B_2k		(5; 120–130) Dark brown (7.5YR4/4) silty clay; 20–50% faint coarse dark brown (7.5YR4/2) flecks produced by faunal mixing; moderate 20–50mm prismatic structure, breaking to moderate 5–10mm angular blocky structure; moderately firm; rough–ped and smooth–ped fabric; 10–20% distinct medium very pale brown (10YR8/3) calcareous veins; 2–5% <5mm cracks; 2–5% 2–5mm pores; few very fine roots; pH 8.5; genetic boundary, diffuse, smooth change to
C	200+	(6; 250–260) Dark brown (7.5YR4/4) light clay; weak 20–50mm prismatic structure, breaking to moderate 5–10mm angular blocky structure; moderately strong; weak slickensides, nodular fracture; smooth–ped and rough–ped fabric; 2–10% faint fine black (10YR2/1) manganese stains; 2–10% medium gypsum crystals; <2% coarse calcareous nodules; <2% <5mm cracks; pH 8.5;

Parent rock: alluvial sediment, mixed texture, with lime

Comments

The surface has very many close cracks. The 124.06 carbonate is in horizon but at 225cm. From 240 carbonate drops off and manganese increases. Identified first as mter, the profile is more like low terrace, calcareous, compare pit where we collected gravel. We are between two high embankments on either side of road. 250–260 is possibly a burial. 100m N is water bore no. 30266/1,2,3 with BM/FW/421.

Soil classification

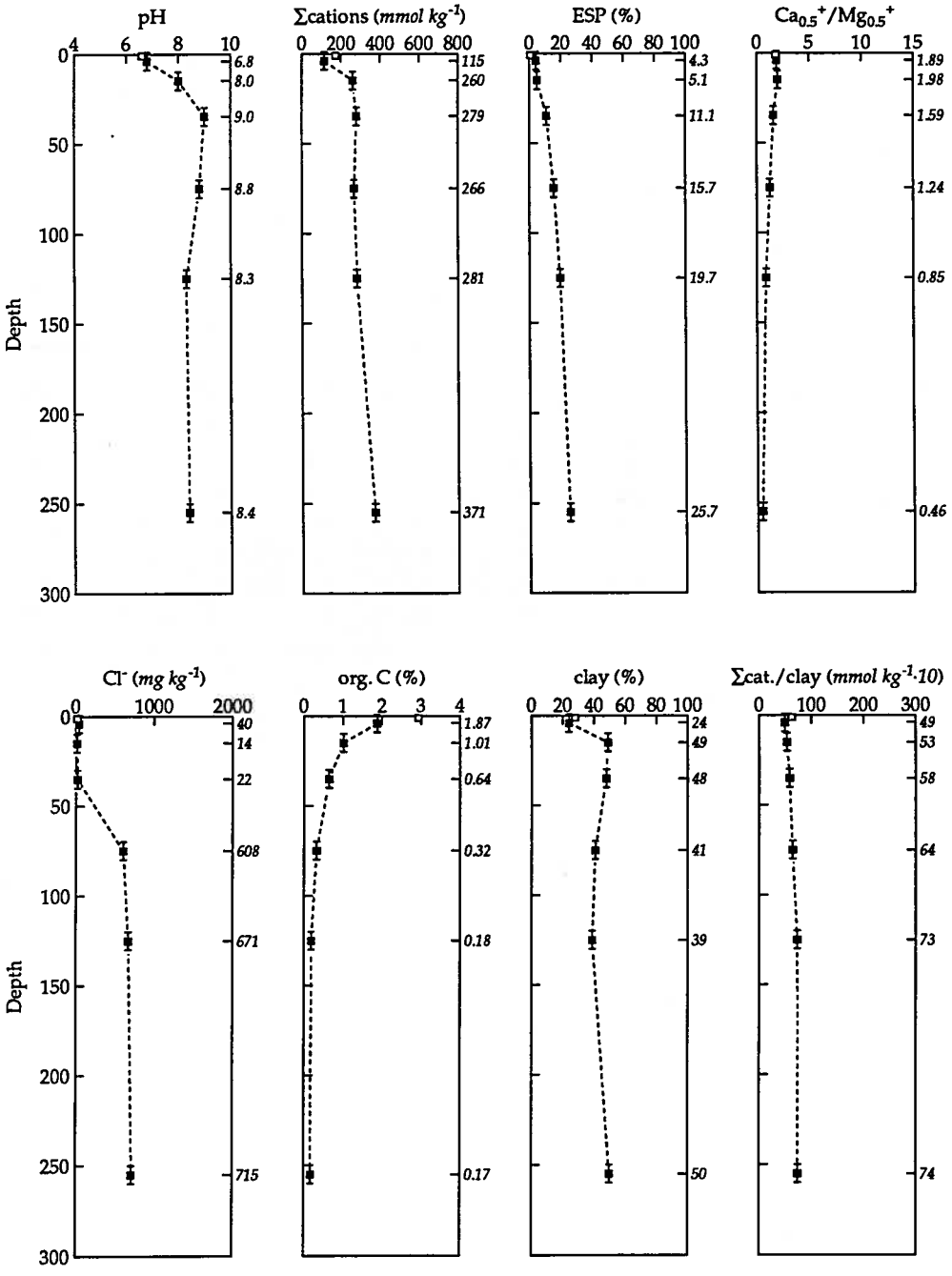
Principal profile form: Ug5.15
Great soil group: Brown clays

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_1a	0–2	6.6	14.3	2.93	<0.1	48	19	28
1	A_1a	0–8	6.8	11.6	1.87	<0.1	56	17	24
2	$A_1$1	10–20	8.0	7.6	1.01	<0.1	32	17	49
3	$A_1$2	30–40	9.0	12.2	0.64	<0.1	32	19	48
4	B_2k1	70–80	8.8	70.7	0.32	7.3	27	23	41
5	B_2k2	120–130	8.3	142.9	0.18	3.4	30	27	39
6	C	250–260	8.4	147.9	0.17	0.6	23	25	50

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	–	–	91	51	29.9	1.3	<1	173	0.8
40	4.2	113	61	32	17.0	4.9	<1	115	4.3
14	1.7	66	156	79	11.6	13.3	<1	260	5.1
22	1.2	57	148	93	7.0	31.0	<1	279	11.1
608	0.6	43	121	98	5.7	41.6	<1	266	15.7
671	0.6	33	102	119	5.0	55.5	<1	281	19.7
715	0.5	26	85	186	5.9	95.4	<1	371	25.7

Soil chemistry profiles



Namoi Valley soil study: Edgeroi Sheet

Site ed125

Site location

Grid reference: 745600mE 6661200mN
Elevation: 196m
Farmer: Clinton Freer
Farm name: Greenbah
Site described by G. M. Roberts on 30 June, 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
Visible cracks: width 1mm

Site comments

Site is beside first telegraph pole south of Greenbah (0.6km from house).

Profile description

Soil described by G. M. Roberts on 30 March, 1985. Drilled depth 260cm

Horizon	(cm)	(Sample; depth)
A_1p	0–10	(1; 0–10) Very dark greyish brown (10YR3/2, 10YR3/2 dry) medium clay; moderate 2–5mm granular structure; moderately weak; rough-ped fabric; <2% <5mm cracks; 2–5% 0.075–1mm pores; common very fine roots; pH 8.5; plough sole, abrupt, smooth change to
A_1	10–130	(2; 10–20) Dark grey (10YR4/1) medium heavy clay; weak 5–10mm lenticular structure, breaking to weak 2–5mm angular blocky structure; moderately firm; nodular fracture; smooth-ped fabric; 2–5% <5mm cracks; <2% 0.075–1mm pores; few medium roots; pH 8.2; genetic boundary, very diffuse, smooth change to
A_1	130–120	(3; 30–40) Dark grey (10YR4/1) medium heavy clay; weak 5–10mm lenticular structure, breaking to weak 5–10mm angular blocky structure; moderately firm; nodular fracture; smooth-ped fabric; <2% faint medium reddish black (5R2/1) manganese nodules; <2% faint fine light brownish grey (10YR6/2) calcareous nodules; <2% <5mm cracks; <2% 0.075–1mm pores; few very fine roots; pH 8.5; genetic boundary, very diffuse, smooth change to
A_1	120–130	(4; 70–80) Very dark greyish brown (10YR3/2) medium heavy clay; weak 10–20mm subangular blocky structure; moderately firm; nodular fracture; smooth-ped fabric; <2% faint medium reddish black (5R2/1) manganese nodules; <2% faint fine

		light brownish grey (10YR6/2) calcareous nodules; <2% <5mm cracks; <2% 0.075–1mm pores; few very fine roots; pH 8.5;
A_1		(5; 120–130) Dark greyish brown (10YR4/2) medium heavy clay; apedal massive, with weak 5–10mm subangular blocky structure; very firm; nodular fracture; earthy and smooth-ped fabric; 10–20% faint medium dark grey (N4/) clayey veins; <2% faint medium reddish black (5R2/1) manganese nodules; <2% medium calcareous nodules; <2% <5mm cracks; <2% 0.075–1mm pores; few very fine roots; pH 8.7; genetic boundary, very diffuse, smooth change to
B_2	130+	(6; 250–260) Dark brown (7.5YR4/4) sandy clay; <2% faint fine yellowish red (5YR5/6) flecks produced by faunal mixing; apedal massive, with weak 5–10mm subangular blocky structure; moderately firm; rough fracture; sandy and smooth-ped fabric; 10–20% distinct medium dark greyish brown (10YR4/2) clayey veins; <2% <5mm cracks; <2% 0.075–1mm pores; pH 9.0;

Comments

Site is beside first telegraph pole S of pump S of Greenbah 1.6km from house west of road and drain beside cotton crop. In the 10–20cm sample the top 2cm is obviously imported light brown clay, i.e. this area has been filled. The brown material is not included in the profile description or sample. From 85 to 90cm there is evidence of inwashed sand in cracks.

Soil classification

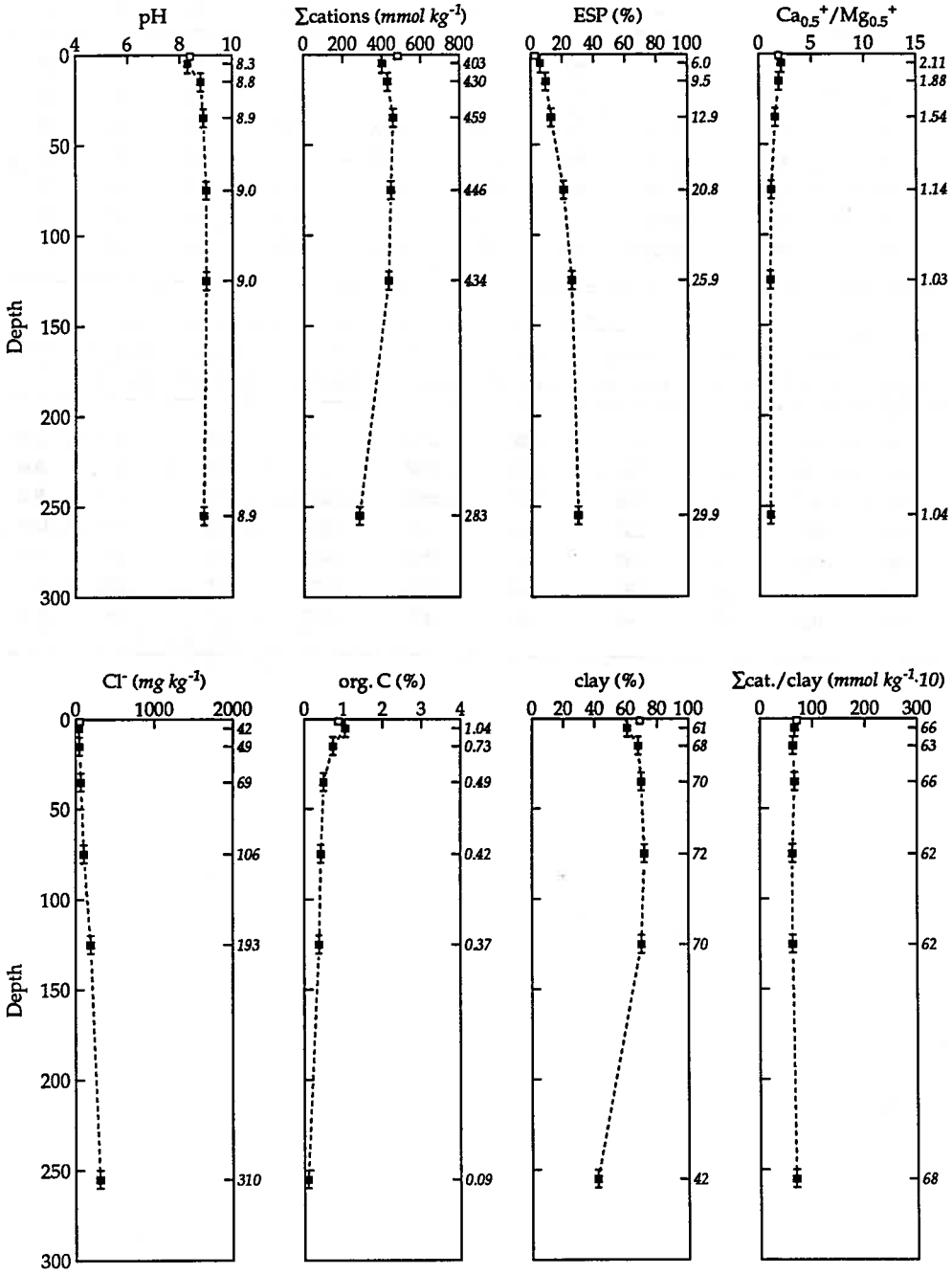
Principal profile form: Ug5.24
Great soil group: Grey clays

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_1p	0–2	8.4	10.0	0.87	<0.1	11	18	69
1	A_1p	0–10	8.3	20.6	1.04	0.1	18	20	61
2	A_11	10–20	8.8	22.5	0.73	0.2	14	17	68
3	A_12	30–40	8.9	33.0	0.49	1.5	12	15	70
4	A_13	70–80	9.0	41.4	0.42	1.3	10	16	72
5	A_14	120–130	9.0	40.8	0.37	1.2	11	17	70
6	B_2	250–260	8.9	32.1	0.09	<0.1	45	13	42

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 %
50	–	–	294	157	20.5	12.5	<1	483	2.6
42	0.6	38	246	117	15.2	24.1	<1	403	6.0
49	0.7	15	246	130	13.3	40.7	<1	430	9.5
69	0.5	27	237	154	9.9	59.3	<1	459	12.9
106	0.5	35	182	160	11.2	92.5	<1	446	20.8
193	0.5	25	158	154	10.6	112.4	<1	434	25.9
310	0.5	69	99	95	4.7	84.7	<1	283	29.9

Soil chemistry profiles



Namoi Valley soil study: Edgeroi Sheet

Site ed126

Site location

Grid reference: 748400mE 6661100mN
Elevation: 197m
Farmer: W.H.(Warwick) Wall
Farm name: Appletrees
Site described by G. M. Roberts on 19 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, fine self-mulching surface
Use: wheat, irrigated cotton
Visible cracks: width 1mm

Site comments

Micro undulations on surface, recently cultivated. Few calcium carbonate nodules on surface. Plus few waterworn quartz gravels.

Site vegetation

The site was under wheat, and included bare ground.

Profile description

Soil described by W. T. Ward on 6 January, 1987. Drilled depth 271cm

Horizon	(cm)	(Sample; depth)
A_1p	0–10	(1; 0–10) Very dark greyish brown (10YR3/2, 10YR4/1 dry) light clay; moderate 2–5mm granular structure; very firm; smooth–ped fabric; <2% <5mm cracks; <2% 0.075–1mm pores; few very fine roots; pH 6.5; stratigraphic boundary, sharp, smooth change to
A_1	10–70	(2; 10–20) Very dark greyish brown (10YR3/2) light medium clay; moderate 50–100mm angular blocky structure; moderately strong; smooth–ped fabric; <2% <5mm cracks; <2% 0.075–1mm pores; few very fine roots; pH 8.5;
A_1		(3; 30–40) Very dark greyish brown (10YR3/2) light medium clay; weak 50–100mm angular blocky structure; moderately strong; smooth fracture; smooth–ped fabric; <2% distinct fine light brownish grey (10YR6/2) calcareous nodules; <2% <5mm cracks; <2% 0.075–1mm pores; few very fine roots; pH 8.7;
B_2v		(4; 70–80) Dark brown (7.5YR4/4) light medium clay; 20–50% prominent coarse

very dark greyish brown (10YR3/2) organic stains; weak 50–100mm angular blocky structure; very firm; smooth fracture; smooth–ped fabric; <2% faint fine light grey (10YR7/2) calcareous nodules; <2% <5mm cracks; <2% 0.075–1mm pores; pH 9.0; genetic boundary, diffuse, smooth change to

B_2	70+	(5; 120–130) Dark brown (7.5YR4/4) light medium clay; 2–10% distinct medium dark grey (10YR4/1) organic stains; weak 50–100mm angular blocky structure; very firm; granular fracture; smooth–ped fabric; <2% prominent medium pinkish grey (7.5YR7/2) calcareous nodules; <2% <5mm cracks; <2% 0.075–1mm pores; pH 9.0;
B_2		(6; 250–260) Brown (7.5YR5/4) light medium clay; 2–10% distinct medium dark grey (10YR4/1) organic stains; moderate 50–100mm angular blocky structure, with moderate 2–5mm cast granular structure; moderately strong; smooth–ped fabric; <2% prominent medium pinkish grey (7.5YR7/2) calcareous nodules; <2% <5mm cracks; <2% 0.075–1mm pores; pH 9.0;

Parent rock: alluvial sediment, clay

Comments

From 10cm–30cm appears to be compacted. ?MVpH.

Soil classification

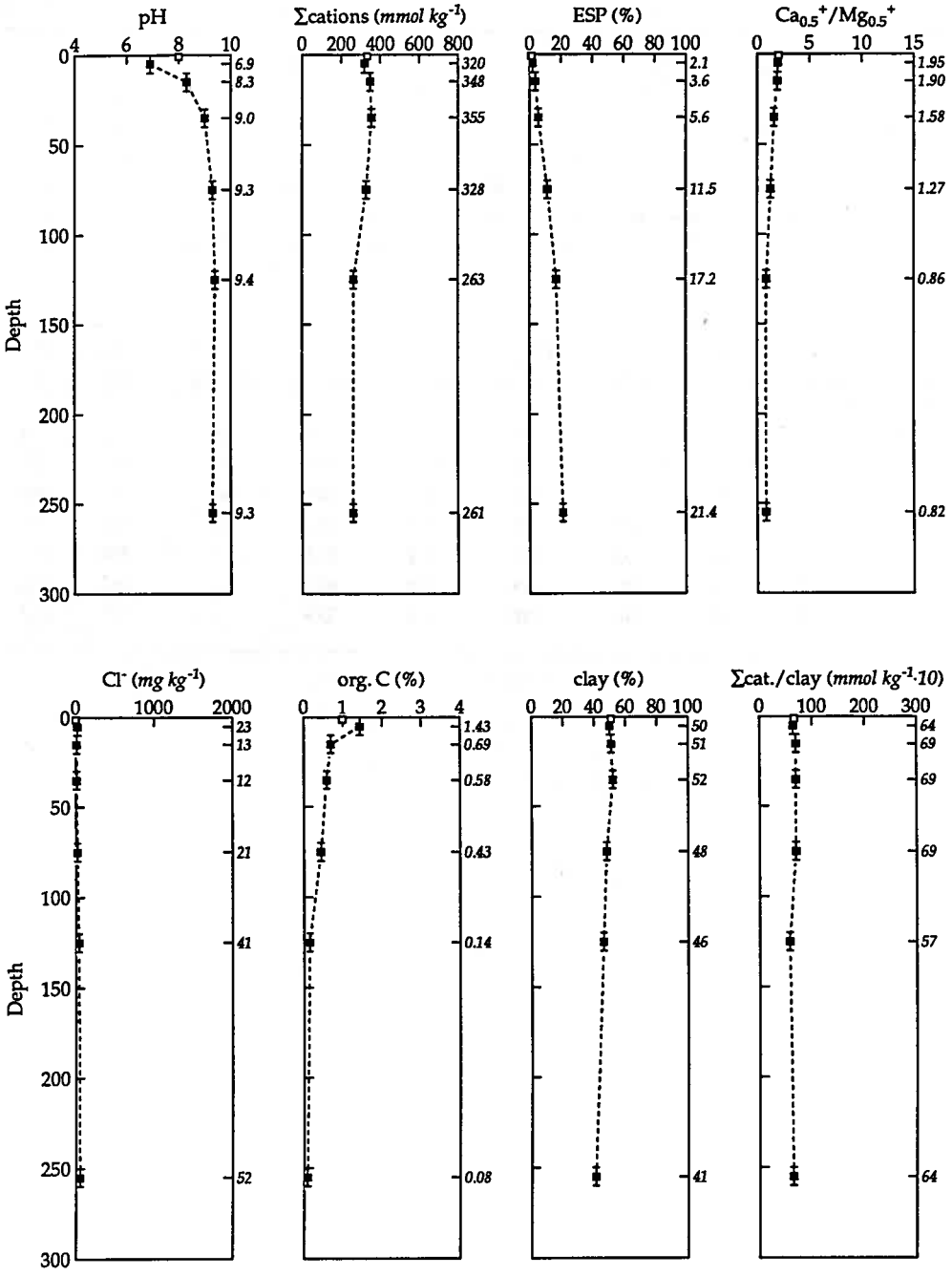
Principal profile form: Ug5.15
Great soil group: Grey clays
Soil taxonomy unit: Pellusterts

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	8.0	10.1	0.99	0.1	29	18	51
1	A_1p	0–10	6.9	26.6	1.43	0.1	29	19	50
2	A_11	10–20	8.3	9.1	0.69	0.4	29	19	51
3	A_12	30–40	9.0	7.6	0.58	0.1	28	20	52
4	B_2v	70–80	9.3	26.1	0.43	1.6	29	21	48
5	B_21	120–130	9.4	30.4	0.14	2.2	31	20	46
6	B_22	250–260	9.3	22.1	0.08	0.4	38	20	41

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 %
3	–	–	208	103	17.2	4.4	<1	332	1.3
23	6.4	44	200	102	11.7	6.7	<1	320	2.1
13	5.9	20	214	113	8.2	12.6	<1	348	3.6
12	1.1	14	202	128	5.5	20.0	<1	355	5.6
21	1.5	14	159	125	6.4	37.8	<1	328	11.5
41	0.4	24	98	114	5.8	45.1	<1	263	17.2
52	0.1	18	91	110	4.9	55.9	<1	261	21.4

Soil chemistry profiles



Namoi Valley soil study: Edgeroi Sheet

Site ed127

Site location

Grid reference: 751200mE 6661000mN
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, wheat
Visible cracks: width 1mm

Site vegetation

The site was under cotton and wheat.

Profile description

Soil described by W. T. Ward on 13 January, 1987. Drilled depth 278cm

Horizon	(cm)	(Sample; depth)
A_1p	0–10	(1; 0–10) Dark brown (7.5YR4/2, 7.5YR5/2 dry) light medium clay; strong 2–5mm subangular blocky structure; moderately strong; smooth-ped fabric; <2% <5mm cracks; <2% 0.075–1mm pores; few very fine roots; <2% 2–6mm subrounded quartz fragments; pH 8.5; plough sole, clear, smooth change to
A_1	10–145	(2; 10–20) Dark grey (10YR4/1) light medium clay; <2% distinct fine pale brown (10YR6/3) patches of sediment, filling cracks; moderate 50–100mm angular blocky structure; very strong; smooth-ped fabric; <2% <5mm cracks; <2% 0.075–1mm pores; few very fine roots; <2% 2–6mm subrounded quartz fragments; pH 8.5;
A_1		(3; 30–40) Very dark grey (10YR3/1) medium clay; <2% distinct fine pale brown (10YR6/3) patches of sediment, filling cracks; moderate >100mm prismatic structure, breaking to moderate 20–50mm subangular blocky structure; moderately strong; smooth-ped and polished ped fabric; <2% faint fine light grey (10YR7/2) calcareous nodules; <2% <5mm cracks; <2% 0.075–1mm pores; few very fine roots; <2% 2–6mm subangular quartz fragments; pH 8.7;
A_1		(4; 70–80) Dark grey (10YR4/1) medium clay; <2% distinct fine pale brown (10YR6/3) patches of sediment, filling cracks; moderate >100mm prismatic structure, with moderate 20–50mm wedge structure; moderately strong; polished

		ped and smooth–ped fabric; <2% faint fine light grey (10YR7/2) calcareous nodules; <2% <5mm cracks; <2% 0.075–1mm pores; few very fine roots; <2% 2–6mm subangular quartz fragments; pH 9.0;
A_1v		(5; 120–130) Brown (10YR5/3) medium clay; 20–50% prominent coarse dark grey (10YR4/1) organic stains; moderate 20–50mm wedge structure; very firm; polished ped and smooth–ped fabric; <2% faint fine light grey (10YR7/2) calcareous nodules; <2% <5mm cracks; <2% 0.075–1mm pores; pH 9.0; genetic boundary, very diffuse, smooth change to
B_2	145+	(6; 250–260) Yellowish brown (10YR5/4) light medium clay; 2–10% faint coarse greyish brown (10YR5/2) organic stains; weak >100mm angular blocky structure, with apedal massive; very strong; granular fracture; smooth–ped fabric; 2–10% distinct coarse light brownish grey (10YR6/2) calcareous nodules; <2% <5mm cracks; <2% 0.075–1mm pores; pH 9.0;

Parent rock: alluvial sediment, clay

Comments

Small flecks of manganese below 200cm. Old alluvium.

Soil classification

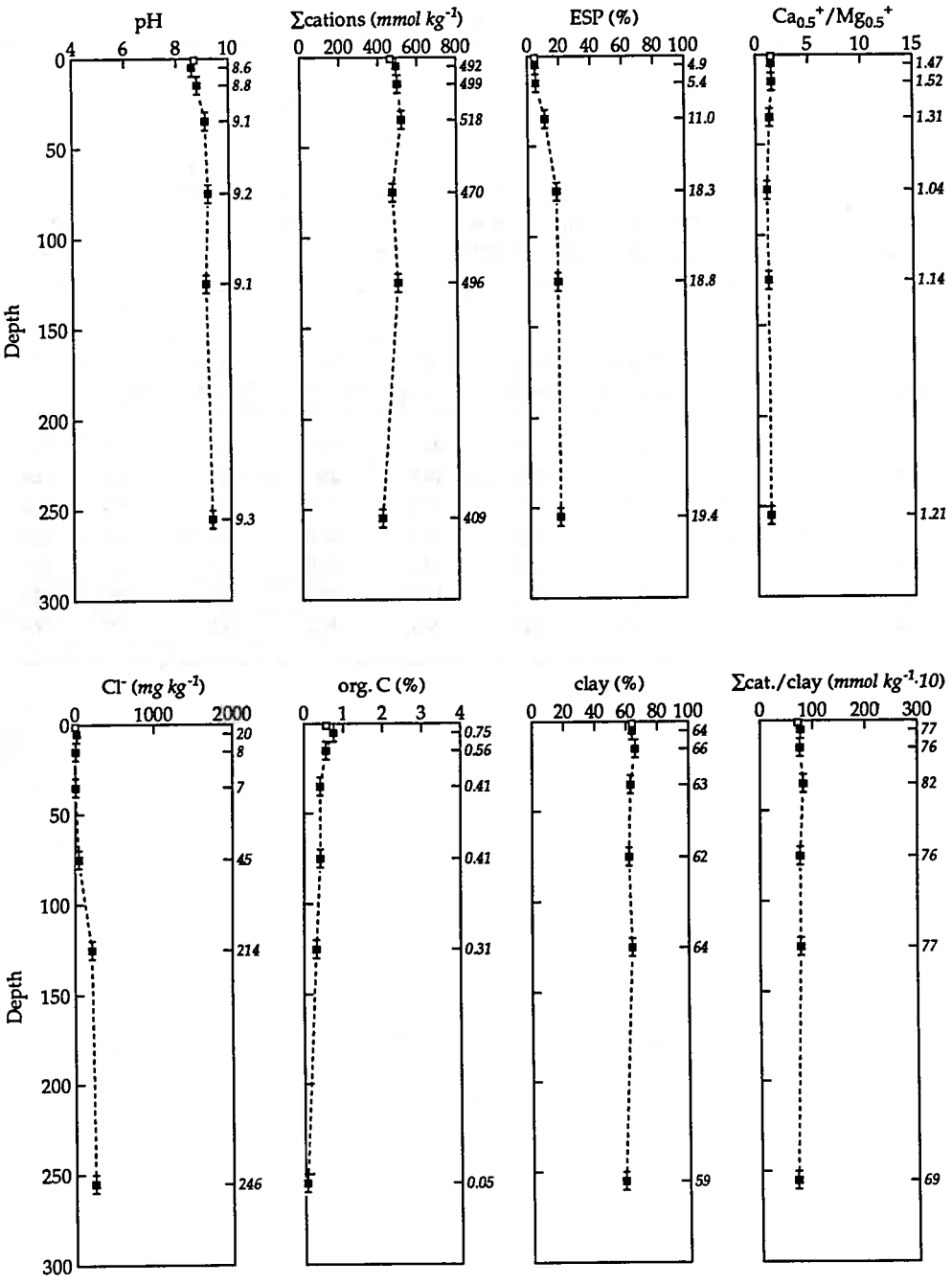
Principal profile form: Ug5.16
Great soil group: Grey clays
Soil taxonomy unit: Pellusterts

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_1p	0–2	8.7	9.4	0.57	<0.1	16	19	64
1	A_1p	0–10	8.6	12.8	0.75	0.4	20	14	64
2	A_11	10–20	8.8	12.1	0.56	0.3	19	14	66
3	A_12	30–40	9.1	22.9	0.41	0.7	21	14	63
4	A_13	70–80	9.2	30.3	0.41	0.4	22	15	62
5	A_1v	120–130	9.1	48.8	0.31	1.0	18	16	64
6	B_2	250–260	9.3	47.7	0.05	4.1	19	17	59

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	–	–	251	171	20.1	21.6	<1	463	4.7
20	1.4	25	268	183	16.7	24.3	<1	492	4.9
8	0.2	18	276	181	15.4	26.9	<1	499	5.4
7	0.7	12	256	195	10.8	56.8	<1	518	11.0
45	2.1	32	189	182	13.1	85.9	<1	470	18.3
214	5.4	35	207	181	15.0	93.1	<1	496	18.8
246	5.3	13	176	145	9.5	79.2	<1	409	19.4

Soil chemistry profiles



Namoi Valley soil study: Edgeroi Sheet

Site ed128

Site location

Grid reference: 753900mE 6660900mN
Elevation: 201m
Farmer: Auscott Ltd
Farm name: Auscott
Site described by G. M. Roberts on 24 June, 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
Visible cracks: width 1mm

Site comments

Crackspace 500.

Site vegetation

The site was under cotton.

Profile description

Soil described by D. McGarry on 8 May, 1985. Drilled depth 262cm

Horizon	(cm)	(Sample; depth)
A_1p	0–10	(1; 0–10) Very dark greyish brown (10YR3/2, 10YR3/2 dry) medium clay; weak 10–20mm subangular blocky structure; moderately strong; earthy fabric; 2–5% <5mm cracks; <2% 0.075–1mm pores; few fine roots; pH 7.3; arbitrary boundary,
A_1p	10–30	(2; 10–20) Very dark greyish brown (10YR3/2) medium heavy clay; weak 20–50mm angular blocky structure; moderately strong; nodular fracture; earthy fabric; <2% faint fine very pale brown (10YR8/3) calcareous nodules; 2–5% <5mm cracks; <2% 0.075–1mm pores; few fine roots; pH 7.7; arbitrary boundary,
A_1	30–64	(3; 30–40) Very dark greyish brown (10YR3/2) heavy clay; weak 20–50mm angular blocky structure; moderately firm; nodular fracture; earthy fabric; <2% <5mm cracks; <2% 0.075–1mm pores; few very fine roots; pH 8.3; genetic boundary, clear, wavy change to
A_1	64–136	(4; 70–80) Very dark greyish brown (10YR3/2) medium clay; moderate 10–20mm lenticular structure, breaking to moderate 5–10mm angular blocky structure;

		moderately firm; smooth–ped fabric; <2% faint fine very pale brown (10YR8/3) calcareous nodules; <2% <5mm cracks; <2% 0.075–1mm pores; few very fine roots; pH 9.3;
A_1		(5; 120–130) Very dark greyish brown (10YR3/2) medium heavy clay; moderate 20–50mm lenticular structure, breaking to moderate 10–20mm angular blocky structure; moderately firm; moderate slickensides, smooth–ped fabric; <2% <5mm cracks; <2% 0.075–1mm pores; pH 9.3; genetic boundary, gradual, smooth change to
B_2	136+	(6; 250–260) Dark brown (7.5YR4/4) medium clay; moderate 10–20mm lenticular structure, breaking to moderate 10–20mm angular blocky structure; moderately firm; moderate slickensides, smooth–ped fabric; <2% faint very coarse white (10YR8/2) calcareous nodules; <2% <5mm cracks; <2% 0.075–1mm pores; pH 9.3;

Parent rock: alluvial sediment, clay

Comments

Very few infilled cracks in the upper B2. Very little carbonate, even at depth. Well–structured B horizon.

Soil classification

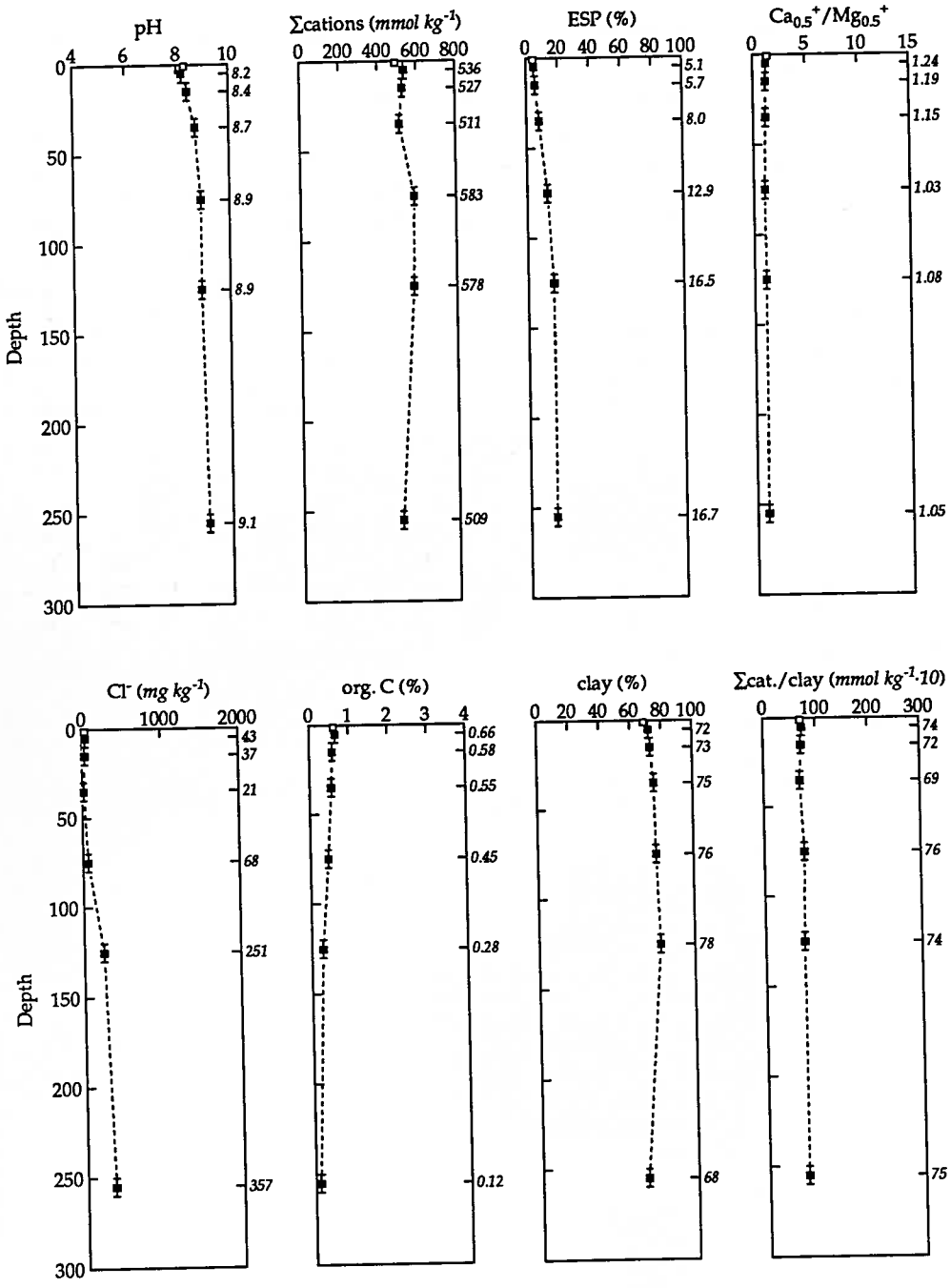
Principal profile form: Ug5.15
Great soil group: Grey clays

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_1p1	0–2	8.3	15.6	0.62	<0.1	11	19	69
1	A_1p1	0–10	8.2	19.2	0.66	0.1	9	18	72
2	A_1p2	10–20	8.4	16.3	0.58	<0.1	9	17	73
3	A_11	30–40	8.7	13.4	0.55	<0.1	7	17	75
4	A_12	70–80	8.9	33.4	0.45	0.4	6	16	76
5	A_13	120–130	8.9	51.9	0.28	0.8	2	18	78
6	B_2	250–260	9.1	59.3	0.12	3.6	6	22	68

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 %
38	–	–	258	189	24.4	22.3	<1	493	4.5
43	18.2	51	267	216	25.2	27.3	<1	536	5.1
37	21.5	37	256	216	25.1	30.2	<1	527	5.7
21	7.1	37	241	209	19.8	40.8	<1	511	8.0
68	32.2	56	248	241	19.2	75.2	<1	583	12.9
251	<0.1	38	241	222	19.6	95.3	<1	578	16.5
357	25.5	16	209	199	16.2	84.8	<1	509	16.7

Soil chemistry profiles



Namoi Valley soil study: Edgeroi Sheet

Site ed129

Site location

Grid reference: 756700mE 6660900mN
Elevation: 204m
Farmer: B.M.(Bruce) Foster
Farm name: Wengellabah
Site described by G. M. Roberts on 27 April, 1986
The site is located at a grid point

Site description

Slope: 0° Slope direction: 0°
Topography:
Landform: high terrace
Surface dry when sampled
Fine self-mulching surface, cultivated
Use: sorghum
Visible cracks: width 1mm

Site comments

Reddish brown surface. Surface cracks have been covered by cattle trampling. This land surface appears to slope away in all directions.

Site vegetation

The site was under sorghum, and included bare ground.

Profile description

Soil described by W. T. Ward on 13 January, 1987. Drilled depth 277cm

Horizon	(cm)	(Sample; depth)
A_1p	0–10	(1; 0–10) Dark brown (7.5YR3/2, 7.5YR3/2 dry) light medium clay; moderate 2–5mm subangular blocky structure; moderately strong; smooth-ped fabric; <2% <5mm cracks; <2% 0.075–1mm pores; few very fine roots; pH 7.5; plough sole, clear, smooth change to
A_1	10–100	(2; 10–20) Dark brown (7.5YR3/2) light medium clay; <2% faint fine dark brown (7.5YR4/2) patches of sediment, filling cracks; moderate 50–100mm prismatic structure, breaking to weak 20–50mm subangular blocky structure; very strong; nodular fracture; smooth-ped fabric; <2% faint fine very pale brown (10YR7/3) calcareous nodules; <2% <5mm cracks; <2% 0.075–1mm pores; few very fine roots; <2% 2–6mm subrounded quartz fragments; pH 8.0;
A_1		(3; 30–40) Dark brown (7.5YR3/2) medium clay; <2% distinct fine very pale brown (10YR7/4) patches of sediment, filling cracks; moderate 50–100mm prismatic structure, breaking to moderate 20–50mm subangular blocky structure; very

		strong; smooth–ped fabric; <2% distinct fine very pale brown (10YR7/3) calcareous nodules; <2% <5mm cracks; <2% 0.075–1mm pores; few very fine roots; pH 8.5;
A_1		(4; 70–80) Dark reddish brown (5YR3/2) medium clay; moderate 50–100mm wedge structure, breaking to moderate 10–20mm subangular blocky structure; moderately strong; polished ped and smooth–ped fabric; <2% distinct fine pink (7.5YR7/4) 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	100+	(5; 120–130) Reddish brown (5YR4/4) medium clay; 2–10% faint medium dark brown (7.5YR3/2) organic stains; weak 50–100mm wedge structure, breaking to weak 50–100mm subangular blocky structure; moderately strong; polished ped and smooth–ped fabric; <2% faint fine pink (7.5YR7/4) calcareous nodules; <2% <5mm cracks; <2% 0.075–1mm pores; few very fine roots; pH 8.7;
B_2		(6; 250–260) Reddish brown (5YR4/4) light medium clay; <2% distinct medium brown (7.5YR5/2) organic stains; moderate 20–50mm wedge structure; moderately firm; polished ped fabric; <2% distinct medium pinkish grey (7.5YR6/2) calcareous nodules; <2% <5mm cracks; <2% 0.075–1mm pores; pH 9.0;

Parent rock: alluvial sediment, clay

Comments

In the B2 horizon there is also a very coarse prismatic structure. MVpH. Upper part of B2 is not as well–structured as lower part.

Soil classification

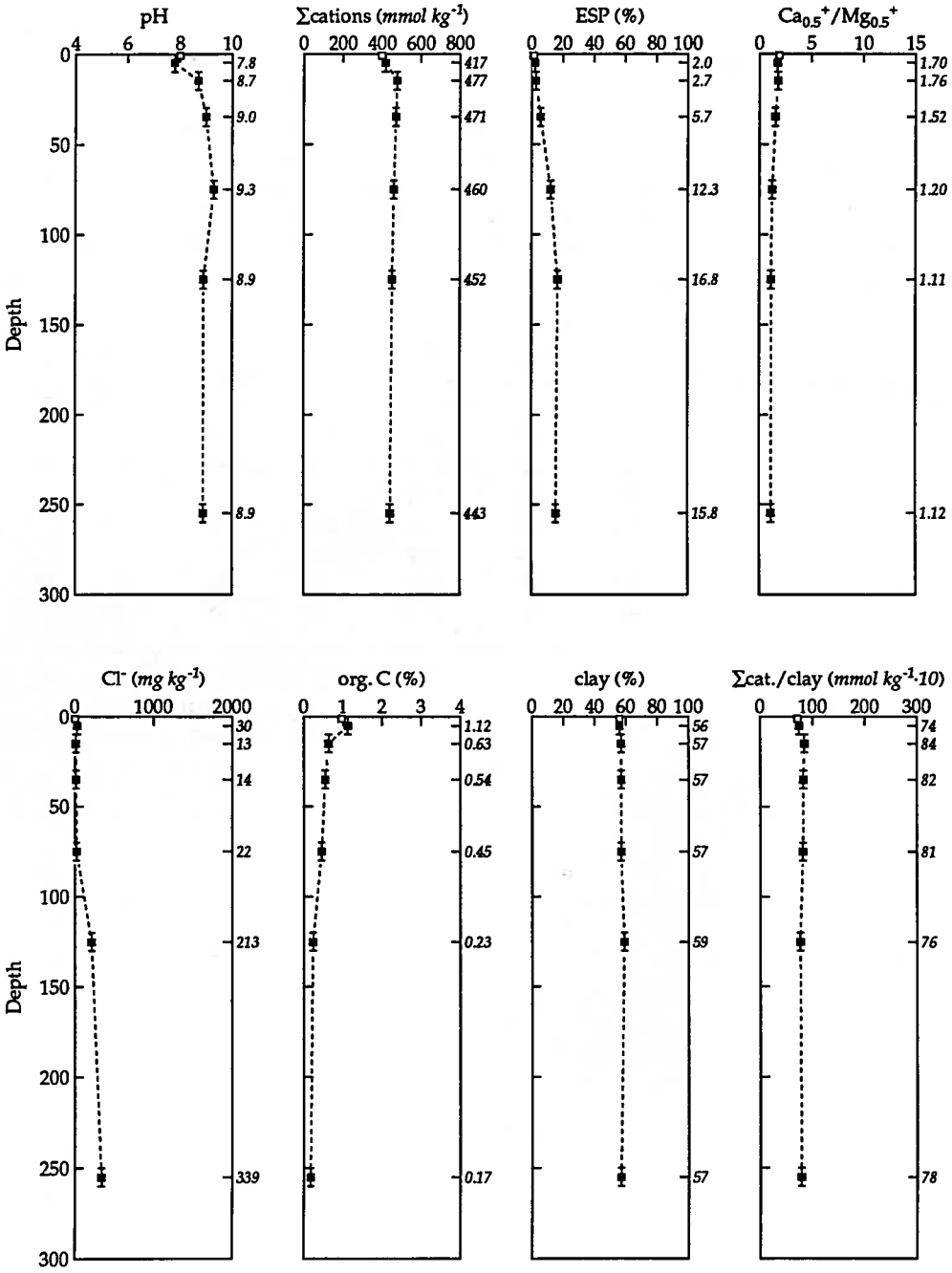
Principal profile form: Ug5.15
Great soil group: Brown clays
Soil taxonomy unit: Pellusterts

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	8.0	7.6	0.96	<0.1	18	24	56
1	A_1p	0–10	7.8	12.4	1.12	<0.1	19	23	56
2	$A_1 1$	10–20	8.7	10.6	0.63	0.1	19	23	57
3	$A_1 2$	30–40	9.0	16.5	0.54	0.4	20	22	57
4	$A_1 3$	70–80	9.3	23.7	0.45	0.8	19	23	57
5	$B_2 1$	120–130	8.9	46.6	0.23	0.3	17	23	59
6	$B_2 2$	250–260	8.9	52.6	0.17	0.3	20	22	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 %
3	–	–	242	129	22.0	5.0	<1	398	1.3
30	9.3	19	246	145	16.9	8.2	<1	417	2.0
13	3.0	7	290	164	10.4	13.1	<1	477	2.7
14	2.0	4	264	174	7.6	26.7	<1	471	5.7
22	2.7	6	215	180	8.9	56.7	<1	460	12.3
213	4.7	16	192	173	11.1	75.8	<1	452	16.8
339	11.6	10	192	172	9.1	70.0	<1	443	15.8

Soil chemistry profiles



Namoi Valley soil study: Edgeroi Sheet

Site ed130

Site location

Grid reference: 759400mE 6660800mN
Elevation: 212m
Farmer: W. Haynes
Site described by D. McGarry on 15 May, 1985
The site is located at a grid point

Site description

Slope: 1° Slope direction: 000°
Topography: gently sloping
Landform: high terrace
Surface dry when sampled
Weak surface crust, cultivated
Use: wheat
Visible cracks: width 1mm

Site vegetation

The site was under wheat.

Profile description

Soil described by W. T. Ward on 9 January, 1987. Drilled depth 204cm

Horizon	(cm)	(Sample; depth)
A_1p	0–10	(1; 0–10) Very dark grey (10YR3/1, 10YR3/2 dry) medium clay; moderate 20–50mm subangular blocky structure, with moderate 2–5mm granular structure; moderately firm; smooth-ped and polished ped fabric; <2% faint fine light grey (10YR7/2) calcareous nodules; <2% <5mm cracks; <2% 0.075–1mm pores; few very fine roots; <2% 2–6mm subrounded quartz fragments; pH 7.5; plough sole, abrupt, smooth change to
A_1	10–130	(2; 10–20) Very dark grey (10YR3/1) medium clay; moderate 20–50mm subangular blocky structure; moderately firm; smooth-ped and polished ped fabric; <2% faint fine light grey (10YR7/2) calcareous nodules; <2% <5mm cracks; <2% 0.075–1mm pores; few very fine roots; <2% 2–6mm subrounded quartz fragments; pH 8.5;
A_1		(3; 30–40) Very dark grey (10YR3/1) medium clay; <2% distinct fine very pale brown (10YR7/3) patches of sediment, filling cracks; moderate 50–100mm subangular blocky structure; moderately firm; polished ped and smooth-ped fabric; <2% faint fine light grey (10YR7/2) calcareous nodules; <2% 5–10mm cracks; <2% 0.075–1mm pores; few very fine roots; <2% 2–6mm rounded tabular quartz fragments; pH 8.7;
A_1		(4; 70–80) Dark brown (7.5YR3/2) medium clay; strong 20–50mm wedge structure;

		very firm; moderate slickensides, polished ped fabric; <2% distinct fine light grey (10YR7/2) calcareous nodules; <2% <5mm cracks; <2% 0.075–1mm pores; few very fine roots; <2% 2–6mm subrounded quartz fragments; pH 9.0;
B_2v		(5; 120–130) Dark brown (7.5YR4/2) medium clay; 10–20% distinct coarse dark brown (7.5YR3/2) organic stains; moderate 20–50mm subangular blocky structure, with moderate 20–50mm wedge structure; very firm; smooth–ped and polished ped fabric; <2% prominent coarse white (10YR8/2) calcareous nodules; <2% <5mm cracks; <2% 0.075–1mm pores; few very fine roots; <2% 2–6mm rounded tabular quartz fragments; pH 9.0; genetic boundary, clear, wavy change to
C	130+	(6; 190–200) Brown (7.5YR5/4) sandy light clay; <2% distinct medium dark brown (7.5YR3/2) flecks produced by faunal mixing; apedal structureless; very firm; earthy fabric; 2–10% prominent medium white (10YR8/2) calcareous soft segregations; <2% <5mm cracks; >90% 20–60mm angular basalt fragments; pH 9.0;

Parent rock: residual, basalt, sand

Comments

Quartz sand occurs in small quantities at several levels. Wedge structure starts at 60cm. Less than 2% weathered basalt occurs at 120–130cm. Note ? aeolian component of soil. ?Uf6.23 ?vuspe.

Soil classification

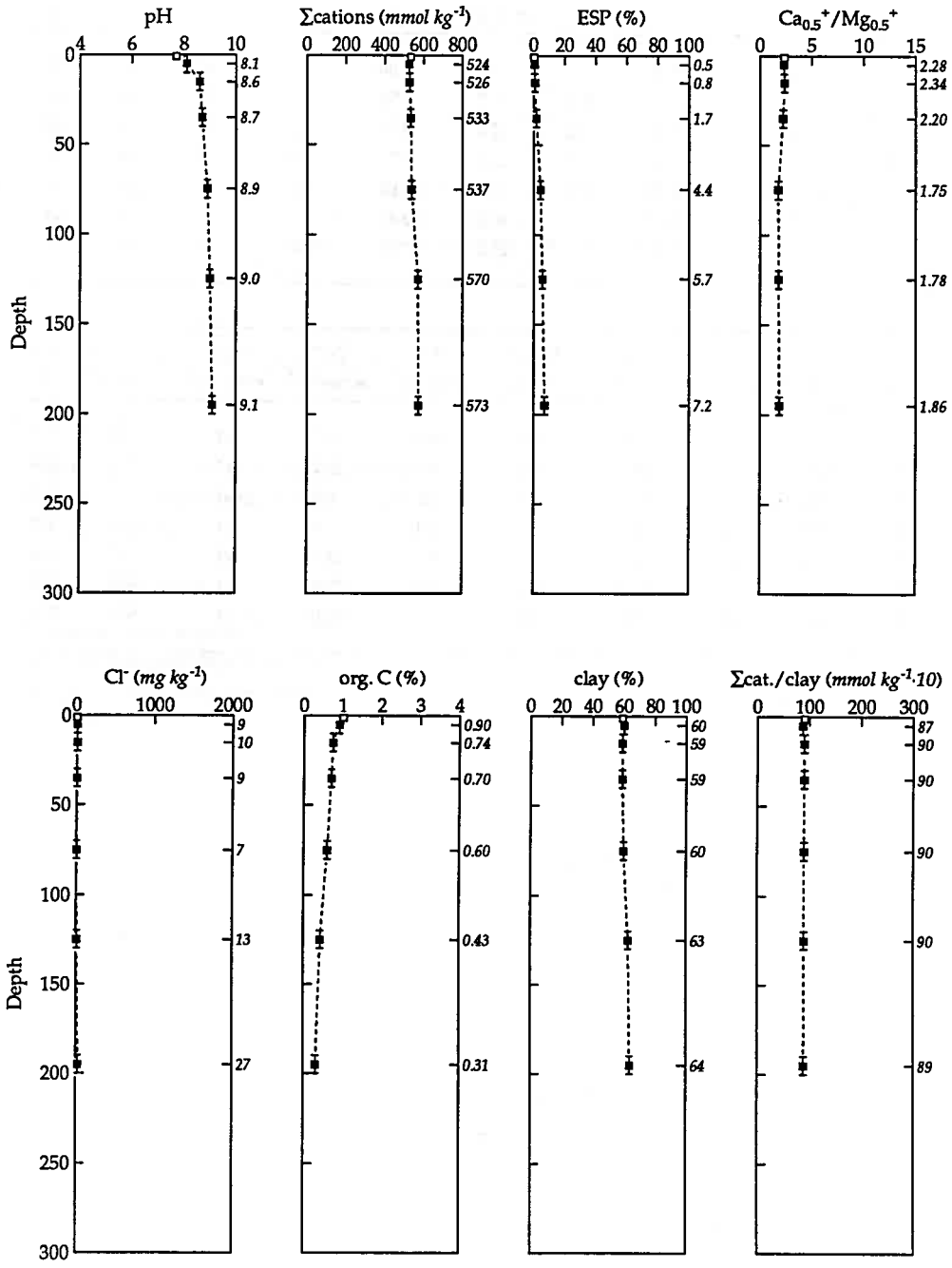
Principal profile form: Ug5.12
Great soil group: Black earths
Soil taxonomy unit: Pellusterts

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	7.7	5.2	1.00	<0.1	22	18	59
1	A_1p	0–10	8.1	11.5	0.90	0.2	22	16	60
2	A_11	10–20	8.6	12.0	0.74	0.5	24	16	59
3	A_12	30–40	8.7	12.6	0.70	0.9	23	16	59
4	A_13	70–80	8.9	14.9	0.60	1.2	22	16	60
5	B_2v	120–130	9.0	16.8	0.43	1.3	18	16	63
6	C	190–200	9.1	21.2	0.31	14.9	3	17	64

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 %
3	–	–	358	155	18.8	1.3	<1	533	0.2
9	12.7	2	356	156	9.9	2.8	<1	524	0.5
10	6.1	<1	362	155	5.1	4.0	<1	526	0.8
9	2.6	<1	358	162	3.4	8.9	<1	533	1.7
7	0.4	<1	324	185	4.2	23.7	<1	537	4.4
13	6.6	1	340	191	6.3	32.4	<1	570	5.7
27	10.1	<1	343	185	4.2	41.0	<1	573	7.2

Soil chemistry profiles



Namoi Valley soil study: Edgeroi Sheet

Site ed131

Site location

Grid reference: 762100mE 6660800mN
Elevation: 220m
Farm name: Green Timbers
Site described by G. M. Roberts on 2 March, 1985
The site is located at a grid point

Site description

Slope: 1° Slope direction: 165°
Topography: gently sloping
Landform: mid-slope
Surface dry when sampled
Fine self-mulching surface, cultivated
Use: sorghum
Visible cracks: width 1mm

Site comments

A large number of waterworn quartz gravels up to 100mm diameter and coated with iron occur on the surface. There are also large basalt lumps to 200mm diameter. The surface is very good self mulching. Stones are sarsens (GMR) or ?aboriginal artifacts (WTW). Before grinding gravel was removed from 131.06, the gravel was 68% by weight (DWP).

Site vegetation

The site was under wheat, and included bare ground.

Profile description

Soil described by K. J. Smith on 22 May, 1985. Drilled depth 158cm

Horizon	(cm)	(Sample; depth)
A_1p	0–8	(1; 0–8) Very dark grey (10YR3/1, 10YR3/1 dry) light medium clay; strong 2–5mm granular structure; moderately firm; earthy fabric; 5–10% 0.075–1mm pores; few fine roots; <2% 2–6mm subangular quartz fragments; pH 8.3; plough sole, sharp, smooth change to
A_1	8–85	(2; 10–20) Very dark grey (10YR3/1, 10YR3/1 dry) medium clay; moderate 20–50mm angular blocky structure; moderately firm; polished ped and smooth-ped fabric; <2% 6–20mm subangular tabular basalt fragments; pH 8.7;
A_1		(3; 30–40) Very dark grey (10YR3/1, 10YR3/1 dry) medium heavy clay; moderate 20–50mm angular blocky structure; moderately weak; polished ped and

		smooth–ped fabric; <2% <5mm cracks; <2% 0.075–1mm pores; <2% 6–20mm angular platy basalt fragments; pH 8.7;
A_1		(4; 70–80) Very dark grey (10YR3/1) medium clay; strong 20–50mm angular blocky structure; moderately firm; polished ped and smooth–ped fabric; <2% <5mm cracks; <2% 1–2mm pores; few very fine roots; 2–10% 6–20mm angular basalt fragments; pH 8.7; genetic boundary, gradual, smooth change to
C	85+	(5; 120–130) Brown (10YR5/3) light medium clay; 10–20% distinct coarse light yellowish brown (10YR6/4) inherited stains; apedal massive; very firm; smooth–ped fabric; 2–10% prominent very coarse white (10YR8/2) calcareous soft segregations; 2–10% medium calcareous veins; 2–10% medium manganese cutans in cracks and cavities; <2% <5mm cracks; <2% 0.075–1mm pores; 50–90% 20–60mm angular tabular basalt fragments; pH 8.8;

Parent rock: residual, basalt, sand

Comments

Smith and Ward. Horizon designation according to new rules. Ap shearvane, penetrometer and tensile strength not measureable. A1 contains quartz coarse fragments. 131.04 ped faces tend towards slicks, but no proper slicks are developed. 131.05 shearvanes and penetrometer do not penetrate. Carbonate nodules are uniform throughout. 131.05 is stony light medium clay. Fresher rock below 130, 2.5Y5/0.

Soil classification

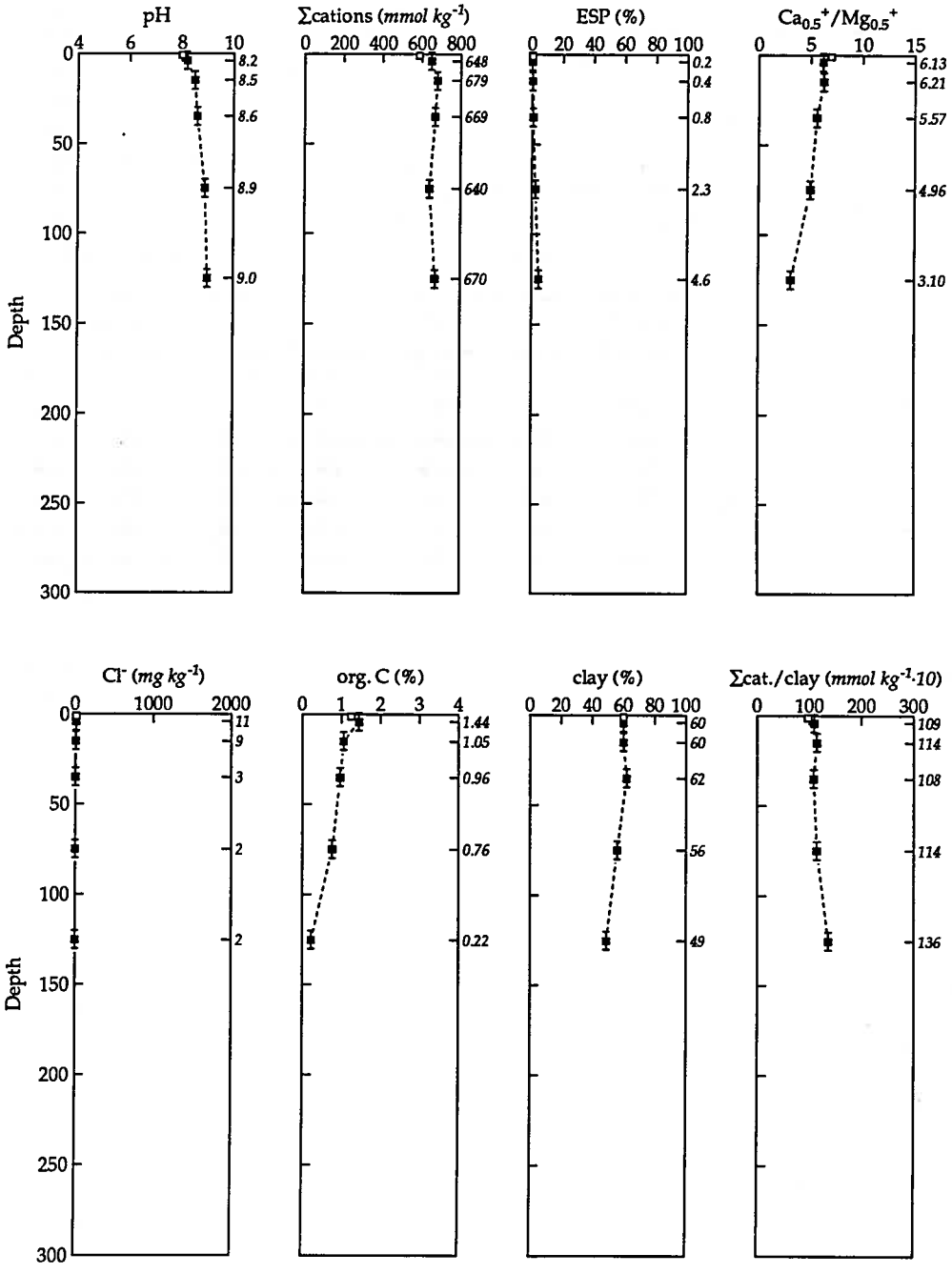
Principal profile form: Ug5.12
Great soil group: Black earths

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	8.0	12.7	1.24	0.2	21	16	60
1	A_1p	0–8	8.2	12.8	1.44	0.2	22	15	60
2	A_11	10–20	8.5	14.4	1.05	1.0	24	14	60
3	A_12	30–40	8.6	13.7	0.96	1.5	19	16	62
4	A_13	70–80	8.9	14.8	0.76	5.7	21	17	56
5	C	120–130	9.0	21.7	0.22	14.1	19	18	49

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 %
11	–	–	494	71	18.7	1.5	<1	586	0.3
11	3.1	9	541	88	18.1	1.5	<1	648	0.2
9	3.8	2	576	93	7.6	2.6	<1	679	0.4
3	3.2	1	558	100	5.3	5.2	<1	669	0.8
2	2.1	<1	517	104	4.7	14.9	<1	640	2.3
2	1.1	5	479	155	5.5	30.6	<1	670	4.6

Soil chemistry profiles



Namoi Valley soil study: Edgeroi Sheet

Site ed132

Site location

Grid reference: 764800mE 6660700mN
stock route
Site described by W. T. Ward on 12 June, 1985
The site is located at a grid point

Elevation: 223m
east of Green Timbers

Site description

Slope: 0°
Landform: high terrace
Surface dry when sampled
Hard-setting surface, poached
Use: stock route
Visible cracks: width 1mm, depth 350mm

Topography: flat

Profile description

Soil described by W. T. Ward on 12 March, 1985. Drilled depth 364cm

Horizon	(cm)	(Sample; depth)
A_1	0–8	(1; 0–8) Dark yellowish brown (10YR3/4, 7.5YR5/4 dry) sandy clay loam, fine sandy; apedal massive weak 5–10mm subangular blocky structure; moderately firm; smooth fracture; earthy fabric; <2% 0.075–1mm pores; common fine roots; pH 5.6; genetic boundary, abrupt, smooth change to
B_2	8–50	(2; 10–20) Dark reddish brown (5YR3/3, 5YR3/2 dry) medium clay; moderate 20–50mm subangular blocky structure; moderately strong; smooth–ped fabric; <2% <5mm cracks; <2% 0.075–1mm pores; few very fine roots; pH 7.5;
C		(3; 30–40) Dark reddish brown (5YR3/3) medium heavy clay; moderate 20–50mm subangular blocky structure; moderately strong; smooth–ped fabric; <2% 5–10mm cracks; <2% 0.075–1mm pores; common very fine roots; pH 8.5; stratigraphic boundary, clear, smooth change to
$2A_1$	50+	(4; 70–80) Dark brown (7.5YR3/2) light clay; weak 10–20mm subangular blocky structure moderate 2–5mm cast granular structure; very firm; nodular fracture; rough–ped fabric; <2% faint fine white (10YR8/2) calcareous nodules; <2% <5mm cracks; 2–5% 2–5mm pores; few very fine roots; pH 7.8;
$2A_1$		(5; 120–130) Dark brown (7.5YR3/2) medium clay; weak 20–50mm prismatic structure strong 5–10mm subangular blocky structure; moderately strong; nodular fracture; smooth–ped fabric; 10–20% distinct coarse very dark grey (N3/) manganese stains; <2% distinct fine very pale brown (10YR8/3) calcareous soft segregations; <2% 5–10mm cracks; <2% 1–2mm pores; few very fine roots; pH 7.8;

$2B_2$ (6; 250–260) Dark brown (7.5YR4/4) light medium clay; moderate 20–50mm prismatic structure moderate 10–20mm subangular blocky structure; moderately strong; weak slickensides, smooth-ped fabric; 10–20% distinct coarse very dark grey (N3/) manganese stains; <2% prominent medium white (10YR8/2) calcareous nodules; <2% <5mm cracks; <2% 1–2mm pores; pH 8.7;

Parent rock: alluvial sediment, clay

Comments

Crack depth 35cm length 3500. Strength of 2cm surface crust is 6. Boundary at 50 ?s. This seems to me to be an early burial of an older groundsurface, seen now at 50cm. Cf modern floodway distributaries. Repeat core for Fitz confirms burial at 55cm.

Soil classification

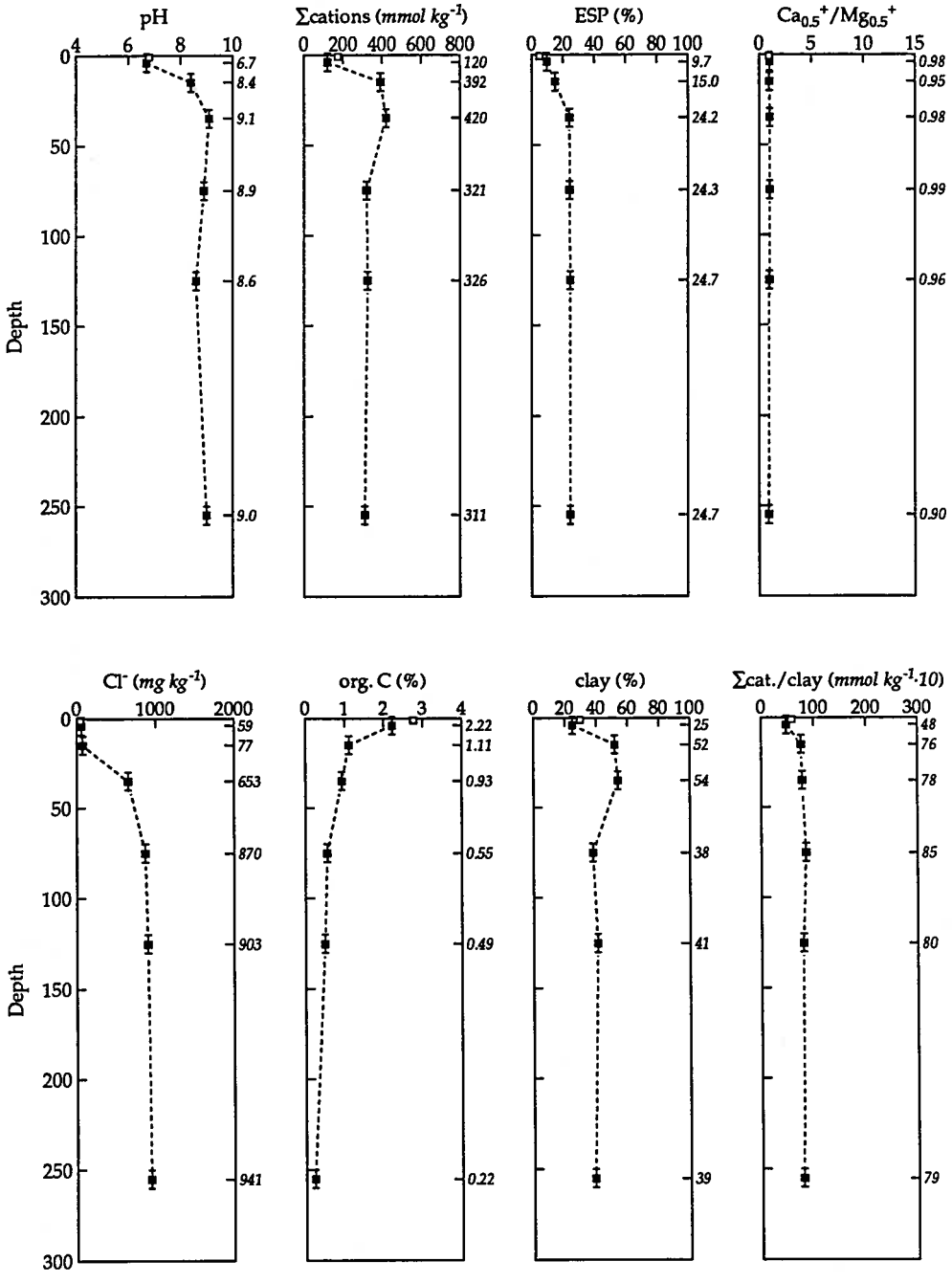
Principal profile form: Dr2.13
Great soil group: Brown clays

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	0–2	6.8	14.9	2.77	<0.1	46	19	30
1	A_1	0–8	6.7	10.7	2.22	<0.1	52	19	25
2	B_2	10–20	8.4	15.6	1.11	<0.1	31	16	52
3	C	30–40	9.1	64.9	0.93	-1.5	27	16	54
4	$2A_1 1$	70–80	8.9	71.5	0.55	0.5	38	23	38
5	$2A_1 2$	120–130	8.6	76.3	0.49	0.1	34	24	41
6	$2B_2$	250–260	9.0	85.0	0.22	0.6	36	23	39

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 %
49	–	–	71	75	18.0	8.6	<1	173	5.0
59	2.1	23	49	50	9.9	11.7	<1	120	9.7
77	4.2	4	159	168	6.0	58.9	<1	392	15.0
653	3.4	2	155	159	4.7	101.7	<1	420	24.2
870	1.8	18	118	119	4.9	77.9	<1	321	24.3
903	1.9	28	117	123	5.5	80.4	<1	326	24.7
941	1.5	18	108	120	6.2	77.0	<1	311	24.7

Soil chemistry profiles



Namoi Valley soil study: Edgeroi Sheet

Site ed133

Site location

Grid reference: 767600mE 6660600mN
Elevation: 232m
Farmer: Paul White
Farm name: Tarlee
Site described by G. M. Roberts on 22 May, 1985
The site is located at a grid point

Site description

Slope: 0°
Topography: flat
Landform: high terrace
Surface dry when sampled
Coarse self-mulching surface, cultivated
Use: wheat, sheep pasture
Visible cracks: width 1mm

Site comments

Patches of dark and light brownish red in paddock. Topography to very gently undulating.

Site vegetation

The site was under wheat.

Profile description

Soil described by W. T. Ward on 12 December, 1986. Drilled depth 469cm

Horizon	(cm)	(Sample; depth)
A_1P	0–10	(1; 0–10) Dark reddish brown (5YR3/3, 5YR4/2 dry) light medium clay; weak 10–20mm subangular blocky structure, with moderate 2–5mm granular structure; moderately firm; rough–ped fabric; 2–5% <5mm cracks; <2% 0.075–1mm pores; few very fine roots; pH 6.0; plough sole, abrupt, smooth change to
A_1	10–60	(2; 10–20) Dark reddish brown (5YR3/2) medium clay; moderate 20–50mm subangular blocky structure; very strong; smooth–ped fabric; <2% <5mm cracks; <2% 0.075–1mm pores; few very fine roots; pH 6.5;
A_1k		(3; 30–40) Dark reddish brown (5YR3/2) medium clay; strong 20–50mm subangular blocky structure; very strong; smooth–ped fabric; <2% distinct fine pink? (7.5YR7/3) calcareous nodules; <2% <5mm cracks; <2% 0.075–1mm pores; few very fine roots; pH 9.0; genetic boundary, diffuse, smooth change to
B_2k	60–200	(4; 70–80) Reddish brown (5YR4/4) light medium clay; 2–10% faint medium dark

		reddish brown (5YR3/2) organic stains; weak 20–50mm prismatic structure, breaking to weak 10–20mm angular blocky structure; moderately strong; nodular fracture; smooth–ped fabric; <2% prominent medium light brown (7.5YR6/4) calcareous nodules; <2% <5mm cracks; <2% 0.075–1mm pores; few very fine roots; pH 9.0;
B_2		(5; 120–130) Reddish brown (5YR4/3) light medium clay; 2–10% faint medium dark reddish brown (5YR3/3) organic stains; weak 10–20mm prismatic structure, breaking to weak 5–10mm angular blocky structure; moderately strong; nodular fracture; smooth–ped fabric; <2% distinct medium brown (7.5YR5/2) calcareous nodules; <2% <5mm cracks; <2% 0.075–1mm pores; pH 9.0; stratigraphic boundary, diffuse, smooth change to
D	200–225	(6; 215–225) Brown (7.5YR5/4) sandy clay; 10–20% distinct coarse dark reddish brown (5YR3/3) flecks produced by faunal mixing; weak 20–50mm prismatic structure; moderately strong; granular fracture; earthy fabric; <2% faint fine light brown (7.5YR6/4) calcareous nodules; <2% <5mm cracks; <2% 0.075–1mm pores; <2% 2–6mm subangular tabular sandstone fragments; pH 8.5; stratigraphic boundary, sharp, smooth change to
$2A_1$	225–300	(7; 250–260) Dark reddish brown (5YR3/2) light medium clay; <2% distinct fine reddish brown (5YR5/4) flecks produced by faunal mixing; weak 20–50mm angular blocky structure, breaking to moderate 10–20mm subangular blocky structure; moderately strong; nodular fracture; smooth–ped and polished ped fabric; 2–10% prominent coarse dark brown (7.5YR4/2) calcareous nodules; <2% <5mm cracks; <2% 0.075–1mm pores; pH 9.0; genetic boundary, diffuse, smooth change to
$2B_2$	300+	(8; 350–360) Brown (10YR4/3) light medium clay; weak 50–100mm wedge structure, breaking to weak 10–20mm angular blocky structure; moderately strong; weak slickensides, nodular fracture; smooth–ped fabric; <2% prominent coarse light brown (7.5YR6/4) calcareous nodules; <2% <5mm cracks; <2% 0.075–1mm pores; pH 9.0;

Parent rock: alluvial sediment, mixed texture, with lime

Comments

From 40cm to 70cm the soil is quite compact. The tensile strength for 250–260cm is on a 3 inch core. From 200–228cm there is a sandy facies. The sandy facies represents the bedload of a new deposit. This sand also appears as infills in the clay horizon below, as well as being mixed by faunal acitivity. This burial might represent the prior groundsurface.

Soil classification

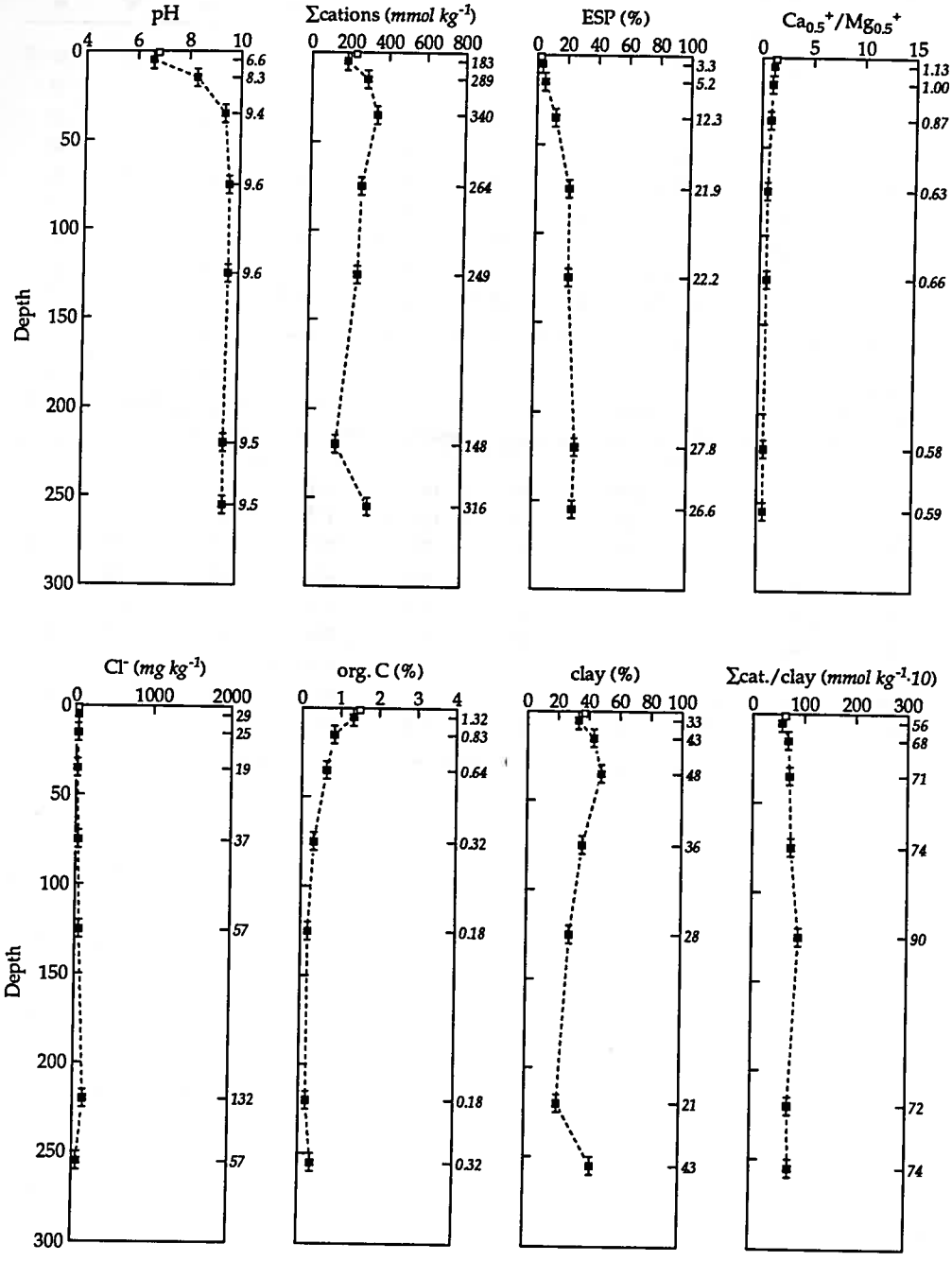
Principal profile form: Ug5.15
Great soil group: Brown clays
Soil taxonomy unit: Pellusterts

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	6.8	11.8	1.48	<0.1	40	21	37
1	A_1p	0–10	6.6	14.0	1.32	<0.1	48	17	33
2	A_11	10–20	8.3	12.7	0.83	<0.1	37	19	43
3	A_1k	30–40	9.4	27.6	0.64	2.7	32	16	48
4	B_2k	70–80	9.6	33.2	0.32	3.3	44	17	36
5	B_2	120–130	9.6	29.3	0.18	0.7	58	13	28
6	D	215–225	9.5	18.2	0.18	<0.1	69	10	21
7	$2A_1$	250–260	9.5	45.7	0.32	3.2	29	24	43
8	$2B_2$	350–360	9.3	59.3	0.19	2.0	27	19	52

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 %
27	–	–	117	89	18.2	5.1	<1	229	2.2
29	34.6	31	87	77	12.6	6.0	<1	183	3.3
25	19.7	6	135	134	5.1	15.1	<1	289	5.2
19	6.1	2	137	158	3.5	41.8	<1	340	12.3
37	2.3	12	78	124	4.0	57.7	<1	264	21.9
57	5.2	14	76	114	3.8	55.1	<1	249	22.2
132	0.8	11	38	66	2.8	41.2	<1	148	27.8
57	<0.1	15	84	144	4.6	84.1	<1	316	26.6
287	<0.1	22	85	167	6.8	97.6	<1	356	27.5

Soil chemistry profiles



Namoi Valley soil study: Edgeroi Sheet

Site ed134

Site location

Grid reference: 770400mE 6660500mN
Elevation: 242m
Farmer: Paul White
Farm name: Tarlee
Site described by D. McGarry on 29 June, 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: sorghum, wheat
Visible cracks: width 1mm

Site comments

Waterworn quartz up to 60mm in diameter on surface. The surface tends to be slightly dispersive, forming small surface seals.

Site vegetation

The site was under sunflower.

The following species were noted:

Eucalyptus populnea.

Profile description

Soil described by G. M. Roberts on 11 September, 1985. Drilled depth 269cm

Horizon	(cm)	(Sample; depth)
A_1p	0–6	(1; 0–6) Very dark grey (10YR3/1, 10YR5/3 dry) sandy clay loam; weak 2–5mm subangular blocky structure, breaking to apedal <2mm single–grained structure; moderately firm; granular fracture; earthy and sandy fabric; 5–10% <5mm cracks; <2% 0.075–1mm pores; few very fine roots; pH 6.0; plough sole, abrupt, smooth change to
A_1	6–42	(2; 10–20) Very dark grey (10YR3/1) light clay; moderate 50–100mm prismatic structure, breaking to moderate 5–10mm angular blocky structure; moderately strong; earthy and smooth–ped fabric; 2–5% <5mm cracks; 2–5% 0.075–1mm pores; few very fine roots; pH 7.0;

A_1		(3; 30–40) Very dark greyish brown (10YR3/2) medium heavy clay; 2–10% prominent medium strong brown (7.5YR5/6) stains of unknown origin; moderate 20–50mm prismatic structure, breaking to moderate 5–10mm angular blocky structure; moderately strong; smooth-ped fabric; <2% fine calcareous soft segregations; 2–5% <5mm cracks; 2–5% 0.075–1mm pores; few very fine roots; pH 8.3;
B_2k	42–114	(4; 70–80) Dark brown (7.5YR4/4) medium heavy clay; 2–10% prominent very coarse very dark greyish brown (10YR3/2) patches of soil, filling cracks; moderate 50–100mm prismatic structure, breaking to moderate 5–10mm angular blocky structure; moderately strong; smooth-ped and earthy fabric; 2–10% prominent medium very pale brown (10YR8/4) calcareous nodules; <2% <5mm cracks; 2–5% 0.075–1mm pores; few very fine roots; pH 8.4; genetic boundary, clear, smooth change to
B_2	114–179	(5; 120–130) Brown (10YR4/3) medium heavy clay; 10–20% prominent very coarse very dark grey (10YR3/1) flecks produced by faunal mixing; moderate 50–100mm prismatic structure, breaking to moderate 5–10mm angular blocky structure; moderately strong; smooth-ped and earthy fabric; <2% <5mm cracks; 2–5% 0.075–1mm pores; few very fine roots; pH 8.0; genetic boundary, clear, smooth change to
C	179+	(6; 250–260) Dark brown (7.5YR4/4) light clay; 10–20% prominent coarse dark brown (7.5YR3/2) flecks produced by faunal mixing; weak 50–100mm prismatic structure, breaking to weak 5–10mm subangular blocky structure; moderately firm; nodular fracture; sandy and earthy fabric; <2% <5mm cracks; 2–5% 0.075–1mm pores; 2–10% 20–60mm rounded quartz fragments; pH 7.8;

Parent rock: alluvial sediment, calcareous sand

Comments

Stains at 30–40 (7.5YR5/6) could be from old fires as aboriginal artifacts were found on the surface at this site. Rounded basalt gravels and coarse sand bands at 179cm. Basalt 30mm diameter.

Soil classification

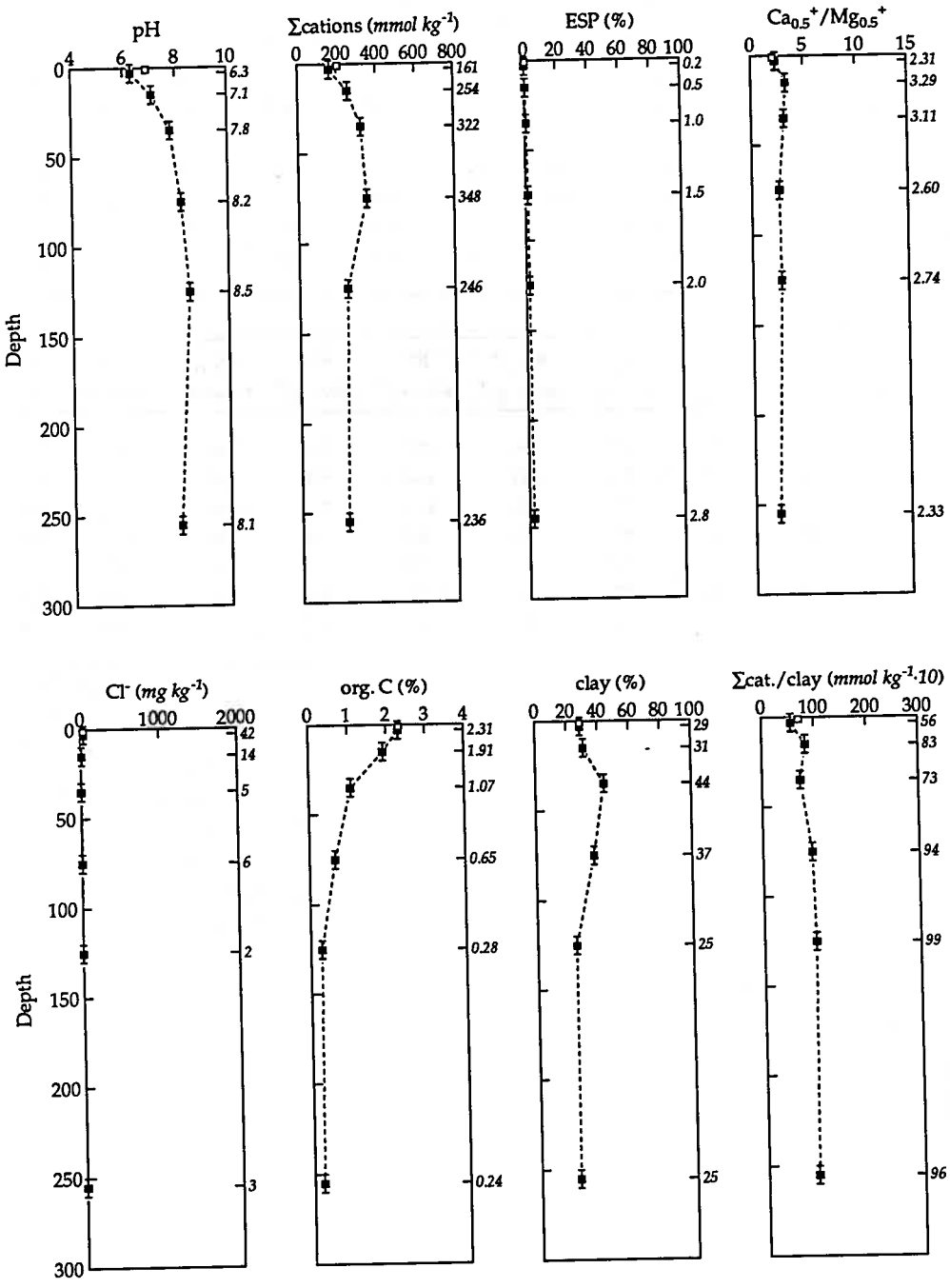
Principal profile form: Dy5.13
Great soil group: Alluvial soils

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_1p	0–2	6.9	13.6	2.33	<0.1	46	21	29
1	A_1p	0–6	6.3	13.4	2.31	<0.1	46	21	29
2	A_1	10–20	7.1	6.5	1.91	<0.1	47	19	31
3	A_1	30–40	7.8	5.7	1.07	<0.1	36	18	44
4	B_2k	70–80	8.2	6.0	0.65	<0.1	42	20	37
5	B_2	120–130	8.5	5.4	0.28	<0.1	60	15	25
6	C	250–260	8.1	4.4	0.24	<0.1	61	14	25

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 %
37	–	–	117	56	29.4	0.9	<1	204	0.4
42	4.9	119	101	44	16.3	0.4	<1	161	0.2
14	3.0	83	185	56	12.3	1.2	<1	254	0.5
5	0.8	69	235	76	8.4	3.2	<1	322	1.0
6	0.1	31	242	93	7.9	5.1	<1	348	1.5
2	<0.1	46	172	63	7.0	4.9	<1	246	2.0
3	<0.1	65	156	67	6.5	6.7	<1	236	2.8

Soil chemistry profiles



Namoi Valley soil study: Edgeroi Sheet

Site ed135

Site location

Grid reference: 773100mE 6660400mN
Farmer: N.A.(Tony) Barrett
Site described by G. M. Roberts on 22 April, 1985
The site is located at a grid point

Elevation: 253m
Farm name: Yera

Site description

Slope: 1° Slope direction: 015°
Landform: lower slope
Surface dry when sampled
Weak surface crust, poached
Use: native pasture, cattle pasture
Visible cracks: width 1mm, 1 per metre, depth 350mm

Topography: gently sloping

Site comments

Cracks might have been obscured by cattle. Sandstone intersected at approximately 2 meters. ?alluvium on sandstone.

Site vegetation

The following species were noted:

Bassia quinquecuspis.

These specimens were observed but not identified:

103.

Profile description

Soil described by W. T. Ward on 19 December, 1986. Drilled depth 260cm

Horizon	(cm)	(Sample; depth)
A_1	0–110	(1; 0–10) Dark brown (7.5YR3/2, 7.5YR4/2 dry) sandy light clay; moderate 20–50mm prismatic structure, with moderate 2–5mm granular structure; moderately strong; rough-ped fabric; <2% <5mm cracks; <2% 0.075–1mm pores; few very fine roots; pH 6.5;
A_1		(2; 10–20) Dark brown (7.5YR3/2) light medium clay; weak 50–100mm prismatic structure, breaking to moderate 50–100mm angular blocky structure; moderately strong; granular fracture; smooth-ped and rough-ped fabric; <2% faint fine colourless (N10/) gypsum crystals; <2% <5mm cracks; <2% 0.075–1mm pores; few very fine roots; pH 7.0;

A_1		(3; 30–40) Dark brown (7.5YR3/2) light medium clay; moderate 20–50mm prismatic structure, breaking to moderate 20–50mm angular blocky structure; moderately strong; smooth-ped fabric; <2% distinct fine pinkish grey (7.5YR6/2) calcareous nodules; <2% faint fine colourless (N10/) gypsum crystals; <2% <5mm cracks; <2% 0.075–1mm pores; few very fine roots; <2% 2–6mm subrounded quartz fragments; pH 8.5;
B_2k		(4; 70–80) Dark reddish brown (5YR3/3) medium clay; <2% faint fine dark brown (7.5YR4/4) patches of sediment, filling cracks; moderate 50–100mm wedge structure, breaking to weak 20–50mm angular blocky structure; moderately strong; weak slickensides, smooth fracture; smooth-ped fabric; <2% prominent fine pink (7.5YR7/4) calcareous soft segregations; <2% <5mm cracks; <2% 0.075–1mm pores; few very fine roots; <2% 2–6mm subangular quartz fragments; pH 9.0; genetic boundary, diffuse, smooth change to
B_2	110–180	(5; 120–130) Dark brown (7.5YR4/4) medium clay; weak >100mm prismatic structure; very strong; nodular fracture; smooth-ped fabric; <2% prominent fine black (N2/) iron-manganese stains; <2% <5mm cracks; few very fine roots; pH 6.5; stratigraphic boundary, sharp, smooth change to
R	180+	(6; 250–260) Very pale brown (10YR7/4) light sandy clay loam; 2–10% prominent fine brown (10YR4/3) patches of soil, filling cracks; apedal massive; very strong; smooth fracture; smooth-ped fabric; <2% <5mm cracks; pH 4.5;

Parent rock: residual, from sandstone, non-calcareous, sandstone

Comments

The granular structured topsoil is at the surface. Very sandy rough fabric of surface soil. The gypsum is probably cementing the whole A1.2 horizon. A sharp contact marked by coarse gravel at approx. 180cm. 250–260cm sample is of tertiary sandstone (parent rock). Prominent manganese stain at 120cm. Note surface gypsum: query aeolian. Soil retained.

Soil classification

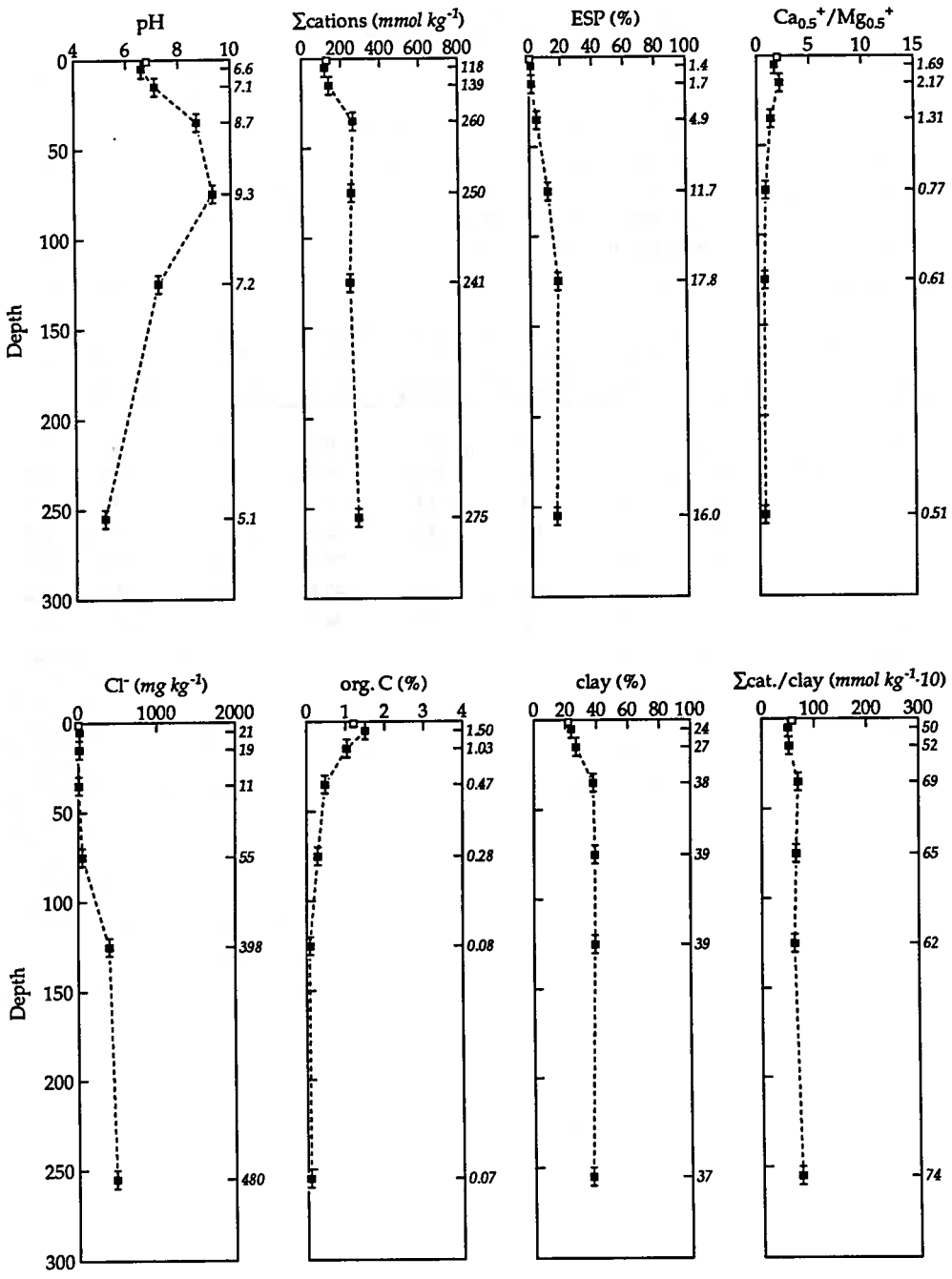
Principal profile form: Ug5.34
Great soil group: Grey clays
Soil taxonomy unit: Pellusterts

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	6.8	4.5	1.20	<0.1	64	11	22
1	$A_1$1	0–10	6.6	10.1	1.50	<0.1	64	10	24
2	$A_1$2	10–20	7.1	5.3	1.03	<0.1	61	10	27
3	$A_1$3	30–40	8.7	<0.1	0.47	0.1	53	9	38
4	B_2k	70–80	9.3	26.0	0.28	4.7	47	9	39
5	B_2	120–130	7.2	48.6	0.08	<0.1	51	10	39
6	R	250–260	5.1	40.4	0.07	<0.1	47	16	37

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	–	–	78	39	10.7	0.8	<1	129	0.6
21	31.3	41	66	39	11.3	1.7	<1	118	1.4
19	10.0	9	90	41	4.7	2.4	<1	139	1.7
11	2.1	<1	139	106	2.5	12.7	<1	260	4.9
55	0.5	<1	96	123	1.9	29.2	<1	250	11.7
398	<0.1	6	74	122	1.6	42.8	<1	241	17.8
480	9.0	4	67	132	1.7	44.1	30	275	16.0

Soil chemistry profiles



Namoi Valley soil study: Edgeroi Sheet

Site ed136

Site location

Grid reference: 775800mE 6660300mN
Forestry Commission of NSW
Site described by G. M. Roberts on 27 April, 1985
The site is located at a grid point

Elevation: 268m
Bobbiwaa State Forest

Site description

Slope: 0°
Landform: pediment
Surface moist when sampled
Loose surface
Use: native forest
Visible cracks: width 1mm

Topography: flat

Site comments

A solodic soil. Nearby ridges consist of shallow ferruginous sandstone with mottled yellow earths.Pale yellow sandy soils occur in depressions on slopes and browner patches on the better–drained knolls and clayier parent materials.

Site vegetation

The following species were noted:

Eucalyptus populnea, Geijera parviflora, Acacia oswaldii, Callitris columellaris, Casuarina luehmannii, Leptochloa or Diplachne.

These specimens were observed but not identified:

236.

Profile description

Soil described by G. M. Roberts on 29 April, 1985. Drilled depth 262cm

Horizon	(cm)	(Sample; depth)
A_1	0–6	(1; 0–6) Dark brown (10YR3/3, 10YR5/3 dry) sandy clay; weak 5–10mm subangular blocky structure; moderately weak; rough fracture; earthy fabric; <2% <5mm cracks; <2% 0.075–1mm pores; few very fine roots; <2% 2–6mm rounded tabular quartz fragments; pH 6.0; genetic boundary, abrupt, smooth change to
A_1	6–83	(2; 10–20) Yellowish brown (10YR5/4, 10YR6/3 dry) medium heavy clay; moderate 10–20mm subangular blocky structure; very strong; earthy and polished ped fabric;

		<2% <5mm cracks; few coarse roots; <2% 20–60mm rounded tabular quartz fragments; pH 5.8;
A_1		(3; 30–40) Yellowish brown (10YR5/4, 10YR5/4 dry) medium heavy clay; very dark greyish brown (10YR3/2) weak 20–50mm subangular blocky structure; very strong; rough fracture; earthy fabric; 10–20% coarse very dark greyish brown (10YR3/2) organic veins; 2–5% <5mm cracks; <2% 20–60mm rounded tabular quartz fragments; pH 6.0;
A_1		(4; 70–80) Brownish yellow (10YR6/6) medium heavy clay; pale brown (10YR6/3) weak 20–50mm biscuitty structure, breaking to moderate 5–10mm angular blocky structure; very strong; rough fracture; earthy and polished ped fabric; <2% fine pale brown (10YR6/3) calcareous soft segregations; <2% fine manganese stains; 2–5% <5mm cracks; <2% 0.075–1mm pores; few very fine roots; <2% 2–6mm rounded tabular quartz fragments; pH 8.5; genetic boundary, diffuse,
B_2	83–122	(5; 100–110) Brown (10YR4/3) medium heavy clay; moderate 20–50mm angular blocky structure; very firm; smooth-ped and earthy fabric; 10–20% distinct coarse white (10YR8/1) calcareous nodules; <2% distinct fine very dark grey (10YR3/1) manganese stains; <2% <5mm cracks; <2% 0.075–1mm pores; few very fine roots; pH 8.3; genetic boundary, sharp, smooth change to
B_2	122+	(6; 122–130) Brown (10YR5/3) sandy clay; weak biscuitty structure, with weak 5–10mm subangular blocky structure; very strong; rough fracture; earthy fabric; 2–10% distinct medium yellowish brown (10YR5/6) ferruginous veins; <2% distinct fine white (10YR8/1) calcareous nodules; <2% fine manganese stains; 2–5% <5mm cracks; 2–5% 0.075–1mm pores; <2% 2–6mm rounded tabular quartz fragments; pH 8.5;
B_2		(7; 250–260) Light brownish grey (10YR6/2) sandy clay loam; weak biscuitty structure, breaking to apedal <2mm single-grained structure; very firm; rough fracture; earthy fabric; 2–10% distinct medium yellowish brown (10YR5/6) iron–manganese nodules; <2% distinct fine black (10YR2/1) calcareous nodules; 2–5% <5mm cracks; 2–10% 2–6mm rounded tabular quartz fragments; pH 8.0;

Soil classification

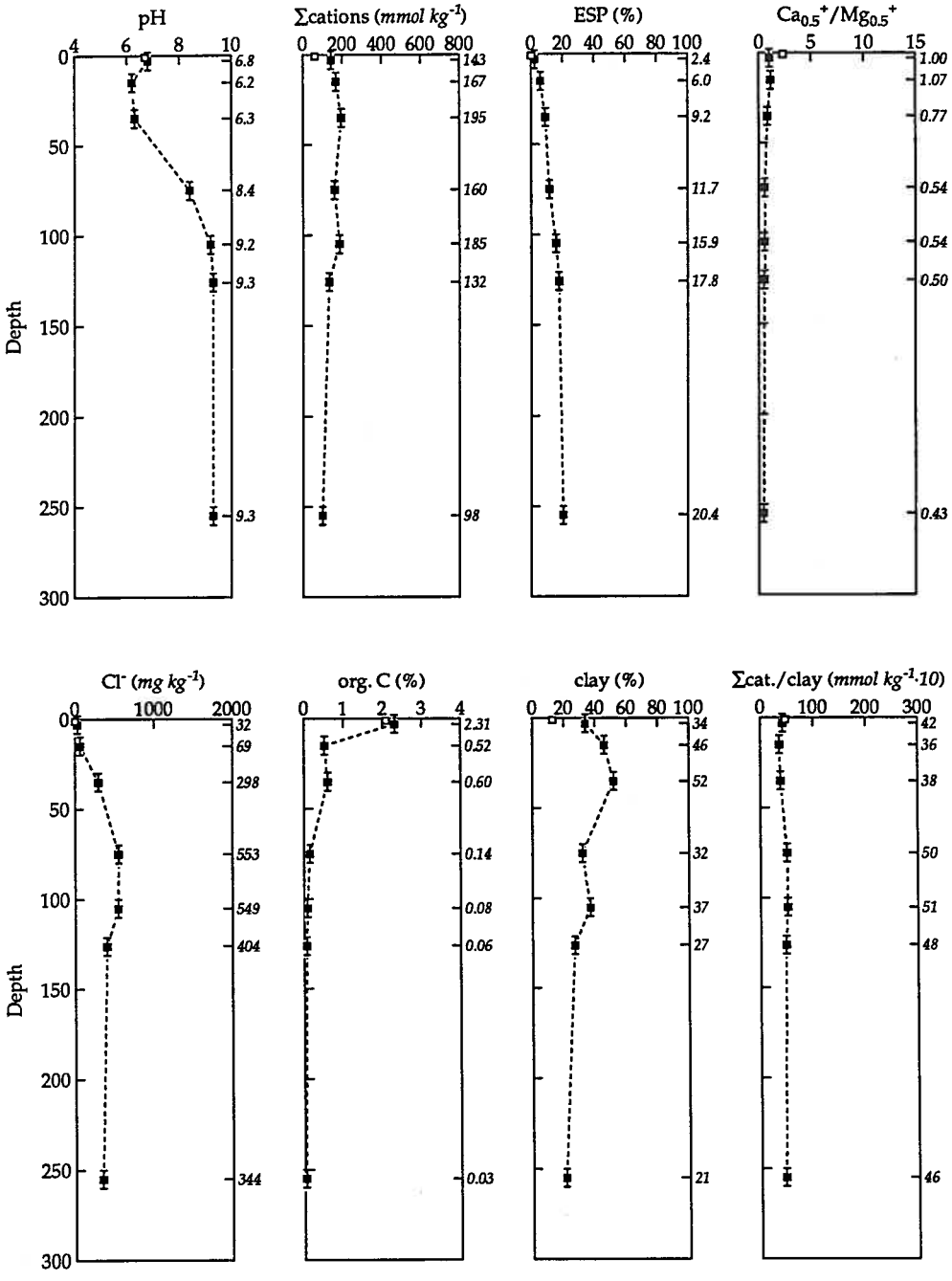
Principal profile form: Ug6.21
Great soil group: No suitable group

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	6.7	5.8	2.09	<0.1	74	9	13
1	A_1	0–6	6.8	8.7	2.31	<0.1	55	8	34
2	A_12	10–20	6.2	12.3	0.52	<0.1	47	6	46
3	A_12	30–40	6.3	27.7	0.60	<0.1	39	8	52
4	A_12	70–80	8.4	45.3	0.14	<0.1	60	7	32
5	B_21	100–110	9.2	59.0	0.08	2.8	52	9	37
6	B_22	122–130	9.3	45.5	0.06	1.0	65	6	27
7	B_22	250–260	9.3	33.3	0.03	0.2	73	5	21

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	–	–	38	17	6.7	0.1	<1	61	0.2
32	0.2	29	66	66	8.3	3.4	<1	143	2.4
69	0.2	7	75	70	6.8	10.0	4	167	6.0
298	0.2	4	75	98	4.3	17.9	<1	195	9.2
553	0.2	<1	48	90	3.6	18.7	<1	160	11.7
549	0.2	2	53	98	4.1	29.5	<1	185	15.9
404	0.2	3	35	70	3.7	23.5	<1	132	17.8
344	0.2	2	23	53	2.5	19.9	<1	98	20.4

Soil chemistry profiles



Namoi Valley soil study: Edgeroi Sheet

Site ed137

Site location

Grid reference: 778500mE 6660300mN
Forestry Commission of NSW
Site described by G. M. Roberts on 27 July, 1985
The site is located at a grid point

Elevation: 287m
Bobbiwaa State Forest

Site description

Slope: 2° Slope direction: 180°
Landform: pediment
Surface moist when sampled
Loose surface
Use: native forest
Visible cracks: width 1mm

Topography: gently sloping

Site comments

Ca 25cm of loose brownish sand passing to firmer sand with slight clay, an A2, continuing further than I can drill. The deep topsoil of a near– channell 'sand–monkey'. Further down is a sandy, firm, mottled B2. The slope steepens west to a deep drainageway about 60m away. This is 5m deep, the sides formed like a breakaway in the sandy cemented B.

Site vegetation

The following species were noted:

Eucalyptus blakelyi, Callitris columellaris, Casuarina luehmannii, Melaleuca, Platysace lanceolata, Aristida jerichoensis, Cuscuta campestris, Xanthorrhoea resinosa.

These specimens were observed but not identified:

95.

Profile description

Soil described by G. M. Roberts on 28 April, 1985. Drilled depth 230cm

Horizon	(cm)	(Sample; depth)
A_1	0–75	(1; 0–10) Dark yellowish brown (10YR4/4, 10YR7/3 dry) sand; apedal <2mm single–grained structure, breaking to; loose; smooth fracture; sandy fabric; few very fine roots; pH 5.8;
A_1		(2; 10–20) Brownish yellow (10YR6/6, 10YR7/4 dry) sand; apedal <2mm

		single–grained structure, breaking to; loose; smooth fracture; sandy fabric; few very fine roots; pH 5.5;
A_1		(3; 30–40) Yellowish brown (10YR5/4, 10YR7/4 dry) sand; apedal <2mm single–grained structure, breaking to; loose; smooth fracture; sandy fabric; few fine roots; pH 5.5;
A_1		(4; 70–75) Yellowish brown (10YR5/4, 10YR7/4 dry) sand; apedal <2mm single–grained structure, breaking to; loose; smooth fracture; sandy fabric; few fine roots; pH 5.8; diffuse,
A_2	75+	(5; 75–80) Yellowish brown (10YR5/4, 10YR7/4 dry) sand; apedal 20–50mm biscuitty structure, breaking to apedal <2mm single–grained structure; very firm; rough fracture; sandy and sandy fabric; <2% 0.075–1mm pores; few fine roots; pH 5.8;
		(6; 120–130) Brownish yellow (10YR6/6, 10YR6/6 dry) sand; weak >100mm biscuitty structure, breaking to apedal <2mm single–grained structure; very strong; rough fracture; sandy and sandy fabric; 10–20% distinct coarse light grey (10YR7/1) ferruginous veins; <2% 0.075–1mm pores; <2% 2–6mm rounded quartz fragments; pH 5.8;

Soil classification

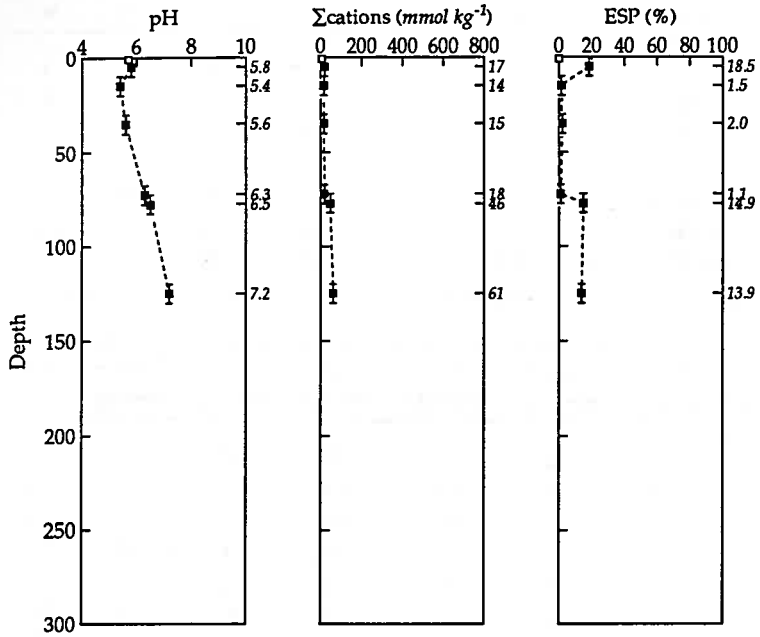
Principal profile form: Uc2.12
Great soil group: Siliceous sands

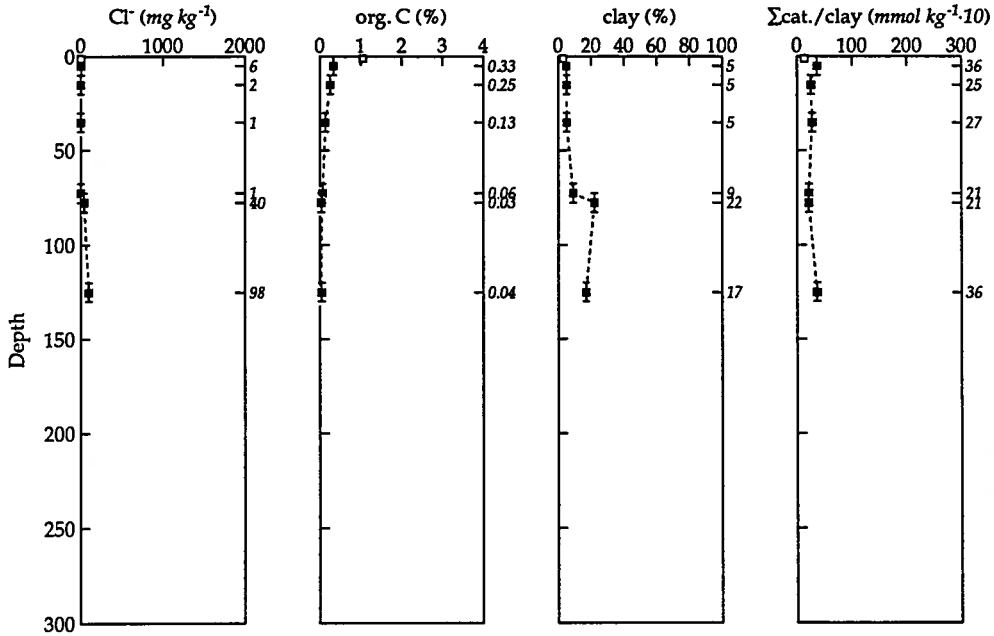
Soil chemical and particle-size analyses

Sample	Horizon	Depth *cm*	pH	E.C. *mS m^{-1}*	org. C %	$CaCO_3$ %	sand %	silt %	clay %
0	A_1	0–2	5.7	2.2	1.05	<0.1	93	2	3
1	A_1	0–10	5.8	1.5	0.33	<0.1	91	4	5
2	A_1	10–20	5.4	1.3	0.25	<0.1	91	4	5
3	A_1	30–40	5.6	1.0	0.13	<0.1	91	4	5
4	A_1	70–75	6.3	0.7	0.06	<0.1	88	4	9
5	A_2	75–80	6.5	5.3	0.03	<0.1	72	6	22
6		120–130	7.2	10.4	0.04	<0.1	80	3	17

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 %
4	–	–	1	2	1.0	<0.1	<1	4	<0.1
6	0.5	15	9	<1	0.6	3.1	4	17	18.5
2	0.5	7	8	<1	0.5	0.2	5	14	1.5
1	0.5	<1	10	<1	0.6	0.3	4	15	2.0
1	0.5	<1	9	5	1.0	0.2	2	18	1.1
40	0.5	<1	<1	37	2.9	6.9	<1	46	14.9
98	0.8	4	6	43	3.7	8.5	<1	61	13.9

Soil chemistry profiles





Namoi Valley soil study: Edgeroi Sheet

Site ed138

Site location

Grid reference: 781300mE 6660200mN
Elevation: 294m
Farmer: J.Amos/R.Simpson
Farm name: Woodville
Site described by W. T. Ward on 17 July, 1985
The site is located at a grid point

Site description

Slope: 1° Slope direction: 250°
Topography: gently sloping
Landform: middle terrace
Surface moist when sampled
Virgin state
Use: cattle pasture
Visible cracks: 2 per metre, depth >80mm

Site comments

Rex Simpson manager. Probably fine self-mulching but 95% grass cover. Cracks difficult to see. Note burr medick. Creek channel is filled with recent yellowish brown sands. This soil is perhaps a RBE. 100y to north of site there are linear gilgai, 10–15cm relief. They are on a sloping pediment. Hard on surface but not hardsetting.

Site vegetation

The following species were noted:

Callitris columellaris, Stipa ?scabra, Lepidium bonariense.

These specimens were observed but not identified:

245.

Profile description

Soil described by G. M. Roberts on 24 July, 1985. Drilled depth 285cm

Horizon	(cm)	(Sample; depth)
A_1	0–18	(1; 0–10) Very dark greyish brown (10YR3/2, 10YR3/2 dry) sandy clay loam; 2–10% distinct medium reddish yellow (5YR6/8) flecks produced by faunal mixing; weak 5–10mm subangular blocky structure; earthy fabric; <2% <5mm cracks; <2% 0.075–1mm pores; few fine roots; pH 6.8;
A_1		(2; 10–18) Dark greyish brown (10YR4/2) sandy clay; 2–10% distinct medium reddish yellow (5YR6/8) flecks produced by faunal mixing; weak 10–20mm

		subangular blocky structure; earthy fabric; <2% <5mm cracks; <2% 0.075–1mm pores; few very fine roots; pH 7.5; genetic boundary, abrupt, smooth change to
B_2	18–48	(3; 30–40) Dark brown (7.5YR4/2) medium clay; 2–10% distinct medium strong brown (7.5YR5/6) flecks produced by faunal mixing; weak 5–10mm subangular blocky structure; smooth–ped and earthy fabric; <2% fine calcareous nodules; <2% <5mm cracks; <2% 0.075–1mm pores; few very fine roots; pH 8.5; genetic boundary, gradual, smooth change to
B_2k	48–135	(4; 70–80) Yellowish red (5YR4/6) medium heavy clay; 10–20% faint coarse dark brown (7.5YR4/2) organic stains; moderate 50–100mm prismatic structure, breaking to moderate 2–5mm angular blocky structure; very strong; earthy fabric; 10–20% prominent coarse yellow (10YR8/6) calcareous soft segregations; 10–20% medium calcareous nodules; 2–10% medium manganese stains; 2–5% <5mm cracks; <2% 0.075–1mm pores; few very fine roots; pH 9.0;
B_2k		(5; 120–130) Yellowish red (5YR4/6) medium heavy clay; 10–20% faint coarse dark brown (7.5YR4/2) organic stains; moderate 50–100mm prismatic structure; earthy and smooth–ped fabric; 10–20% prominent coarse yellow (10YR8/6) calcareous soft segregations; 10–20% medium calcareous nodules; 2–10% medium manganese stains; <2% <5mm cracks; <2% 0.075–1mm pores; few very fine roots; pH 9.0; genetic boundary, gradual, smooth change to
B_2n	135+	(6; 250–260) Yellowish red (5YR4/6) medium heavy clay; moderate 50–100mm prismatic structure, with moderate 5–10mm angular blocky structure; moderately firm; smooth–ped and polished ped fabric; 10–20% prominent medium black (10YR2/1) manganese soft segregations; 2–10% prominent medium very pale brown (10YR8/4) calcareous soft segregations; <2% fine gypsum crystals; <2% <5mm cracks; <2% 0.075–1mm pores; pH 8.7;

Comments

Large amounts of manganese soft segregations and nodules (20mm diameter) below 150. As manganese increases calcium carbonate decreases. There are worm casts at 180–200.

Soil classification

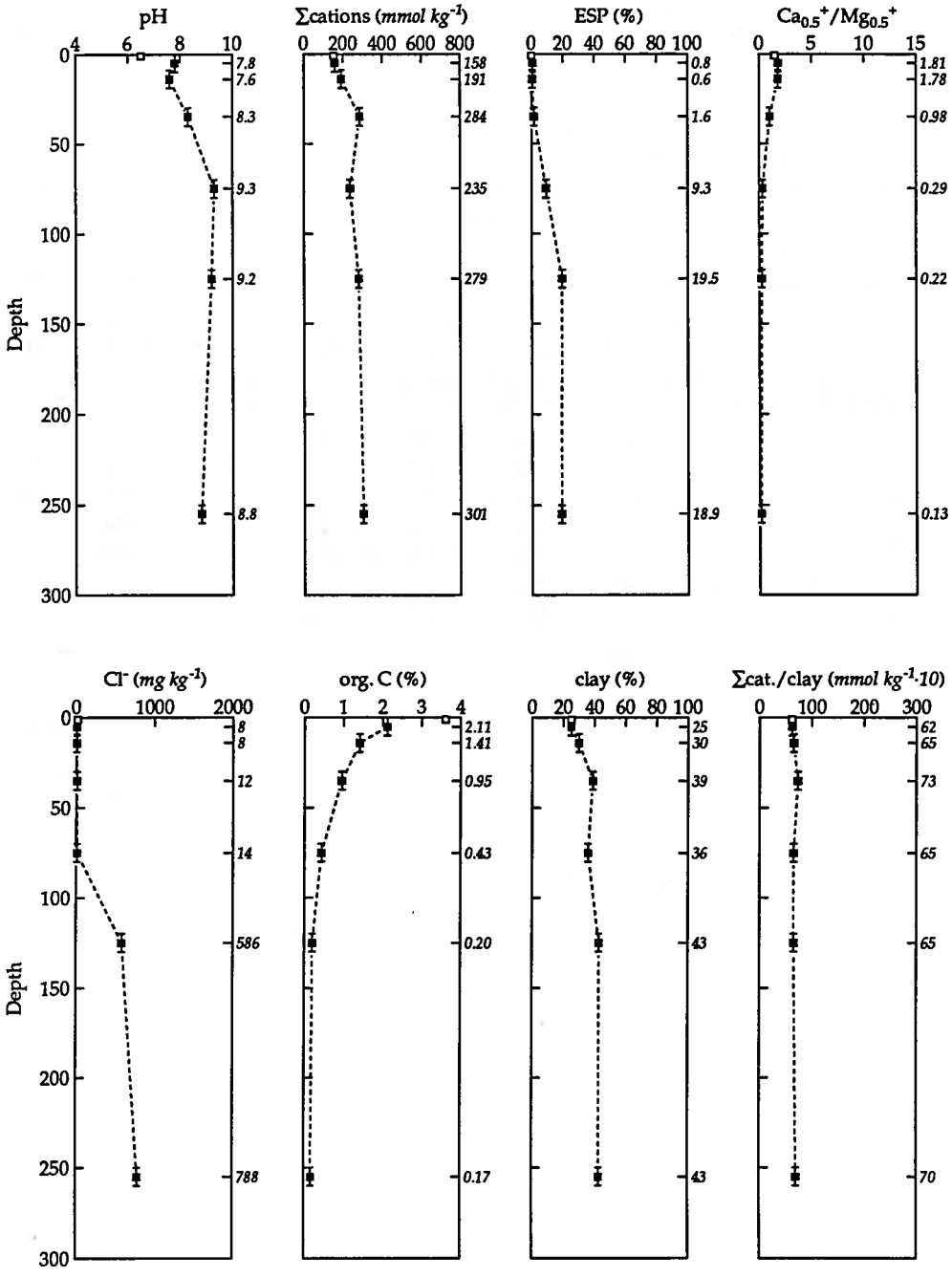
Principal profile form: Gn3.53
Great soil group: Brown clays

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	6.5	9.8	3.61	<0.1	58	11	25
1	$A_1$1	0–10	7.8	6.6	2.11	0.1	61	10	25
2	$A_1$2	10–18	7.6	6.2	1.41	<0.1	58	10	30
3	B_2	30–40	8.3	13.2	0.95	0.3	50	9	39
4	B_2k1	70–80	9.3	19.9	0.43	3.0	50	10	36
5	B_2k2	120–130	9.2	54.5	0.20	3.1	43	10	43
6	B_2n	250–260	8.8	60.3	0.17	0.2	44	13	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 %
16	–	–	80	55	13.9	<0.1	4	153	<0.1
8	1.3	15	94	52	11.0	1.2	<1	158	0.8
8	1.2	5	117	66	7.2	1.1	<1	191	0.6
12	4.2	2	135	139	5.3	4.5	<1	284	1.6
14	0.7	<1	47	163	3.4	21.9	<1	235	9.3
586	0.1	2	40	181	3.5	54.5	<1	279	19.5
788	13.0	5	27	213	4.1	56.9	<1	301	18.9

Soil chemistry profiles



Namoi Valley soil study: Edgeroi Sheet

Site ed139

Site location

Grid reference: 784100mE 6660100mN
Farmer: J.Amos/R.Simpson
Site described by W. T. Ward on 17 September, 1985
The site is located at a grid point

Elevation: 316m
Farm name: Woodville

Site description

Slope: 0° Slope direction: 310°
Landform: low terrace
Surface moist when sampled
Firm surface, poached
Use: lucerne, cattle pasture
Visible cracks: width 1mm

Topography: gently sloping

Site comments

Possibly some run–on here, as we are in very slight depression. Scattered floaters of stone (basalt). Firm to hardset. Rex Simpson, manager, mentions unusual hummocky relief on hillside footslope to north of this site. The poached surface resists penetrometer. Field is contour banked.

Site vegetation

The site was under lucerne, and included bare ground.

The following species were noted:

Geijera parviflora, Eucalyptus melanophloia, Callitris columellaris.

Profile description

Soil described by G. M. Roberts on 24 July, 1985. Drilled depth 295cm

Horizon	(cm)	(Sample; depth)
A_1p	0–7	(1; 0–7) Very dark greyish brown (10YR3/2, 10YR4/2 dry) light medium clay; weak 2–5mm subangular blocky structure, breaking to apedal <2mm single–grained structure; moderately weak; earthy and sandy fabric; 2–5% 5–10mm cracks; <2% 0.075–1mm pores; few fine roots; pH 6.8; plough sole, abrupt, smooth change to
A_1	7–70	(2; 10–20) Dark brown (7.5YR4/2) medium heavy clay; 10–20% distinct coarse very dark greyish brown (10YR3/2) patches of soil, filling cracks; weak 5–10mm subangular blocky structure; moderately weak; smooth–ped and polished ped

		fabric; <2% distinct fine very pale brown (10YR8/4) calcareous soft segregations; 10–20% coarse organic veins; <2% <5mm cracks; <2% 0.075–1mm pores; few fine roots; pH 8.8;
B_2k		(3; 30–40) Dark brown (7.5YR4/2) medium clay; 2–10% prominent coarse pink (7.5YR7/4) patches of sediment, filling cracks; moderate 10–20mm wedge structure, breaking to moderate 2–5mm angular blocky structure; moderately weak; weak slickensides, smooth-ped and polished ped fabric; 2–10% prominent coarse pink (7.5YR8/4) calcareous soft segregations; 2–10% coarse organic veins; 2–5% <5mm cracks; <2% 0.075–1mm pores; few very fine roots; pH 8.8; genetic boundary, gradual, smooth change to
B_2k	70–135	(4; 70–80) Dark brown (7.5YR4/2) heavy clay; moderate 50–100mm prismatic structure, with moderate 10–20mm angular blocky structure; very firm; weak slickensides, polished ped and smooth-ped fabric; 2–10% prominent coarse pink (7.5YR8/4) calcareous soft segregations; <2% <5mm cracks; <2% 0.075–1mm pores; few very fine roots; pH 8.8;
B_2k		(5; 120–130) Brown (7.5YR5/4) medium clay; strong >100mm prismatic structure, breaking to strong 10–20mm angular blocky structure; very strong; moderate slickensides, smooth-ped and polished ped fabric; 2–10% prominent very coarse pink (7.5YR7/4) calcareous soft segregations; <2% fine manganese stains; <2% fine ferruginous veins; 2–5% <5mm cracks; <2% 1–2mm pores; few very fine roots; pH 8.8; stratigraphic boundary, clear, smooth change to
$2B_2n$	135+	(6; 250–260) Dark brown (7.5YR4/4) clayey sand; weak 50–100mm platy structure, breaking to weak 2–5mm subangular blocky structure; very firm; earthy fabric; 2–10% distinct coarse reddish yellow (7.5YR6/6) calcareous soft segregations; 2–10% distinct medium reddish brown (5YR5/4) manganese stains; 2–10% medium ferruginous veins; <2% <5mm cracks; <2% 0.075–1mm pores; pH 8.5;

Comments

Well structured B2 horizon with faint ferruginous veins, calcium carbonate, manganese segregations. At 220–230 large calcium carbonate cemented nodules up to 50mm diameter. Worm casts at 230cm. Note conflict gendepth/hordesig.

Soil classification

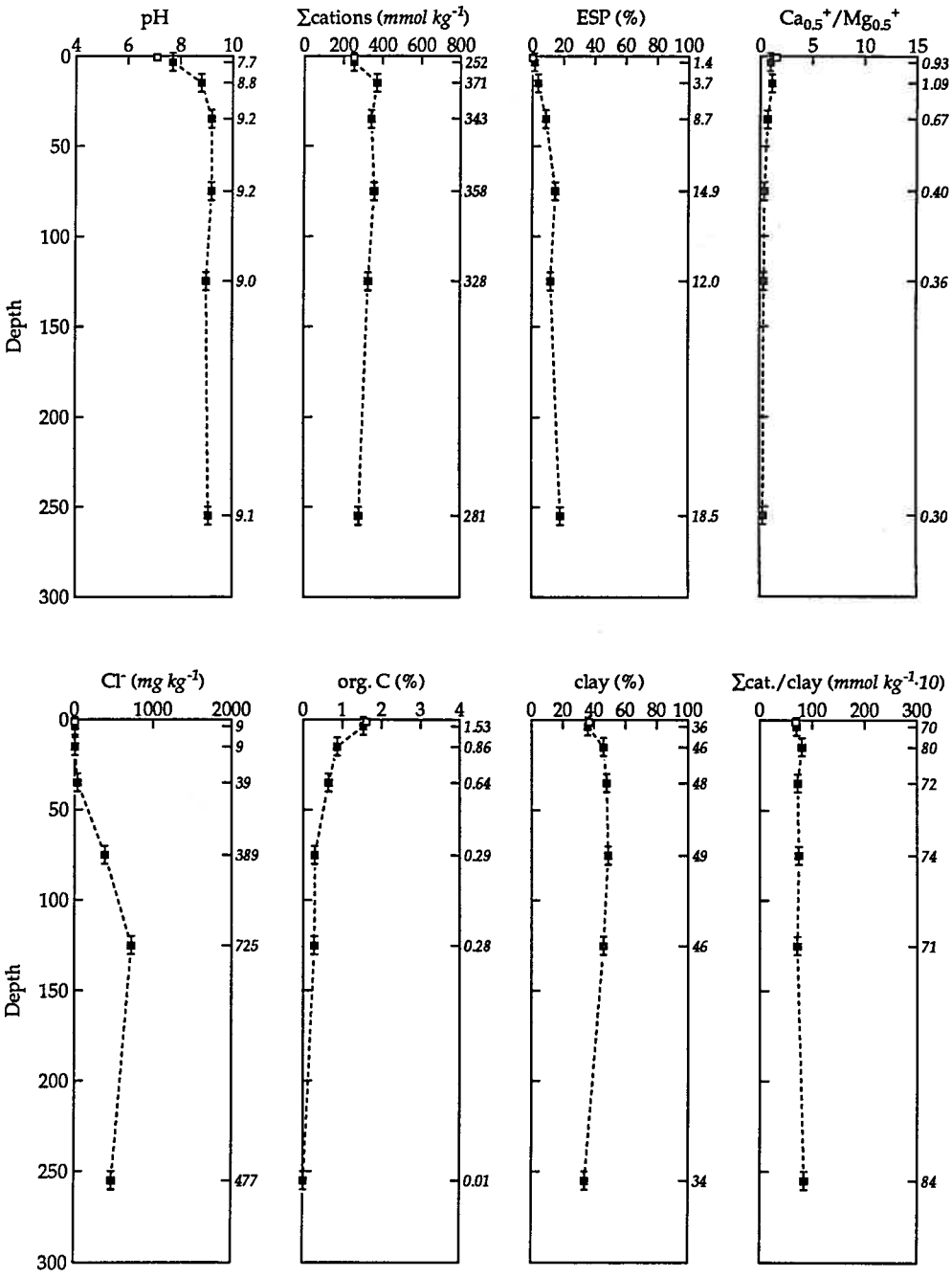
Principal profile form: Ug5.15
Great soil group: Brown clays

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	7.1	9.5	1.61	<0.1	44	17	37
1	A_1p	0–7	7.7	8.0	1.53	0.1	45	17	36
2	A_1	10–20	8.8	15.5	0.86	3.6	35	14	46
3	B_2k1	30–40	9.2	21.2	0.64	6.4	31	14	48
4	B_2k2	70–80	9.2	45.9	0.29	6.8	31	13	49
5	B_2k3	120–130	9.0	58.5	0.28	6.0	34	13	46
6	$2B_2n1$	250–260	9.1	43.1	0.01	17.1	38	11	34

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 %
4	–	–	139	92	20.7	<0.1	<1	252	<0.1
9	5.8	17	114	123	11.4	3.5	<1	252	1.4
9	3.9	4	184	170	3.8	13.7	<1	371	3.7
39	2.3	2	125	187	2.1	30.0	<1	343	8.7
389	0.8	2	86	215	4.7	53.3	<1	358	14.9
725	0.6	7	74	206	8.1	39.4	<1	328	12.0
477	2.6	3	52	172	4.5	51.9	<1	281	18.5

Soil chemistry profiles



Namoi Valley soil study: Edgeroi Sheet

Site ed140

Site location

Grid reference: 786800mE 6660000mN
Elevation: 349m
Farmer: W.R.(Rick) Tapp
Farm name: Fernleigh
Site described by D. McGarry on 11 June, 1985
The site is located at a grid point

Site description

Slope: 1° Slope direction: 340°
Topography: gently undulating
Landform: middle terrace
Surface very rocky, moist when sampled
Coarse self-mulching surface, cultivated
Use: lucerne, cattle pasture

Site comments

Abundant turnipweed. Very soft moist surface. Cobblestones stop proline at about 150cm. Penetrometer passes between stones. Many basalt cobbles and boulders. Common surface stone.

Site vegetation

The site was under lucerne.

Profile description

Soil described by D. McGarry on 17 October, 1985. Drilled depth 151cm

Horizon	(cm)	(Sample; depth)
A_1	0–7	(1; 0–7) Very dark brown (10YR2/2) medium clay; moderate 2–5mm subangular blocky structure, with moderate <2mm granular structure; moderately weak; rough-ped fabric; 2–5% 5–10mm cracks; <2% 0.075–1mm pores; common fine roots; 2–10% 20–60mm angular platy basalt fragments; pH 6.5; genetic boundary, abrupt, irregular change to
B_2	7–60	(2; 10–20) Dark reddish brown (5YR3/4) medium heavy clay; <2% faint fine very dark brown (10YR2/2) patches of soil, filling cracks; moderate 5–10mm angular blocky structure; very firm; smooth-ped fabric; 2–5% 5–10mm cracks; <2% 0.075–1mm pores; few very fine roots; <2% 2–6mm angular platy quartz fragments; pH 6.7;
B_2		(3; 30–40) Dark reddish brown (5YR3/4) medium heavy clay; <2% faint fine very dark brown (10YR2/2) patches of soil, filling cracks; weak 20–50mm subangular blocky structure, breaking to moderate 5–10mm angular blocky structure;

		moderately firm; rough fracture; smooth–ped and rough–ped fabric; 2–5% <5mm cracks; <2% 0.075–1mm pores; few very fine roots; pH 8.2; stratigraphic boundary, clear, smooth change to
B_2r	60–90	(4; 70–80) Dark brown (7.5YR3/4) medium clay; weak 5–10mm subangular blocky structure; very firm; rough fracture; rough–ped fabric; 2–5% <5mm cracks; <2% 0.075–1mm pores; few very fine roots; 50–90% >60mm subrounded basalt fragments; pH 8.5; genetic boundary, clear, smooth change to
B_2k	90+	(5; 120–130) Dark reddish brown (5YR3/4) silty clay loam; weak 10–20mm subangular blocky structure; very firm; nodular fracture; rough–ped fabric; 10–20% prominent very coarse light brown (7.5YR6/4) calcareous nodules; 2–5% <5mm cracks; 2–5% 0.075–1mm pores; few very fine roots; <2% 20–60mm subrounded basalt fragments; pH 8.7;

Parent rock: alluvial sediment, mixed texture, with lime

Comments

B2r is very strong, perhaps cobbly, >50% of sampled layer, the stones include basalt and sandstone. Carbonate at 90cm. Tendency to prismatic structure at 40–50 in ?sandier material associated with the boulders. There is some discussion as to whether 140.05 is a buried B2, but I think not. Hole ends at 151 in weathered basalt boulder.

Soil classification

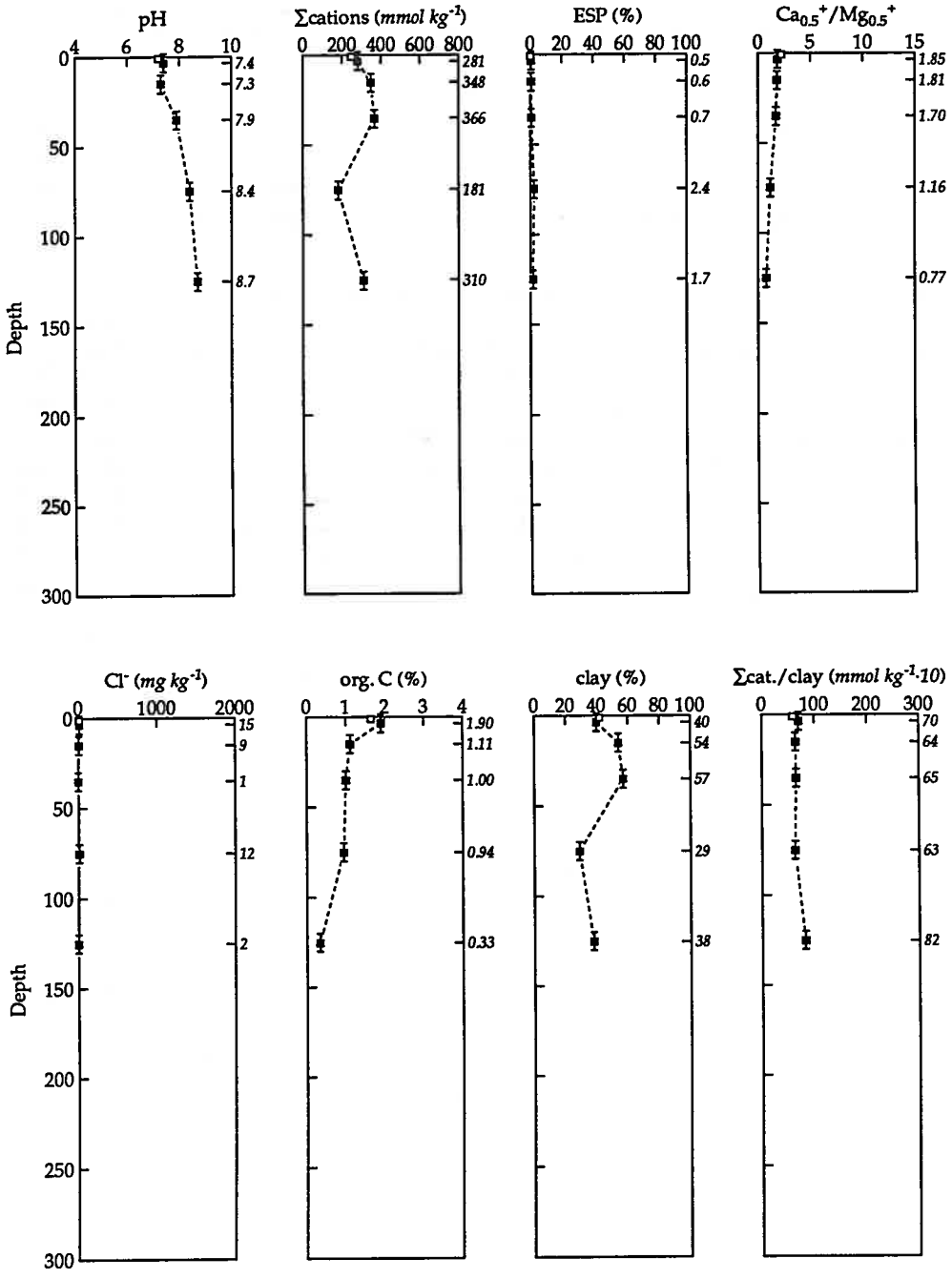
Principal profile form: Ug5.36
Great soil group: Brown clays

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	0–2	7.2	6.4	1.65	<0.1	41	15	42
1	A_1	0–7	7.4	20.5	1.90	<0.1	42	15	40
2	B_21	10–20	7.3	5.8	1.11	<0.1	33	11	54
3	B_22	30–40	7.9	6.5	1.00	<0.1	30	11	57
4	B_2r	70–80	8.4	15.8	0.94	0.9	58	11	29
5	B_2k	120–130	8.7	16.1	0.33	27.0	25	10	38

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	–	–	158	71	18.9	<0.1	<1	248	<0.1
15	22.8	18	171	93	16.2	1.5	<1	281	0.5
9	0.9	3	215	119	11.7	2.1	<1	348	0.6
1	1.3	<1	224	132	8.5	2.5	<1	366	0.7
12	2.6	2	92	79	5.4	4.3	<1	181	2.4
2	1.1	<1	129	168	7.4	5.4	<1	310	1.7

Soil chemistry profiles



Namoi Valley soil study: Edgeroi Sheet

Site ed141

Site location

Grid reference: 741400mE 6658800mN
Elevation: 195m
Farmer: John Howes
Farm name: Glen Arvon
Site described by G. M. Roberts on 26 March, 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 comments

Cotton mounds 200mm high. Reddish brown subsoil shows in drain 20 meters from site.

Site vegetation

The site was under cotton.

Profile description

Soil described by W. T. Ward on 14 January, 1987. Drilled depth 274cm

Horizon	(cm)	(Sample; depth)
A_1p	0–10	(1; 0–10) Dark grey (10YR4/1, 10YR5/1 dry) light medium clay; moderate 2–5mm angular blocky structure; moderately strong; smooth-ped fabric; <2% distinct fine light brownish grey (10YR6/2) calcareous nodules; <2% <5mm cracks; <2% 0.075–1mm pores; few very fine roots; pH 8.5; plough sole, abrupt, smooth change to
A_1	10–70	(2; 10–20) Very dark grey (10YR3/1) medium clay; <2% faint fine dark grey (10YR4/1) patches of sediment, filling cracks; moderate 50–100mm angular blocky structure; moderately strong; smooth-ped and polished ped fabric; <2% distinct fine light brownish grey (10YR6/2) calcareous nodules; <2% <5mm cracks; <2% 0.075–1mm pores; few very fine roots; pH 8.5;
A_1		(3; 30–40) Very dark grey (10YR3/1) medium clay; moderate 10–20mm wedge structure; moderately strong; polished ped and smooth-ped fabric; <2% distinct fine light brownish grey (10YR6/2) calcareous nodules; <2% <5mm cracks; <2% 0.075–1mm pores; few very fine roots; pH 9.0;

B_2v		(4; 70–80) Dark brown (7.5YR4/4) medium clay; 2–10% distinct medium very dark grey (10YR3/1) organic stains; weak >100mm wedge structure, breaking to weak 20–50mm angular blocky structure; very strong; nodular fracture; smooth–ped and polished ped fabric; <2% prominent medium light brownish grey (10YR6/2) calcareous nodules; <2% <5mm cracks; <2% 0.075–1mm pores; pH 9.0; genetic boundary, gradual, smooth change to
B_2v	70–140	(5; 120–130) Dark brown (7.5YR4/4) light medium clay; <2% distinct medium dark brown (7.5YR3/2) organic stains; weak >100mm wedge structure, breaking to weak 10–20mm angular blocky structure; very firm; nodular fracture; smooth–ped and polished ped fabric; <2% distinct fine light brownish grey (10YR6/2) calcareous nodules; <2% <5mm cracks; <2% 0.075–1mm pores; pH 9.0; genetic boundary, diffuse, smooth change to
C	140+	(6; 250–260) Brown (7.5YR5/4) light medium clay; <2% distinct medium dark brown (7.5YR4/4) organic stains; weak 5–10mm angular blocky structure; very firm; granular fracture; smooth–ped and polished ped fabric; <2% <5mm cracks; <2% 0.075–1mm pores; pH 7.5;

Parent rock: alluvial sediment, mixed texture, with lime

Comments

Query, MVpH soil truncated by land planing. The profile is sandy from 140cm through to 230cm (original textural variation).

Soil classification

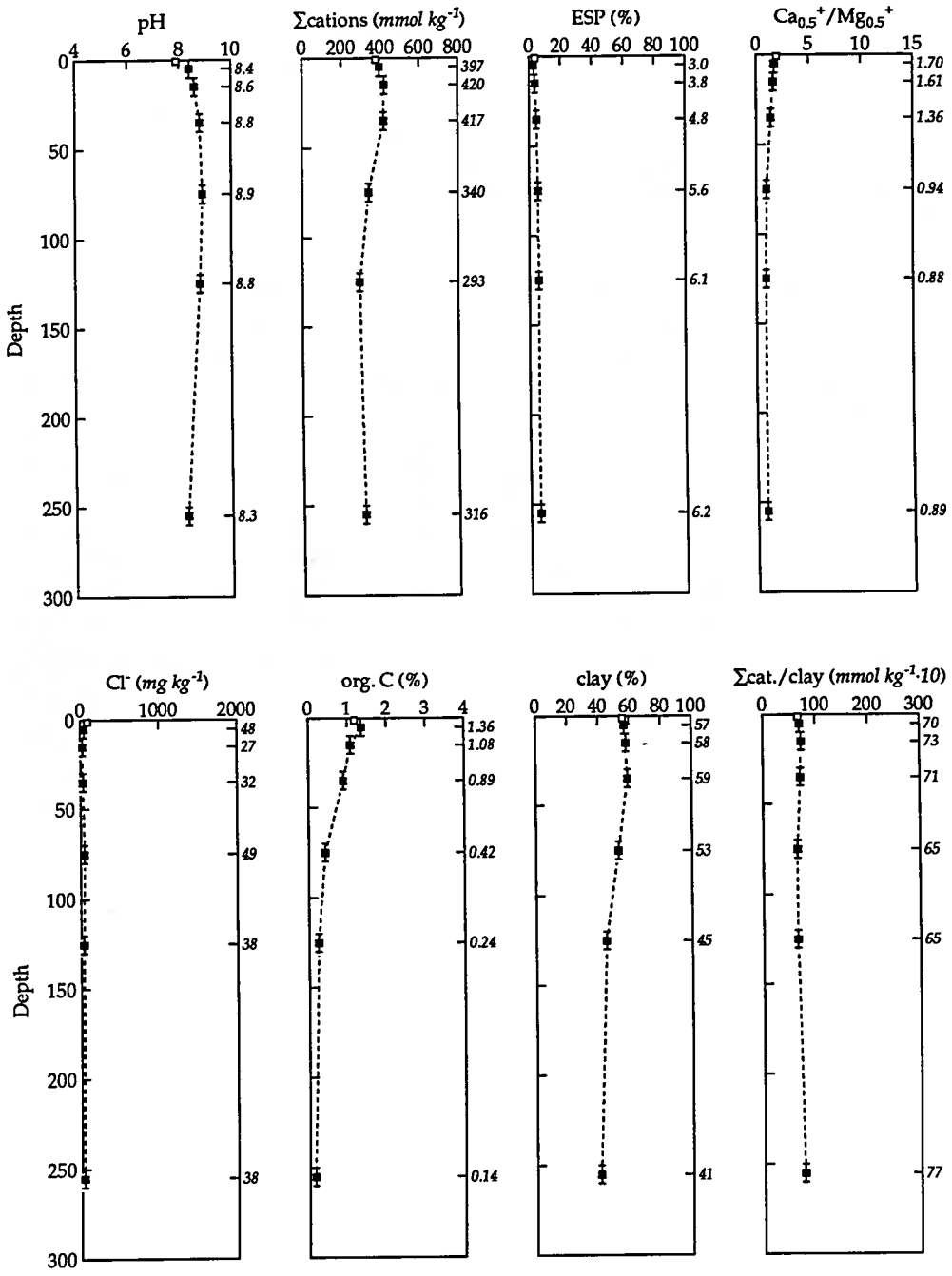
Principal profile form: Ug5.15
Great soil group: Grey clays
Soil taxonomy unit: Pellusterts

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	7.9	24.5	1.18	0.1	22	20	56
1	A_1p	0–10	8.4	13.7	1.36	0.2	21	20	57
2	A_11	10–20	8.6	10.8	1.08	0.1	20	20	58
3	A_12	30–40	8.8	11.5	0.89	<0.1	20	19	59
4	B_2v	70–80	8.9	21.3	0.42	4.3	23	19	53
5	B_2v	120–130	8.8	17.4	0.24	0.4	37	17	45
6	C	250–260	8.3	7.1	0.14	<0.1	33	26	41

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 %
93	–	–	233	120	10.1	14.6	<1	378	3.9
48	2.5	48	236	139	9.3	11.8	<1	397	3.0
27	1.8	46	245	152	6.6	15.8	<1	420	3.8
32	0.5	71	225	166	6.7	19.9	<1	417	4.8
49	0.1	50	153	162	6.9	19.0	<1	340	5.6
38	0.2	29	126	143	6.4	17.8	<1	293	6.1
38	<0.1	26	137	154	4.8	19.7	<1	316	6.2

Soil chemistry profiles



Namoi Valley soil study: Edgeroi Sheet

Site ed142

Site location

Grid reference: 744300mE 6658800mN
Elevation: 196m
Farmer: B.E.(Bruce) Mackey
Farm name: Wire Lagoon
Site described by D. McGarry on 30 June, 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
Use: fallow, irrigated cotton, soybean
Visible cracks: width 1mm

Profile description

Soil described by D. McGarry on 30 March, 1985. Drilled depth 271cm

Horizon	(cm)	(Sample; depth)
A_1	0–11	(1; 0–10) Very dark grey (10YR3/1, 10YR4/1 dry) medium clay; weak 2–5mm granular structure; moderately firm; rough–ped fabric; <2% faint fine very pale brown (10YR8/4) calcareous nodules; <2% 0.075–1mm pores; common very fine roots; pH 8.5; genetic boundary, clear, irregular change to
A_1	11–130	(2; 11–20) Very dark grey (10YR3/1) medium clay; <2% faint fine black (N2/) charcoal fragments; moderate 2–5mm angular blocky structure; moderately weak; smooth–ped fabric; <2% distinct fine red (2.5YR4/6) clayey soft segregations; <2% fine calcareous nodules; 2–5% <5mm cracks; <2% 0.075–1mm pores; common very fine roots; <2% 2–6mm subrounded tabular quartz fragments; pH 8.5;
A_1		(3; 30–40) Very dark grey (10YR3/1) light medium clay; moderate 20–50mm lenticular structure, breaking to moderate 10–20mm subangular blocky structure; moderately weak; smooth–ped fabric; <2% faint fine light brownish grey (10YR6/2) calcareous nodules; <2% distinct fine red (2.5YR4/6) clayey soft segregations; <2% <5mm cracks; 2–5% 0.075–1mm pores; few very fine roots; <2% 2–6mm subrounded tabular quartz fragments; pH 8.7;
A_1		(4; 70–80) Very dark grey (10YR3/1) medium clay; moderate 20–50mm lenticular structure; moderately weak; weak slickensides, smooth–ped fabric; <2% <5mm cracks; <2% 0.075–1mm pores; few very fine roots; pH 8.8;
B_2		(5; 120–130) Brown (10YR4/3) medium clay; weak 5–10mm lenticular structure; moderately weak; nodular fracture; smooth–ped fabric; 10–20% faint medium dark

brown (7.5YR3/2) clayey veins; <2% faint fine light brown (7.5YR6/4) calcareous nodules; <2% <5mm cracks; <2% 0.075–1mm pores; few very fine roots; pH 8.7; genetic boundary, very diffuse, smooth change to

B_2 130+ (6; 250–260) Dark brown (7.5YR4/4) medium heavy clay; <2% distinct fine yellowish red (5YR5/8) flecks produced by faunal mixing; moderate 20–50mm lenticular structure; very firm; weak slickensides, smooth-ped fabric; 2–10% faint fine very dark grey (N3/) manganese veins; <2% medium calcareous nodules; <2% <5mm cracks; <2% 0.075–1mm pores; few very fine roots; pH 8.7;

Comments

Medium clay textures show a good example of a very stickiness feel.

Soil classification

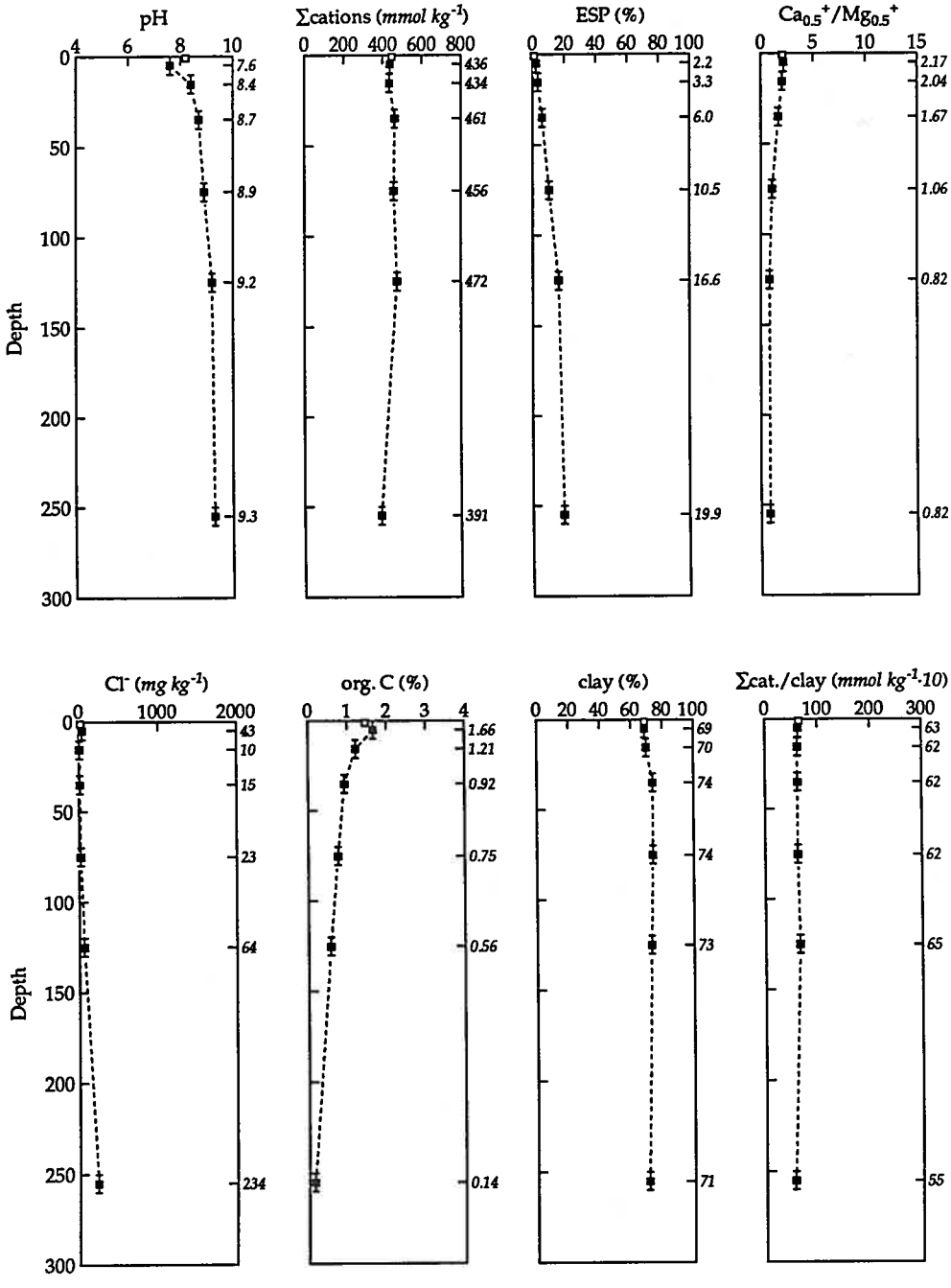
Principal profile form: Ug5.15
Great soil group: Black earths

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	8.2	20.0	1.46	0.3	11	17	69
1	$A_1$1	0–10	7.6	21.1	1.66	0.3	10	19	69
2	$A_1$2	11–20	8.4	12.2	1.21	0.2	9	18	70
3	$A_1$3	30–40	8.7	13.7	0.92	0.1	6	19	74
4	$A_1$4	70–80	8.9	25.3	0.75	1.1	6	18	74
5	$B_2$1	120–130	9.2	33.0	0.56	1.7	6	19	73
6	$B_2$2	250–260	9.3	41.2	0.14	2.3	8	19	71

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 %
25	–	–	281	136	24.8	4.8	<1	447	1.1
43	14.9	86	277	127	21.5	9.6	<1	436	2.2
10	0.6	59	272	133	13.8	14.4	<1	434	3.3
15	0.2	48	265	159	9.6	27.7	<1	461	6.0
23	0.2	58	204	193	10.9	48.0	<1	456	10.5
64	0.2	57	172	208	13.6	78.2	<1	472	16.6
234	0.2	31	137	168	8.6	77.8	<1	391	19.9

Soil chemistry profiles



Namoi Valley soil study: Edgeroi Sheet

Site ed143

Site location

Grid reference: 747000mE 6658700mN
Elevation: 197m
Farmer: J.L.N.(Neil) Schwager
Farm name: Fernleigh
Site described by G. M. Roberts on 18 June, 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, trampled
Use: cattle pasture, wheat, native pasture
Visible cracks: width 1mm, 28 per metre, depth 150mm

Site comments

There is a thick belt of bimble box south of this site. The surface has been heavily trampled by stock and this has hidden many surface cracks. This surface has a weak crust which has numerous fine cracks, not the ones which were originally intended to be recorded. Hence the change to cracknumber.

Site vegetation

The following species were noted:

Eucalyptus populnea, Stipa aristiglumis, Sorghum ?halepense, Bassia quinquecuspis, Lepidium bonariense.

Profile description

Soil described by D. McGarry on 9 July, 1986. Drilled depth 282cm

Horizon	(cm)	(Sample; depth)
A_1	0–110	(1; 0–10) Very dark greyish brown (10YR3/2, 10YR3/2 dry) medium heavy clay; moderate 5–10mm angular blocky structure, with moderate 5–10mm subangular blocky structure; very firm; smooth-ped and earthy fabric; <2% distinct fine white (10YR8/2) calcareous nodules; 2–5% 5–10mm cracks; <2% 1–2mm pores; few very fine roots; pH 7.0;
A_1		(2; 10–20) Very dark greyish brown (10YR3/2) medium heavy clay; moderate 10–20mm angular blocky structure, with moderate 5–10mm subangular blocky structure; moderately strong; smooth-ped fabric; <2% distinct fine white (10YR8/2) calcareous nodules; 2–5% 5–10mm cracks; <2% 1–2mm pores; few very

		fine roots; pH 9.0;
A_1		(3; 30–40) Very dark greyish brown (10YR3/2) medium heavy clay; moderate 10–20mm subangular blocky structure; very strong; smooth–ped fabric; <2% distinct fine white (10YR8/2) calcareous nodules; 2–5% 5–10mm cracks; <2% 1–2mm pores; few very fine roots; <2% 2–6mm subrounded quartz fragments; pH 9.0;
A_1		(4; 70–80) Very dark greyish brown (10YR3/2) medium heavy clay; weak 20–50mm wedge structure, breaking to moderate 10–20mm subangular blocky structure; very strong; smooth fracture; smooth–ped and polished ped fabric; 2–10% distinct fine white (10YR8/2) calcareous nodules; <2% <5mm cracks; <2% 0.075–1mm pores; few very fine roots; pH 9.0; genetic boundary, diffuse, smooth change to
B_2v	110+	(5; 120–130) Dark brown (10YR3/3) medium heavy clay; 10–20% distinct medium dark yellowish brown (10YR3/4) patches of soil, filling cracks; weak 20–50mm wedge structure, breaking to weak 10–20mm subangular blocky structure; moderately strong; smooth fracture; smooth–ped fabric; 2–10% distinct fine white (10YR8/2) calcareous nodules; <2% <5mm cracks; <2% 0.075–1mm pores; few very fine roots; pH 9.0;
B_2		(6; 250–260) Dark brown (7.5YR4/4) medium heavy clay; strong 50–100mm wedge structure, breaking to moderate 10–20mm subangular blocky structure; moderately strong; moderate slickensides, polished ped and smooth–ped fabric; 10–20% distinct fine very dark grey (N3/) manganese stains; 2–10% distinct medium white (10YR8/2) calcareous soft segregations; <2% <5mm cracks; <2% 0.075–1mm pores; pH 9.5;

Parent rock: alluvial sediment, clay

Comments

Top 2cm is granular/crumb (2–3mm diam.). Top 56cm is very dry and severely cracked. Not a very dark topsoil, though it is deep. The upper B2 is a 'gingery' colour, then more orange below 200cm. WTW says this resembles the pH plot at Myall Vale. MVpH.

Soil classification

Principal profile form: Ug5.15
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	7.8	18.2	1.97	0.1	21	18	58
1	$A_1$1	0–10	7.7	20.4	1.79	0.4	24	17	56
2	$A_1$2	10–20	8.4	16.2	0.80	0.9	25	17	56
3	$A_1$3	30–40	8.6	24.4	0.71	1.2	23	17	58
4	$A_1$4	70–80	9.1	31.5	0.51	1.7	18	20	60
5	B_2v	120–130	9.0	40.0	0.28	0.9	19	20	59
6	B_2	250–260	9.2	38.1	0.15	2.8	22	17	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 %
21	–	–	220	127	36.2	4.9	<1	388	1.3
55	22.1	37	234	171	23.5	6.3	<1	435	1.4
45	9.9	2	258	183	7.0	12.0	<1	460	2.6
7	0.7	2	233	211	6.7	33.3	<1	484	6.9
39	3.7	8	201	244	8.3	61.6	<1	515	12.0
103	0.6	13	179	218	10.5	68.4	<1	475	14.4
66	<0.1	8	154	223	7.2	63.5	<1	448	14.2