

Biology and Fertility of Soils

Supplementary material

Impact of high carbon amendments and pre-crops on bacterial communities in a soil cultivated with winter barley.

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Supplementary Table S1. Soil parameter measurements used in the Canonical analysis of principle components: soil C content, soil N content, C:N ratios and winter barley yield.

SampleID	Precrop	Amendment	Replicate	Time	Soil_N	Soil_C	Soil_CN	Winter Barley_yield
CSlun113	Barley	no-hca	1	T2	0.155971	1.510172	9.68239	100.91
CSlun114	Barley	no-hca	2	T2	0.137907	1.31654	9.546578	91.51
CSlun115	Barley	no-hca	3	T2	0.132506	1.273891	9.613836	85.16
CSlun116	Barley	no-hca	4	T2	0.132515	1.219102	9.199728	108.5
CSlun117	Barley	no-hca	5	T2	0.137916	1.287924	9.338467	87.66
CSlun123	Faba	no-hca	1	T2	0.137054	1.274612	9.300072	112.07
CSlun124	Faba	no-hca	2	T2	0.119048	1.105872	9.289295	119.45
CSlun125	Faba	no-hca	3	T2	0.141753	1.321744	9.324275	91.31
CSlun126	Faba	no-hca	4	T2	0.134894	1.243473	9.218149	87.12
CSlun127	Faba	no-hca	5	T2	0.145522	1.357818	9.330672	86.03
CSlun136	Barley	wheatstraw	1	T2	0.13779	1.322237	9.59603	117.88
CSlun137	Barley	wheatstraw	2	T2	0.145453	1.398039	9.61162	106.53
CSlun138	Barley	wheatstraw	3	T2	0.135451	1.328116	9.80514	91.07
CSlun139	Barley	wheatstraw	4	T2	0.147739	1.438218	9.734857	88.57
CSlun140	Barley	wheatstraw	5	T2	0.145762	1.361372	9.339691	80
CSlun146	Faba	wheatstraw	1	T2	0.141153	1.389176	9.841633	142.29
CSlun147	Faba	wheatstraw	2	T2	0.125067	1.267088	10.13127	111.23
CSlun148	Faba	wheatstraw	3	T2	0.144919	1.399933	9.660107	103.8
CSlun149	Faba	wheatstraw	4	T2	0.143952	1.331956	9.252779	88.88
CSlun150	Faba	wheatstraw	5	T2	0.14058	1.371222	9.754033	87.37
CSlun156	Barley	sawdust	1	T2	0.13894	1.625554	11.69968	97.27
CSlun157	Barley	sawdust	2	T2	0.134179	1.728096	12.87903	82.09
CSlun158	Barley	sawdust	3	T2	0.135523	1.70177	12.55706	90.61
CSlun159	Barley	sawdust	4	T2	0.141128	1.514717	10.73293	88.15
CSlun160	Barley	sawdust	5	T2	0.137343	1.366715	9.951108	81.02
CSlun166	Faba	sawdust	1	T2	0.148644	1.697352	11.41891	116.15
CSlun167	Faba	sawdust	2	T2	0.138262	1.50994	10.92086	106.32
CSlun168	Faba	sawdust	3	T2	0.139537	1.617394	11.59115	93.66
CSlun169	Faba	sawdust	4	T2	0.140542	1.59681	11.3618	94.24
CSlun170	Faba	sawdust	5	T2	0.130995	1.447282	11.04838	86.03

Supplementary Table S2. Differential abundance analysis illustrating ASVs significantly enriched and depleted by wheat straw amendment at T2 compared to T1. ASVs exclude those observed in the no-HCA treatment, have a log₂-fold change > 2 and an adjusted p-value < 0.001. Adjusted pvalue represented by padj.

ASV IDs	baseMean	log2Fold Change	padj	Phylum	Family	Genus
f0e1dd473d6141562acf5bb96929e7b5	77.79427609	9.629829653	2.85E-08	Proteobacteria	Sphingomonadaceae	unclassified
7832ea0cf5ccda7ac6362cf5c19743b2	58.05306135	9.207400005	6.17E-08	Actinobacteria	Kineosporiaceae	Kineosporia
fbcb12784e0cb3233f999851bf2927e1	51.50857558	9.034769431	1.16E-07	Actinobacteria	Kineosporiaceae	Kineosporia
ba8a10055ca7429f9d2327ebe1c0ef51	48.61605893	8.95133929	1.69E-07	Actinobacteria	Streptomycetaceae	Streptomyces
5f462f91de8a16e1af115dd513e903d7	41.85636411	8.735266737	2.51E-07	Actinobacteria	Streptomycetaceae	Streptomyces
94dc668a91aa771087fee779f7a7270f	34.80283491	8.469322688	2.92E-07	Actinobacteria	Kineosporiaceae	Kineosporia
2e60cfa603568329c37ae8b4e8de156	34.61902651	8.461804486	4.69E-07	Firmicutes	Bacillaceae	Bacillus
e3178f57ed2ba1ab8b7fb656ffbdd5b8	31.42084786	8.321948153	5.37E-07	Proteobacteria	Rhizobiaceae	Rhizobium
2ec1c7a64550121ccca0d62e89259d5c	30.12904427	8.261147705	7.78E-07	Actinobacteria	Kineosporiaceae	Kineosporia
404a7a79ebb8c397ed78e83f1252b136	26.10338381	8.053970641	1.37E-06	Bacteroidetes	Chitinophagaceae	Chitinophaga
ef707200cdfffc7462cae038858738be	25.34392884	8.011936628	0.000140616	Firmicutes	Bacillaceae	Bacillus
0a3f22dd8dab20b3497ed6d3f96b07c2	22.78327366	7.857799406	1.17E-06	Proteobacteria	Xanthomonadales Incertae Sedis	Acidibacter
fb7a96985fc70c29263a5085a5ce1cf6	22.42661582	7.835278542	4.35E-05	Actinobacteria	Streptomycetaceae	Streptomyces
21369101ce3b30a3de55e0aadf7c2636	20.5269179	7.707316618	3.78E-06	Actinobacteria	Streptomycetaceae	Streptomyces
1b267bf1361d7dc62ec8a75a35c6c353	20.28255293	7.689781998	4.28E-05	Proteobacteria	Xanthomonadaceae	Pseudoxanthomonas
0bb6417a5a40830788ac4e35e00cd316	20.08318896	7.675864276	3.49E-05	Proteobacteria	Caulobacteraceae	Caulobacter
efdcf7357fa9b1b03ed05bce81b890f9	19.4000817	7.625530886	3.21E-06	Proteobacteria	Xanthomonadales Incertae Sedis	Acidibacter
0a37a3aa85f3b971653a51e7d0d4c799	224.3161073	7.617679355	6.01E-06	Proteobacteria	Xanthomonadaceae	unclassified
27cbaf3ebc1515f026cc6a9fdfbab3a6	18.99049303	7.595217693	6.06E-05	WCHB1-60	unclassified	unclassified
96b1ee737c9f5b7294e23e4f86082af6	18.8491874	7.584664563	2.30E-06	Actinobacteria	Pseudonocardaceae	unclassified
91f066e52457a0acb9390109dfd0f4b5	18.80583545	7.581181684	0.000285282	Proteobacteria	Caulobacteraceae	Caulobacter
3a390049f23589883867a4b3d71802d3	18.62299422	7.566705817	4.74E-05	Proteobacteria	BIrii41	uncultured proteobacterium
d242561e90b1271d05d13e6b46c49e9c	17.80750211	7.502441334	0.0004036	Actinobacteria	Promicromonosporaceae	Promicromonospora

fe4fa9a4ba1bbbd925542353d1f91b8	17.07149476	7.441211428	0.0004384	Actinobacteria	Microbacteriaceae	Curtobacterium
6d29af1ba3a63b7c3de53a9f9426e708	16.60339093	7.40080911	6.27E-06	Proteobacteria	BRii41	uncultured proteobacterium
869079b07bd76c3de6e59f84b9eeab35	16.38937249	7.382637829	6.98E-06	Proteobacteria	Sphingomonadaceae	Sphingomonas
4c3295c1e1c10dcb7155879d25a0f358	16.36468479	7.380361797	6.43E-06	Proteobacteria	unclassified	unclassified
cb6082a38514c8130de01af37b716869	15.92255833	7.340779328	0.000404607	Proteobacteria	Caulobacteraceae	unclassified
970a8f3eb79f81f0a4837805819c9407	15.91047605	7.339533982	7.66E-05	Saccharibacteria	unclassified	unclassified
e41abde5fddfa975cf5d7400fa68e8c7	15.74747314	7.32430683	0.000685049	Proteobacteria	Sphingomonadaceae	Sphingomonas
Oee0fdab5d417bbab5b8584f94c45013	15.73402672	7.323548641	1.09E-05	Proteobacteria	Sphingomonadaceae	Sphingomonas
3538ec8a4d37cd29c6c0f21c3f43a714	15.67634662	7.318713119	6.65E-06	Proteobacteria	Rhizobiaceae	Rhizobium
f8f4fb04e0Oee045c64b3101dba825a5	195.6072977	7.292472261	3.78E-06	Proteobacteria	Xanthomonadaceae	unclassified
acfb0d30fae559f96fa27d16be5637c3	15.21768031	7.275879226	7.68E-05	Actinobacteria	Kineosporiaceae	Kineosporia
0b4ee3529bf3cc011b90214e6a71d86c	15.18097274	7.272493752	0.000433902	Actinobacteria	Microbacteriaceae	unclassified
7ca55bee679f9d53a4a9df52137d58d1	14.73658262	7.229024435	9.55E-05	Actinobacteria	Kineosporiaceae	Kineosporia
655ae557ec9f04c7584600deb5faf30b	14.63770337	7.219409665	1.12E-05	Saccharibacteria	unclassified	unclassified
b2861a3476012e5cb564b319c50bb98c	14.33715831	7.19000069	7.87E-06	Proteobacteria	Rhizobiaceae	unclassified
3dba621ce8a321dd906edd97af280d7c	14.11138773	7.166391351	0.000115217	Acidobacteria	Unknown Family	Blastocatella
29d910935d2d6df76c4152bce3886676	13.86429899	7.141077055	0.000122061	Actinobacteria	Nocardiodaceae	Nocardioides
7eb4e3f53f209a0cb3dacf b7d64ada38	13.6342958	7.117123514	0.000695708	Bacteroidetes	Chitinophagaceae	Chitinophaga
8d5c758b080223c4314172eb72da7fd3	13.33965152	7.084905978	1.35E-05	Proteobacteria	Bradyrhizobiaceae	unclassified
503d7666fdc3fbd3c04e66318740a5ec	13.0648189	7.055902693	0.000115217	Proteobacteria	Burkholderiaceae	Burkholderia
2cb806235d5df2c8d097712b5f0cfb1	12.86559468	7.032991604	0.000686472	Actinobacteria	Streptomycetaceae	Streptomyces
ded2b8aae07cdb0cf74fe5970d393e0a	12.68560178	7.013153314	0.000719648	Proteobacteria	Rhizobiaceae	Rhizobium
3ad983f70b8099745167a41d28057d62	12.36352162	6.97551396	2.10E-05	Proteobacteria	Comamonadaceae	unclassified
30d665dd922cea6bc1bd460f4a4d14fd	12.25876798	6.96464018	0.000719648	Proteobacteria	Comamonadaceae	Polaromonas
874c77fa408875db79e51c9dd526f72d	12.25205541	6.962637834	0.000767756	Actinobacteria	Streptomycetaceae	Streptomyces
e95ef5525f0ce7abb6c6372ec24bebb5	12.02098041	6.935441999	0.000767756	Actinobacteria	480-2	uncultured bacterium
90c64356cd0f85bc1e958ef052b08854	11.98121985	6.931548522	0.000727315	Chloroflexi	Roseiflexaceae	Roseiflexus
e6110a7ca0133fb1652732e17c16e2a4	11.97065663	6.92828105	2.71E-05	Proteobacteria	Bradyrhizobiaceae	Tardiphaga
77f8af463000dc40b1e5475510ed011f	11.92223636	6.922630744	0.000235565	Actinobacteria	Streptomycetaceae	Streptomyces
7925b0774fed6b925adb83303934f744	11.87199744	6.9170175	0.000947069	Proteobacteria	Caulobacteraceae	unclassified

e89383b5f06fc2cc2e3f26c2027a0db6	11.731 21249	6.900284 63	0.0001 93	Proteobacteria	Rhizobiales Incertae Sedis	Rhizomicrobium
83bc6371c11b68f2472ed92ac595d575	11.629 52886	6.887350 623	0.0002 22516	Proteobacteria	Rhizobiaceae	unclassified
32bc8cf33f60649facd82991a2c7ed74	11.609 18652	6.884795 832	0.0008 52456	Actinobacteria	480-2	uncultured bacterium
6d4af54203811ffab09425a6ecf49ed0	11.393 00824	6.857643 41	2.40E-05	Bacteroidetes	Chitinophagaceae	Flavisolibacter
645967698b818040ff2734d1c78d8109	11.350 02208	6.853048 582	0.0008 9062	Proteobacteria	Rhizobiaceae	Rhizobium
91c196727aef8ada73f303a647235630	11.020 00126	6.810224 048	0.0002 1898	Actinobacteria	Microbacteriaceae	Lysinimonas
56ea71f820c7684eea1cdf1c41ed4950	10.920 23589	6.796655 488	3.49E-05	Actinobacteria	Microbacteriaceae	Lysinimonas
155c1732347f77a5a32a60a9837c2418	10.868 20851	6.789453 101	0.0003 29028	WCHB1-60	unclassified	unclassified
8796efafa4e2f8e7c77266913cb3f4b6	10.849 90039	6.786613 726	4.00E-05	Proteobacteria	Bradyrhizobiaceae	unclassified
7b0936a9feac74b83d1859769ef2343b	10.385 72027	6.725040 225	2.95E-05	Proteobacteria	Comamonadaceae	Pelomonas
ab6dc4538f5fb91d646706183e2af815	10.148 30326	6.691049 579	4.52E-05	Proteobacteria	Rhodospirillaceae	Dongia
f32e4e751ccf321e6176968761924e52	9.7135 39701	6.627214 656	0.0005 85908	Proteobacteria	Caulobacteraceae	unclassified
2510d488265b4184a3f681de97780c79	9.3403 01631	6.572395 03	0.0003 36389	Actinobacteria	Pseudonocardiaceae	Lentzea
f6642d0069d1817e7d56ba2c7b5c015a	9.0874 44326	6.531978 721	0.0004 52989	Actinobacteria	Streptomycetaceae	Streptomyces
4658491856f04459eb50b71e79ec51bb	9.0674 9723	6.527965 334	0.0005 02532	Proteobacteria	Caulobacteraceae	unclassified
e85538559dd808b810ba f05464fda9e0	8.8418 13673	6.492172 74	0.0004 58341	Proteobacteria	Rhodospirillaceae	Dongia
f66a8fde438c844defbd9641f30bb27e	8.7595 02277	6.478677 683	8.84E-05	Proteobacteria	uncultured	unclassified
f22eca0f045ffdde0d8a2b7b620b8306	8.6043 453	6.453488 614	0.0004 75254	Proteobacteria	Comamonadaceae	unclassified
bfa8ca425c671fafc8697a2d8c4ff635	8.2806 82342	6.397665 823	0.0005 45416	Bacteroidetes	Cytophagaceae	uncultured
af776fb78b6b681bb35413e6d5b15973	7.6755 14813	6.287616 399	0.0007 86824	Proteobacteria	Sphingomonadaceae	Sphingomonas
6ccbdc02de67aad17f16be5fc3dd144	7.4139 56515	6.237329 22	0.0008 87777	Proteobacteria	Caulobacteraceae	unclassified
d5386c4089a4f701fc79bbeb44290101	7.0766 5276	6.170378 367	0.0001 76289	Proteobacteria	Rhodospirillaceae	Dongia
01a6a82e43ff8788b08a3799912bf4c4	6.6659 60865	6.085369 652	0.0002 84612	Proteobacteria	Rhodospirillaceae	Dongia
1fc2e8035f0e32c0c74bc91890a4d6d0	20.821 68499	6.050435 244	0.0003 25987	Actinobacteria	Streptomycetaceae	Streptomyces
e5a602223a003a3004f844f7fc5af70b	36.880 00532	6.012485 654	0.0006 09631	Proteobacteria	BRii41	uncultured delta proteobacterium
10f111f1f8313a59e26d420516b880fe	12.029 36294	5.737510 004	0.0005 02532	Bacteroidetes	Chitinophagaceae	Niastella
089da7ccd1614937000e0ef3e1a33074	5.0943 34258	5.697408 841	0.0006 46346	Bacteroidetes	Chitinophagaceae	Flavisolibacter
f7dba904dfb8ca90f27841cc9163f847	47.383 15587	- 5.232360 755	0.0001 94211	Actinobacteria	Intrasporangiaceae	unclassified
573715b31db44a0d483a2d8856b11361	29.501 40386	- 5.930230 696	0.0004 66008	Actinobacteria	Mycobacteriaceae	Mycobacterium

61388d2b8b32f47576898462e51f30e1	51.06634499	-6.01254893	7.69E-06	Actinobacteria	Intrasporangiaceae	unclassified
c71ec36b1fe5ee53de5179c46d49fab1	5.908892807	-6.089669682	0.000964992	Proteobacteria	Nitrosomonadaceae	uncultured
8460569dd7e68897be0916e003d724bd	26.25218653	-6.211337203	0.000219944	Gemmatimonadetes	Gemmatimonadaceae	uncultured
980b0b73cdf39bb4c58fce2248f93685	22.32954602	-6.239319783	0.000166015	Chloroflexi	uncultured bacterium	unclassified
612cb83b841a82c1e90ee81fa1d6620e	6.810079969	-6.294610294	0.000234198	Acidobacteria	Unknown Family	Blastocatella
1792175c007abba0ec8c27fb7778800a	7.012525638	-6.336430297	0.00015726	Proteobacteria	Comamonadaceae	unclassified
ef0a133c1d9b99a39707ce2f44207b4b	13.17559166	-6.36074017	0.000412104	Proteobacteria	Nitrosomonadaceae	uncultured
bb1a21b188e020683e4d2c5c71fe8e71	7.430226117	-6.420492446	8.86E-05	Actinobacteria	Mycobacteriaceae	Mycobacterium
15c3a1ba3c59119086f90ee130eb6a5e	7.745132092	-6.479686863	0.000489414	Gemmatimonadetes	Gemmatimonadaceae	unclassified
d821d47085c0b62d5bb2a758171297ef	7.742966274	-6.480058568	0.000412104	Acidobacteria	uncultured bacterium	unclassified
151e35fc73e270311c9b87965629cd48	8.003140904	-6.528209142	7.66E-05	Actinobacteria	unclassified	unclassified
b9e8903cb5b743d430bb816c9543faa1	8.177393269	-6.558774328	0.000358346	Proteobacteria	Comamonadaceae	Rhizobacter
73755d5ff2ddcc6820760c6d4ddbdc60	8.484696474	-6.611908222	0.000329028	Acidobacteria	Acidobacteriaceae (Subgroup 1)	uncultured
838fdf0892ad6668ea94a855a4094bf3	9.142860374	-6.719728549	0.000258804	Actinobacteria	Nocardiodiaceae	unclassified
5c8f51854dd2200eff3392dce357df40	9.158770312	-6.722381283	0.000993178	Bacteroidetes	Chitinophagaceae	Ferruginibacter
514b7f2359fc2dab30c3f503b8d1ad74	9.208590438	-6.730288093	0.000998096	Acidobacteria	uncultured bacterium	unclassified
691de2cd6253f5f05918e701c5c0e25d	31.64670751	-6.748000452	4.28E-05	Actinobacteria	Propionibacteriaceae	Microclunatus
c09216919dcee836a655bca862cb08c3	9.344545296	-6.751130147	0.000964992	Actinobacteria	uncultured	unclassified
2e903c32c0503e70ad9bf90f13e9183b	9.447940949	-6.767348959	0.000993178	Proteobacteria	unclassified	unclassified
18d8927c5c73863d5dad16acc4476f7f	9.509685777	-6.776362038	0.000993178	Actinobacteria	uncultured	unclassified

dc5a5d9be75015aeea10b004a003ecef	9.545147196	-6.78160452	0.000956915	Actinobacteria	uncultured	unclassified
a6b48960a05e69431d33b7cea8fd3585	9.587638124	-6.788465379	0.000940914	Acidobacteria	unclassified	unclassified
72b1c1f2f537116c74a7390321e45f99	9.626666499	-6.793775725	5.15E-05	Proteobacteria	Nitrosomonadaceae	uncultured
e1258bcd925573c21a5180489e9ce88f	9.813809504	-6.822267487	0.000219944	Proteobacteria	Xanthomonadaceae	unclassified
d5f8b0c60dd9a53d2d954df266bb9c33	9.831755042	-6.824552464	0.000188899	Nitrospirae	Nitrospiraceae	Nitrospira
fcdd6639cf799860be2673a751381860	9.832513664	-6.824810117	0.00021205	Actinobacteria	Nocardiodaceae	Nocardioides
a323bc4c1966007fbadffeab78d107da	9.934797454	-6.839564681	0.000858941	Actinobacteria	Nocardiodaceae	Nocardioides
f118b7dd4fddeafeb22bcd7e62df2669	10.05679341	-6.857231236	0.000851545	Proteobacteria	Rhizobiales Incertae Sedis	Alsobacter
dd5feddb9e702d295700b56cfd548798	10.31929949	-6.894541032	2.71E-05	Proteobacteria	Xanthobacteraceae	Variibacter
00edcc287cbfd79750ca8538839f3744	10.32564128	-6.895350787	0.000749589	Chloroflexi	uncultured bacterium	unclassified
347303fa3d9cea979c09b295d3fc1e02	10.34121288	-6.897585225	0.000156818	Actinobacteria	Nakamurellaceae	Nakamurella
8a36766cd1cbe8c56c6f094cb1da2327	10.37576808	-6.902497255	0.000730548	Acidobacteria	Unknown Family	Blastocatella
a591045ebcf8a10226ff5b09805ff82f	23.95772826	-6.909607121	1.74E-05	Actinobacteria	unclassified	unclassified
bd94d29cd5a158f35af7c3e5bd073b47	10.53348583	-6.924124889	0.00015726	Actinobacteria	Intrasporangiaceae	unclassified
94ce17f336ebd9a969544fa5f2427e13	10.55572042	-6.927111952	0.00016027	Nitrospirae	Nitrospiraceae	Nitrospira
7fe241d7ebe26098cf9a688a9ccb2c9c	10.56012075	-6.928217985	0.000702186	Acidobacteria	unclassified	unclassified
f31e282ea44e14a823894f9eb080c918	10.74317031	-6.952097553	0.000351526	Actinobacteria	Microbacteriaceae	Amnibacterium
9a5a384e94426432b651dcfbbd92dace	10.80292538	-6.960266749	0.000161152	Actinobacteria	Mycobacteriaceae	Mycobacterium
94e70f6ede633c0fa4728ce295c566e7	10.90095456	-6.973553122	0.000659333	Actinobacteria	Mycobacteriaceae	Mycobacterium
b09f30d6b65396a2aa3511b3b69c807b	10.91673564	-6.975580705	0.000139432	Bacteroidetes	Chitinophagaceae	uncultured

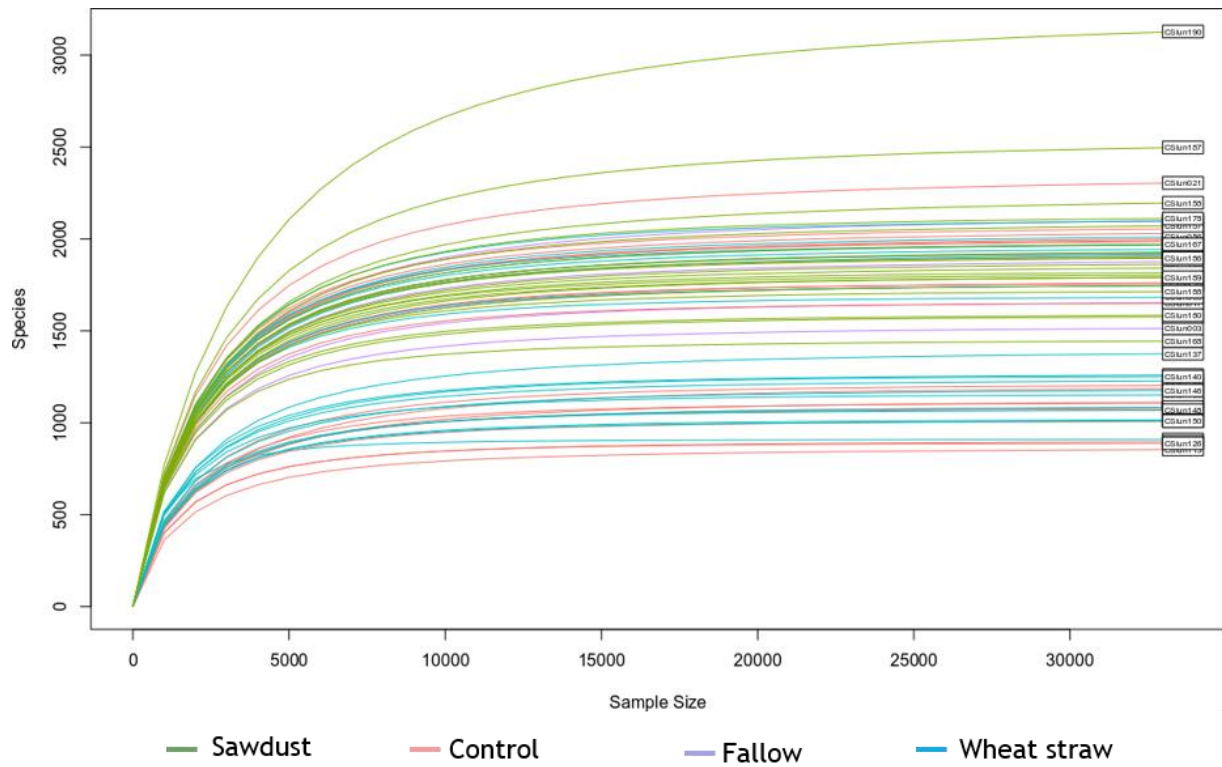
e271db84923e65164f5b45d4a9d3c57c	11.373 23348	- 7.034315 485	1.50E- 05	Actinobacte ria	Nocardioidaceae	Nocardioides
8684be029095d10c63cb a08ca2ed54f0	11.743 45749	- 7.081000 394	0.0001 33764	Proteobacte ria	unclassified	unclassified
6ad3becbb1d196dce433 8c017ee4bfb6	11.793 66139	- 7.086890 077	0.0006 23941	Proteobacte ria	Nitrosomonadaceae	Nitrosospira
7fcd2bbdb800e164fb9b5 4050337d8c0	11.926 06699	- 7.103386 062	0.0001 07239	Proteobacte ria	Hyphomicrobiaceae	Pedomicrobium
b4e61c5316b4869e5ba7 aad160193d5a	11.934 87252	- 7.104164 662	0.0005 09014	Acidobacte ria	unclassified	unclassified
ec4c2640fb11d18e11452 c934632dc9b	12.106 26185	- 7.124822 235	9.50E- 05	Gemmatim onadetes	Gemmatimonadaceae	unclassified
2d63041dc02f9423b6eeb 4c395b955e2	12.130 40392	- 7.127441 64	0.0005 19819	Actinobacte ria	Nocardioidaceae	Aeromicrobium
4e2ac515bd240b5d2674 9dff9375eb8f	12.145 75626	- 7.129924 974	0.0004 66619	Acidobacte ria	uncultured Acidobacteria bacterium	unclassified
c0f69303f4ff101752147f f2fbe5770d	12.200 38449	- 7.135888 297	0.0005 88846	Gemmatim onadetes	uncultured bacterium	unclassified
bf1c0b7eb1d8b0d00fd6e 3bb4789b792	12.230 1891	- 7.139630 547	0.0004 68404	Actinobacte ria	Nocardioidaceae	Nocardioides
08c0cd5001897dc82884 ce8aa8cf60b8	12.326 06304	- 7.150887 154	1.07E- 05	Proteobacte ria	Hyphomicrobiaceae	Hyphomicrobium
10a9a7681cfd37b08fe49 0626e2617cb	12.567 88406	- 7.179199 485	0.0005 02543	Acidobacte ria	Acidobacteriaceae (Subgroup 1)	uncultured
3d38dd7038cd159b6b11 4abcd0d254f1	12.662 30571	- 7.189299 941	0.0005 98691	Gemmatim onadetes	Gemmatimonadaceae	Gemmatimonas
c964cab05a91a4260c46e a17375defbb	12.848 47989	- 7.210602 356	0.0004 25446	Acidobacte ria	unclassified	unclassified
3203019af7a455bcb5060 c88b40bf8c9	13.095 53361	- 7.238166 37	0.0004 32141	Proteobacte ria	Hyphomicrobiaceae	Pedomicrobium
c769180b1817d06d04a9 8fb1da1371a1	13.368 96164	- 7.268067 218	0.0003 74448	Proteobacte ria	Caulobacteraceae	Caulobacter
530a3928114c969c9fc73 d894fe6aafe	13.388 0217	- 7.270088 332	6.86E- 05	Actinobacte ria	uncultured	unclassified
0d4fa766a92e77416d4cc c0f01a7e6de	13.581 47042	- 7.290625 118	0.0003 69999	Actinobacte ria	Propionibacteriaceae	Micrococcus
68d940471fb4d7c134baa a280e5feb73	13.739 23259	- 7.307499 57	0.0003 51526	Proteobacte ria	Xanthomonadaceae	Lysobacter
69ff44f694dc57b4301a0 2e523082e2c	14.166 60962	- 7.351655 675	0.0003 48381	Actinobacte ria	Nocardioidaceae	Nocardioides

ed309019e98a9d8eeb9d2ef8e81608f7	14.820 18241	- 7.416602 309	5.15E- 05	Actinobacte ria	Micrococcaceae	Arthrobacter
30fa84e56ec7adb638af3f57fb81309c	14.830 56961	- 7.417574 638	0.0003 13672	Proteobacte ria	Rhodospirillaceae	Skermanella
6d5eae55fd3f475f1f2d6e dee9447d5b	56.425 52575	- 7.430395 34	1.73E- 05	Cyanobacte ria	FamilyI	Phormidium
c91c0e8d19e0d21a39c2f 2cef55779bd	14.983 22844	- 7.432323 782	5.59E- 06	Actinobacte ria	Micrococcaceae	Arthrobacter
27803c825a343b4f8250f b46ad1b77ec	15.064 1619	- 7.440008 398	0.0003 01923	Acidobacte ria	uncultured Acidobacteria bacterium	unclassified
23ffa6d1db75f84022e95 481ad2171c3	15.079 47869	- 7.441737 522	4.78E- 05	Chloroflexi	unclassified	unclassified
8670ee4698087e0499aec 0171959276e	15.554 24758	- 7.486659 352	3.83E- 06	Proteobacte ria	Rhizobiales Incertae Sedis	Rhizomicrobium
5850dbf7476f3e221bae5 a649a7955b4	16.459 89775	- 7.568041 9	0.0002 18586	Gemmatim onadetes	Gemmatimonadaceae	Gemmatimonas
087c42865dd1f78fc3de9 ae4fe7b4413	16.717 17505	- 7.590218 287	3.21E- 06	Gemmatim onadetes	Gemmatimonadaceae	uncultured
589cb9e879a96babf6a43 1ac0add1e79	16.864 78145	- 7.603335 667	2.89E- 05	Actinobacte ria	Geodermatophilaceae	unclassified
0aae37ff8ccf60fe8d0cd7 1d8bed741b	17.347 76922	- 7.643833 01	0.0002 18586	Acidobacte ria	unclassified	unclassified
f5490b73e17cb5d761b8 0726d0ead02f	17.388 63037	- 7.647318 21	1.95E- 06	Acidobacte ria	Ambiguous_taxa	unclassified
cdd4622cde1641beea7a4 669c1254c2a	17.545 19759	- 7.660172 636	2.71E- 05	Actinobacte ria	Nocardiodaceae	unclassified
5a8fc1fceeaa804393599c 92749bb243b	17.876 18581	- 7.687386 899	2.89E- 05	Acidobacte ria	unclassified	unclassified
0f542d9d8a84a25cda88f 4ce4b8c46ca	18.026 14808	- 7.699433 045	2.34E- 05	Actinobacte ria	Nocardiodaceae	Kribbella
733136266191eb97008c 8f7d084b0d89	18.088 67633	- 7.704160 375	1.83E- 06	Actinobacte ria	Nakamurellaceae	Nakamurella
cc4fbf12d34da9208bdb9 cd0f26bff54	18.346 59162	- 7.724581 783	1.69E- 06	Actinobacte ria	Propionibacteriaceae	unclassified
b3fa7cc7d722896e05eca 464b9f9296d	18.381 37729	- 7.727612 186	2.33E- 05	Gemmatim onadetes	Gemmatimonadaceae	Gemmatimonas
b89f630afdacf3590510c 2185521e560	18.730 31622	- 7.754778 86	0.0001 46987	Actinobacte ria	Geodermatophilaceae	Modestobacter
1d027215d540458fc506 217817e80f8f	19.976 09033	- 7.847230 87	2.13E- 05	Acidobacte ria	Unknown Family	Blastocatella

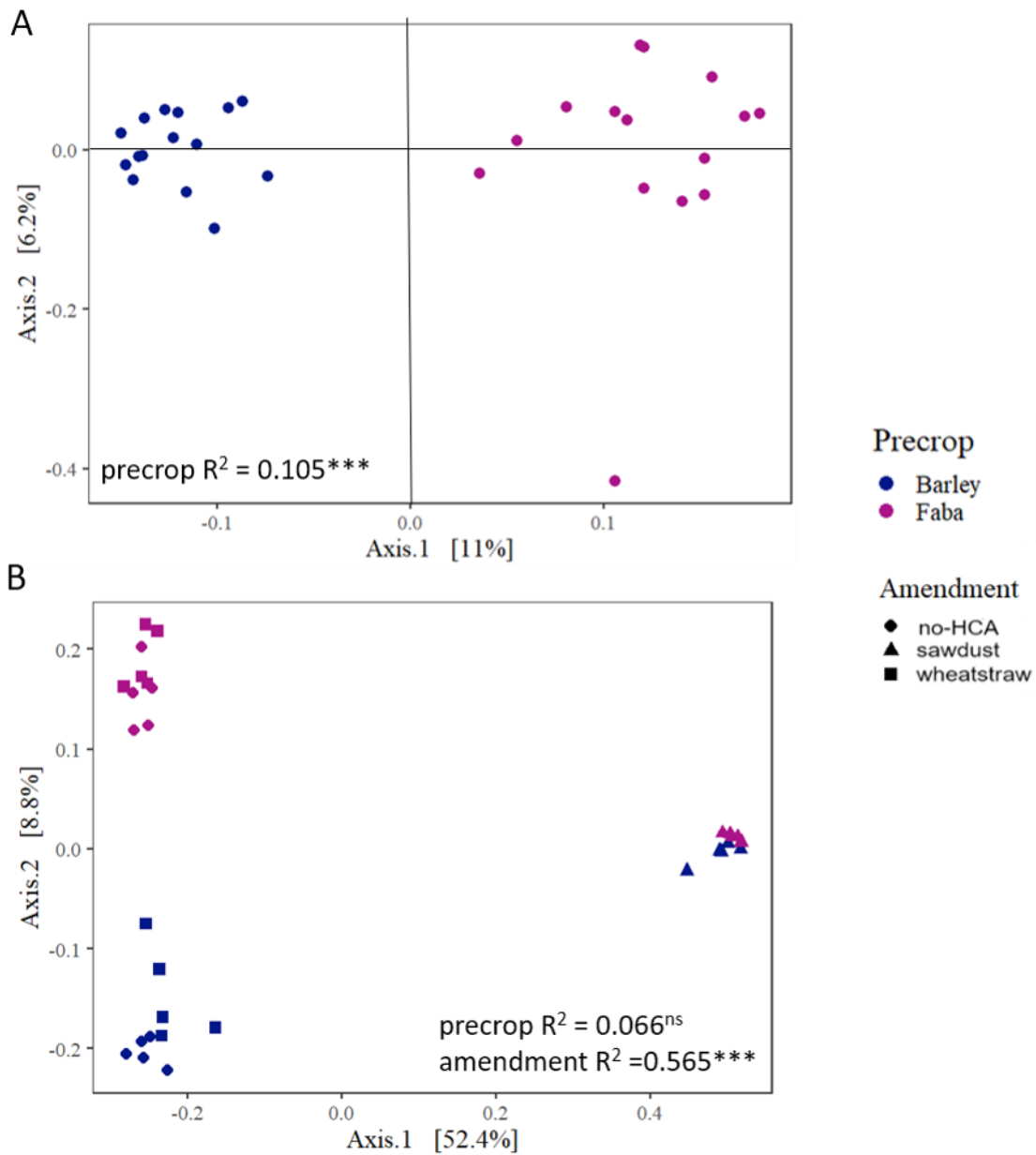
86f88a5c01452d32a26ad4560baffacc	20.6412822	-7.895018085	1.46E-05	Proteobacteria	Erythrobacteraceae	unclassified
c2adf56a7bd8e45512c72bb904affb45	25.01194845	-8.171799932	0.000412104	Actinobacteria	Patulibacteraceae	Patulibacter
7041f5669d2320111a3927d1d592d097	25.9469655	-8.224882706	5.62E-07	Proteobacteria	unclassified	unclassified
d5cc6aaa46086f5132ad150926a1689b	26.24291368	-8.241023135	4.77E-07	Actinobacteria	Geodermatophilaceae	Blastococcus
3f285287dcacfed964edb2d137e3cfc4	37.15047708	-8.742706714	4.83E-08	Proteobacteria	Xanthobacteraceae	unclassified
470a2049ae6dfb8ed48b7ce5549e50fc	14.64016266	-23.18922095	5.35E-13	Firmicutes	Bacillaceae	Bacillus

Supplementary Table S3. Differential abundance analysis illustrating ASVs significantly enriched and depleted by sawdust amendment at T2 compared to T1. ASVs exclude those observed in the no-HCA treatment. Adjusted pvalue represented by padj.

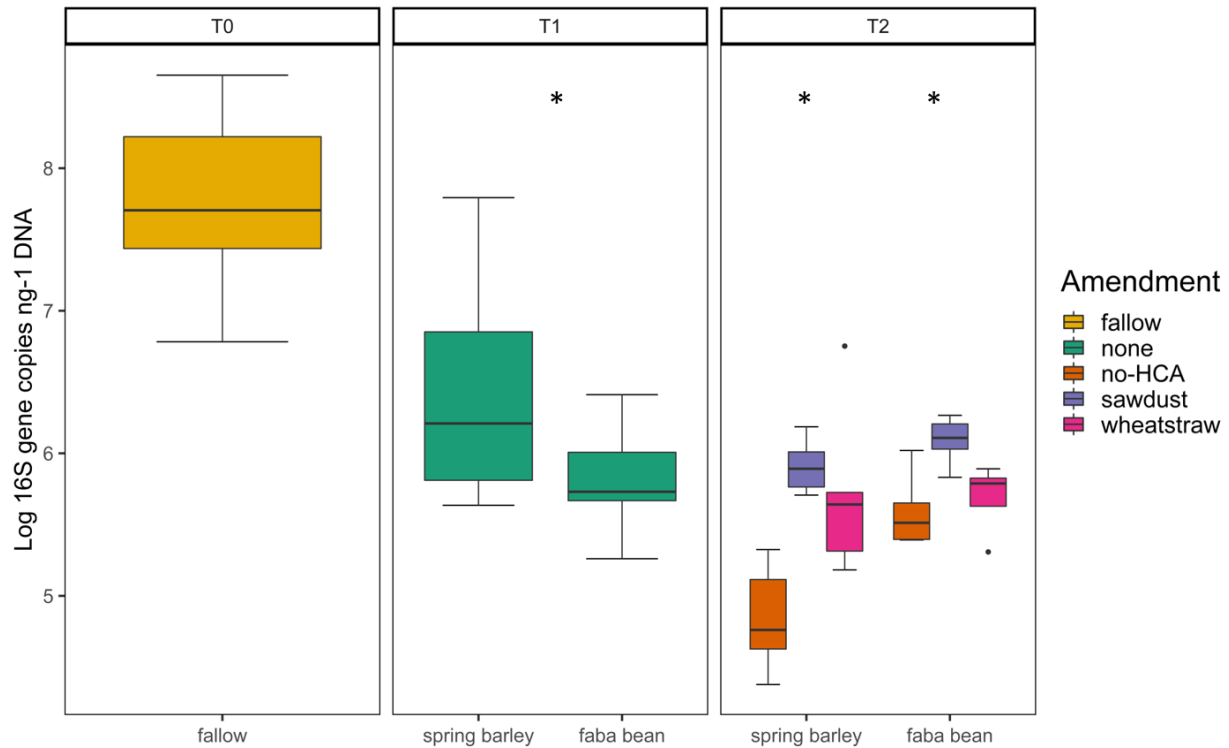
ASV IDS	baseMean	log2FoldChange	padj	Phylum	Family	Genus
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6d29af1ba3a63b7c3de53a9f9426e708	32.31622	8.354854	1.24E-06	Proteobacteria	BIrii41	uncultured proteobacterium
5c474412a741cda3c4b7942cfd31e017	23.12074	7.871788	2.77E-06	Proteobacteria	BIrii41	uncultured delta proteobacterium
b24ea421e60670420345516459870326	14.7116	7.219521	2.63E-05	Proteobacteria	Hyphomonadaceae	Hirschia
6355996dcef360f418a204ced3d98b74	27.29753	-8.35546	2.03E-05	Cyanobacteria	FamilyI	Phormidium
0854f183fb6f91151439ace85e4c5b0c	13.38824	-7.32725	2.47E-05	Proteobacteria	Rhodospirillaceae	Skermanella
86f88a5c01452d32a26ad4560baffacc	18.1465	-7.76642	8.00E-05	Proteobacteria	Erythrobacteraceae	unclassified



Supplementary Figure S1. Rarefaction curves at a subsampling depth of 33,614 reads per sample.



Supplementary Figure S2. Principal coordinate analysis (PCoA) ordination plot based on Bray-Curtis dissimilarities showing the impact of the pre-crops at T1 (A) and T2 (B) on bacteria community composition. Results on permutational multivariate analysis of variance (PERMANOVA) are illustrated with * $P < 0.05$, ** $P < 0.01$, *** $P < 0.001$ for all treatments.



Supplementary Figure S3. Boxplot showing the log gene copy numbers of the 16S rRNA gene per ng of DNA at all sampling time points, T0: fallow soil, T1: after pre-crop harvest and T2: harvest time point following addition of HCAs. Statistical significance at T1 and T2 was calculated using Wilcoxon and Kruskal-Wallis tests respectively. The results are illustrated with * $P < 0.05$, ** $P < 0.01$, *** $P < 0.001$ as the levels of significance.