weak; nodular fracture; sandy fabric; <2% 0.075–1mm pores; few fine roots; pH 5.5; genetic boundary, clear, smooth change to |
| $B_2g$ | 117+ | (5; 120–130) Yellow (10YR7/6) loamy sand; 20–50% prominent very coarse white (10YR8/2) mottles; apedal massive; moderately weak; smooth fracture; sandy fabric; 2–5% 0.075–1mm pores; few very fine roots; pH 5.5; stratigraphic boundary, sharp, smooth change to |

Parent rock: residual, sandstone, mudstone

**Comments**

Surface colour 10YR6/3. Abundant charcoal fragments occur, down to 60. Grey subsoil colour surrounds root channels etc. At 136cm there is contact with Purlawaugh Formation, its upper 20cm weathered 10YR8/1 plus few flecks 2.5YR4/8, grading to 5Y7/1 siltstone, in thin plates.

**Soil classification**

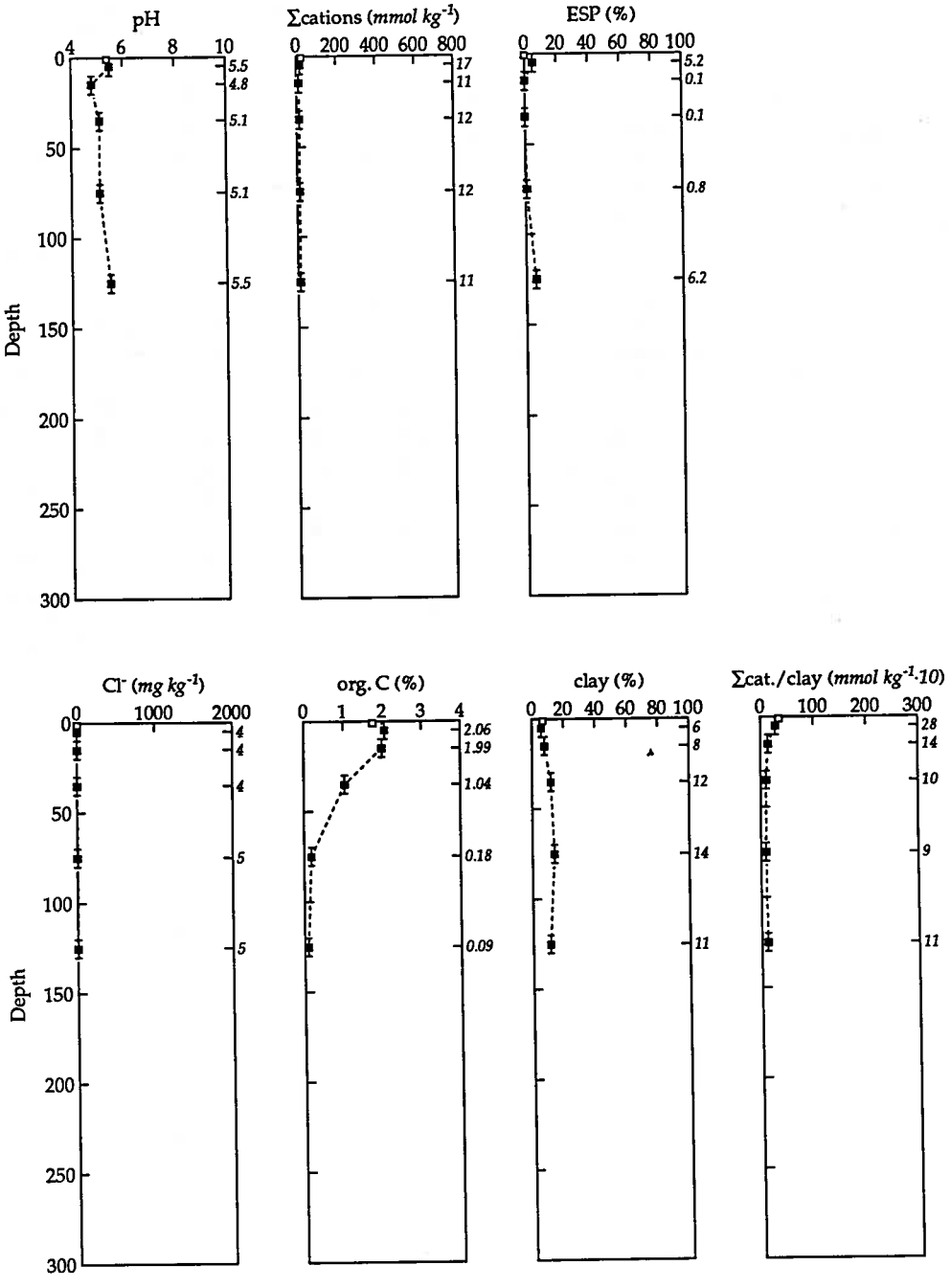
Principal profile form: Uc2.2
Great soil group: Siliceous sands

## Soil chemical and particle-size analyses

| Sample | Horizon | Depth *cm* | pH | E. C. *mS m$^{-1}$* | org. C % | $CaCO_3$ % | sand % | silt % | clay % |
|---|---|---|---|---|---|---|---|---|---|
| 0 | $A_1$1 | 0–2 | 5.4 | 1.0 | 1.76 | <0.1 | 87 | 3 | 7 |
| 1 | $A_1$1 | 0–10 | 5.5 | 4.0 | 2.06 | <0.1 | 88 | 3 | 6 |
| 2 | $A_1$2 | 10–20 | 4.8 | 2.0 | 1.99 | <0.1 | 85 | 4 | 8 |
| 3 | (B) | 30–40 | 5.1 | 1.2 | 1.04 | <0.1 | 83 | 3 | 12 |
| 4 | $B_2$ | 70–80 | 5.1 | 1.1 | 0.18 | <0.1 | 82 | 4 | 14 |
| 5 | $B_2$g | 120–130 | 5.5 | 1.3 | 0.09 | <0.1 | 83 | 7 | 11 |

| $Cl^-$ *mg kg$^{-1}$* | $NO_3^-$–N *mg kg$^{-1}$* | P *mg kg$^{-1}$* | $Ca_{0.5}^+$ *mmol kg$^{-1}$* | $Mg_{0.5}^+$ *mmol kg$^{-1}$* | $K^+$ *mmol kg$^{-1}$* | $Na^+$ *mmol kg$^{-1}$* | $Al_{0.33}^+$ *mmol kg$^{-1}$* | Σcations *mmol kg$^{-1}$* | ESP % |
|---|---|---|---|---|---|---|---|---|---|
| 6 | – | – | 2 | <1 | 1.6 | <0.1 | 19 | 23 | <0.1 |
| 4 | 12.5 | 3 | 4 | 2 | 1.7 | 0.9 | 9 | 17 | 5.2 |
| 4 | 2.2 | <1 | <1 | <1 | 1.4 | <0.1 | 9 | 11 | <0.1 |
| 4 | <0.1 | <1 | <1 | <1 | 1.4 | <0.1 | 9 | 12 | <0.1 |
| 5 | 0.1 | <1 | <1 | <1 | 0.6 | 0.1 | 11 | 12 | 0.8 |
| 5 | <0.1 | <1 | <1 | 4 | 1.1 | 0.7 | 5 | 11 | 6.2 |

## Soil chemistry profiles



# Namoi Valley soil study: Edgeroi Sheet

**Site** ed123

**Site location**

Grid reference: 788300mE 6662100mN
Elevation: 442m
Farmer: W.R.(Rick) Tapp
Farm name: Fernleigh
Site described by D. McGarry on 12 March, 1985
The site is located at a proximate grid point

**Site description**

Slope: 3° Slope direction: 170°
Topography: easy sloping
Landform: high terrace
Surface very rocky, moist when sampled
Fine self-mulching surface, virgin state
Use: native forest, native pasture

**Site comments**

Topsoil quite moist, and profile to 90cm quite wet. Few sandstone rocks are evident on the surface. The site is not exactly on target which would be 200m from here, south–west, on a steep (30 degree ) slope. That hill is a sandy/gritty stone. This site is on a small saddle between two hills.

**Site vegetation**

The following species were noted:

*Elaeodendron australe, Eucalyptus albens, Acacia salicina, Acacia oswaldii, Stipa ?setacea, Cymbopogon refractus, Brassica tournefortii, Arctotheca calendula, Hybanthus monopetalus, Vicia sativa, Verbascum virgatum.*

These specimens were observed but not identified:

106, 183.

**Profile description**

Soil described by M. E. Heape on 13 February, 1986. Drilled depth 273cm

| Horizon | (cm) | (Sample; depth) |
|---|---|---|
| $A_1$ | 0–25 | (1; 0–10) Dark reddish grey (5YR4/2, 5YR3/4 dry) light clay; weak 20–50mm subangular blocky structure; moderately firm; earthy fabric; <2% <5mm cracks; <2% 0.075–1mm pores; few very fine roots; pH 8.0; |
| $A_1$ | | (2; 10–20) Dark reddish grey (5YR4/2) light clay; weak 20–50mm subangular blocky structure; moderately firm; earthy fabric; <2% <5mm cracks; <2% |

| | | |
|---|---|---|
| | | 0.075–1mm pores; few very fine roots; pH 8.5; genetic boundary, abrupt, smooth change to |
| $B_2$ | 25–85 | (3; 30–40) Yellowish brown (10YR5/4) medium clay; 10–20% distinct medium dark reddish grey (5YR4/2) organic stains; weak 50–100mm subangular blocky structure; very firm; granular fracture; earthy fabric; 2–10% distinct coarse very pale brown (10YR7/4) calcareous soft segregations; <2% <5mm cracks; few very fine roots; pH 8.5; |
| $B_2v$ | | (4; 70–80) Yellowish brown (10YR5/4) medium heavy clay; <2% distinct medium dark reddish grey (5YR4/2) organic stains; weak 50–100mm subangular blocky structure; very firm; granular fracture; earthy fabric; 2–10% distinct medium light yellowish brown (10YR6/4) calcareous soft segregations; <2% <5mm cracks; pH 8.5; genetic boundary, gradual, smooth change to |
| $B_2o$ | 85–150 | (5; 120–130) Reddish brown (5YR4/3) medium heavy clay; moderate >100mm wedge structure; moderately strong; weak slickensides, earthy fabric; <2% distinct medium reddish yellow (7.5YR8/6) calcareous soft segregations; <2% <5mm cracks; <2% >5mm pores; pH 8.5; genetic boundary, diffuse, smooth change to |
| R | 150+ | (6; 250–260) Light olive brown (2.5Y5/4) coarse sand; apedal massive; fabric; <2% distinct fine white (5YR8/1) calcareous laminae; 2–10% prominent fine very dark grey (N3/) iron–manganese stains; <2% <5mm cracks; pH 8.0; |

Parent rock: colluvial sediment, from sandstone, with lime, basalt

### Comments

Soil is plastic. Holes in 123.05 are ant channels. 1 quartz pebble and 1 sandstone pebble at 100cm. Weathered basalt below 150cm suggests that the red B2 could be original material on basalt soil and the higher material is old colluvium or talus. I am inclined to believe that the red is also talus, not weathering basalt, but subjacent contact is indistinct. HCl fizzes basalt everywhere. The basalt has horizontal platy fractures. Is this soil on Purlawaugh Formation?

### Soil classification

Principal profile form: Uf6.51
Great soil group: Brown clays

## Soil chemical and particle-size analyses

| Sample | Horizon | Depth *cm* | pH | E.C. *mS m$^{-1}$* | org. C % | $CaCO_3$ % | sand % | silt % | clay % |
|---|---|---|---|---|---|---|---|---|---|
| 0 | $A_1$1 | 0–2 | 7.7 | 17.5 | 2.41 | 2.5 | 26 | 11 | 56 |
| 1 | $A_1$1 | 0–10 | 8.1 | 26.4 | 1.87 | 0.4 | 33 | 9 | 55 |
| 2 | $A_1$2 | 10–20 | 8.5 | 16.7 | 1.23 | 0.8 | 32 | 9 | 57 |
| 3 | $B_2$ | 30–40 | 8.9 | 18.0 | 0.72 | 12.8 | 26 | 8 | 52 |
| 4 | $B_2$v | 70–80 | 9.3 | 44.8 | 0.35 | 9.2 | 32 | 8 | 51 |
| 5 | $B_2$o | 120–130 | 8.9 | 90.8 | 0.22 | 0.3 | 19 | 14 | 66 |
| 6 | R | 250–260 | 9.6 | 36.6 | <0.01 | 8.8 | 49 | 16 | 27 |

| $Cl^-$ *mg kg$^{-1}$* | $NO_3^-$–N *mg kg$^{-1}$* | P *mg kg$^{-1}$* | $Ca_{0.5}^+$ *mmol kg$^{-1}$* | $Mg_{0.5}^+$ *mmol kg$^{-1}$* | $K^+$ *mmol kg$^{-1}$* | $Na^+$ *mmol kg$^{-1}$* | $Al_{0.33}^+$ *mmol kg$^{-1}$* | Σcations *mmol kg$^{-1}$* | ESP % |
|---|---|---|---|---|---|---|---|---|---|
| 13 | – | – | 369 | 158 | 19.4 | 0.2 | <1 | 547 | <0.1 |
| 6 | 55.9 | 11 | 302 | 248 | 11.1 | 1.0 | <1 | 562 | 0.2 |
| <1 | 16.6 | 1 | 301 | 313 | 5.4 | 3.3 | <1 | 623 | 0.5 |
| 1 | 2.0 | <1 | 217 | 344 | 2.7 | 12.3 | <1 | 576 | 2.1 |
| 127 | 0.7 | <1 | 80 | 338 | 2.4 | 50.3 | <1 | 470 | 10.7 |
| 989 | 0.6 | <1 | 60 | 458 | 1.3 | 99.5 | <1 | 618 | 16.1 |
| 102 | 0.4 | 1 | 61 | 370 | 1.0 | 100.4 | <1 | 533 | 18.8 |