Table S1. Content of macro- and micronutrients of agri-food waste used in the field trials. (CG = spent coffee grounds waste, CC = corn cob waste, F = *Vicia faba* pod waste)

Waste	Macronutrients					Micronutrients			
	P (%)	Ca (%)	Mg (%)	K (%)	N (%)	Cu (mg kg^{-1})	Zn (mg kg^{-1})	Fe (mg kg^{-1})	Mn (mg kg^{-1})
CG	0.24	0.10	0.20	0.46	4.25	40.60	23.44	80.01	40.00
CC	0.05	0.23	0.32	0.67	0.32	5.00	24.60	182.66	10.00
F	0.37	0.38	0.17	2.57	2.62	17.08	52.53	273.62	30.86

Table S2. Repeated measures results obtained via Generalized Linear Mixed Models to test for the effect of treatment (different waste), time (sampling week) and the interaction between them on the normalized difference vegetation index (NDVI) of weeds and crops and on biomass of different weeds groups in experimental field plots under Spring-Summer and Autumn conditions (Experiment 3 and 4, 2020, respectively).

Plant type	Season	Parameter	Source of variation	*P*
Weeds + crops	Spring-Summer	NDVI	Treatment (Tr)	**< 0.001**
			Time (t)	**< 0.001**
			Tr x t	**0.002**
			Plot	*0.878*
	Autumn	NDVI	Treatment	**< 0.001**
			Time	**< 0.001**
			Tr x t	**0.033**
			Plot	***< 0.001***
Weeds	Spring-Summer	Monocotyledon biomass	Treatment	**0.034**
			Time	**< 0.001**
			Tr x t	0.233
			Plot	*1.000*
			Plot/subplot	*1.000*
		Dicotyledon biomass	Treatment	**< 0.001**
			Time	**< 0.001**
			Tr x t	**0.007**
			Plot	*0.101*
			Plot/subplot	*1.000*
		Cyperus spp. biomass	Treatment	0.106
			Time	**< 0.001**
			Tr x t	0.745
			Plot	***0.016***
			Plot/subplot	*1.000*
		Total biomass	Treatment	**< 0.001**
			Time	**< 0.001**
			Tr x t	**0.022**
			Plot	*0.484*
			Plot/subplot	*1.000*
	Autumn	Monocotyledon biomass	Treatment	0.103

	Time	0.085
	Tr x t	0.624
	Plot	*0.705*
	Plot/subplot	*1.000*
Dicotyledon biomass	Treatment	0.377
	Time	**< 0.001**
	Tr x t	0.649
	Plot	***0.021***
	Plot/subplot	*0.967*
Cyperus spp. biomass	Treatment	**0.012**
	Time	**< 0.001**
	Tr x t	0.276
	Plot	*0.362*
	Plot/subplot	*0.979*
Total biomass	Treatment	0.055
	Time	**< 0.001**
	Tr x t	0.367
	Plot	*0.107*
	Plot/subplot	*1.000*

Italic values correspond to random factors.

Values in bold indicate significance at $p \leq 0.05$. $n = 4$ for the NDVI parameter and $n = 16$ for biomass.

Table S3. Effect of time on biomass of different weed groups (dicotyledons, monocotyledons, *Cyperus* spp., total weeds) in experimental filed plots in Spring-Summer (Experiment 3, 2020) and Autumn (Experiment 4, 2020). Least-square mean values (± confidence intervals) are shown. n = 16.

Season	Time	Dicotyledons Biomass (Dw g m^{-2})	Monocotyledons biomass (Dw g m^{-2})	*Cyperus* spp. Biomass (Dw g m^{-2})	Total weeds Biomass (Dw g m^{-2})
Spring-Summer	Week four	8.03 ± 37.7 [b]	16.4 ± 29.3 [b]	52.1 ± 48.9 [b]	75.5 ± 46.8 [b]
	Week eight	57.30 ± 37.7 [a]	169.0 ± 29.3 [a]	121.1 ± 48.9 [a]	347.5 ± 46.8 [a]
Autumn	Week four	4.93 ± 23.81 [b]	1.24 ± 2.48	14.2 ± 8.42 [b]	17.7 ± 21.18 [b]
	Week eight	33.05 ± 23.85 [a]	3.35 ± 2.35	32.1 ± 8.42 [a]	65.4 ± 21.20 [a]

Least-square mean values within a column for each season and without statistical letters are not significantly different, when accompanied by different superscript letters statistical differences were found according to significant p values from the Table S2 and lsmeans function at $p \leq 0.05$.
Dw = dry weight.

Table S4. Effect of treatment (agri-food waste) on the macro- and micronutrients content of *Lactuca sativa* leaves and *Raphanus sativus* roots grown in field plots in Spring-Summer (S-S) (Experiment 3, 2020) and of *Brassica rapa* leaves and *Beta vulgaris* roots grown in field plots during Autumn (A) (Experiment 4, 2020). Least-square mean values (± confidence intervals) are shown. $n = 4$.

Season	Crop species	Tr	Macronutrients					Micronutrients			
			P (%)	Ca (%)	Mg (%)	K (%)	N (%)	Cu (mg kg⁻¹)	Zn (mg kg⁻¹)	Fe (mg kg⁻¹)	Mn (mg kg⁻¹)
S-S	*L. sativa*	C	0.40 ± 0.18	0.81 ± 0.17	0.34 ± 0.04	5.33 ± 1.32	2.20 ± 0.27 [ab]	16.8 ± 3.1	59.8 ± 15.6	814 ± 359 [b]	68.5 ± 12.6 [ab]
		F	0.52 ± 0.18	0.97 ± 0.20	0.31 ± 0.04	5.25 ± 1.32	2.41 ± 0.27 [a]	18.1 ± 3.1	48.2 ± 15.6	1079 ± 259 [ab]	74.4 ± 12.6 [a]
		CG	0.33 ± 0.18	0.90 ± 0.18	0.32 ± 0.04	5.35 ± 1.32	2.03 ± 0.27 [ab]	16.0 ± 3.1	57.0 ± 15.6	911 ± 359 [ab]	52.8 ± 12.6 [b]
		CC	0.47 ± 0.18	0.76 ± 0.15	0.31 ± 0.04	4.72 ± 1.32	1.97 ± 0.27 [b]	16.9 ± 3.1	53.6 ± 15.6	1395 ± 359 [a]	62.6 ± 12.6 [ab]
		P	0.201	0.125	0.628	0.732	**0.021**	0.616	0.478	**0.028**	**0.023**
	R. sativus	C	0.43 ± 0.12 [b]	0.57 ± 0.17	0.12 ± 0.02	2.12 ± 0.70	1.83 ± 0.27	8.2 ± 2.1	28.2 ± 6.8 [c]	250 ± 69 a	12.3 ± 2.3 ab
		F	0.65 ± 0.12 [a]	0.58 ± 0.17	0.13 ± 0.02	2.76 ± 0.92	2.14 ± 0.27	6.6 ± 1.7	41.5 ± 6.8 [a]	264 ± 69 [a]	13.6 ± 2.4 [a]
		CG	0.51 ± 0.12 [ab]	0.51 ± 0.15	0.11 ± 0.02	2.33 ± 0.77	1.95 ± 0.27	6.6 ± 1.7	31.5 ± 6.8 [bc]	165 ± 69 [ab]	10.0 ± 2.4 [b]
		CC	0.48 ± 0.12 [b]	0.75 ± 0.22	0.13 ± 0.02	2.97 ± 0.98	2.05 ± 0.27	6.6 ± 1.7	38.1 ± 6.8 [ab]	124 ± 69 [b]	10.2 ± 2.4 [b]
		P	**0.010**	0.100	0.313	0.755	0.141	0.516	**0.006**	**0.003**	**0.021**
A	*B. rapa*	C	0.56 ± 0.08	2.34 ± 0.47	0.53 ± 0.04	8.47 ± 1.89 [a]	4.26 ± 0.64	11.3 ± 5.9	36.6 ± 6.4	710 ± 185	35.1 ± 5.7
		F	0.53 ± 0.08	2.31 ± 0.46	0.51 ± 0.05	4.58 ± 1.89 [c]	4.43 ± 0.64	19.7 ± 5.9	39.4 ± 6.4	677 ± 184	35.9 ± 5.7
		CG	0.57 ± 0.08	2.21 ± 0.46	0.48 ± 0.05	7.35 ± 1.89 [ab]	3.84 ± 0.64	14.2 ± 5.9	36.3 ± 6.4	679 ± 184	36.4 ± 5.7
		CC	0.55 ± 0.08	2.17 ± 0.46	0.51 ± 0.05	5.25 ± 1.89 [bc]	3.79 ± 0.64	14.2 ± 6.0	40.8 ± 6.5	544 ± 184	34.5 ± 5.7
		P	0.819	0.862	0.231	**0.004**	0.157	0.071	0.432	0.297	0.895
	B. vulgaris	C	0.41 ± 0.08	0.22 ± 0.05	0.23 ± 0.06	2.78 ± 0.72 [a]	1.88 ± 0.47	14.0 ± 3.0	51.1 ± 22.9	126 ± 45.9	24.1 ± 11.8

F	0.39 ± 0.08	0.23 ± 0.05	0.24 ± 0.06	1.90 ± 0.49 ab	1.46 ± 0.47	13.9 ± 3.0	43.3 ± 19.3	150 ± 46.0	36.8 ± 11.8
CG	0.35 ± 0.08	0.21 ± 0.05	0.18 ± 0.06	1.81 ± 0.47 [b]	1.33 ± 0.47	15.3 ± 3.0	31.0 ± 13.8	126 ± 46.0	32.9 ± 11.8
CC	0.38 ± 0.08	0.21 ± 0.05	0.23 ± 0.06	1.86 ± 0.48 [b]	1.58 ± 0.47	14.0 ± 3.0	35.7 ± 16.0	130 ± 46.0	29.7 ± 11.8
P	0.455	0.790	0.149	**0.006**	0.141	0.725	0.212	0.671	0.205

Values in bold indicate significance at $p \leq 0.05$.

Least-square mean values within a column for each crop species and without statistical letters are not significantly different, when accompanied by different superscript letters statistical differences were found according to the lsmeans function at $p \leq 0.05$.

L. sativa = *Lactuca sativa*, *R. sativus* = *Raphanus sativus*, *B. rapa* = *Brassica rapa*, *B. vulgaris* = *Beta vulgaris*. Tr = treatment, C = control, F = *Vicia faba* waste, GC = spent coffee grounds waste, CC = corn cob waste.
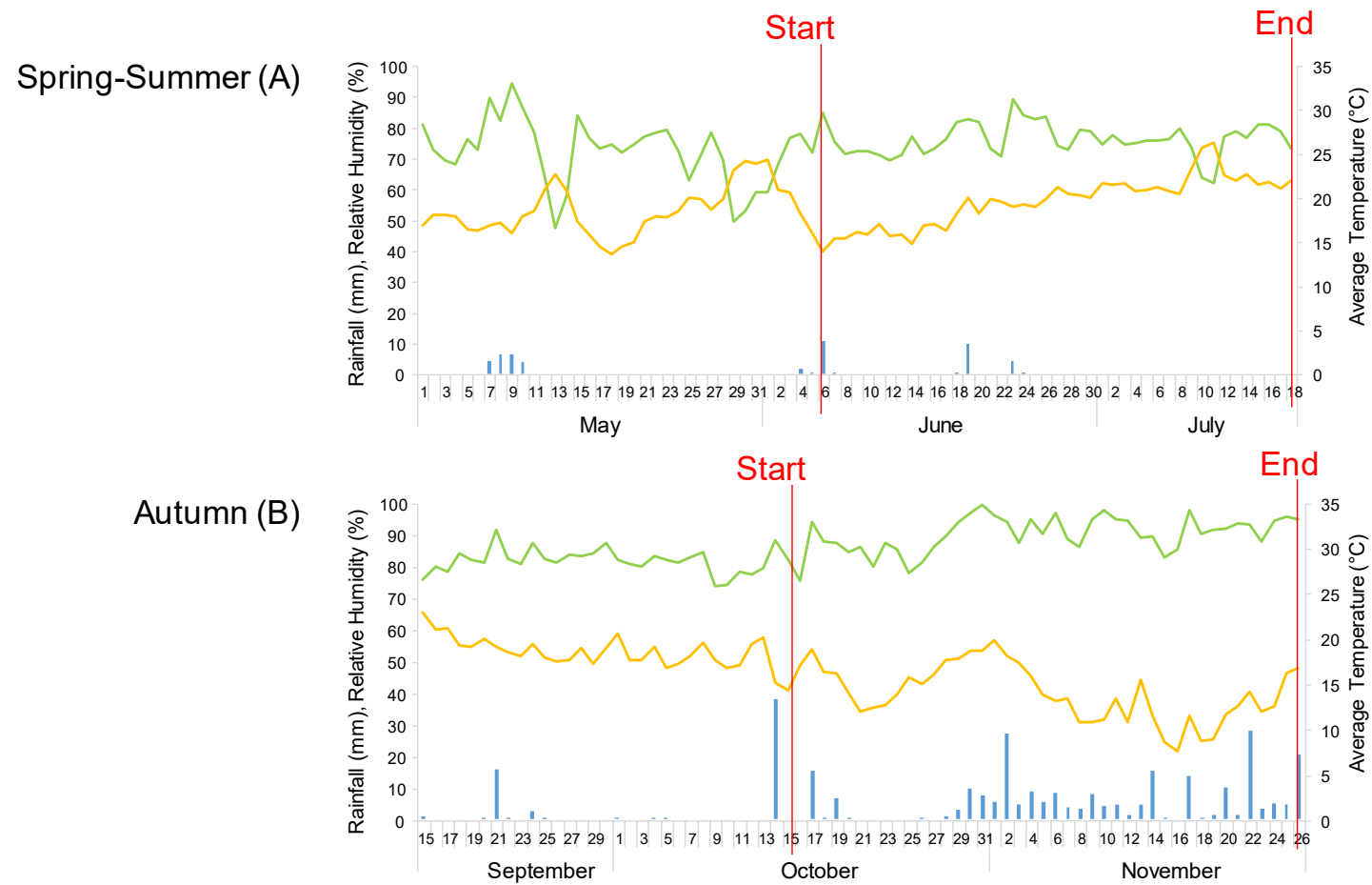
Figure S1. Meteorological data registered during pot experiments in Spring-Summer (A, experiment 1) and Autumn (B, experiment 2) 2019. Start = beginning of the experiment, End = End of the experiment. Blue Bars represent rainfall (mm); green line represents relative humidity (%); orange line represents average temperature (°C).
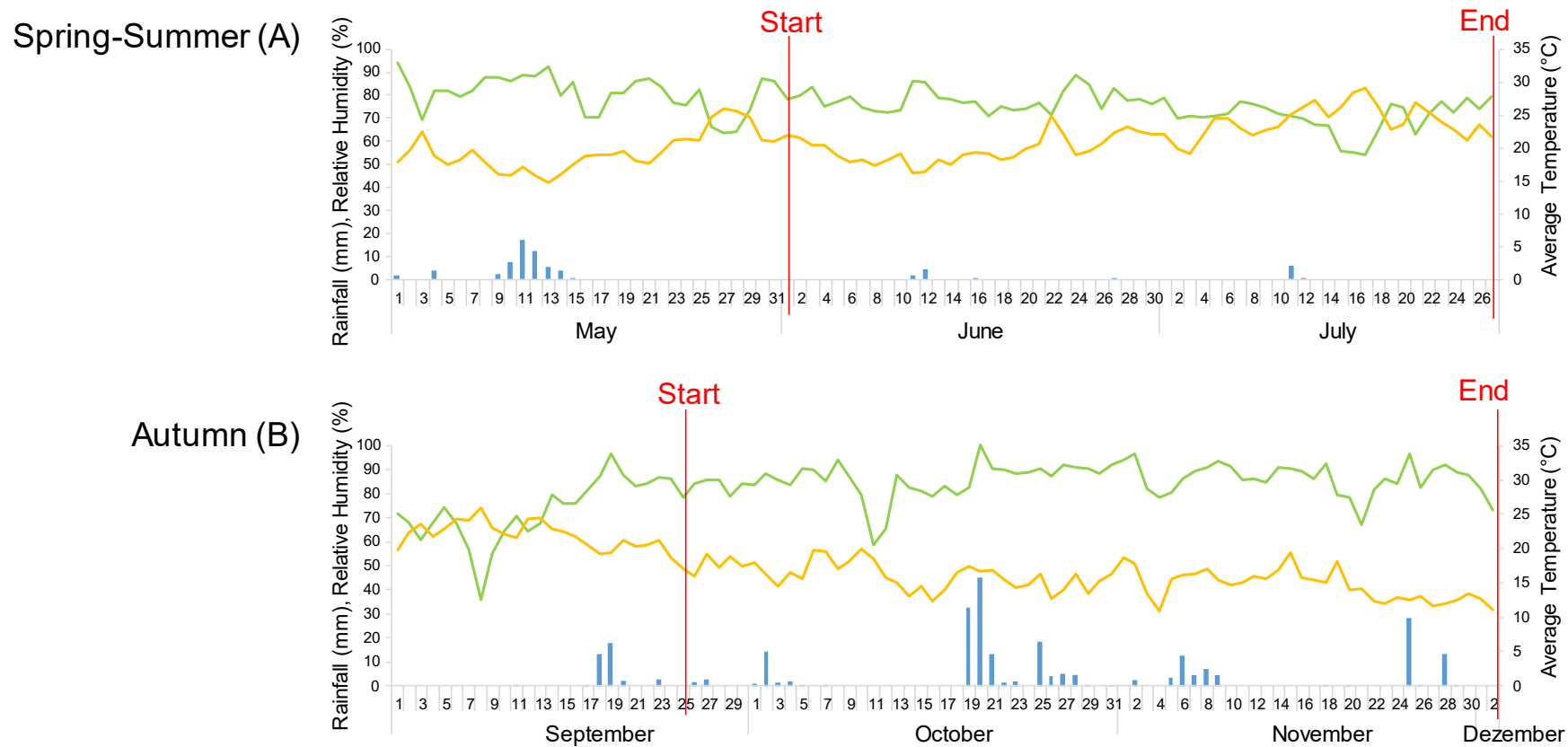
Figure S2. Meteorological data registered during field experiments in Spring-Summer (A, experiment 3) and Autumn (B, experiment 4) 2020. Start = beginning of the experiment, End = End of the experiment. Blue Bars represent rainfall (mm); green line represents relative humidity (%); orange line represents average temperature (°C).
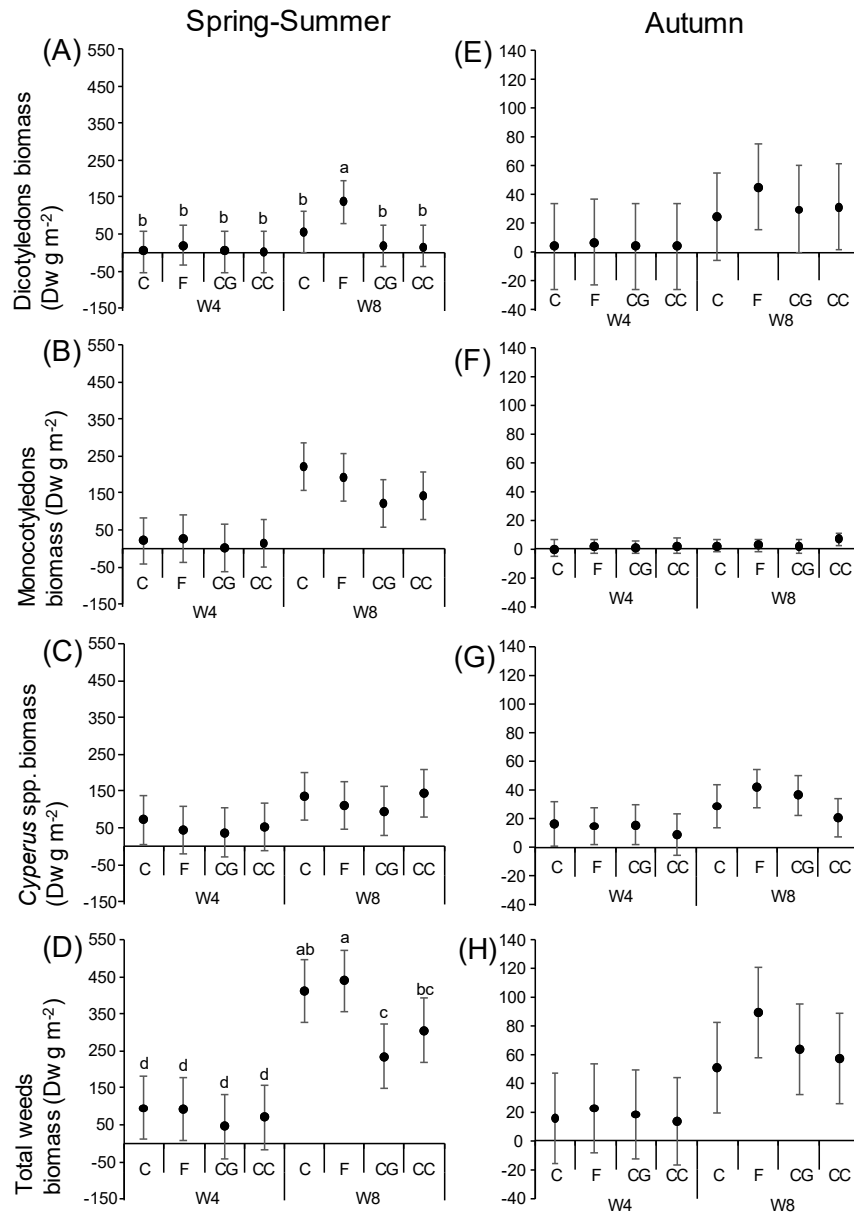
Figure S3. Effect of the interaction between waste treatments and time on biomass of dicotyledon weeds (A) and (E); monocotyledon weeds (B) and (F); the weed *Cyperus* spp. (C) and (G); and total weeds (D) and (H) in experimental filed plots in Spring-Summer (Experiment 3, 2020) and Autumn (Experiment 4, 2020). C = control, F = *Vicia faba* pod waste, CG = spent coffee grounds waste, CC = corn cobs waste. W4 = week 4 after waste incorporation, W8 = week 8 after waste incorporation. Dw = dry weight. Figures show least-square mean values (± confidence intervals). n = 16. Least-square mean values without statistical letters indicate no interaction effect according to p values from the Table S2. Different letters indicate statistical significance for the interaction effect according to significant p values from the Table S2 and lsmeans function at $p \leq 0.05$.