

Table S1. Average values \pm standard errors of pH, organic carbon (Corg%) and total nitrogen (N%) in soil, manure and digestate.

	Soil	Manure	Digestate
pH	6.57 \pm 0.02	6.79 \pm 0.28	7.74 \pm 0.02
Corg (%)	1.05 \pm 0.05	41.3 \pm 0.7	32.75 \pm 0.25
N (%)	0.33 \pm 0.03	1.8 \pm 0.1	1.5 \pm 0.1

Table S2. Elements content (mg kg⁻¹) in soils: Soil (S), Manure (M) and Digestate (D) and in presence of copper (Cu): Soil +Cu (S+Cu), Manure+Cu (M+Cu) and Digestate+Cu (D+Cu) after five weeks experiment. Data represent the mean \pm SD. Different letters indicate statistically significant differences among treatments at the P<0.05 level.

	S	S + Cu	M	M + Cu	D	D + Cu	CTC*
Ca	9825.0 \pm 1246.6 ^a	9755.0 \pm 777.6 ^a	14077.5 \pm 8441.5 ^a	10492.5 \pm 638.8 ^a	9352.5 \pm 928.0 ^a	9705.0 \pm 608.1 ^a	-
K	3512.5 \pm 488.1 ^a	3567.5 \pm 372.9 ^a	3310.0 \pm 455.3 ^a	3630.0 \pm 185.7 ^a	3360.0 \pm 402.8 ^a	3502.5 \pm 260.6 ^a	-
P	410.0 \pm 0.0 ^a	427.5 \pm 28.7 ^a	402.5 \pm 23.6 ^a	422.5 \pm 20.6 ^a	422.5 \pm 26.3 ^a	417.5 \pm 43.5 ^a	-
S	-	-	500.0 \pm 347.3 ^a	345.0 \pm 25.2 ^a	367.5 \pm 15.0 ^a	385.0 \pm 23.8 ^a	-
Na	1672.5 \pm 151.1 ^a	1702.5 \pm 138.2 ^a	1665.0 \pm 225.2 ^a	1700.0 \pm 66.8 ^a	1680.0 \pm 146.7 ^a	1707.5 \pm 80.6 ^a	-
Mg	4772.5 \pm 449.8 ^a	4712.5 \pm 327.2 ^a	4715.0 \pm 531.5 ^a	4972.5 \pm 234.7 ^a	4585.0 \pm 348.6 ^a	4575.0 \pm 348.9 ^a	-
Fe	22396.3 \pm 1108.5 ^a	21855.4 \pm 1540.4 ^a	21842.9 \pm 914.5 ^a	22576.2 \pm 826.8 ^a	21520.1 \pm 748.9 ^a	22164.5 \pm 1167.9 ^a	-
Cu	28.9\pm1.1^{bc}	34.7\pm4.3^{ab}	28.8\pm1.5^{bc}	35.2\pm4.1^{ab}	27.4\pm1.4^c	35.9\pm3.7^a	200
Zn	45.3 \pm 2.9 ^a	43.9 \pm 4.0 ^a	42.7 \pm 3.0 ^a	44.5 \pm 2.3 ^a	43.6 \pm 4.7 ^a	43.1 \pm 3.5 ^a	300
Mn	633.2 \pm 15.9 ^a	609.4 \pm 49.5 ^a	611.2 \pm 30.3 ^a	627.0 \pm 25.7 ^a	595.6 \pm 23.4 ^a	616.7 \pm 21.9 ^a	-
Ni	13.6 \pm 0.7 ^a	13.1 \pm 1.0 ^a	13.0 \pm 0.8 ^a	13.5 \pm 0.3 ^a	12.9 \pm 1.1 ^a	13.5 \pm 0.9 ^a	120
Si	25747.5 \pm 1447.2 ^a	24945.0 \pm 493.5 ^a	26282.5 \pm 2021.9 ^a	25070.0 \pm 776.7 ^a	25167.5 \pm 1036.7 ^a	24890.0 \pm 712.8 ^a	-
Al	48464.7 \pm 2297.5 ^a	46765.0 \pm 4039.2 ^a	46179.1 \pm 2457.5 ^a	48021.3 \pm 2055.3 ^a	45564.9 \pm 1604.7 ^a	47964.8 \pm 2039.8 ^a	-
Cr	13.0 \pm 0.8 ^a	12.9 \pm 1.2 ^a	12.6 \pm 0.3 ^a	13.1 \pm 0.6 ^a	12.7 \pm 0.6 ^a	13.0 \pm 0.9 ^a	150
Cd	1.7 \pm 0.1 ^a	1.6 \pm 0.1 ^a	2.0 \pm 0.6 ^a	1.7 \pm 0.0 ^a	1.6 \pm 0.1 ^a	1.6 \pm 0.1 ^a	5

*CTC- Contamination Threshold concentration for soils in agricultural areas DM. 46/2019.

Table S3. Elements content (mg kg⁻¹) in leaves of lettuce plants grown in different soil conditions: Soil (S), Manure (M) and Digestate (D); and in presence of copper (Cu): Soil +Cu (S+Cu), Manure+Cu (M+Cu) and Digestate+Cu (D+Cu) after five weeks experiment. Data represent the mean \pm SD. Different letters indicate statistically significant differences among treatments at the P<0.05 level.

	S	S + Cu	M	M + Cu	D	D + Cu
Ca	14311 \pm 604 ^b	38886.7 \pm 112.2 ^a	9437.0 \pm 508.2 ^c	9200.5 \pm 16.2 ^c	7705.0 \pm 80.4 ^d	7592.8 \pm 187 ^d
K	52416.7 \pm 2289 ^b	149685.4 \pm 723 ^a	34575.0 \pm 930 ^{cd}	36424.5 \pm 988 ^c	31561.3 \pm 1359 ^d	33119.8 \pm 1867 ^{cd}
P	668.7 \pm 28.5 ^b	1552.3 \pm 24.2 ^a	448.2 \pm 27.7 ^d	535.5 \pm 19.2 ^c	498.9 \pm 31.7 ^{cd}	690.6 \pm 48.7 ^b
S	1984.5 \pm 65.4 ^b	5861.7 \pm 37.3 ^a	1231.0 \pm 83.8 ^d	1455.5 \pm 32.5 ^c	1015.3 \pm 41.7 ^e	1134.7 \pm 44.5 ^{de}
Na	3379.9 \pm 156.6 ^b	10462.4 \pm 18.3 ^a	2219.8 \pm 72.3 ^c	2280.2 \pm 10.4 ^c	1583.1 \pm 152.7 ^d	1342.0 \pm 80.5 ^d
Mg	3622.5 \pm 85.3 ^b	10537.3 \pm 61.1 ^a	2094.6 \pm 201.9 ^d	2486.6 \pm 31.8 ^c	1921.9 \pm 58.9 ^{de}	1719.4 \pm 111.8 ^e
Fe	110.4 \pm 3.3 ^b	255.8 \pm 36.6 ^a	74.4 \pm 5.1 ^{bc}	93.9 \pm 6.1 ^b	45.1 \pm 1.8 ^c	44.6 \pm 0.6 ^c
Cu	1.1 \pm 0.1 ^c	3.3 \pm 0.3 ^b	2.9 \pm 0.4 ^b	5.7 \pm 0.4 ^a	4.2 \pm 0.2 ^b	3.9 \pm 0.2 ^b
Zn	64.4 \pm 10.4 ^b	133.9 \pm 1.7 ^a	33.3 \pm 0.6 ^d	48.6 \pm 3.0 ^c	30.6 \pm 0.7 ^d	27.0 \pm 2.1 ^d
Mn	79.1 \pm 5.6 ^b	208.5 \pm 7.3 ^a	51.5 \pm 1.6 ^c	49.3 \pm 0.7 ^c	44.9 \pm 0.1 ^c	40.6 \pm 2.4 ^c
Ni	1.4 \pm 0.1 ^b	3.2 \pm 0.2 ^a	0.7 \pm 0.03 ^c	0.7 \pm 0.06 ^c	0.5 \pm 0.02 ^c	0.5 \pm 0.01 ^c
Si	7112.9 \pm 195.6 ^b	25159.2 \pm 700.2 ^a	4602.7 \pm 210.0 ^c	5261.1 \pm 381.1 ^c	3131.7 \pm 76.4 ^d	2368.2 \pm 53 ^d
Al	113.8 \pm 10.8 ^{bc}	287.8 \pm 48.4 ^a	129.6 \pm 3.2 ^b	153.8 \pm 33.2 ^b	61.9 \pm 0.07 ^c	51.3 \pm 10.8 ^c
Cr	0.37 \pm 0.02 ^c	0.90 \pm 0.16 ^a	0.55 \pm 0.04 ^b	0.68 \pm 0.02 ^b	0.50 \pm 0.03 ^{bc}	0.59 \pm 0.08 ^b
Cd	0.97 \pm 0.05 ^b	1.7 \pm 0.03 ^a	0.55 \pm 0.04 ^c	0.38 \pm 0.02 ^d	0.30 \pm 0.04 ^{de}	0.26 \pm 0.03 ^e

Figure S1. Correlation between the variables and the principal components (Dims), a measure of the linear relationship between each variable and each Dim.

