

## Supplementary Material

### Heat input determines the response and rapid recovery of post-fire soil microbial biomass

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## Supplementary Materials - Tables

**Table S1. Difference in log total microbial biomass among groups at each timepoint.**

Soil layer	Treatment	Timepoint (Day)										
		0	10	20	30	40	50	60	70	80	90	
Topsoil	C	6.278±0.026a	7.545±0.074a	6.665±0.002c	6.786±0.013b	6.393±0.015b	6.326±0.040c	6.869±0.012a	6.733±0.114b	6.396±0.035c	6.305±0.013b	
	T1	5.208±0.018b	5.267±0.039b	7.124±0.043b	6.974±0.009ab	6.823±0.045a	6.957±0.064ab	6.974±0.100a	6.875±0.022a	7.184±0.034a	6.661±0.034a	
	T2	4.082±0.032c	6.575±0.011b	7.235±0.010a	7.075±0.060ab	6.850±0.035a	7.044±0.045a	6.424±0.006b	6.243±0.024c	7.131±0.039ab	6.324±0.041b	
	T3	3.951±0.012c	6.355±0.033b	7.203±0.039a	7.118±0.185a	5.977±0.016c	6.872±0.027b	6.893±0.078a	6.717±0.016b	7.069±0.020b	6.218±0.018b	
Subsoil	C	5.890±0.024a	6.165±0.063b	6.099±0.042c	6.100±0.070b	6.956±0.095a	5.788±0.029c	6.437±0.066bc	5.995±0.027d	6.170±0.076c	6.233±0.040b	
	T1	5.887±0.017a	5.614±0.016d	6.992±0.010a	5.982±0.057b	6.733±0.038b	6.599±0.029b	6.343±0.010bc	6.685±0.036a	7.137±0.041a	6.709±0.082a	
	T2	5.249±0.039c	5.921±0.011c	6.876±0.039b	7.105±0.078a	6.215±0.056c	6.852±0.053a	6.754±0.013a	6.280±0.005c	6.679±0.019b	6.624±0.046a	
	T3	5.402±0.018b	6.575±0.023a	6.954±0.030a	5.939±0.037bc	6.377±0.047c	6.723±0.063b	6.673±0.028a	6.461±0.054b	7.158±0.049a	6.384±0.015b	
Entire soil	C	6.126±0.026a	7.262±0.069a	6.468±0.010b	6.567±0.014c	6.762±0.073ab	6.136±0.037d	6.705±0.026ab	6.506±0.096b	6.300±0.008c	6.271±0.022c	
	T1	5.669±0.011b	5.474±0.017b	7.063±0.028a	6.715±0.005bc	6.781±0.039a	6.814±0.048b	6.766±0.078a	6.790±0.024a	7.162±0.032a	6.686±0.055a	
	T2	4.977±0.037c	6.361±0.008b	7.092±0.018a	7.093±0.038a	6.641±0.021b	6.959±0.037a	6.620±0.010b	6.262±0.011c	6.961±0.027b	6.500±0.037b	
	T3	5.116±0.017c	6.479±0.017b	7.097±0.016a	6.847±0.170b	6.222±0.033c	6.805±0.029bc	6.798±0.050a	6.608±0.011b	7.117±0.021a	6.309±0.008c	

**Table S2. Difference in log bacterial biomass among groups at each timepoint.**

Soil layer	Treatment	Timepoint (Day)									
		0	10	20	30	40	50	60	70	80	90
Topsoil (0-10 cm)	C	6.263±0.027a	7.544±0.074a	6.650±0.006b	6.701±0.014b	6.210±0.016c	6.160±0.065c	6.784±0.017a	6.545±0.174ab	6.120±0.071c	5.709±0.061c
	T1	5.193±0.019b	3.805±0.009d	7.118±0.043b	6.878±0.013ab	6.744±0.052b	6.876±0.078b	6.894±0.125a	6.657±0.041a	7.142±0.038a	6.465±0.058a
	T2	4.062±0.032c	6.573±0.011b	7.229±0.010a	7.051±0.062ab	6.834±0.037a	7.012±0.048a	6.075±0.029b	6.141±0.029b	7.116±0.039ab	6.155±0.055b
	T3	3.944±0.007d	6.350±0.034c	7.201±0.039a	7.110±0.189a	5.875±0.019d	6.798±0.037b	6.880±0.081ab	6.639±0.010a	7.046±0.021b	6.163±0.021b
Subsoil (10-20 cm)	C	5.870±0.026a	6.094±0.074b	6.064±0.046c	5.553±0.025c	6.935±0.099a	4.479±0.567b	6.341±0.091a	4.920±0.039c	5.778±0.180c	5.970±0.091b
	T1	5.827±0.020a	5.474±0.015c	6.983±0.011a	5.842±0.084b	6.605±0.050b	6.407±0.026b	5.976±0.018a	6.575±0.058a	7.081±0.047a	6.530±0.131ab
	T2	4.994±0.059c	5.834±0.013b	6.835±0.041b	7.078±0.084a	6.042±0.063d	6.728±0.072a	6.625±0.016a	4.800±0.007c	6.479±0.037b	6.595±0.049a
	T3	5.329±0.024b	6.564±0.024a	6.948±0.030a	5.795±0.047b	6.196±0.079c	6.620±0.084ab	6.594±0.031a	6.150±0.109b	7.117±0.059a	6.034±0.004b
Entire soil (0-20 cm)	C	6.110±0.026a	7.259±0.069a	6.449±0.010b	6.430±0.015c	6.710±0.082a	5.872±0.071c	6.618±0.035ab	6.254±0.171b	5.992±0.020c	5.860±0.073b
	T1	5.617±0.012b	5.182±0.015b	7.056±0.028a	6.616±0.010bc	6.681±0.048a	6.703±0.060b	6.644±0.110a	6.619±0.041a	7.112±0.037a	6.501±0.088a
	T2	4.741±0.055c	6.345±0.008b	7.076±0.018a	7.067±0.041a	6.599±0.026a	6.894±0.044a	6.432±0.007b	5.859±0.028c	6.906±0.029b	6.429±0.043a
	T3	5.045±0.023c	6.470±0.018b	7.093±0.016a	6.831±0.177b	6.066±0.054b	6.720±0.037b	6.761±0.056a	6.462±0.018b	7.084±0.025a	6.104±0.013b

**Note:** Values are mean ± standard error (n = 3); different lowercase letters within the same row denote significant ( $p < 0.05$ ) differences between treatments.

**Table S3. Difference in log fungal biomass among groups at each timepoint.**

Soil layer	treatment	Timepoint (Day)									
		1	10	20	30	40	50	60	70	80	90
Topsoil (0-10 cm)	C	4.513±0.038b	4.611±0.016b	4.488±0.055b	5.118±0.003b	5.004±0.004a	5.113±0.004a	4.992±0.005a	4.968±0.011a	5.219±0.065a	5.007±0.010a
	T1	3.260±0.024c	4.763±0.032a	4.667±0.016b	5.150±0.064b	4.740±0.006d	4.652±0.010d	4.658±0.000d	4.529±0.013c	4.783±0.000b	4.652±0.006b
	T2	1.000±0.000a	3.478±0.048c	4.840±0.006a	5.145±0.035b	4.806±0.002c	4.780±0.011b	4.725±0.006c	4.511±0.014c	4.757±0.007b	4.652±0.019b
	T3	1.000±0.000a	4.085±0.158b	4.697±0.009b	5.310±0.029a	4.976±0.008b	4.715±0.013c	4.914±0.008b	4.828±0.017b	4.703±0.011c	4.632±0.014b
Subsoil (10-20 cm)	C	4.278±0.066b	4.984±0.020a	4.320±0.016d	5.053±0.030a	4.793±0.002c	4.907±0.005a	4.958±0.011b	4.872±0.007c	5.007±0.010a	4.852±0.006b
	T1	4.522±0.031a	4.799±0.054b	4.785±0.002a	5.042±0.017a	4.893±0.010b	4.824±0.012c	4.864±0.011c	4.900±0.009b	4.980±0.007b	4.905±0.012a
	T2	4.611±0.033a	4.835±0.006b	4.664±0.022b	4.955±0.012b	4.766±0.029c	4.673±0.009d	4.980±0.004a	4.843±0.020d	4.817±0.015d	4.918±0.004a
	T3	4.372±0.074b	4.637±0.040c	4.484±0.010c	4.786±0.027c	4.976±0.008a	4.858±0.017b	4.878±0.010c	4.925±0.014a	4.843±0.007c	4.745±0.007c
Entire soil (0-20 cm)	C	4.412±0.037a	4.837±0.015a	4.412±0.039d	5.087±0.015a	4.911±0.003b	5.022±0.005a	4.975±0.003a	4.923±0.006a	5.127±0.036a	4.936±0.004a
	T1	4.244±0.030b	4.782±0.043a	4.730±0.008b	5.101±0.029a	4.823±0.008c	4.746±0.011c	4.773±0.007d	4.753±0.003c	4.893±0.004b	4.797±0.007b
	T2	4.310±0.033b	4.553±0.006b	4.761±0.007a	5.060±0.025a	4.787±0.013d	4.729±0.008c	4.871±0.004c	4.708±0.010d	4.788±0.010c	4.805±0.008b
	T3	4.071±0.074c	4.445±0.063b	4.604±0.006c	5.123±0.026a	4.976±0.008a	4.792±0.014b	4.896±0.006b	4.879±0.015b	4.779±0.001c	4.692±0.010c

**Note:** Values are mean ± standard error (n = 3); different lowercase letters within the same row denote significant ( $p < 0.05$ ) differences between treatments.

**Table S4. Difference in log actinomycetes biomass among groups at each timepoint.**

Soil layer	Treatment	Timepoint (Day)									
		1	10	20	30	40	50	60	70	80	90
Topsoil (0-10 cm)	C	4.497±0.051a	4.786±0.065b	5.062±0.179a	5.983±0.034b	5.874±0.026b	5.730±0.022d	6.081±0.008c	6.243±0.012b	6.000±0.016b	6.146±0.008b
	T1	3.529±0.005b	5.080±0.056a	5.052±0.085a	6.234±0.019a	6.020±0.008a	6.167±0.019a	6.174±0.027a	6.464±0.015a	6.136±0.033a	6.208±0.010a
	T2	2.690±0.233bc	4.008±0.043c	5.220±0.068a	5.706±0.05c	5.284±0.043c	5.868±0.009c	6.148±0.034b	5.523±0.009d	5.572±0.057d	5.802±0.012c
	T3	2.025±0.348c	4.049±0.084c	4.537±0.063b	4.366±0.056d	5.010±0.006d	6.044±0.033b	5.195±0.020d	5.896±0.059c	5.748±0.010c	5.180±0.015d
Subsoil (10-20 cm)	C	4.184±0.102c	5.081±0.048a	4.893±0.015d	5.895±0.107a	5.569±0.009d	5.689±0.021d	5.641±0.097b	5.919±0.035d	5.878±0.012c	5.843±0.023c
	T1	4.829±0.015a	4.697±0.023c	5.120±0.028b	5.176±0.038b	6.115±0.005a	6.130±0.035b	6.073±0.017a	5.996±0.046c	6.194±0.003a	6.205±0.008a
	T2	4.577±0.061b	4.917±0.013b	5.790±0.050a	5.827±0.017a	5.682±0.042c	6.231±0.013a	6.133±0.021a	6.248±0.004a	6.227±0.016a	5.258±0.019d
	T3	4.184±0.102c	4.678±0.036c	4.955±0.016c	5.263±0.018b	5.850±0.034b	6.013±0.013c	5.847±0.029b	6.140±0.010b	6.073±0.052b	6.109±0.026b
Entire soil (0-20 cm)	C	4.372±0.020b	4.958±0.053a	4.992±0.108b	5.945±0.027a	5.748±0.017b	5.710±0.005d	5.915±0.030b	6.111±0.007b	5.943±0.011c	6.021±0.012b
	T1	4.550±0.014a	4.930±0.038a	5.090±0.031b	5.970±0.020a	6.070±0.005a	6.149±0.026a	6.127±0.022a	6.290±0.013a	6.166±0.015a	6.206±0.009a
	T2	4.282±0.059b	4.667±0.007b	5.593±0.049a	5.771±0.026b	5.527±0.038d	6.086±0.010b	6.141±0.023a	6.022±0.003c	6.013±0.022b	5.610±0.013d
	T3	3.887±0.099c	4.469±0.040b	4.795±0.029b	5.014±0.019c	5.607±0.029c	6.029±0.019c	5.634±0.025c	6.035±0.026c	5.941±0.039c	5.856±0.025c

**Note:** Values are mean ± standard error (n = 3); different lowercase letters within the same row denote significant ( $p < 0.05$ ) differences between treatments.

**Table S5. Difference in soil physiochemical properties among groups at each timepoint.**

Physiochemical properties	Soil layer	Treatment	Timepoint (Day)									
			1	10	20	30	40	50	60	70	80	90
pH	Topsoil (0-10 cm)	C	5.45±0.01a	5.56±0.04d	5.55±0.03a	5.65±0.04a	5.42±0.02d	5.28±0.03d	5.35±0.00d	5.43±0.01b	5.68±0.02c	5.64±0.01a
		T1	5.25±0.01b	5.89±0.01a	5.58±0.02a	5.34±0.02bc	6.35±0.03b	6.22±0.02a	5.59±0.02b	6.35±0.21a	6.41±0.02a	5.51±0.05b
		T2	5.16±0.04c	5.93±0.01a	5.61±0.08a	5.32±0.03c	6.88±0.01a	5.91±0.02b	5.75±0.01a	5.73±0.04b	5.85±0.01b	5.32±0.02c
	Subsoil (10-20 cm)	T3	5.07±0.02d	5.77±0.02c	5.60±0.01a	5.48±0.10b	5.93±0.02c	5.75±0.05c	5.47±0.03c	5.56±0.17b	5.49±0.02d	5.31±0.02c
		C	5.38±0.01c	5.47±0.01d	5.76±0.02b	5.42±0.02c	5.34±0.03b	5.77±0.03	5.56±0.02a	5.52±0.03c	5.45±0.04a	5.66±0.02bc
		T1	5.53±0.01a	5.64±0.03a	6.02±0.01a	5.90±0.05ab	5.54±0.01a	5.26±0.02	5.37±0.01b	5.44±0.03d	5.37±0.01bc	5.74±0.04a
	Entire soil (0-20 cm)	T2	5.51±0.02a	5.57±0.02bc	6.05±0.03a	5.95±0.01a	5.36±0.02b	5.72±0.03	5.52±0.05a	5.81±0.03b	5.32±0.02cd	5.62±0.02c
		T3	5.21±0.02b	5.52±0.01cd	6.03±0.03a	5.83±0.02b	5.52±0.02a	5.79±0.03	5.09±0.03c	5.91±0.02a	5.25±0.04d	5.53±0.04d
		C	5.42±0.01	5.52±0.02	5.65±0.01	5.53±0.02	5.38±0.01	5.52±0.01	5.46±0.01	5.48±0.02	5.57±0.02	5.65±0.01
GMC	Topsoil (0-10 cm)	T1	5.39±0.01	5.77±0.01	5.80±0.01	5.62±0.02	5.95±0.01	5.74±0.01	5.48±0.01	5.90±0.12	5.89±0.01	5.63±0.03
		T2	5.33±0.01	5.75±0.02	5.83±0.03	5.64±0.02	6.12±0.01	5.81±0.02	5.63±0.02	5.77±0.04	5.59±0.01	5.47±0.02
		T3	5.14±0.01	5.64±0.01	5.81±0.01	5.66±0.04	5.73±0.01	5.77±0.01	5.28±0.01	5.73±0.09	5.37±0.03	5.42±0.01
	Subsoil (10-20 cm)	C	5.66±0.08a	16.71±1.73a	24.65±0.05a	25.42±0.12c	2.49±0.09c	24.97±0.07a	30.34±0.04a	26.68±0.18a	19.86±0.09a	20.56±0.45a
		T1	4.25±0.05b	18.56±0.06a	23.12±0.12bc	26.84±0.22a	17.93±0.13b	23.95±0.35b	30.44±0.33a	25.08±0.08b	15.36±0.12c	17.25±0.25d
		T2	2.94±0.07d	17.91±0.11a	22.36±1.00c	26.51±0.40ab	18.53±0.27b	22.38±0.30c	27.56±0.96a	23.58±0.11c	17.12±0.22b	18.56±0.50bc
	Entire soil	T3	3.80±0.00c	17.40±0.40a	15.48±0.00d	25.97±0.03bc	23.77±1.78a	21.55±0.20d	26.60±5.33a	24.27±0.11d	14.65±0.35d	17.81±0.19cd
		C	4.56±0.20d	6.82±0.16d	24.62±0.12a	25.36±0.36a	7.32±0.20c	25.71±0.08a	29.57±1.42a	27.03±0.88a	23.38±1.20a	19.74±0.83a
		T1	7.44±0.17a	8.07±0.07c	24.58±0.20a	25.58±0.18a	20.32±0.22b	25.59±0.57a	27.90±0.50ab	27.20±0.20a	21.56±0.02a	20.21±0.06a
	T2	6.93±0.12b	9.24±0.12b	24.82±0.17a	25.35±0.20a	19.63±0.19b	24.50±0.11b	27.45±0.45b	25.97±0.35a	22.74±1.97a	18.05±0.06b	
	T3	6.06±0.06c	9.77±0.01a	22.57±0.50b	23.57±0.16b	21.81±0.81a	24.65±0.10b	27.45±0.35b	26.30±1.18a	18.49±0.85b	20.72±0.13a	
	C	5.11±0.14b	11.77±0.87b	24.64±0.08a	25.39±0.16b	4.91±0.15c	25.34±0.07a	29.95±0.73a	26.86±0.53a	21.62±0.65a	20.15±0.22a	

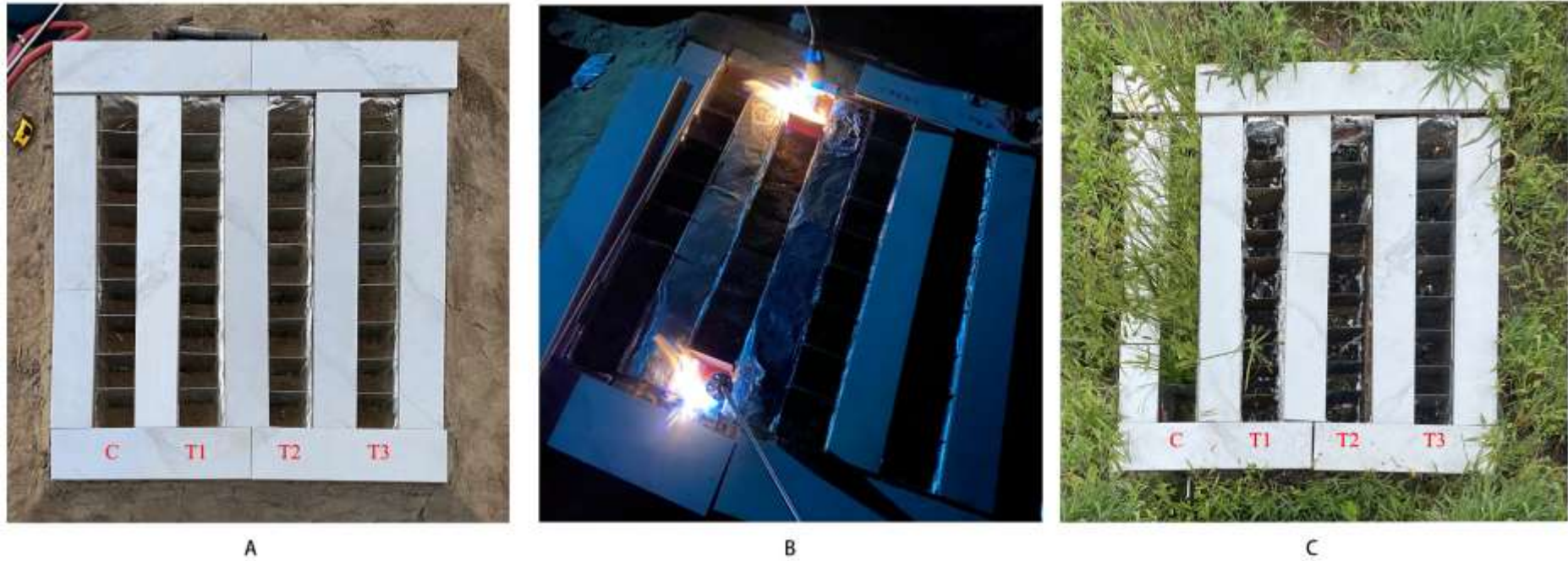
TN	(0-20 cm)	T1	5.85±0.07a	13.32±0.06a	23.85±0.16ab	26.21±0.20a	19.13±0.17b	24.77±0.46a	29.17±0.41a	26.14±0.14ab	18.46±0.05b	18.73±0.09c	
		T2	4.94±0.06b	13.58±0.12a	23.59±0.59b	25.93±0.10a	19.08±0.23b	23.44±0.10b	27.51±0.33a	24.77±0.23c	19.93±1.09ab	18.31±0.28c	
		T3	4.93±0.03b	13.59±0.20a	19.03±0.25c	24.77±0.07c	22.79±1.29a	23.10±0.15b	27.02±2.52a	25.29±0.64bc	16.57±0.27c	19.27±0.16b	
	Topsoil	C	3.05±0.04a	2.72±0.22b	3.01±0.00a	2.91±0.00c	3.17±0.01a	2.81±0.01b	2.87±0.00c	2.83±0.00a	2.93±0.01ab	2.97±0.00a	
		T1	3.07±0.02a	3.58±0.27a	2.68±0.01c	2.75±0.01d	2.89±0.00c	2.93±0.01ab	2.93±0.03b	2.82±0.00a	2.66±0.26b	2.57±0.01c	
		T2	2.75±0.01b	2.41±0.01b	2.46±0.01d	3.21±0.02a	2.25±0.01d	2.84±0.07b	2.87±0.00c	2.65±0.07b	2.70±0.00b	2.55±0.01d	
	(0-10 cm)	T3	3.05±0.01a	2.56±0.01b	2.81±0.01b	2.97±0.01b	2.92±0.01b	2.99±0.07a	3.13±0.01a	2.91±0.01a	3.04±0.00a	2.95±0.01b	
		C	3.07±0.06b	3.13±0.02a	3.15±0.01a	3.11±0.00a	2.96±0.00d	2.99±0.02b	2.96±0.00a	2.82±0.10b	2.82±0.00b	2.89±0.00b	
		T1	3.41±0.02a	3.00±0.01b	3.01±0.01b	3.19±0.01a	3.06±0.00c	3.14±0.03a	2.92±0.01a	3.01±0.01a	3.00±0.01a	2.79±0.00c	
	(10-20 cm)	T2	3.33±0.02a	2.90±0.03c	2.84±0.01c	3.20±0.00a	3.24±0.01a	3.00±0.07b	2.97±0.05a	2.84±0.00b	2.78±0.00c	2.61±0.00d	
		T3	2.94±0.03c	2.81±0.01d	3.01±0.09b	2.79±0.07b	3.14±0.02b	2.99±0.00b	2.93±0.00a	2.75±0.00b	2.79±0.01c	2.90±0.01a	
		C	3.06±0.05b	2.92±0.10b	3.08±0.01a	3.01±0.00b	3.06±0.01a	2.90±0.01b	2.92±0.00b	2.83±0.05b	2.88±0.00ab	2.93±0.00a	
Entire soil	T1	3.24±0.05a	3.29±0.10a	2.84±0.01b	2.97±0.00b	2.97±0.01c	3.04±0.01a	2.93±0.00b	2.92±0.05a	2.83±0.00ab	2.68±0.00b		
	T2	3.04±0.02b	2.66±0.02c	2.65±0.01c	3.20±0.01a	2.74±0.01d	2.92±0.06b	2.92±0.03b	2.74±0.03c	2.74±0.00b	2.58±0.00c		
	T3	3.00±0.02b	2.68±0.01c	2.91±0.05b	2.88±0.04c	3.03±0.01b	2.99±0.04ab	3.03±0.00a	2.83±0.00b	2.92±0.01a	2.93±0.00a		
TP	(0-20 cm)	C	0.61±0.04a	0.60±0.02b	0.62±0.05a	0.65±0.00a	0.65±0.01a	0.62±0.01a	0.66±0.04a	0.61±0.02a	0.63±0.01a	0.64±0.03a	
		Topsoil	T1	0.63±0.02a	0.66±0.01ab	0.71±0.02a	0.67±0.01a	0.62±0.01a	0.66±0.01a	0.61±0.01a	0.65±0.01a	0.53±0.23a	0.62±0.00a
		T2	0.63±0.02a	0.70±0.01a	0.66±0.00a	0.66±0.03a	0.63±0.02a	0.65±0.02a	0.61±0.04a	0.58±0.02a	0.62±0.09a	0.61±0.03a	
	(0-10 cm)	T3	0.60±0.02a	0.68±0.03a	0.67±0.05a	0.68±0.02a	0.64±0.01a	0.66±0.04a	0.62±0.02a	0.38±0.35a	0.64±0.01a	0.65±0.02a	
		C	0.65±0.02a	0.63±0.03a	0.67±0.05a	0.57±0.13a	0.55±0.05a	0.64±0.03a	0.52±0.02b	0.62±0.02a	0.64±0.01bc	0.57±0.01a	
		T1	0.62±0.02ab	0.61±0.03a	0.61±0.01a	0.65±0.03a	0.59±0.08a	0.61±0.02a	0.65±0.01a	0.62±0.03a	0.62±0.02c	0.55±0.17a	
	(10-20 cm)	T2	0.57±0.02b	0.58±0.03a	0.62±0.05a	0.59±0.08a	0.64±0.02a	0.64±0.03a	0.61±0.04a	0.54±0.04a	0.71±0.02a	0.54±0.14a	
		T3	0.66±0.03a	0.65±0.03a	0.65±0.02a	0.58±0.02a	0.65±0.01a	0.58±0.02a	0.61±0.01a	0.57±0.03a	0.67±0.02ab	0.63±0.01a	
		C	0.63±0.02a	0.62±0.02	0.65±0.04	0.61±0.06	0.60±0.02	0.63±0.02	0.59±0.02	0.61±0.02	0.63±0.01	0.61±0.01	
	Entire soil	T1	0.62±0.01a	0.63±0.02	0.66±0.01	0.66±0.02	0.61±0.04	0.64±0.02	0.63±0.00	0.63±0.02	0.58±0.12	0.58±0.08	

	T2	0.60±0.02a	0.64±0.02	0.64±0.01	0.62±0.06	0.64±0.01	0.64±0.02	0.61±0.04	0.56±0.01	0.66±0.05	0.58±0.06	
	T3	0.63±0.02a	0.66±0.00	0.66±0.02	0.63±0.00	0.64±0.01	0.62±0.01	0.61±0.01	0.47±0.16	0.66±0.00	0.64±0.01	
	C	94.04±2.65a	89.37±2.32a	88.81±0.57a	81.32±1.32a	97.35±6.22a	85.37±1.13ab	84.47±0.65a	81.80±1.31b	88.43±4.61a	85.82±0.65a	
OM	Topsoil	T1	91.13±2.65a	65.38±1.34c	77.07±3.48b	74.54±0.33b	83.98±0.66b	81.59±0.65b	86.95±4.58a	74.29±1.31c	75.23±3.44bc	85.04±0.33a
	(0-10 cm)	T2	90.75±3.45a	78.39±8.01ab	70.05±0.87c	64.73±0.98c	69.62±4.30c	81.97±3.00ab	82.60±0.87a	83.90±0.33ab	69.94±0.65c	75.42±0.65c
		T3	76.04±2.03b	75.72±4.62bc	71.27±0.98c	81.90±0.65a	84.38±5.24b	87.45±2.79a	83.17±1.73a	88.62±4.57a	78.07±0.33b	82.36±1.32b
		C	91.61±0.33a	91.34±0.66ab	97.48±0.86a	81.33±0.33bc	88.92±1.14a	83.48±0.65bc	90.92±0.33a	84.66±3.59a	88.46±5.89a	87.69±1.14a
	Subsoil	T1	91.13±2.65a	91.73±1.14ab	86.20±0.00b	90.01±0.33a	88.92±1.14a	83.29±0.66c	89.18±1.18a	92.39±0.65a	84.47±0.65a	89.18±2.14a
	(10-20 cm)	T2	90.75±3.45a	96.72±2.36a	77.50±0.65d	89.03±0.57a	88.88±0.57a	87.11±0.00a	83.53±1.63b	81.83±8.18a	85.82±4.29a	79.00±3.77b
		T3	86.73±6.52a	84.49±8.66b	83.74±0.33c	81.28±1.73c	82.07±0.80b	86.36±0.65a	89.37±0.00a	84.85±1.96a	85.44±0.65a	86.17±3.85ab
		C	92.82±1.25a	90.36±1.21a	93.14±0.33a	81.32±0.75c	93.13±3.62a	84.42±0.33ab	87.70±0.16bc	83.23±1.57a	88.45±4.71ab	86.76±0.87bc
	Entire soil	T1	91.13±2.65a	78.56±0.34b	81.63±1.74b	82.28±0.28abc	86.45±0.87bc	82.44±0.57b	88.07±2.73abc	83.34±0.86a	79.85±2.05c	87.11±0.98abc
	(0-20 cm)	T2	90.75±3.45a	87.55±4.79ab	73.77±0.49d	76.88±0.28d	79.25±2.20d	84.54±1.50ab	83.07±1.18d	82.87±4.17a	77.88±1.82c	77.21±1.72d
		T3	81.38±3.02b	80.10±6.60ab	77.51±0.43c	81.59±0.87bc	83.10±2.50cd	86.90±1.56a	86.27±0.87cd	86.73±3.27a	81.75±0.43bc	84.26±2.21c

**Note:** Values are mean ± standard error (n = 3); different lowercase letters within the same row denote significant ( $p < 0.05$ ) differences between treatments.



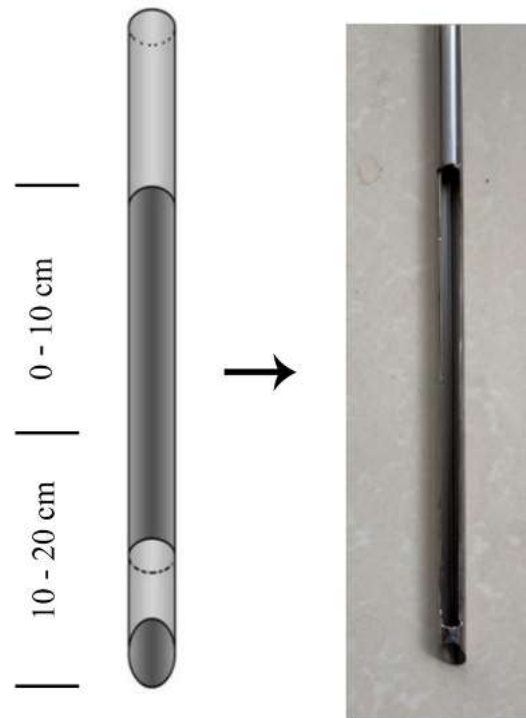
Supplementary Materials - Figures



**Fig. S1.** Experimental plot before, during and 90 days after treatment. A: experimental plot before treatment. B: Heat processing. C: experimental plot after 90 days. Note: plant growth in control group (CK), but no in the three treated groups.



**Fig. S2.** Blow torch.



**Fig. S3.** Soil sampler. Left: schematic diagram; Right: actual device.