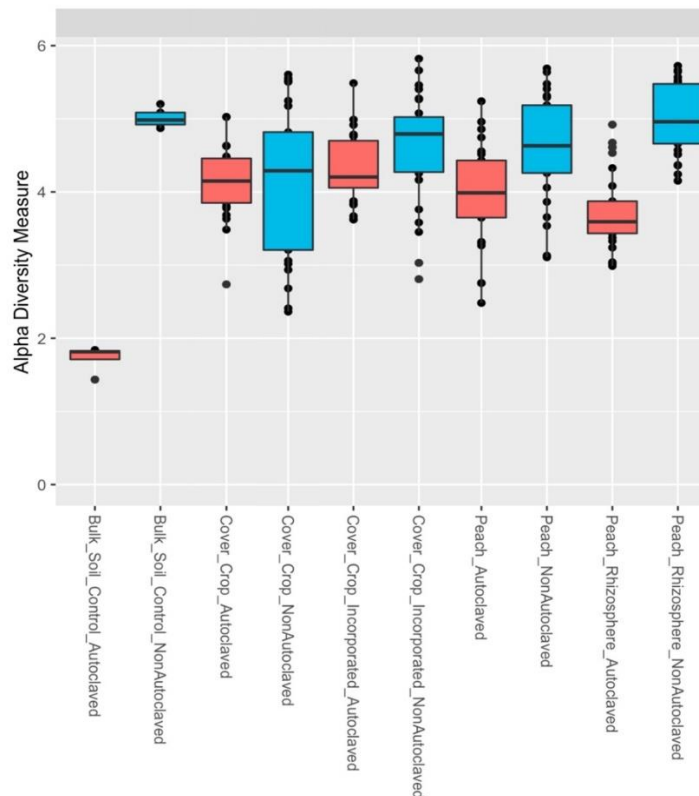


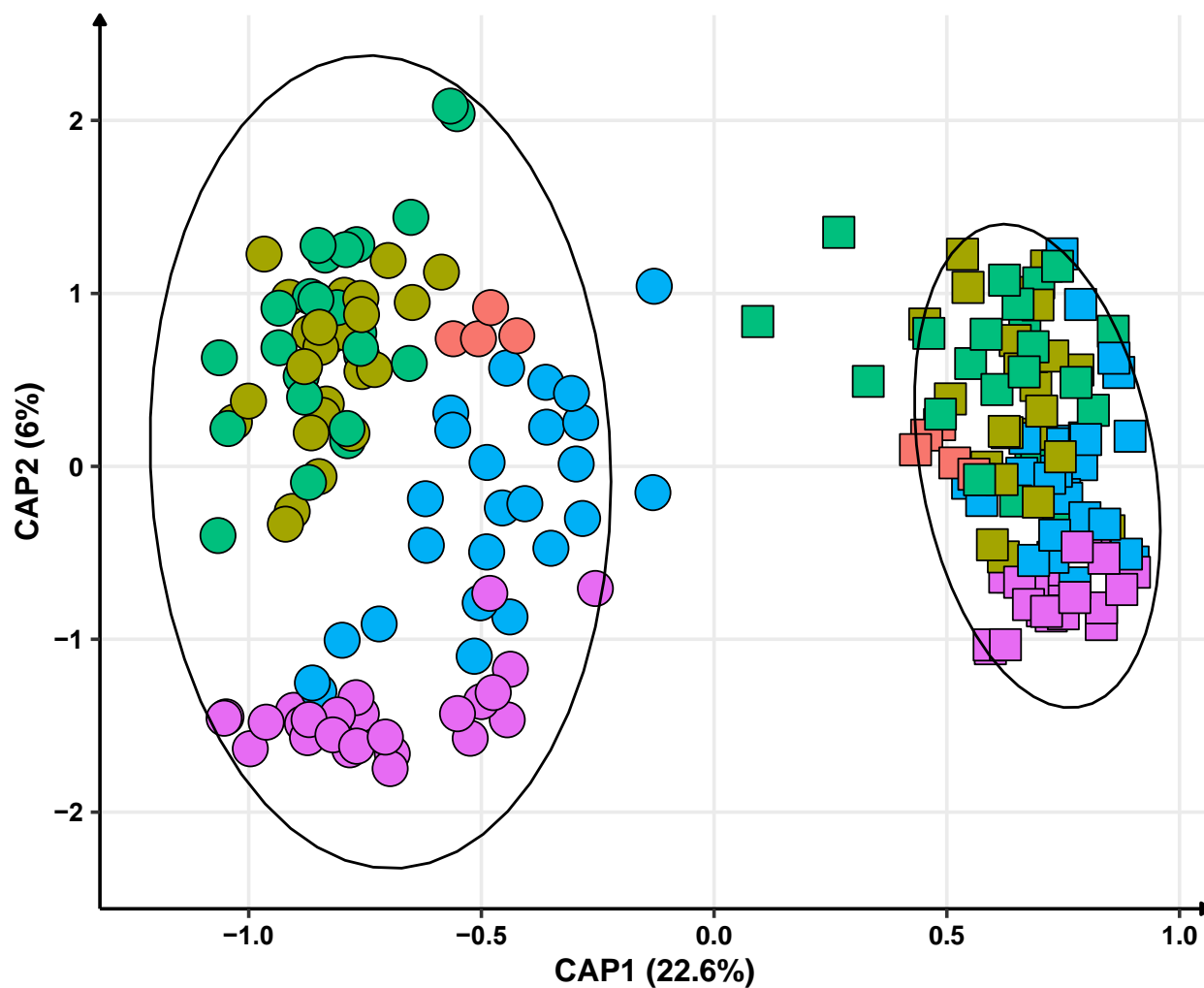
## Supplementary tables and figures:

**Supplementary Table S1. Soil Analysis of autoclaved and non-autoclaved soils by treatment.** Each treatment was a subset and consisted of n=3 replicates. Mean and standard deviation were calculated using Microsoft Excel.

Treatment	Peach Dry Total Biomass (g)	1:1 Soil pH	Organic Matter %	H2O Total N ppm	Organic N ppm	H3A Nitrate ppm	Ammonium ppm	H3A Inorganic Nitrogen ppm	H3A Total Phosphorus	Inorganic Phosphorus
Alfalfa NonAutoclaved (Mean ± STD)	4.02 ± 1.24	8.13 ± 0.25	1.8 ± 0.1	15.1 ± 2.23	9.77 ± 0.45	4.23 ± 1.63	0.7 ± 0.1	4.93 ± 1.71	4.67 ± 0.58	2.8 ± 0.26
Fescue NonAutoclaved (Mean ± STD)	2.83 ± 0.33	8.07 ± 0.12	1.77 ± 0.06	11.9 ± 2	7.93 ± 1.45	3.2 ± 0.66	0.8 ± 0.1	4 ± 0.56	6 ± 1	3.87 ± 0.75
Corn NonAutoclaved (Mean ± STD)	2.87 ± 0.58	8.1 ± 0.1	1.63 ± 0.06	12.93 ± 1.52	9.13 ± 1.64	3.17 ± 0.64	0.7 ± 0.1	3.83 ± 0.61	8 ± 2.65	5.23 ± 1.6
Tomato NonAutoclaved (Mean ± STD)	4.16 ± 0.28	8.1 ± 0.1	1.63 ± 0.06	13.8 ± 1.68	10.57 ± 1.05	2.8 ± 0.53	0.63 ± 0.06	3.43 ± 0.59	9.67 ± 0.58	6.37 ± 0.59
None NonAutoclaved (Mean ± STD)	2.37 ± 0.99	8.23 ± 0.06	1.5 ± 0	13.03 ± 0.25	8.83 ± 1.03	3.4 ± 0.46	0.37 ± 0.31	3.8 ± 0.53	10.33 ± 1.15	7.2 ± 1.21
Alfalfa Autoclaved (Mean ± STD)	1.71 ± 1.16	8.07 ± 0.06	1.7 ± 0.1	14.87 ± 1.42	7.4 ± 0.82	6.07 ± 1.68	1 ± 0.2	7.03 ± 1.72	6.33 ± 1.15	4.07 ± 0.84
Fescue Autoclaved (Mean ± STD)	0.72 ± 0.12	8.07 ± 0.06	1.6 ± 0.1	9.77 ± 1.59	6.97 ± 1.27	2.2 ± 1.91	1.17 ± 0.4	3.33 ± 1.81	4.33 ± 0.58	2.8 ± 0.44
Corn Autoclaved (Mean ± STD)	1.16 ± 0.59	8.1 ± 0.1	1.63 ± 0.12	10.5 ± 0.82	8.33 ± 0.96	1.63 ± 0.25	0.97 ± 0.47	2.6 ± 0.46	9 ± 4.58	6.43 ± 3.35
Tomato Autoclaved (Mean ± STD)	2.41 ± 0.28	8.13 ± 0.06	1.73 ± 0.12	14.7 ± 2.76	12.07 ± 0.76	2.27 ± 1.59	0.8 ± 0.1	3.07 ± 1.5	9 ± 1.73	6.17 ± 1.46
None Autoclaved (Mean ± STD)	2.75 ± 1.08	8.17 ± 0.06	1.57 ± 0.06	10.8 ± 0.95	8.87 ± 1.83	1.43 ± 0.15	0.87 ± 0.25	2.3 ± 0.1	11.67 ± 0.58	8.47 ± 0.35
Treatment	H3A Organic Phosphorus ppm	H3A ICAP Potassium ppm	Organic N:Inorganic N	Available N ppm	Available P ppm	Available K ppm	Total N Concentration %	Total P Concentration %	Total K Concentration %	CO2-C ppm
Alfalfa NonAutoclaved (Mean ± STD)	1.93 ± 0.38	90 ± 4	2.13 ± 0.67	22.03 ± 2.63	10.9 ± 1.35	4.71	0.09 ± 0.02	0.06 ± 0	0.22 ± 0.01	36.6 ± 11.70
Fescue NonAutoclaved (Mean ± STD)	2 ± 0.2	89 ± 4.58	2 ± 0.36	17.93 ± 2.32	13.43 ± 2.15	5.34	0.08 ± 0.01	0.06 ± 0	0.23 ± 0.01	26.67 ± 2.55
Corn NonAutoclaved (Mean ± STD)	2.77 ± 0.81	91 ± 5.57	2.43 ± 0.67	19.43 ± 2.34	18.2 ± 5.07	7.09	0.09 ± 0.01	0.06 ± 0	0.24 ± 0.01	26.2 ± 6.24
Tomato NonAutoclaved (Mean ± STD)	3 ± 0.3	83.67 ± 4.62	3.17 ± 0.55	21.03 ± 1.93	20.7 ± 1.8	5.29	0.08 ± 0	0.06 ± 0	0.23 ± 0.01	24.63 ± 0.67
None NonAutoclaved (Mean ± STD)	2.87 ± 0.21	89.67 ± 4.93	2.37 ± 0.57	17.6 ± 1.54	21.03 ± 2.47	107.17 ±	0.08 ± 0.02	0.06 ± 0	0.23 ± 0.01	18.17 ± 1.98
Alfalfa Autoclaved (Mean ± STD)	2.03 ± 0.55	74 ± 4.36	1.07 ± 0.25	21.7 ± 3.3	14 ± 3.3	88.9 ± 4.69	0.08 ± 0.01	0.06 ± 0.01	0.22 ± 0.02	26 ± 7.65
Fescue Autoclaved (Mean ± STD)	1.53 ± 0.4	81.67 ± 1.15	2.57 ± 1.43	14.2 ± 2.49	9.47 ± 2.53	97.8 ± 1.91	0.08 ± 0.01	0.06 ± 0	0.22 ± 0.01	21.13 ± 8.96
Corn Autoclaved (Mean ± STD)	2.6 ± 0.96	87.67 ± 9.61	3.3 ± 0.46	15.23 ± 2.85	18.97 ± 8.5	11.94	0.11 ± 0.05	0.05 ± 0.02	0.15 ± 0.1	20.17 ± 3.45
Tomato Autoclaved (Mean ± STD)	2.83 ± 0.35	82 ± 12.49	4.5 ± 1.59	22.7 ± 3.08	20.47 ± 4.05	98.43 ±	0.08 ± 0.01	0.06 ± 0	0.25 ± 0.02	37.8 ± 10.90
None Autoclaved (Mean ± STD)	3.23 ± 0.15	81.67 ± 2.08	3.87 ± 0.97	16.23 ± 2.14	25.43 ± 1.4	97.57 ±	0.07 ± 0	0.06 ± 0	0.23 ± 0.01	25.4 ± 7.73



**Supplementary Figure S1.** Shannon index of controls and all treatments separated by autoclaved (red), non-autoclaved (blue), and cover crop history.



**Supplementary Figure S2.** Principal Coordinate Analysis (PCoA) of bacterial DNA using Bray-Curtis distance for bacterial microbiomes of all samples sorted by crop cycle. Shape denotes soil treatment with circles representing autoclaved and squares non-autoclaved. Color indicated crop cycle with initial bulk soil control (before any crops) in salmon, cover crop bulk soil in olive green, incorporated cover crop bulk soil in leaf green, peach bulk soil in blue, and peach rhizosphere in purple.

**Supplementary Table S2.** Differential abundance of bacterial taxa with increased abundance in autoclaved cover crop bulk soil as compared to non-autoclaved cover crop bulk soil. P-adjusted values which are <0.001 are represented as 0.000. Log2 Fold change was based on log2FC=Log2(non-autoclaved)-Log2(autoclaved) using the DESeq2 package in RStudio.

Bacterial Taxa	Alfalfa		Fescue		Corn		Tomato		No Crop		Count
	Log2FC	Padjust	Log2 Fold	Padjust	Log2	Padjust	Log2	Padjust	Log2	Padjust	
<i>Adhaeribacter aquaticus</i>	-8.315	0.000	-7.528	0.003	-7.560	0.016	-6.844	0.003	-7.791	0.001	5
<i>Ammoniphilus resinae</i>	-4.088	0.021	-4.977	0.003	-4.898	0.005	-3.487	0.006	-3.780	0.008	5
<i>Cytobacillus firmus</i>	-7.664	0.002	-7.795	0.000	-6.919	0.003	-8.147	0.000	-8.027	0.000	5
<i>Cytobacillus oceanisediminis</i>	-5.144	0.000	-5.811	0.000	-4.246	0.000	-4.406	0.000	-5.055	0.000	5
<i>Fictibacillus arsenicus</i>	-4.760	0.033	-5.943	0.000	-4.564	0.010	-3.500	0.002	-5.014	0.000	5
<i>Fictibacillus phosphorivorans</i>	-5.646	0.005	-7.064	0.000	-5.501	0.003	-4.544	0.000	-5.356	0.000	5
<i>Mesobacillus subterraneus</i>	-5.006	0.000	-6.017	0.000	-2.923	0.014	-3.325	0.000	-3.793	0.000	5
<i>Planomicrobium chinense</i>	-7.670	0.007	-9.049	0.000	-	0.000	-6.451	0.012	-8.814	0.000	5
					22.529						
<i>Planomicrobium glaciei</i>	-9.974	0.000	-	0.000	-7.860	0.000	-9.158	0.000	-9.662	0.000	5
			12.347								
<i>Pontibacter brevis</i>	-8.026	0.000	-8.628	0.000	-6.958	0.015	-8.983	0.000	-6.350	0.017	5
<i>Pontibacter chitinilyticus</i>	-7.224	0.005	-8.455	0.001	-7.023	0.014	-8.278	0.000	-6.436	0.016	5
<i>Pontibacter korlensis</i>	-9.310	0.000	-	0.000	-8.007	0.006	-9.299	0.000	-6.923	0.001	5
			10.047								
<i>Pontibacter populi</i>	-12.511	0.000	-	0.000	-	0.000	-	0.000	-8.624	0.000	5
			11.646		10.162		11.068				
<i>Tumebacillus soli</i>	-4.962	0.023	-6.566	0.000	-6.988	0.000	-4.569	0.000	-5.400	0.000	5
<i>Ammoniphilus oxalaticus</i>	-7.422	0.022	-7.543	0.001			-4.028	0.050	-5.451	0.015	4
<i>Bacillus onubensis</i>	-6.307	0.032	-7.211	0.000			-7.280	0.000	-7.107	0.000	4
<i>Telluribacter humicola</i>	-7.308	0.025	-9.784	0.000			-8.772	0.000	-8.715	0.000	4
<i>Leptolyngbya</i> sp. NIES-3755	-23.926	0.000	-8.488	0.001	-7.594	0.004			-5.708	0.031	4
<i>Asprobacter aquaticus</i>			-6.984	0.022	-6.182	0.016	-6.704	0.003	-5.028	0.011	4
<i>Bacillus dafuensis</i>			-5.182	0.002	-5.320	0.005	-4.363	0.006	-4.753	0.002	4
<i>Bacillus humi</i>			-6.042	0.000	-5.140	0.017	-4.208	0.004	-4.489	0.017	4
<i>Bacillus infantis</i>			-4.786	0.004	-4.110	0.032	-2.915	0.021	-3.826	0.007	4
<i>Chungangia koreensis</i>			-7.501	0.001	-5.877	0.041	-7.746	0.000	-6.260	0.004	4
<i>Exiguobacterium sibiricum</i>			-9.845	0.000	-	0.000	-	0.000	-7.022	0.001	4
					24.061		23.836				

<i>Flaviumibacter cheonanensis</i>	-8.992	0.000	-7.505	0.001	-	0.000	-	0.000	4
					11.570		11.534		
<i>Flaviumibacter stibioxidans</i>	-7.354	0.003	-6.305	0.007	-9.672	0.000	-9.517	0.000	4
<i>Massilia armeniaca</i>	-5.858	0.033	-6.385	0.043	-6.462	0.011	-6.363	0.007	4
<i>Flaviumibacter petaseus</i>	-6.839	0.036			-7.313	0.001	-7.193	0.000	3
<i>Reyranella massiliensis</i>	-6.467	0.028	-5.668	0.022			-5.351	0.006	3
<i>Planococcus plakortidis</i>	-6.806	0.020	-6.149	0.007			-5.602	0.014	3
<i>Pontibacter rhizosphaera</i>	-7.883	0.006	-7.985	0.000	-6.821	0.007			3
<i>Adhaeribacter aerolatus</i>	-8.003	0.000			-6.731	0.001	-7.320	0.002	3
<i>Alkalihalobacillus halodurans</i>	-5.527	0.015	-6.537	0.011			-3.692	0.042	3
<i>Bacillus methanolicus</i>	-4.580	0.008			-2.744	0.044	-3.014	0.041	3
<i>Cytobacillus gottheilii</i>	-4.512	0.010			-3.065	0.013	-3.351	0.029	3
<i>Daejeonella rubra</i>	-7.355	0.003			-5.927	0.019	-7.643	0.000	3
<i>Domibacillus tundrae</i>	-4.498	0.046			-4.627	0.047	-5.228	0.029	3
<i>Exiguobacterium mexicanum</i>	-	0.000			-9.426	0.000	-	0.000	3
	23.542						25.972		
<i>Exiguobacterium</i> sp. MH3	-	0.000	-	0.000			-7.650	0.001	3
	10.485		24.982						
<i>Exiguobacterium</i> sp. U13-1	-9.765	0.000	-	0.000			-7.249	0.002	3
			23.867						
<i>Exiguobacterium</i> sp. ZWU0009	-8.400	0.000	-7.092	0.024			-5.879	0.026	3
<i>Flaviumibacter profundus</i>	-6.740	0.014			-9.264	0.000	-8.827	0.000	3
<i>Flavisolibacter</i> sp. 17J28-1	-8.994	0.000			-5.476	0.000	-7.911	0.000	3
<i>Noviherbaspirillum aurantiacum</i>	-7.210	0.008	-7.304	0.011	-8.069	0.000			3
<i>Paenibacillus yunnanensis</i>	-6.498	0.003			-6.324	0.012	-6.639	0.005	3
<i>Pseudomonas stutzeri</i>	-5.964	0.003	-5.525	0.045			-9.264	0.000	3
<i>Pseudorhodoferax soli</i>	-6.626	0.016	-6.187	0.030	-5.754	0.040			3
<i>Shinella</i> sp. HZN7	-6.256	0.022			-6.381	0.021	-6.853	0.001	3
<i>Tumebacillus algifaecis</i>	-6.513	0.002	-7.540	0.000	-5.087	0.009			3
<i>Tumebacillus flagellatus</i>	-4.563	0.022	-6.563	0.000	-4.004	0.028			3
<i>Tumebacillus ginsengisoli</i>	-3.864	0.017	-3.962	0.000	-2.767	0.015			3

<i>Georhizobium profundi</i>	-6.919	0.009	-6.644	0.018	-7.101	0.001	3
<i>Tumebacillus lipolyticus</i>	-7.459	0.010	-7.543	0.001	-5.362	0.042	3
<i>Adhaeribacter swui</i>	-6.452	0.030			-5.953	0.025	2
<i>Hyphomonas neptunium</i>	-23.038	0.000			-7.363	0.000	2
<i>Methylovorus glucosotrophus</i>	-6.633	0.026			-5.982	0.025	2
<i>Symbiobacterium thermophilum</i>	-6.972	0.007			-6.631	0.005	2
<i>Lysobacter oligotrophicus</i>	-9.119	0.001	-8.316	0.004			2
<i>Leptolyngbya boryana</i>	-6.116	0.034	-4.935	0.029			2
<i>Acaryochloris marina</i>	-7.613	0.020	-6.653	0.007			2
<i>Achromobacter spanius</i>		-6.925	0.005		-9.262	0.000	2
<i>Actinotalea ferrariae</i>		-6.525	0.033		-5.570	0.037	2
<i>Bacillus mediterraneensis</i>		-5.241	0.005		-4.312	0.014	2
<i>Devosia ginsengisoli</i>		-6.073	0.014		-6.819	0.001	2
<i>Devosia soli</i>		-6.310	0.005		-6.547	0.013	2
<i>Dyadobacter fermentans</i>		-6.979	0.012		-5.779	0.029	2
<i>Dyadobacter jiangsuensis</i>		-7.245	0.001		-6.609	0.005	2
<i>Exiguobacterium acetylicum</i>	-	0.000			-7.661	0.001	2
<i>Flavisolibacter galbus</i>	-7.452	0.001		-5.949	0.033		2
<i>Flavisolibacter ginsengiterrae</i>	-5.694	0.000			-2.720	0.040	2
<i>Larkinella harenae</i>	-5.476	0.046		-6.580	0.001		2
<i>Noviherbaspirillum soli</i>	-7.908	0.000		-3.964	0.030		2
<i>Novosphingobium aromaticivorans</i>	-6.621	0.029		-6.943	0.012		2
<i>Planococcus rifietoensis</i>	-4.827	0.036			-4.136	0.037	2
<i>Pontibacter ruber</i>	-5.513	0.046		-5.915	0.020		2
<i>Shinella zoogloeoides</i>	-6.923	0.005			-6.398	0.003	2
<i>Azospirillum</i> sp. TSH58	-6.822	0.006	-7.515	0.004			2
<i>Oxalophagus oxalicus</i>	-5.434	0.008	-5.078	0.019			2
<i>Mesorhizobium</i> sp. Pch-S	-7.132	0.006	-5.128	0.041			2
<i>Nostoc sphaeroides</i>	-	0.000	-6.550	0.006			2
	22.872						

<i>Pseudomonas</i> sp. UW4	-6.214	0.048			-7.022	0.008	2
<i>Aneurinibacillus</i> <i>migulanus</i>			-6.362	0.022	-5.913	0.026	2
<i>Aneurinibacillus</i> <i>solii</i>			-6.325	0.012	-5.962	0.025	2
<i>Aneurinibacillus</i> <i>tyrosinisolvens</i>			-5.732	0.040	-6.318	0.017	2
<i>Flavihumibacter</i> <i>sediminis</i>			-6.069	0.030	-6.599	0.005	2
<i>Hydrogenophaga</i> <i>atypica</i>			-6.193	0.014	-5.752	0.029	2
<i>Hydrogenophaga</i> sp. PBC			-7.087	0.002	-	0.000	2
<i>Larkinella</i> <i>rosea</i>			-6.818	0.003	-6.085	0.024	2
<i>Methylobacillus</i> <i>flagellatus</i>			-6.451	0.020	-6.817	0.004	2
<i>Quasibacillus</i> <i>thermotolerans</i>			-4.204	0.011	-3.187	0.050	2
<i>Roseomonas</i> <i>aestuarii</i>			-6.522	0.019	-6.137	0.020	2
<i>Sinorhizobium</i> sp. RAC02			-5.762	0.040	-6.318	0.003	2
<i>Agaricola</i> <i>taiwanensis</i>	-22.968	0.000					1
<i>Fischerella</i> sp. NIES-3754	-23.771	0.000					1
<i>Thermincola</i> <i>potens</i>	-23.587	0.000					1
<i>Alkalihalobacillus</i> <i>pseudofirmus</i>			-7.491	0.000			1
<i>Arenimonas</i> <i>daechungensis</i>			-6.514	0.018			1
<i>Arthrobacter</i> sp. PGP41			-4.610	0.045			1
<i>Azospirillum</i> sp. TSA2s			-9.475	0.000			1
<i>Bacillus</i> <i>dakarensis</i>			-5.444	0.029			1
<i>Bacillus</i> <i>mannanilyticus</i>			-6.007	0.017			1
<i>Exiguobacterium</i> <i>antarcticum</i>			-6.865	0.005			1
<i>Flaviaestuariibacter</i> <i>luteus</i>			-7.523	0.006			1
<i>Flavisolibacter</i> <i>ginsengisoli</i>			-8.113	0.000			1
<i>Flavisolibacter</i> <i>ginsenosidimutans</i>			-3.263	0.036			1
<i>Kocuria</i> <i>rosea</i>			-6.861	0.025			1
<i>Lysobacter</i> <i>brunescens</i>			-6.789	0.019			1
<i>Lysobacter</i> <i>solanacearum</i>			-	0.000			1
			21.908				

<i>Magnetospirillum bellicus</i>	-6.539	0.033	1
<i>Neobacillus notoginsengisoli</i>	-5.407	0.049	1
<i>Niastella hibisci</i>	-6.978	0.011	1
<i>Nocardioides</i> sp. JS614	-6.909	0.022	1
<i>Paenarthrobacter nicotinovorans</i>	-6.533	0.033	1
<i>Paenibacillus chitinolyticus</i>	-4.521	0.046	1
<i>Paenibacillus ihbetae</i>	-6.691	0.006	1
<i>Paenibacillus typhae</i>	-5.215	0.044	1
<i>Pantoea agglomerans</i>	-	0.000	1
	21.945		
<i>Parasegetibacter luojiensis</i>	-	0.000	1
	12.965		
<i>Planctopirus ephydatiae</i>	-6.880	0.040	1
<i>Planococcus kocurii</i>	-5.967	0.049	1
<i>Planococcus</i> sp. MB-3u-03	-6.475	0.009	1
<i>Pontibacter amylolyticus</i>	-9.390	0.000	1
<i>Pontibacter diazotrophicus</i>	-6.586	0.017	1
<i>Pontibacter virosus</i>	-	0.000	1
	22.928		
<i>Pseudarthrobacter chlorophenolicus</i>	-6.266	0.041	1
<i>Pseudohongiella spirulinae</i>	-5.612	0.041	1
<i>Sphingomonas koreensis</i>	-6.409	0.010	1
<i>Verrucomicrobia bacterium</i> IMCC26134	-6.846	0.006	1
<i>Arthrobacter</i> sp. Rue61a		-6.727 0.024	1
<i>Arthrobacter</i> sp. YN		-7.152 0.013	1
<i>Brevundimonas diminuta</i>		-6.190 0.030	1
<i>Paenibacillus</i> sp. FSL H7-0357		-6.457 0.043	1
<i>Pelosinus fermentans</i>		-6.431 0.043	1
<i>Rhodococcus</i> sp. NJ-530		-6.708 0.020	1
<i>Verrucomicrobium spinosum</i>		-7.915 0.003	1

<i>Brevundimonas</i> sp. MF30-B	-6.493	0.010		1
<i>Chthoniobacter</i> <i>flavus</i>	-2.447	0.032		1
<i>Cnuella takakiae</i>	-4.681	0.050		1
<i>Gemmobacter</i> <i>megaterium</i>	-6.589	0.017		1
<i>Haematobacter</i> <i>massiliensis</i>	-5.542	0.020		1
<i>Janthinobacterium</i> sp. Marseille	-5.865	0.036		1
<i>Nostoc punctiforme</i>	-6.139	0.010		1
<i>Oligoflexus</i> <i>tunisiensis</i>	-4.482	0.050		1
<i>Phenyllobacterium</i> <i>muchangponense</i>	-5.534	0.049		1
<i>Rhodobacter</i> <i>capsulatus</i>	-5.991	0.021		1
<i>Rhodobacter</i> <i>sphaeroides</i>	-6.161	0.014		1
<i>Rufibacter</i> sp. DG31D	-5.656	0.045		1
<i>Tabrizicola piscis</i>	-4.264	0.031		1
<i>Achromobacter</i> <i>insolitus</i>		-6.961	0.003	1
<i>Achromobacter</i> <i>xylosoxidans</i>		-6.479	0.006	1
<i>Acidovorax defluvii</i>		-7.067	0.007	1
<i>Acidovorax facilis</i>		-7.654	0.003	1
<i>Acidovorax</i> sp. KKS102		-6.453	0.014	1
<i>Acidovorax</i> sp. RAC01		-6.945	0.008	1
<i>Agrobacterium</i> <i>tumefaciens</i>		-6.047	0.037	1
<i>Algoriphagus</i> <i>jejuensis</i>		-7.189	0.003	1
<i>Algoriphagus</i> <i>terrigena</i>		-6.885	0.018	1
<i>Aminobacter</i> <i>aminovorans</i>		-7.084	0.001	1
<i>Bacillus tianmuensis</i>		-5.467	0.024	1
<i>Bacillus timonensis</i>		-5.392	0.027	1
<i>Brevundimonas</i> sp. M20		-5.773	0.016	1
<i>Cellvibrio</i> sp. KY- YJ-3		-7.647	0.004	1
<i>Cellvibrio</i> sp. PSBB023		-6.612	0.013	1
<i>Cohnella candidum</i>		-3.785	0.030	1
<i>Devosia geojensis</i>		-5.405	0.025	1

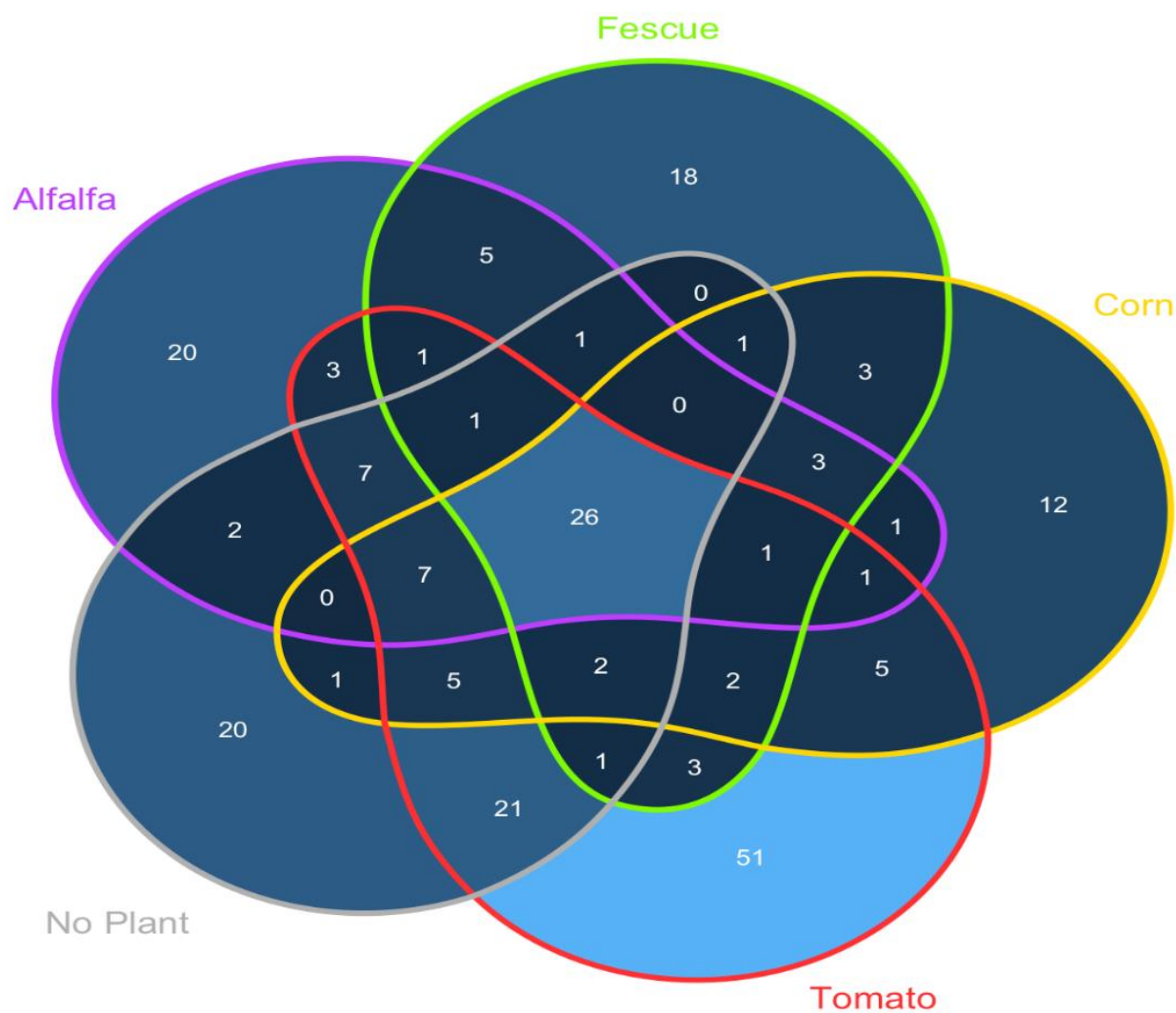


<i>Devosia riboflavina</i>	-6.162	0.033	1
<i>Devosia</i> sp. A16	-3.361	0.025	1
<i>Devosia</i> sp. I507	-5.425	0.040	1
<i>Ensifer adhaerens</i>	-5.309	0.018	1
<i>Exiguobacterium aurantiacum</i>	-8.480	0.001	1
<i>Exiguobacterium</i> sp. AT1b	-6.012	0.039	1
<i>Fermentibacillus polygoni</i>	-5.326	0.043	1
<i>Herbaspirillum seropedicae</i>	-6.920	0.003	1
<i>Hydrogenophaga</i> sp. RAC07	-	0.000	1
	23.204		
<i>Janthinobacterium</i> sp. 17J80-10	-5.966	0.039	1
<i>Lacunisphaera limnophila</i>	-5.744	0.031	1
<i>Legionella massiliensis</i>	-4.140	0.015	1
<i>Legionella saoudiensis</i>	-5.610	0.033	1
<i>Luteolibacter flavescens</i>	-4.399	0.029	1
<i>Massilia oculi</i>	-6.008	0.025	1
<i>Massilia</i> sp. WG5	-6.326	0.017	1
<i>Methyloversatilis discipulorum</i>	-6.392	0.044	1
<i>Microbacterium</i> sp. ABRD_28	-	0.000	1
	22.901		
<i>Nibricoccus aquaticus</i>	-3.681	0.042	1
<i>Paenibacillus koleovorans</i>	-5.331	0.027	1
<i>Pararcticibacter amylolyticus</i>	-6.651	0.001	1
<i>Phenylobacterium haematophilum</i>	-5.979	0.013	1
<i>Prostheco bacter dejongei</i>	-6.033	0.011	1
<i>Prostheco bacter fusiformis</i>	-7.013	0.003	1
<i>Pseudomonas alcaliphila</i>	-6.584	0.038	1
<i>Pseudomonas koreensis</i>	-6.104	0.012	1
<i>Pseudomonas putida</i>	-8.428	0.000	1
<i>Pseudoxanthomonas mexicana</i>	-8.210	0.000	1
<i>Shinella yambaruensis</i>	-5.918	0.014	1

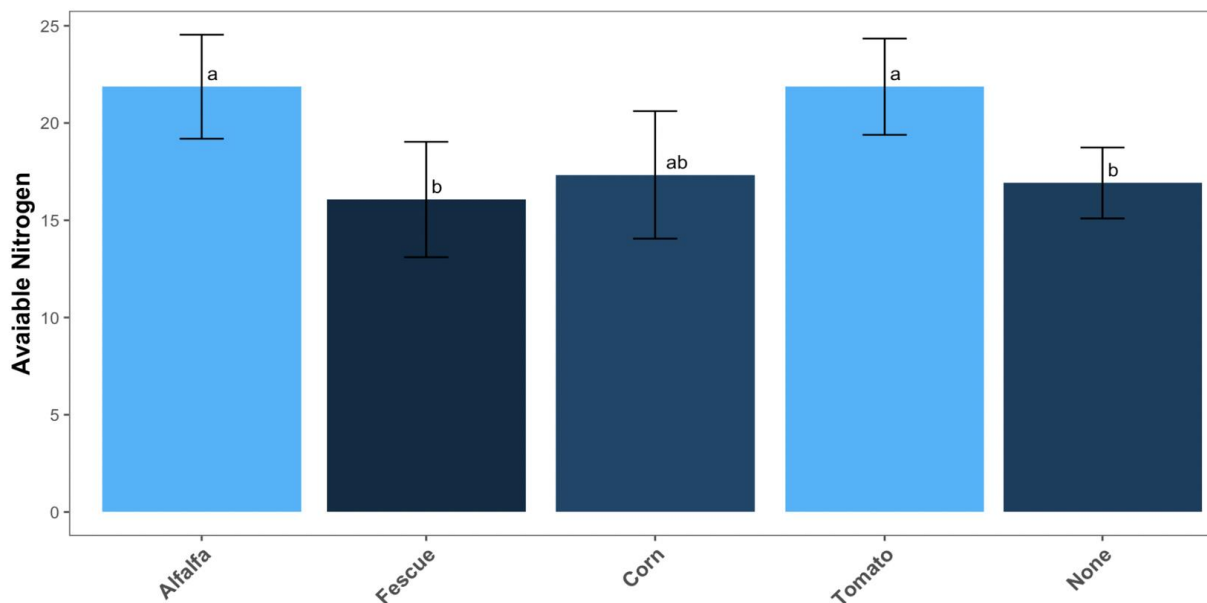
<i>Siccirubricoccus deserti</i>	-6.011	0.013	1
<i>Synechococcus elongatus</i>	-	0.000	1
	22.702		

**Supplementary Table S3.** Differential abundance of bacterial taxa with increased abundance in non-autoclaved cover crop bulk soil as compared to autoclaved cover crop bulk soil. P-adjusted values which are <0.001 are represented as 0.000. Log2 Fold change was based on  $\log_2FC = \log_2(\text{non-autoclaved}) - \log_2(\text{autoclaved})$  using the DESeq2 package in RStudio.

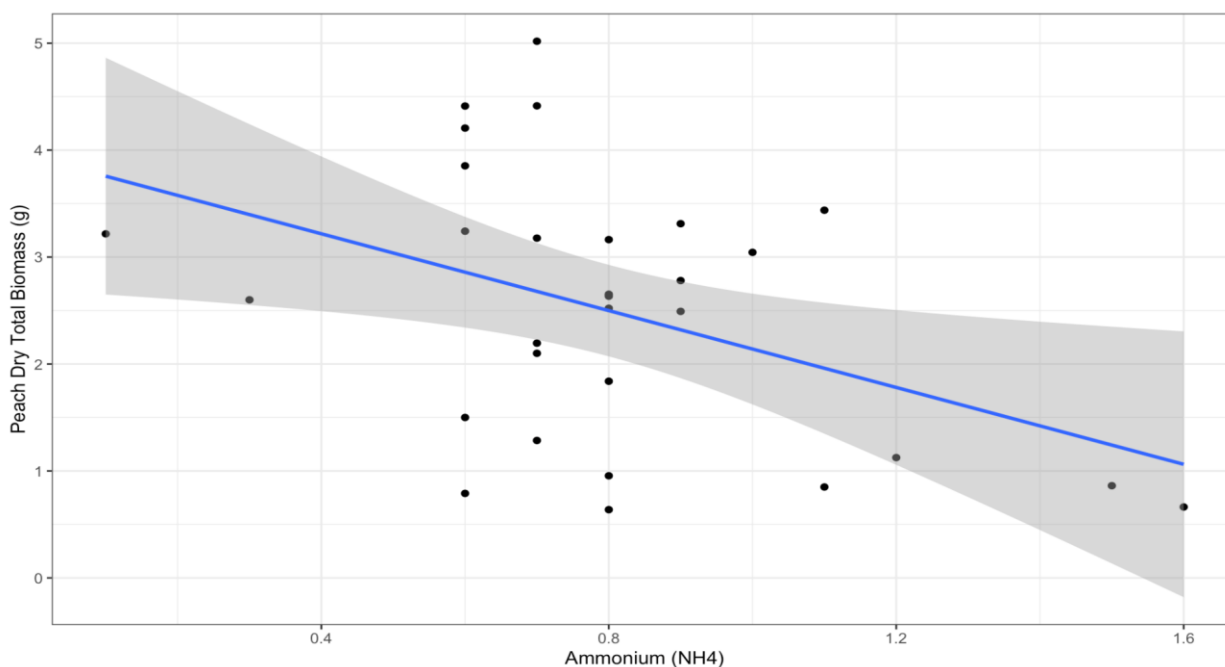
	Alfalfa		Fescue		Corn		Tomato		No Crop		
Bacterial Taxa	Log2	Padjust	Log2	Padjust	Log2	Padjust	Log2	Padjust	Log2	Padjust	Count
[ <i>Brevibacterium</i> ] <i>frigorisolerans</i>	4.22	0.01	4.11	0.03	3.97	0.02	5.56	0.00	3.99	0.00	5
<i>Aciditerrimonas</i> <i>ferrireducens</i>	6.95	0.00	5.58	0.00	9.35	0.00	5.88	0.00	6.69	0.00	5
<i>Bacillus megaterium</i>	5.04	0.00	4.22	0.00	6.10	0.00	6.33	0.00	4.41	0.00	5
<i>Baekduia soli</i>	7.91	0.00	7.23	0.00	7.76	0.00	8.35	0.00	8.74	0.00	5
<i>Brevitalea aridisoli</i>	8.64	0.00	8.12	0.00	8.02	0.00	8.75	0.00	9.01	0.00	5
<i>Brevitalea deliciosa</i>	10.43	0.00	9.73	0.00	9.85	0.00	10.57	0.00	10.75	0.00	5
<i>Gaiella occulta</i>	9.89	0.00	9.35	0.00	9.43	0.00	10.15	0.00	10.33	0.00	5
<i>Methyloceanibacter</i> <i>caenitepidi</i>	7.96	0.00	7.78	0.00	7.77	0.00	8.02	0.00	8.34	0.00	5
<i>Nitrospira japonica</i>	9.12	0.00	8.32	0.00	8.58	0.00	9.20	0.00	9.82	0.00	5
<i>Nostoc</i> sp. HK-01	10.57	0.00	15.00	0.00	13.10	0.00	7.93	0.00	22.17	0.00	5
<i>Nostoc</i> sp. PCC 7107	24.47	0.00	14.16	0.00	12.07	0.00	6.93	0.01	22.68	0.00	5
<i>Paenibacillus castaneae</i>	8.19	0.00	5.31	0.02	7.58	0.00	8.26	0.00	5.76	0.00	5
<i>Planctomycetes</i> <i>bacterium</i> Pla175	8.05	0.00	4.64	0.02	7.87	0.00	8.56	0.00	8.60	0.00	5
<i>Povalibacter uvarum</i>	8.90	0.00	6.29	0.00	4.49	0.01	8.93	0.00	4.71	0.00	5
<i>Rhodoplanes</i> sp. Z2- YC6860	8.28	0.00	3.61	0.03	3.97	0.02	4.30	0.00	4.30	0.00	5
<i>Skermanella mucosa</i>	7.36	0.00	6.42	0.02	6.61	0.01	7.25	0.00	7.62	0.00	5
<i>Skermanella rosea</i>	6.63	0.00	8.86	0.00	9.30	0.00	9.38	0.00	9.37	0.00	5
<i>Skermanella</i> <i>stibiirensistens</i>	10.48	0.00	10.01	0.00	10.29	0.00	10.43	0.00	10.55	0.00	5
<i>Solirubrobacter</i> <i>ginsenosidimutans</i>	7.22	0.00	6.19	0.02	6.63	0.00	7.16	0.00	7.44	0.00	5
<i>Solirubrobacter soli</i>	8.10	0.00	5.25	0.02	7.53	0.00	8.49	0.00	9.00	0.00	5
<i>Sphingomonas</i> <i>daechungensis</i>	7.65	0.00	6.51	0.02	7.26	0.00	7.55	0.00	8.22	0.00	5
<i>Sphingomonas</i> <i>sediminicola</i>	6.40	0.02	6.06	0.04	6.53	0.01	6.71	0.00	7.23	0.00	5
<i>Sphingomonas</i> sp. AE3	7.06	0.00	6.17	0.02	7.12	0.00	6.34	0.00	6.51	0.01	5
<i>Steroidobacter</i> <i>denitrificans</i>	5.33	0.00	4.92	0.00	4.11	0.01	5.94	0.00	3.96	0.00	5
<i>Vicinamibacter silvestris</i>	4.26	0.00	3.42	0.03	3.64	0.00	4.12	0.00	4.03	0.00	5
<i>Woeseia oceani</i>	7.08	0.00	6.72	0.01	6.91	0.00	7.62	0.00	7.74	0.00	5



**Supplementary Figure S3.** Differential abundance Venn diagram of non-autoclaved cover crop bulk soils as compared to autoclaved cover crop bulk soils separated by crop. Orange circle indicates common bacteria found to be promoted within the 4 cover crops (alfalfa, fescue, corn, and tomato) treatments. A blue color gradient displays low bacterial taxa species counts in dark blue, with higher bacterial taxa species counts in lighter blue.



**Supplementary Figure S4.** Available organic nitrogen in correlation with total dry peach biomass. Of the samples with the highest available nitrogen, the top eight soil samples previously had either alfalfa or tomato from both soil treatment types (autoclaved / non-autoclaved). Different superscript letters denote significant difference ( $P < 0.01$ ) compared with different cover crop histories.



**Supplementary Figure S5.** Ammonium (NH<sub>4</sub>) in correlation with total dry peach biomass. soil extractant (H3A-1) Correlation was positive ( $R^2 = 0.1852$ ,  $p\text{-Value} = 0.01761$ ). Of the samples with the highest ammonium, previously disinfected soils showed consistently higher ammonium values.

**Supplementary Table S4.** Differential abundance of bacterial taxa with increased abundance in non-autoclaved peach bulk soil as compared to autoclaved peach bulk soil. P-adjusted values which are <0.001 are represented as 0.000. Log2 Fold change was based on  $\log_2FC = \log_2(\text{non-autoclaved}) - \log_2(\text{autoclaved})$  using the DESeq2 package in RStudio.

Bacterial Taxa	Alfalfa		Fescue		Corn		Tomato		No Crop		Count
	Log2F C	Padjust	Log2 Fold	Padjust	Log2	Padjust	Log2	Padjust	Log2	Padjust	
<i>Bacillus megaterium</i>	5.377	0.037	4.575	0.041	5.405	0.011	6.885	0.009	4.374	0.009	5
<i>Brevitalea aridisoli</i>	7.797	0.015	8.441	0.001	8.816	0.000	8.672	0.001	8.161	0.000	5
<i>Brevitalea deliciosa</i>	9.905	0.000	10.134	0.000	7.045	0.007	10.251	0.000	9.821	0.000	5
<i>Gaiella occulta</i>	8.641	0.001	9.749	0.000	10.088	0.000	9.882	0.000	6.480	0.005	5
<i>Nitrospira japonica</i>	8.427	0.007	8.479	0.001	9.250	0.000	9.047	0.000	8.857	0.000	5
<i>Skermanella rosea</i>	9.464	0.000	8.958	0.000	5.603	0.038	9.068	0.000	9.120	0.000	5
<i>Skermanella stibiirensistens</i>	10.49	0.000	10.010	0.000	10.585	0.000	10.348	0.000	10.235	0.000	5
<i>Sphingomonas daechungensis</i>	7.679	0.018	7.445	0.015	7.839	0.010			7.812	0.005	4
<i>Pelobacter acetylenicus</i>	7.459	0.018	8.291	0.007	7.821	0.010			7.256	0.021	4
<i>Methyloceanibacter caenitepidi</i>			8.223	0.007	8.453	0.001	8.131	0.002	8.261	0.000	4
<i>Paenibacillus castaneae</i>			7.562	0.012	8.276	0.007	8.116	0.008	8.010	0.004	4
<i>Woeseia oceani</i>			7.565	0.012	7.961	0.009	7.652	0.003	6.834	0.029	4
[ <i>Brevibacterium</i> ] <i>frigoritolerans</i>	8.020	0.003					5.903	0.023	4.694	0.027	3
<i>Peribacillus simplex</i>	7.506	0.018	8.187	0.007			8.242	0.008			3
<i>Longilinea arvozyae</i>	5.946	0.031	5.366	0.047					7.466	0.020	3
[ <i>Desulfobacterium</i> ] <i>catecholicum</i>	8.843	0.001	9.651	0.000	9.146	0.003					3
<i>Gemmata</i> sp. SH-PL17			8.450	0.001			8.296	0.001	8.002	0.004	3
<i>Geoalkalibacter subterraneus</i>			7.292	0.016			6.912	0.026	6.426	0.039	3
<i>Arenimicrobium luteum</i>					7.477	0.014	7.120	0.022	6.451	0.039	3
<i>Skermanella aerolata</i>	8.538	0.001					7.623	0.004			2

<i>Solirubrobacter soli</i>	7.638	0.018			8.358	0.001			2
<i>Skermanella mucosa</i>	7.637	0.006			7.077	0.023			2
<i>Stigmatella aurantiaca</i>	6.994	0.035	7.263	0.018					2
<i>Thermomarinilinea lacunifontana</i>		7.382	0.038			6.474	0.039		2
<i>Desulforhopalus singaporensis</i>		7.276	0.018	6.867	0.030				2
<i>Bellilinea caldifistulae</i>		6.986	0.049	7.484	0.014				2
<i>Acidimicrobium ferrooxidans</i>			7.431	0.015		7.036	0.011		2
<i>Aridibacter nitratreducens</i>			9.460	0.007		7.764	0.005		2
<i>Burkholderiales bacterium GJ-E10</i>			7.065	0.021		6.443	0.039		2
<i>Planctomycetes bacterium Pla175</i>			5.722	0.029		4.844	0.039		2
<i>Gemmata obscuriglobus</i>			7.254	0.018	6.675	0.034			2
<i>Actinobacteria bacterium IMCC26256</i>					7.019	0.023	6.368	0.040	2
<i>Anaeromyxobacter sp. K</i>					7.535	0.014	6.672	0.035	2
<i>Bacillus safensis</i>					7.281	0.019	6.223	0.045	2
<i>Bacillus thuringiensis</i>	7.914	0.014							1
<i>Clostridium magnum</i>	9.325	0.004							1
<i>Haliscomenobacter hydrossis</i>	8.035	0.035							1
<i>Clostridium saccharoperbutylacetonicum</i>		5.523	0.049						1
<i>Desulfuromonas acetoxidans</i>		6.659	0.038						1
<i>Desulfuromonas michiganensis</i>		8.286	0.007						1
<i>Paenibacillus sp. JDR-2</i>		7.741	0.010						1
<i>Pelobacter carbinolicus</i>		7.705	0.011						1
<i>Pelobacter sp. SFB93</i>		7.819	0.010						1
<i>Planctomycetes bacterium Pan216</i>		6.494	0.042						1
<i>Planctomycetes bacterium Pan265</i>		6.608	0.038						1

<i>Pseudomonas sagittaria</i>	7.299	0.017		1
<i>Ruminiclostridium hungatei</i>	7.375	0.045		1
<i>Aridibacter famidurans</i>		7.444	0.038	1
<i>Bacillus cereus</i>		7.079	0.045	1
<i>Candidatus Saccharibacteria bacterium YM_S32_TM7_50_20</i>		7.338	0.038	1
<i>Desulfuromonas soudanensis</i>		7.440	0.036	1
<i>Desulfuromonas</i> sp. DDH964		8.219	0.007	1
<i>Kofteria flava</i>		6.552	0.043	1
<i>Stanieria cyanosphaera</i>		7.400	0.019	1
<i>Dongia mobilis</i>		7.133	0.022	1
<i>Geobacter</i> sp. M21		7.110	0.023	1
<i>Longimicrobium terrae</i>		6.698	0.033	1
<i>Microvirga ossetica</i>		8.043	0.002	1
<i>Aciditerrimonas ferrireducens</i>			4.680 0.032	1
<i>Arthrobacter</i> sp. QXT-31			8.136 0.003	1
<i>Fimbriiglobus ruber</i>			7.274 0.010	1
<i>Geobacter bemidjensis</i>			6.654 0.035	1
<i>Geobacter uraniireducens</i>			6.968 0.027	1
<i>Lysinibacillus</i> sp. SGAir0095			6.367 0.040	1
<i>Paenibacillus xylanilyticus</i>			6.356 0.040	1
<i>Pedomicrobium americanum</i>			6.935 0.028	1
<i>Rubrobacter radiotolerans</i>			6.587 0.038	1
<i>Solirubrobacter ginsenosidimutans</i>			7.058 0.011	1

**Supplementary Table S5.** Differential abundance of bacterial taxa with increased abundance in non-autoclaved peach rhizosphere soil as compared to autoclaved peach rhizosphere soil. P-adjusted values which are <0.001 are represented as 0.000. Log2 Fold change was based on  $\log_2FC = \log_2(\text{non-autoclaved}) - \log_2(\text{autoclaved})$  using the DESeq2 package in RStudio.

Bacterial Taxa	Alfalfa		Fescue		Corn		Tomato		No Crop		Count
	Log2	Padjust	Log2	Padjust	Log2	Padjust	Log2	Padjust	Log2	Padjust	
<i>Arenimicrobium luteum</i>	7.566	0.007	7.800	0.006	7.606	0.001	8.036	0.001	7.588	0.000	5
<i>Bacillus megaterium</i>	5.579	0.003	6.169	0.006	3.762	0.036	5.663	0.001	4.340	0.001	5
<i>Brevitalea aridisoli</i>	9.138	0.000	8.884	0.001	8.627	0.000	9.228	0.000	8.715	0.000	5
<i>Brevitalea deliciosa</i>	10.917	0.000	11.033	0.000	10.587	0.000	10.873	0.000	10.454	0.000	5
<i>Gaiella occulta</i>	9.538	0.000	10.204	0.000	9.710	0.000	10.022	0.000	10.060	0.000	5
<i>Longilinea arvorvryzae</i>	5.411	0.029	9.298	0.000	5.299	0.019	8.844	0.000	8.428	0.000	5
<i>Methyloceanibacter caenitepidi</i>	8.097	0.003	8.686	0.000	8.287	0.000	7.710	0.006	8.659	0.000	5
<i>Nitrospira japonica</i>	9.207	0.000	9.193	0.000	5.482	0.035	9.283	0.000	6.201	0.000	5
<i>Peribacillus simplex</i>	5.740	0.015	6.093	0.010	8.624	0.000	4.813	0.011	3.964	0.016	5
<i>Skermanella rosea</i>	8.776	0.000	9.159	0.000	8.647	0.000	9.340	0.000	8.846	0.000	5
<i>Solirubrobacter soli</i>	7.646	0.006	5.113	0.040	8.231	0.000	8.398	0.000	8.355	0.000	5
<i>Desulfuromonas michiganensis</i>	7.551	0.007			7.121	0.009	7.820	0.002	8.397	0.001	4
<i>Gemmata</i> sp. SH-PL17	6.721	0.046			7.548	0.006	8.678	0.000	8.239	0.000	4
<i>Candidatus Saccharibacteria bacterium</i> oral taxon 955	7.170	0.036	7.156	0.012			6.209	0.037	5.370	0.047	4
<i>Skermanella stibiirensistens</i>	9.914	0.000	10.526	0.000			10.408	0.000	10.231	0.000	4
[ <i>Desulfobacterium</i> ] <i>catecholicum</i>	9.639	0.000	4.690	0.045	4.159	0.047			8.265	0.001	4
<i>Paenibacillus castaneae</i>	8.491	0.000	8.964	0.000	8.299	0.000	8.970	0.000			4
<i>Bellilinea caldifistulae</i>	7.332	0.009	8.021	0.001	7.019	0.009	7.558	0.000			4
<i>Acidimicrobium ferrooxidans</i>			6.673	0.023	6.117	0.045	6.662	0.021	5.982	0.021	4
<i>Aciditerrimonas ferrireducens</i>			6.228	0.009	6.057	0.008	5.801	0.007	9.624	0.000	4
<i>Actinobacteria bacterium</i> IMCC26256			6.658	0.023	6.126	0.045	7.333	0.004	6.696	0.002	4
<i>Geothalibacter subterraneus</i>			8.253	0.000	7.795	0.001	7.606	0.002	8.095	0.000	4
<i>Skermanella aerolata</i>			7.352	0.010	6.816	0.012	7.207	0.004	6.931	0.001	4



<i>Solirubrobacter ginsenosidimutans</i>	7.139	0.012	6.712	0.013	7.208	0.004	7.145	0.000	4	
<i>Woeseia oceani</i>	7.274	0.011	6.504	0.035	7.285	0.003	7.593	0.000	4	
<i>Pelobacter</i> sp. SFB93	7.415	0.008	7.179	0.009			7.957	0.000	3	
<i>Pelobacter carbinolicus</i>	7.110	0.012	6.958	0.010			7.849	0.000	3	
<i>Pedomicrobium americanum</i>	6.666	0.022	7.666	0.001			7.536	0.000	3	
<i>Thermomarinilinea lacunifontana</i>	7.431	0.027	8.235	0.000			6.619	0.002	3	
<i>Candidatus Accumulibacter phosphatis</i>	7.233	0.027	7.786	0.007			7.515	0.001	3	
<i>Ornatilinea apprima</i>	5.255	0.039	5.446	0.029			4.104	0.030	3	
<i>Bacillus cereus</i>	7.044	0.013	7.490	0.009	7.451	0.007			3	
<i>Planifilum fulgidum</i>			6.699	0.023	6.666	0.016	5.701	0.030	3	
<i>Skermanella mucosa</i>			7.050	0.013	6.802	0.013	6.960	0.001	3	
<i>Bacillus safensis</i>			7.383	0.010	7.453	0.007	6.994	0.001	3	
<i>Candidatus Koribacter versatilis</i>			6.752	0.046	6.145	0.044	6.821	0.002	3	
<i>Paenibacillus xylanilyticus</i>			7.231	0.011	7.217	0.008	6.860	0.016	3	
<i>Candidatus Saccharibacteria bacterium</i> YM_S32_TM7_50_20			7.689	0.007		6.566	0.045	7.042	0.001	3
<i>Desulfomonile tiedjei</i>			6.693	0.048	6.566	0.016		6.928	0.001	3
<i>Paenibacillus prosopidis</i>			7.316	0.010	6.526	0.016		6.890	0.002	3
<i>Paenisporosarcina antarctica</i>			7.176	0.012	7.397	0.001		6.809	0.002	3
[ <i>Brevibacterium</i> ] <i>frigoritolerans</i>				4.169	0.020	6.356	0.002	3.712	0.008	3
<i>Candidatus Promineofilum breve</i>				6.318	0.038	7.496	0.002	5.967	0.023	3
<i>Dechlorobacter hydrogenophilus</i>				7.181	0.020	6.961	0.031	6.242	0.006	3
<i>Gemmata massiliana</i>				6.589	0.016	6.560	0.024	5.601	0.035	3
<i>Holophaga foetida</i>				7.465	0.007	6.972	0.016	5.810	0.027	3
<i>Planctomycetes bacterium</i> Pla175				4.420	0.031	4.749	0.029	4.001	0.030	3
<i>Baekduia soli</i>				8.134	0.000	8.545	0.000			2
<i>Terrimonas suqianensis</i>				6.439	0.036	6.733	0.019			2
<i>Pelobacter acetylenicus</i>				8.083	0.000			8.664	0.000	2
<i>Alkalitalea saponilacus</i>				8.066	0.010			6.913	0.016	2
<i>Desulfobulbus propionicus</i>			8.276	0.001	7.582	0.015				2

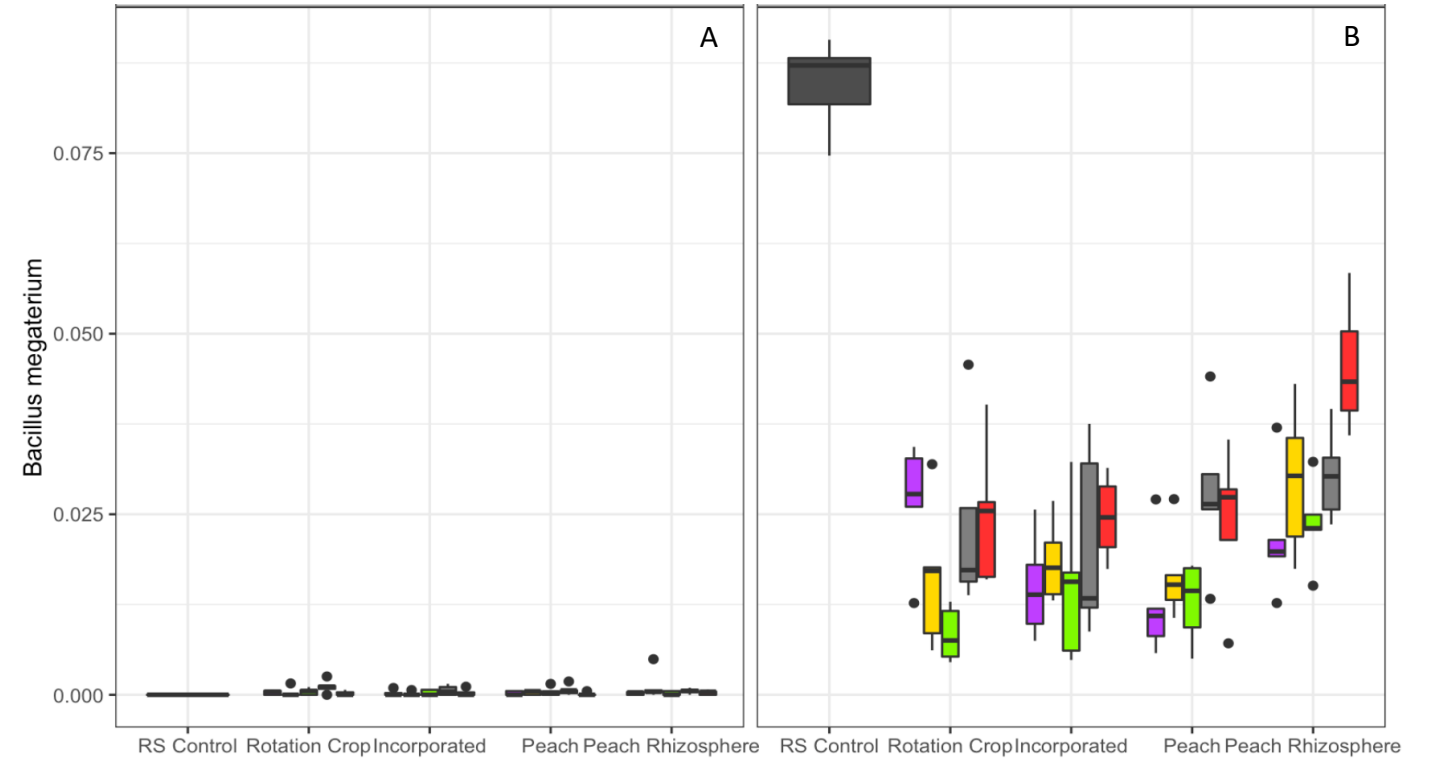
Arthrobacter sp. KBS0702	7.173	0.009			7.024	0.001	2
Paenibacillus sp. DCT19	7.166	0.009			6.744	0.002	2
Deferrisoma camini	6.829	0.004			5.835	0.048	2
Lutispora thermophila	6.723	0.031			6.513	0.025	2
Rhodoplanes tepidicaeni	6.632	0.016			5.860	0.025	2
Rubrivivax gelatinosus	6.594	0.035			6.117	0.018	2
Pseudolabrys sp. FHR47	6.572	0.035			6.982	0.001	2
Rubrobacter radiotolerans	6.543	0.017			6.662	0.002	2
Bacillus velezensis	6.475	0.036			6.113	0.018	2
Terrimonas pekingensis	6.403	0.037			5.986	0.008	2
Sphingomonas daechungensis	6.329	0.039			6.610	0.003	2
Desulfuromonas acetoxidans	6.312	0.038			6.068	0.019	2
Pseudolabrys taiwanensis	6.282	0.040			6.535	0.009	2
Labilithrix luteola	6.250	0.040			6.408	0.004	2
Terribacillus goriensis	6.124	0.045			5.480	0.040	2
Microvirga sp. 17 mud 1-3	6.110	0.045			5.333	0.049	2
Aquihabitans daechungensis	6.006	0.050			6.566	0.003	2
Desulfuromonas soudanensis	4.998	0.029			9.113	0.000	2
Paenisporosarcina indica	6.897	0.039	7.424	0.007			2
Desulfopila inferna	7.846	0.005	7.310	0.004			2
Desulfotalea psychrophila	7.192	0.029	7.028	0.006			2
Adhaeribacter terreus			6.746	0.048	5.382	0.046	2
Paenisporosarcina macmurdoensis			6.269	0.038	5.632	0.033	2
Vicinamibacter silvestris			3.808	0.019	3.153	0.002	2
Anaeromyxobacter sp. K			8.246	0.000	8.067	0.000	2
Bacillus funiculus					3.191	0.041	2
Bacillus pseudomycoides					6.722	0.020	2
Conexibacter woesei					7.168	0.004	2
Fimbrioglobus ruber					6.701	0.021	2

<i>Microlunatus phosphovorus</i>			7.100	0.015	6.444	0.003	2
<i>Paenibacillus xylanexedens</i>			6.706	0.019	6.679	0.002	2
<i>Planctomycetes bacterium</i> ETA_A8			3.836	0.025	3.287	0.049	2
<i>Tepidiforma bonchosmolovskayae</i>			7.501	0.003	3.908	0.032	2
<i>Geobacter psychrophilus</i>	8.344	0.000					1
<i>Haliscomenobacter hydrossis</i>	7.172	0.012					1
<i>Methylobacter luteus</i>	8.624	0.011					1
<i>Methylobacter marinus</i>	7.470	0.031					1
<i>Pseudomonas sagittaria</i>	7.244	0.011					1
<i>Azospira restricta</i>			7.171	0.012			1
<i>Desulfocapsa sulfexigens</i>			6.206	0.045			1
<i>Desulfovirga adipica</i>			6.538	0.035			1
<i>Gallionella capsiferriformans</i>			9.127	0.002			1
<i>Hydrogenophaga taeniospiralis</i>			7.191	0.038			1
<i>Legionella clemsonensis</i>			7.094	0.013			1
<i>Lysinibacillus</i> sp. SGAir0095			6.908	0.040			1
<i>Nitrospira multiformis</i>			7.991	0.005			1
<i>Oxobacter pfennigii</i>			7.505	0.024			1
<i>Syntrophus aciditrophicus</i>			7.656	0.009			1
<i>Alkalihalobacillus decolorationis</i>			6.090	0.048			1
<i>Azoarcus</i> sp. CIB			6.510	0.037			1
<i>Bacillus altitudinis</i>			6.428	0.037			1
<i>Bacillus thuringiensis</i>			8.054	0.000			1
<i>Maribellus luteus</i>			7.283	0.036			1
<i>Microvirga ossetica</i>			7.375	0.007			1
<i>Microvirga subterranea</i>			6.340	0.038			1
<i>Paenibacillus massiliensis</i>			6.614	0.016			1
<i>Paraflavitalea soli</i>			6.155	0.044			1
<i>Stigmatella aurantiaca</i>			7.122	0.009			1

<i>Gemmata obscuriglobus</i>	6.502	0.026		1
<i>Levilinea saccharolytica</i>	6.940	0.006		1
<i>Paenibacillus guangzhouensis</i>	6.585	0.026		1
<i>Paenibacillus</i> sp. JDR-2	3.746	0.030		1
<i>Paraclostridium bifermentans</i>	7.620	0.009		1
<i>Planctomycetes bacterium</i> ETA_A1	6.286	0.033		1
<i>Pseudarthrobacter</i> sp. NIBRBAC000502772	7.261	0.013		1
<i>Pseudarthrobacter sulfonivorans</i>	7.665	0.008		1
[ <i>Polyangium</i> ] <i>brachysporum</i>		6.717	0.002	1
<i>Acidothermus cellulolyticus</i>		6.774	0.002	1
<i>Anaeromyxobacter</i> sp. Fw109-5		7.535	0.003	1
<i>Archangium gephyra</i>		5.978	0.023	1
<i>Aromatoleum aromaticum</i>		6.356	0.013	1
<i>Arthrobacter</i> sp. QXT-31		7.086	0.001	1
<i>Azotobacter chroococcum</i>		7.308	0.001	1
<i>Bacillus halotolerans</i>		5.565	0.019	1
<i>Bacillus pumilus</i>		6.187	0.016	1
<i>Blastococcus saxobsidens</i>		5.560	0.037	1
<i>Burkholderiales bacterium</i> GJ-E10		6.259	0.005	1
<i>Chondromyces crocatus</i>		5.769	0.029	1
<i>Dechloromonas hortensis</i>		3.734	0.046	1
<i>Dechloromonas</i> sp. HYN0024		6.306	0.004	1
<i>Dechlorosoma suillum</i>		5.906	0.024	1
<i>Desulforhopalus singaporensis</i>		6.352	0.015	1
<i>Desulfuromonas</i> sp. DDH964		9.162	0.000	1
<i>Domibacillus indicus</i>		6.440	0.003	1

<i>Geobacter daltonii</i>	7.333	0.001	1
<i>Geobacter metallireducens</i>	6.928	0.002	1
<i>Geobacter pickeringii</i>	8.089	0.000	1
<i>Geobacter</i> sp. FeAm09	6.313	0.006	1
<i>Geobacter</i> sp. M21	6.877	0.002	1
<i>Geobacter uraniireducens</i>	8.426	0.000	1
<i>Haliangium ochraceum</i>	6.006	0.008	1
<i>Hydrogenispora ethanolica</i>	5.357	0.004	1
<i>Hyphomicrobium sulfonivorans</i>	7.134	0.000	1
<i>Ilumatobacter fluminis</i>	7.194	0.000	1
<i>Limnoglobus roseus</i>	5.868	0.011	1
<i>Luteitalea pratensis</i>	2.089	0.044	1
<i>Microlunatus ginsengisoli</i>	5.727	0.030	1
<i>Microvirga brassicearum</i>	5.338	0.049	1
<i>Microvirga zambiensis</i>	5.334	0.049	1
<i>Minicystis rosea</i>	5.780	0.028	1
<i>Nitrosospira briensis</i>	5.724	0.030	1
<i>Nordella oligomobilis</i>	3.343	0.020	1
<i>Paenibacillus aceris</i>	5.784	0.028	1
<i>Paenibacillus</i> sp. 37	6.578	0.003	1
<i>Pelobacter propionicus</i>	7.329	0.001	1
<i>Planctomycetales bacterium</i>	4.047	0.029	1
<i>Planctomycetes bacterium</i> Pla85_3_4	4.060	0.026	1
<i>Polyangium fumosum</i>	6.007	0.021	1
<i>Rhodoplanes azumiensis</i>	6.466	0.003	1
<i>Rubrobacter xylanophilus</i>	5.545	0.037	1
<i>Shimazuella kribbensis</i>	6.453	0.003	1
<i>Sinorhizobium meliloti</i>	5.752	0.030	1
<i>Sorangium cellulosum</i>	6.727	0.002	1

<i>Sphingomonas lutea</i>	5.731	0.030	1
<i>Stenotrophobacter roseus</i>	5.892	0.024	1
<i>Stenotrophobacter terrae</i>	7.380	0.001	1
<i>Thermanaerotherix daxensis</i>	6.528	0.003	1
<i>Thermoanaerobaculum aquaticum</i>	5.599	0.035	1
<i>Zhizhongheella caldifontis</i>	5.463	0.042	1



**Supplementary Figure S6.** *Bacillus megaterium* relative abundance by crop phase. Crop history was denoted by color with alfalfa as purple, fescue as green, corn as yellow, tomato as red, no crop as light grey, and the initial bulk soil control as dark grey. (A) Autoclaved soils. (B) Non-autoclaved soils.