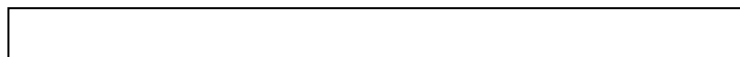


1 **Supplementary information**



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

	df	<i>F</i>	<i>P</i>
<b>C concentration</b>			
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
<b>N concentration</b>			
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
<b>P concentration</b>			
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
<b>K concentration</b>			
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 <sup>-1</sup> )	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 <sup>-1</sup> )	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 <sup>-1</sup> )	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 <sup>-1</sup> )	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>
<b>C:N ratio</b>			
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
<b>C:P ratio</b>			
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
<b>C:K ratio</b>			
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
<b>N:P ratio</b>			
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
<b>N:K ratio</b>			
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
<b>P:K ratio</b>			
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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**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>
<b>Soil C storage</b>			
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
<b>Soil C release</b>			
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 ( $\text{t hm}^{-2}$ )	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>
<b>pH</b>			
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
<b>Water content</b>			
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
<b>Bulk density</b>			
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
<b>Salinity</b>			
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
<b>Clay</b>			
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
<b>Silt</b>			
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
<b>Sand</b>			
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 <sup>-3</sup> )	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 <sup>-1</sup> )	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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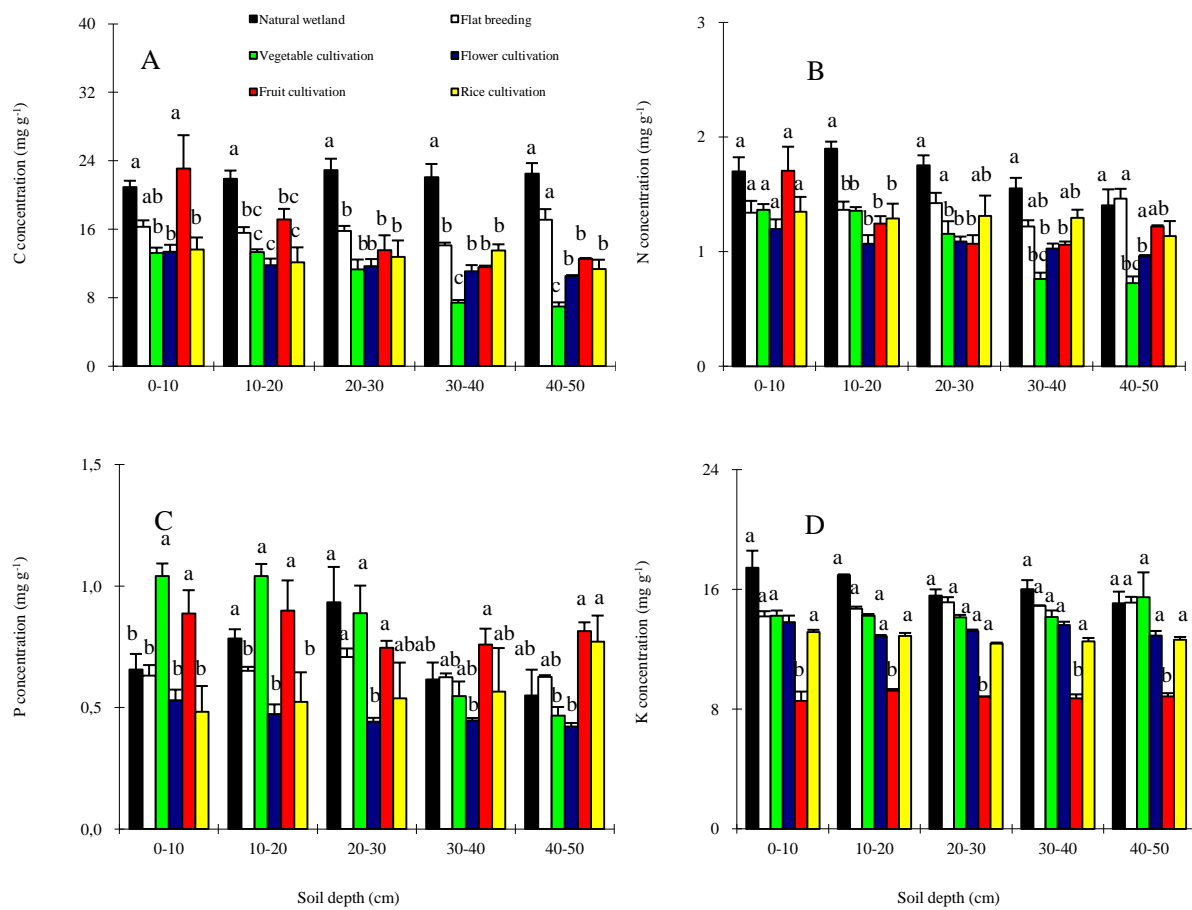
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**Fig. S1**

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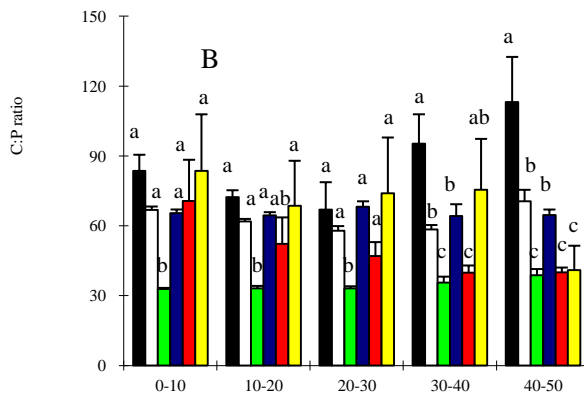
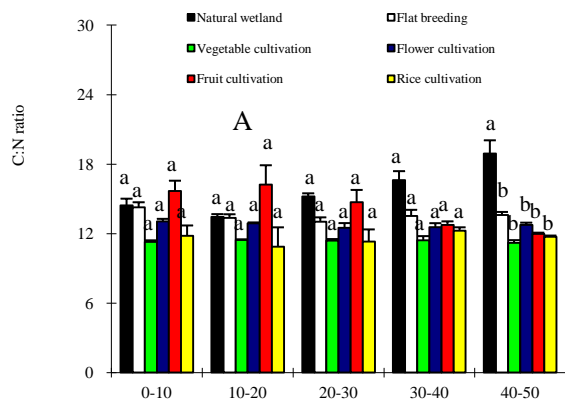
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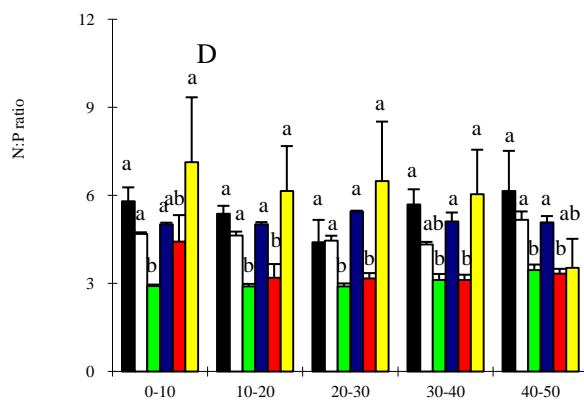
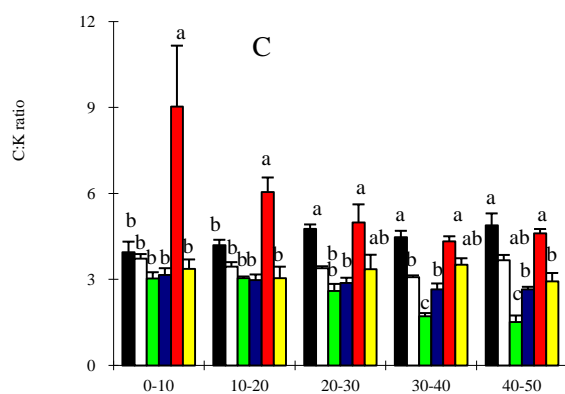
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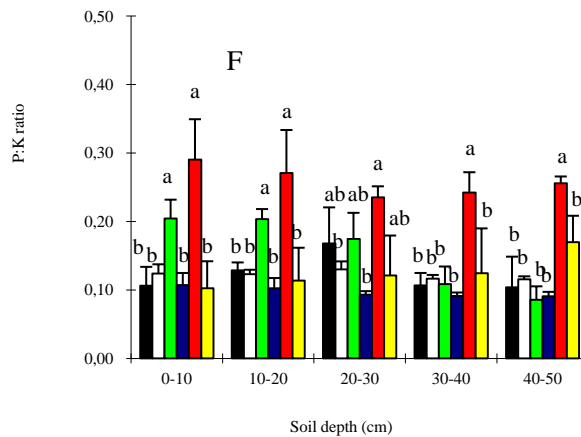
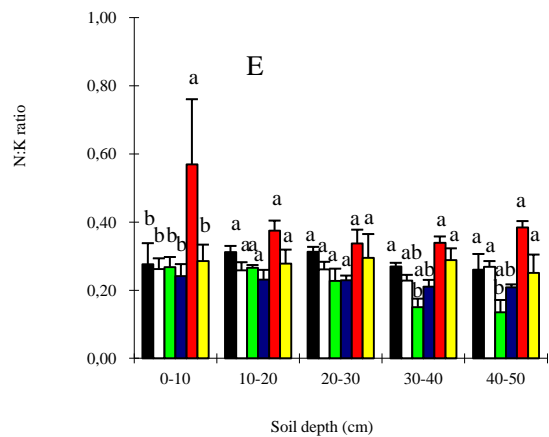
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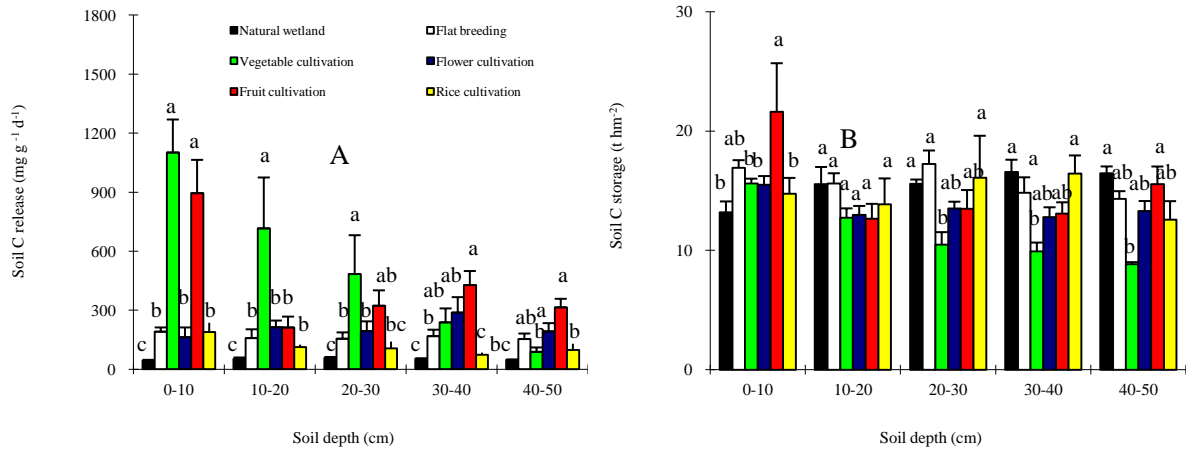
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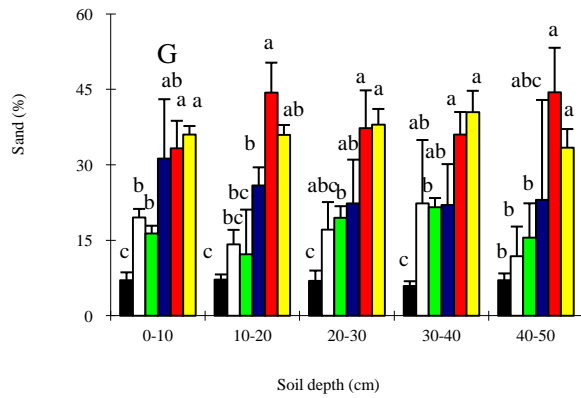
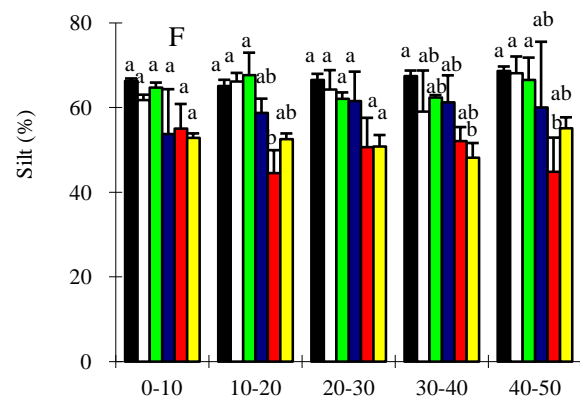
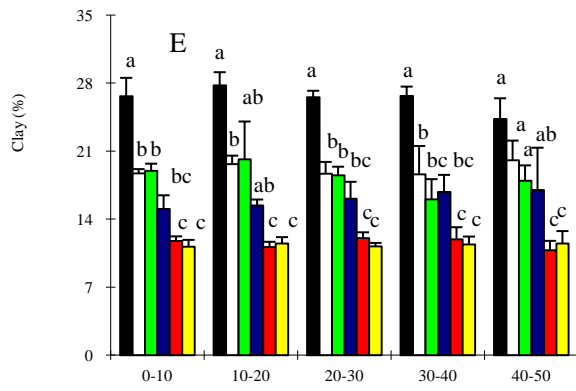
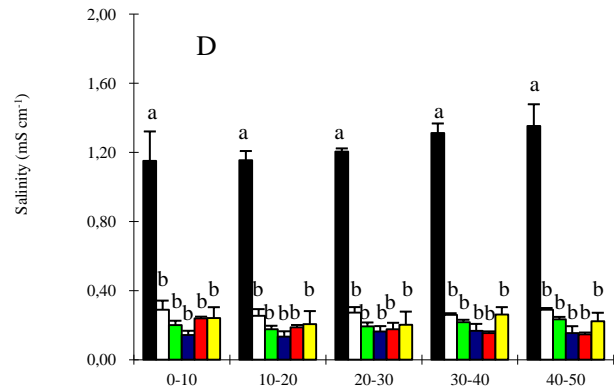
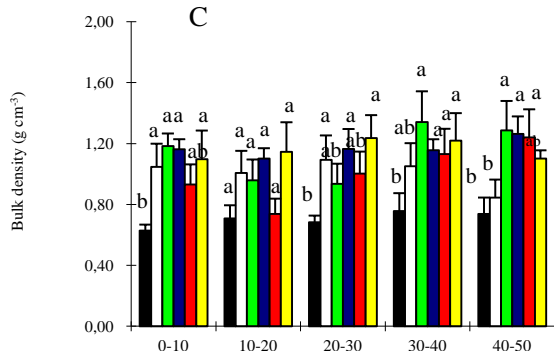
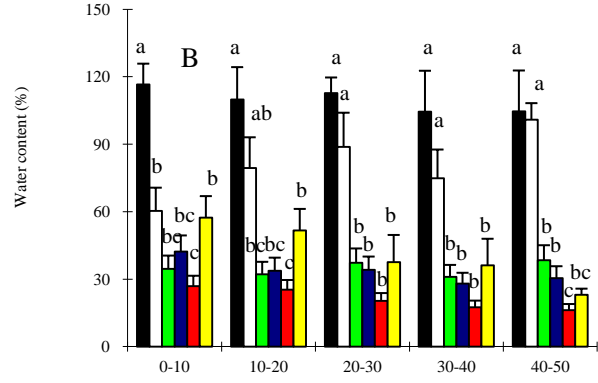
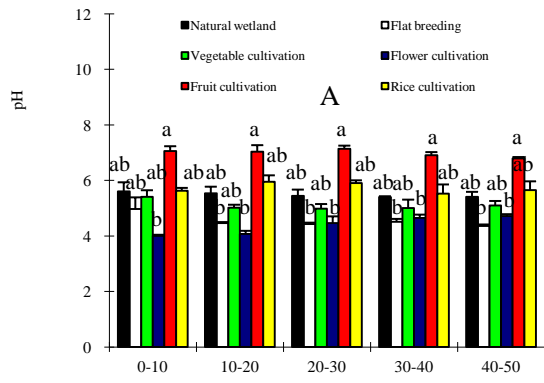
**Fig. S2**

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**Fig. S3**



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**Fig. S4**