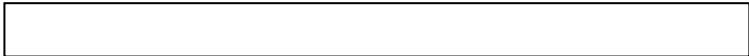


1 **Supplementary information**



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4 **Table S1** Summary of two-way ANOVAs for nutrient concentrations with land use and soil depth

	df	<i>F</i>	<i>P</i>
C concentration			
Soil depth	4,60	8.083	<0.001
Land-use type	5,60	58.660	<0.001
Soil depth × Land-use type	20,60	3.142	<0.001
N concentration			
Soil depth	4,60	11.364	<0.001
Land-use type	5,60	26.992	<0.001
Soil depth × Land-use type	20,60	2.797	0.001
P concentration			
Soil depth	4,60	3.698	0.001
Land-use type	5,60	14.135	<0.001
Soil depth × Land-use type	20,60	2.894	0.001
K concentration			
Soil depth	4,60	0.505	0.73
Land-use type	5,60	140.688	<0.001
Soil depth × Land-use type	20,60	1.434	0.14

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Table S2 Soil C, N, P and K (mean \pm S.E., n=15) in the five types of land use

Nutrient	Natural wetland	Flat breeding	Vegetable cultivation	Flower cultivation	Fruit cultivation	Rice cultivation
C (mg g ⁻¹)	22.1 \pm 0.3 a	15.8 \pm 0.5b	10.4 \pm 1.4c	11.7 \pm 0.5cd	15.6 \pm 2.1b	12.7 \pm 0.4d
N (mg g ⁻¹)	1.66 \pm 0.08 a	1.36 \pm 0.04b	1.07 \pm 0.14c	1.07 \pm 0.04c	1.26 \pm 0.12b	1.27 \pm 0.04b
P (mg g ⁻¹)	0.71 \pm 0.07 ab	0.65 \pm 0.02b	0.80 \pm 0.12a	0.46 \pm 0.02c	0.82 \pm 0.03a	0.58 \pm 0.05b
K (mg g ⁻¹)	16.2 \pm 0.4 a	14.8 \pm 0.2b	14.4 \pm 0.3b	13.3 \pm 0.2c	8.84 \pm 0.11	12.7 \pm 0.1c

25 Different letters within a row indicate significant differences ($P < 0.05$).

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Table S3 Summary of two-way ANOVAs for nutrient ratios with land use and soil depth

	df	<i>F</i>	<i>P</i>
C:N ratio			
Soil depth	4,60	0.572	0.68
Land-use type	5,60	41.258	<0.001
Soil depth × Land-use type	20,60	4.898	<0.001
C:P ratio			
Soil depth	4,60	0.684	0.61
Land-use type	5,60	13.278	<0.001
Soil depth × Land-use type	20,60	1.268	0.24
C:K ratio			
Soil depth	4,60	4.898	0.002
Land-use type	5,60	34.136	<0.001
Soil depth × Land-use type	20,60	3.040	<0.001
N:P ratio			
Soil depth	4,60	0.459	0.77
Land-use type	5,60	10.004	<0.001
Soil depth × Land-use type	20,60	0.794	0.710
N:K ratio			
Soil depth	4,60	6.147	<0.001
Land-use type	5,60	30.893	<0.001
Soil depth × Land-use type	20,60	2.544	0.003
P:K ratio			
Soil depth	4,60	2.257	0.073
Land-use type	5,60	46.360	<0.001
Soil depth × Land-use type	20,60	2.382	0.005

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Table S4 Soil C, N, P and K ratios (mean \pm S.E., n=15) in the five types of land use

Nutrient ratio	Natural wetland	Flat breeding	Vegetable cultivation	Flower cultivation	Fruit cultivation	Rice cultivation
C:N	15.7 \pm 1.0a	13.6 \pm 0.2b	11.4 \pm 0.1c	12.8 \pm 0.1d	14.3 \pm 0.8b	11.6 \pm 0.2c
C:P	86.3 \pm 8.3a	63.1 \pm 2.4bd	34.7 \pm 1.1c	65.4 \pm 0.7d	50.0 \pm 5.7b	68.5 \pm 7.3d
C:K	4.45 \pm 0.17b	3.46 \pm 0.12c	2.38 \pm 0.32d	2.86 \pm 0.10bd	5.80 \pm 0.86a	3.24 \pm 0.11c
N:P	5.48 \pm 0.30ab	4.65 \pm 0.14b	3.05 \pm 0.11c	5.13 \pm 0.08ab	3.45 \pm 0.25c	5.86 \pm 0.61a
N:K	0.28 \pm 0.02b	0.25 \pm 0.01bc	0.20 \pm 0.06cd	0.22 \pm 0.01c	0.39 \pm 0.07a	0.27 \pm 0.02b
P:K	0.12 \pm 0.02b	0.12 \pm 0.01b	0.15 \pm 0.05c	0.10 \pm 0.01d	0.25 \pm 0.02a	0.11 \pm 0.02b

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Different letters within a row indicate significant differences ($P < 0.05$).

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Table S5 Summary of two-way ANOVAs for soil C storage and release with land use and soil depth

	df	<i>F</i>	<i>P</i>
Soil C storage			
Soil depth	4,60	3.509	0.012
Land-use type	5,60	6.343	<0.001
Soil depth × Land-use type	20,60	2.083	0.015
Soil C release			
Soil depth	4,60	9.807	<0.001
Land-use type	5,60	25.360	<0.001
Soil depth × Land-use type	20,60	4.846	<0.001

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96 **Table S6** Soil C storage and release (mean \pm S.E., n=15) in the five types of land use

	Natural wetland	Flat breeding	Vegetable cultivation	Flower cultivation	Fruit cultivation	Rice cultivation
C storage (t hm^{-2})	15.5 \pm 1.4a	15.8 \pm 1.3a	11.5 \pm 2.7c	13.6 \pm 1.1b	15.3 \pm 3.7abc	14.7 \pm 1.6abc
C release ($\text{mg g}^{-1} \text{d}^{-1}$)	50.9 \pm 4.9c	166 \pm 15b	526 \pm 401a	211 \pm 47b	435 \pm 268a	116 \pm 44bc

97 Different letters within a row indicate significant differences ($P < 0.05$).

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116 **Table S7** Summary of two-way ANOVAs for soil parameters with land use and soil depth

	df	<i>F</i>	<i>P</i>
pH			
Soil depth	4,60	1.072	0.38
Land-use type	5,60	342.724	<0.001
Soil depth × Land-use type	20,60	3.737	<0.001
Water content			
Soil depth	4,60	1.997	0.11
Land-use type	5,60	199.878	<0.001
Soil depth × Land-use type	20,60	3.051	<0.001
Bulk density			
Soil depth	4,60	4.044	0.006
Land-use type	5,60	25.510	<0.001
Soil depth × Land-use type	20,60	2.138	0.012
Salinity			
Soil depth	4,60	2.356	0.064
Land-use type	5,60	910.337	<0.001
Soil depth × Land-use type	20,60	1.865	0.033
Clay			
Soil depth	4,60	0.510	0.73
Land-use type	5,60	166.152	<0.001
Soil depth × Land-use type	20,60	1.034	0.44
Silt			
Soil depth	4,60	0.374	0.83
Land-use type	5,60	26.279	<0.001
Soil depth × Land-use type	20,60	1.121	0.354
Sand			
Soil depth	4,60	0.257	0.90
Land-use type	5,60	52.096	<0.001
Soil depth × Land-use type	20,60	0.993	0.48

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121 **Table S8** Soil parameters (mean \pm S.E., n=15) in the five types of land use. Different letters within a row indicate significant differences ($P<0.05$)

Soil parameters	Natural wetland	Flat breeding	Vegetable cultivation	Flower cultivation	Fruit cultivation	Rice cultivation
pH	5.48 \pm 0.09a	4.55 \pm 0.24b	5.10 \pm 0.18c	4.38 \pm 0.33d	6.99 \pm 0.14e	5.73 \pm 0.18f
Water content (%)	110 \pm 5a	80.8 \pm 15.2b	34.7 \pm 3.2cd	33.7 \pm 5.4c	21.2 \pm 4.7e	41.1 \pm 13.6d
Bulk density (g cm ⁻³)	0.70 \pm 0.05c	1.01 \pm 0.10b	1.14 \pm 0.19a	1.17 \pm 0.06a	1.01 \pm 0.19b	1.16 \pm 0.06a
Salinity (mS cm ⁻¹)	1.23 \pm 0.09a	0.27 \pm 0.02b	0.20 \pm 0.02c	0.15 \pm 0.01d	1.18 \pm 0.04ab	0.23 \pm 0.03bc
Clay percentage (%)	26.4 \pm 1.3a	19.1 \pm 0.7b	18.3 \pm 1.5b	16.1 \pm 0.9c	11.5 \pm 0.5d	11.3 \pm 0.2d
Silt percentage (%)	66.8 \pm 1.3a	63.9 \pm 3.6a	64.7 \pm 2.5a	59.0 \pm 3.2b	49.4 \pm 4.6c	51.9 \pm 2.6c
Sand percentage (%)	6.82 \pm 0.50d	17.0 \pm 4.2c	17.0 \pm 3.6c	24.9 \pm 3.9b	39.1 \pm 5.1a	36.8 \pm 2.6a

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143 **Fig. S1** Concentrations of C (A), N (B), P (C) and K (D) at the various soil depths for the five
144 types of land use. Error bars indicate standard errors (n=3). Different letters within each
145 layer indicate significant differences between land uses ($P<0.05$)

146 **Fig. S2** C:N (A), C:P (B), C:K (C), N:P (D), N:K (E) and P:K (F) ratios at the various soil
147 depths for the five types of land use. Error bars indicate standard errors (n=3). Different letters
148 indicate significant differences between land uses ($P<0.05$)

149 **Fig. S3** C release (A) and C storage (B) at the various soil depths for the five types of land use.
150 Error bars indicate standard errors (n=3). Different letters indicate significant differences
151 between land uses ($P<0.05$)

152 **Fig. S4** Soil properties at the various soil depths for the five types of land use. Error bars
153 indicate standard errors (n=3). Different letters indicate significant differences between land
154 uses ($P<0.05$). pH (A), water content (B), bulk density (C), salinity (D), clay percentage (E),
155 silt percentage (F) and sand percentage (G)

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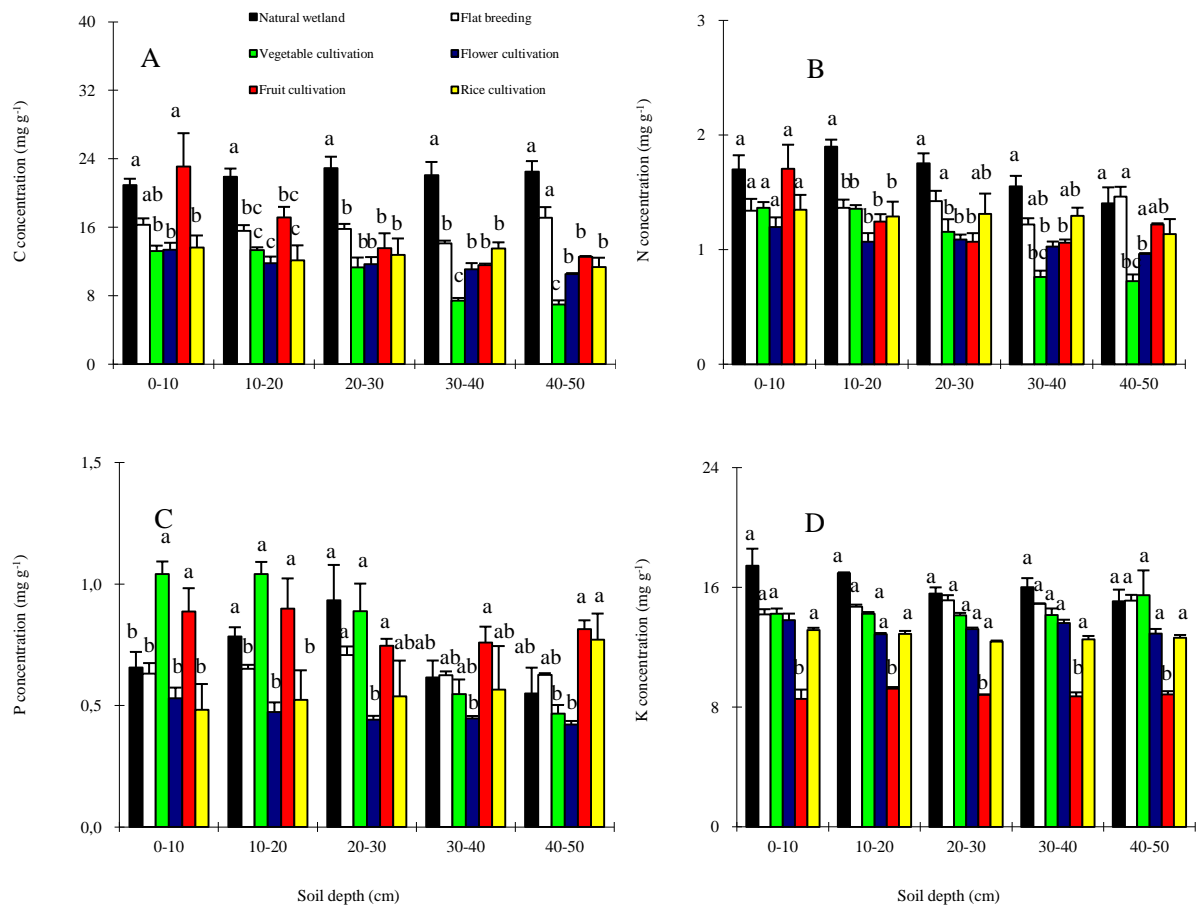
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Fig. S1

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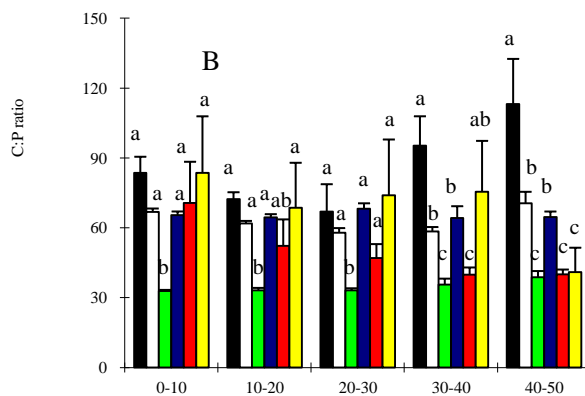
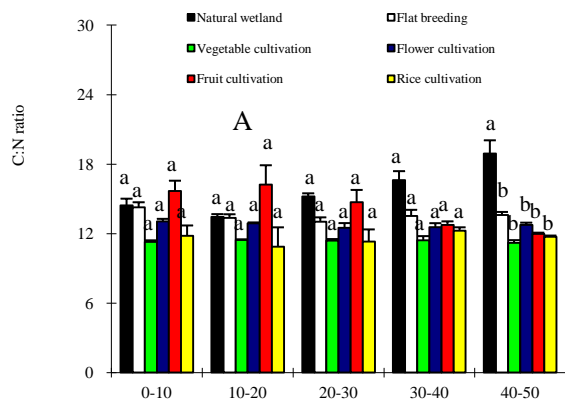
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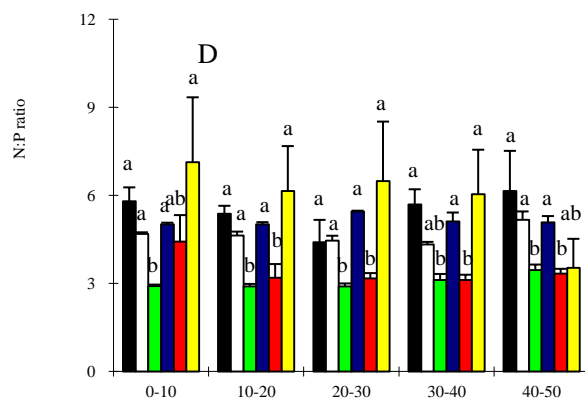
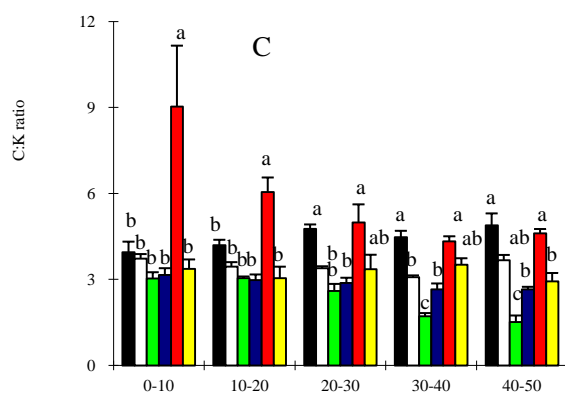
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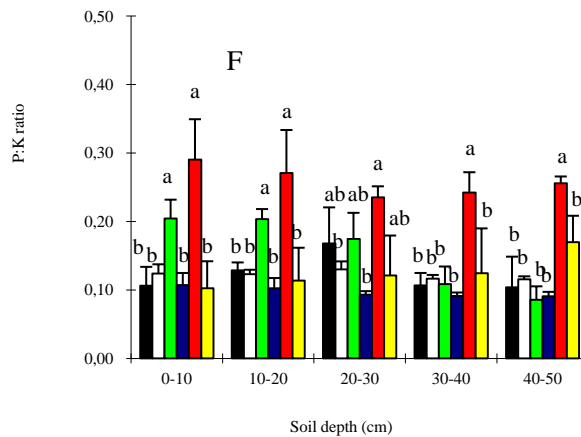
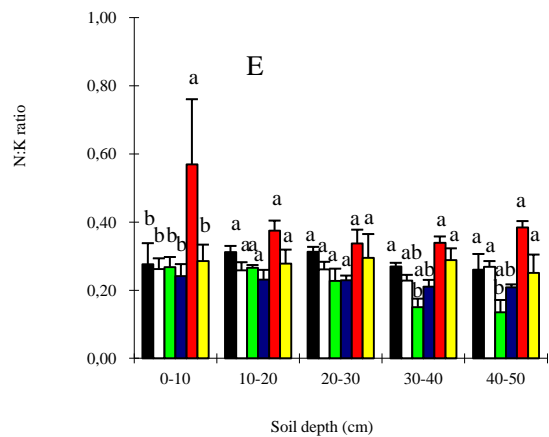
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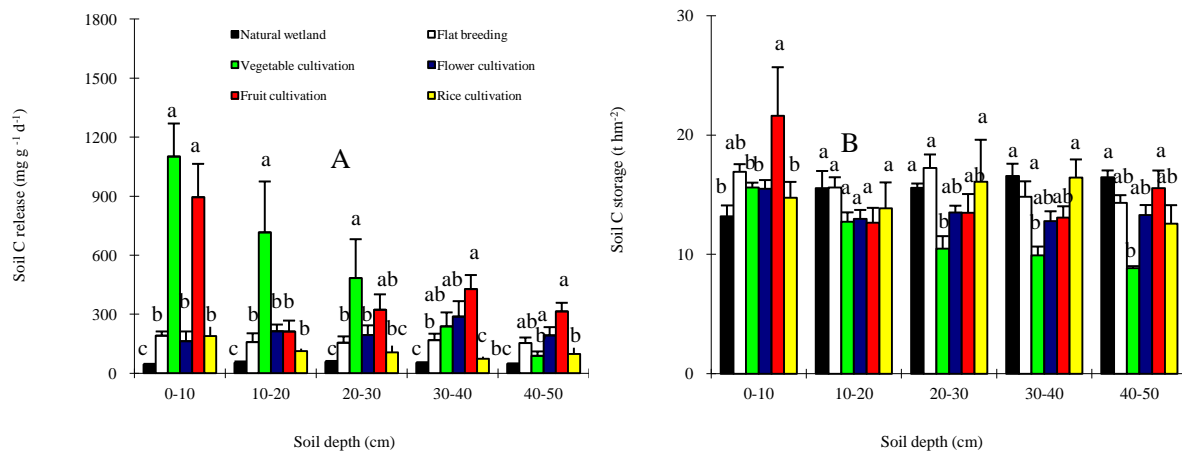
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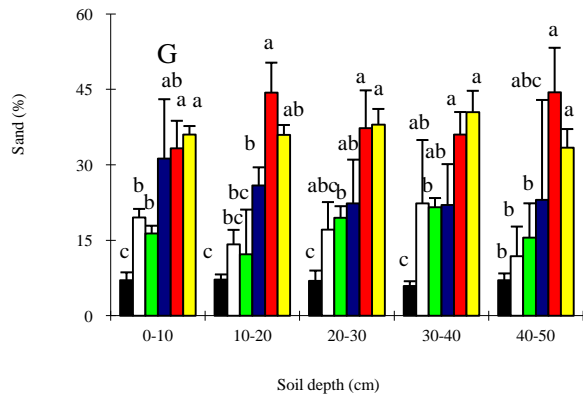
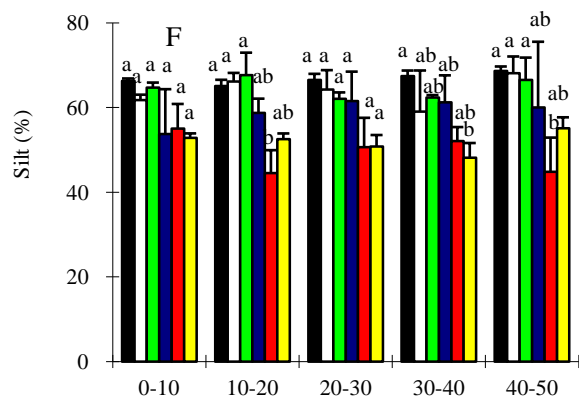
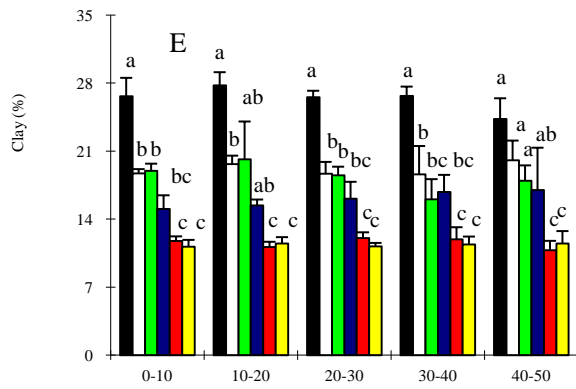
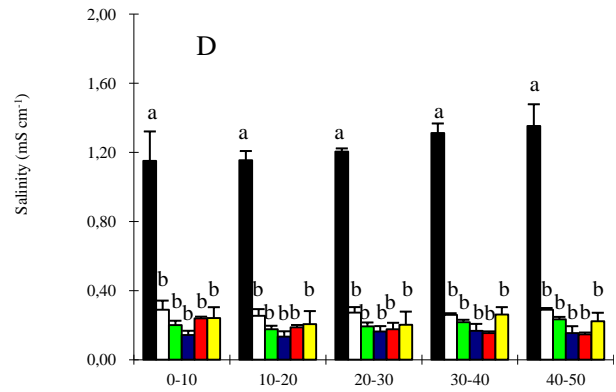
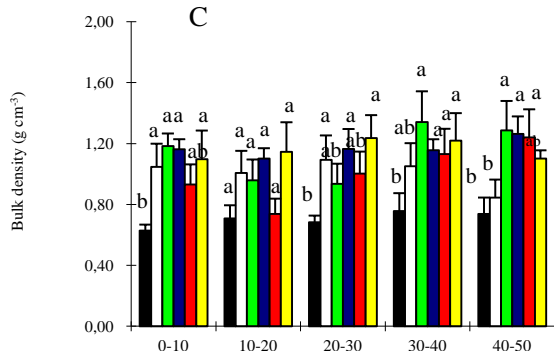
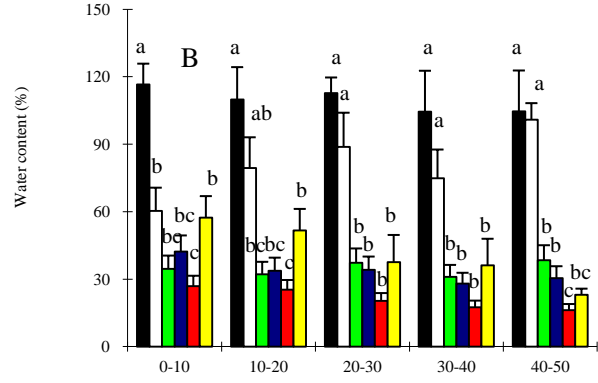
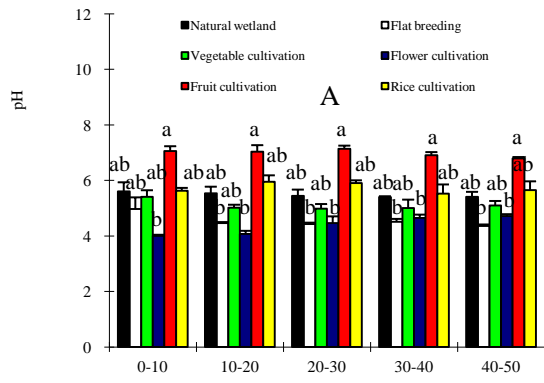
Fig. S2

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Fig. S3



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Fig. S4