



Figure S1. Illustrative scheme of the field trial.

Supp. Table S1. Fertilization planning of artichoke plants according to the phonological stage and plant development (unit of the element each 100 units of fertilizer)

Week	N	P	K	Ca
31	6.69	0.02	7.34	0.01
32	6.69	0.02	7.34	0.01
33	6.69	0.02	7.34	0.01
34	6.69	0.02	7.34	0.01
35	6.69	0.02	7.34	0.01
36	6.69	0.02	7.34	0.01
37	8.68	0.02	11.00	0.01
38	8.68	0.02	11.00	0.01
39	8.68	0.02	11.00	0.01
40	8.68	0.02	11.00	0.01
41	7.35	2.44	10.99	8.00
42	7.35	2.44	10.99	8.00
43	7.35	2.44	10.99	8.00
44	7.35	2.44	10.99	8.00
45	3.93	1.22	5.86	4.24
46	3.93	1.22	5.86	4.24
47	3.93	1.22	5.86	4.24
48	3.93	1.22	5.86	4.24
49	5.88	2.44	8.79	6.56
50	5.88	2.44	8.79	6.56
51	5.88	2.44	8.79	6.56
52	5.88	2.44	8.79	6.56
1	7.35	2.44	10.99	8.00
2	7.35	2.44	10.99	8.00

3	7.35	2.44	10.99	8.00
4	7.35	2.44	10.99	8.00
5	7.35	2.44	10.99	8.00
6	7.35	2.44	10.99	8.00
7	7.35	2.44	10.99	8.00
8	7.35	2.44	10.99	8.00
9	2.46	1.22	3.66	2.80
10	2.46	1.22	3.66	2.80
11	2.46	1.22	3.66	2.80
12	2.46	1.22	3.66	2.80
TOTAL 212.10		49.03	293.10	
		150.49		

Supl. Table S2. Conventional fertilization schedule of artichoke plants during the crop cycle.

Week fertilization (Kg/ha)					
Week	NH ₄ NO ₃	KNO ₃	Ca(NO ₃) ₂	KH ₂ PO ₄	NOVATEC 21
31	8.00	15.92			8.82
32	8.00	15.92			8.82
33	8.00	15.92			8.82
34	8.00	15.92			8.82
35	8.00	15.92			8.82
36	8.00	15.92			8.82
37	8.00	23.88			16.66
38	8.00	23.88			16.66
39	8.00	23.88			16.66
40	8.00	23.88			16.66
41		20.35	30.19	4.79	
42		20.35	30.19	4.79	
43		20.35	30.19	4.79	
44		20.35	30.19	4.79	
45		10.97	16.00	2.39	
46		10.97	16.00	2.39	
47		10.97	16.00	2.39	
48		10.97	16.00	2.39	
49		15.57	24.75	4.79	
50		15.57	24.75	4.79	
51		15.57	24.75	4.79	
52		15.57	24.75	4.79	
1		20.35	30.19	4.79	
2		20.35	30.19	4.79	
3		20.35	30.19	4.79	
4		20.35	30.19	4.79	
5		20.35	30.19	4.79	
6		20.35	30.19	4.79	
7		20.35	30.19	4.79	
8		20.35	30.19	4.79	
9		6.19	10.56	2.39	
10		6.19	10.56	2.39	
11		6.19	10.56	2.39	
12		6.19	10.56	2.39	
TOTAL	80.05	566.12	567.49	95.74	119.57

Supp. Table S3. Organic fertilization schedule of artichoke plants during the crop cycle.

Week	Organic Fertilizer L/ha
31	83.01
32	83.01
33	83.01
34	83.01
35	83.01
36	83.01
37	124.61
38	124.61
39	124.61
40	124.61
41	124.61
42	124.61
43	124.61
44	124.61
45	66.41
46	66.41
47	66.41
48	66.41
49	99.61
50	99.61
51	99.61
52	99.61
1	124.61
2	124.61
3	124.61
4	124.61
5	124.61
6	124.61
7	124.61
8	124.61
9	41.41
10	41.41
11	41.41
12	41.41
TOTAL	3321.5

Suppl. Table S4. Units of fertilizer (UF) of Nitrogen (N), Phosphorous (P) and Potassium (K) supplied by organic fertilization in artichoke plants.

UF ORGANIC FERTILIZER			
WEEK	N	P	K
31	3.74	0.01	1.21
32	3.74	0.01	1.25
33	3.74	0.01	1.29
34	3.74	0.01	1.33
35	3.74	0.01	1.37
36	3.74	0.01	1.40
37	5.61	0.01	1.44
38	5.61	0.01	1.48
39	5.61	0.01	1.52
40	5.61	0.01	1.56
41	5.61	0.01	1.60
42	5.61	0.01	1.64
43	5.61	0.01	1.68
44	5.61	0.01	1.72
45	2.99	0.01	1.76
46	2.99	0.01	1.79
47	2.99	0.01	1.83
48	2.99	0.01	1.87
49	4.48	0.01	1.91
50	4.48	0.01	1.95
51	4.48	0.01	1.99
52	4.48	0.01	2.03
1	5.61	0.01	0.04
2	5.61	0.01	0.08
3	5.61	0.01	0.12
4	5.61	0.01	0.16
5	5.61	0.01	0.20
6	5.61	0.01	0.23
7	5.61	0.01	0.27
8	5.61	0.01	0.31
9	1.86	0.01	0.35
10	1.86	0.01	0.39
11	1.86	0.01	0.43
12	1.86	0.01	0.47
TOTAL	149.47	0.20	38.65

Supp. Table S5. Biochar composition and properties

Material	Untreated log charcoal from sustainable forestry (FSC certified), vinasse, sugar cane molasses	
Nutrients and secondary components	Total N	2%
	Total K ₂ O	2%
	Total P ₂ O ₅	0.3%
	Total S	0.2%
	Ca	0.6%
	Mg	0.05%
	Organic Matter	73%
	Immediately available nitrogen content	20%
	Available nitrogen content after 3-5 weeks	80%
Analytical Parameters	Carbon in the dry mass of coal	80%
	Pollutants (PAHs, ndl-PCB, sl-PCB, dioxins)	All maximum limits of contaminants allowed in the European Union are respected
Structure	granular	
Size	2-5mm	
pH	6.6	
Internal surface	>250m ² /g	