Supplemental Tables and Figures

Table S1. Sample and sequencing metadata

Flowcell number	Run number	Samples	Barcodes	Year	Month	State	Site	Reads (qcat demultiplexed)	Reads (filtered)	Read filtering rate %
FAK92027	2	1705_CA1	barcode01	2017	5	California	CA1	484,460	151,999	31.37
		1705_CA2	barcode02	2017	5	California	CA2	563,698	135,539	24.04
		1705_CA3	barcode03	2017	5	California	CA3	433,826	142,795	32.92
		1705_IL1	barcode04	2017	5	Illinois	IL1	406,275	109,979	27.07
		1705_IL2	barcode05	2017	5	Illinois	IL2	390,758	118,241	30.26
		1705_IL3	barcode06	2017	5	Illinois	IL3	555,953	184,678	33.22
		1705_NYNE	barcode07	2017	5	New York	NYNE	468,841	129,559	27.63
		1705_NYNW	barcode08	2017	5	New York	NYNW	377,868	114,876	30.4
		1705_NYSE	barcode09	2017	5	New York	NYSE	292,747	94,962	32.44
		1705_SC1	barcode10	2017	5	South Carolina	SC1	313,001	121,717	38.89
		1705_SC2	barcode11	2017	5	South Carolina	SC2	411,193	140,136	34.08
		1705_SC3	barcode12	2017	5	South Carolina	SC3	256,112	116,416	45.46
	3	1705_VAC1	barcode01	2017	5	Virginia	C1	210,870	61,510	29.17
		1705_VAC2	barcode02	2017	5	Virginia	C2	1,570	435	27.71
		1705_VAC3	barcode03	2017	5	Virginia	C3	162,283	46,950	28.93
		1705_VAM1	barcode04	2017	5	Virginia	M1	271,738	113,837	41.89
		1705_VAM2	barcode05	2017	5	Virginia	M2	287,569	89,192	31.02
		1705_VAM3	barcode06	2017	5	Virginia	M3	366,969	125,807	34.28
		1711_CA1	barcode07	2017	11	California	CA1	279,127	71,938	25.77
		1711_CA2	barcode08	2017	11	California	CA2	198,841	65,385	32.88
		1711_CA3	barcode09	2017	11	California	CA3	179,352	46,051	25.68
		1711_IL1	barcode10	2017	11	Illinois	IL1	163,679	48,242	29.47
		1711_IL2	barcode11	2017	11	Illinois	IL2	266,657	70,213	26.33
		1711_IL3	barcode12	2017	11	Illinois	IL3	93,894	25,343	26.99
FAK96961	1	1711_NYNE	barcode01	2017	11	New York	NYNE	514,521	178,249	34.64

	1711_NYNW	barcode02	2017	11	New York	NYNW	735,837	50,120	6.81
	1711_NYSE	barcode03	2017	11	New York	NYSE	320,039	112,684	35.21
	1711_NY1	barcode04	2017	11	New York	NY1	460,301	15,710	3.41
	1711_NY2	barcode05	2017	11	New York	NY2	584,159	190,958	32.69
	1711_NY3	barcode06	2017	11	New York	NY3	487,547	192,230	39.43
	1711_SC1	barcode07	2017	11	South Carolina	SC1	409,716	139,265	33.99
	1711_SC2	barcode08	2017	11	South Carolina	SC2	542,919	215,707	39.73
	1711_SC3	barcode09	2017	11	South Carolina	SC3	339,762	144,057	42.4
	1711_VAC1	barcode10	2017	11	Virginia	C1	374,443	174,402	46.58
	1711_VAC2	barcode11	2017	11	Virginia	C2	318,744	126,507	39.69
	1711_VAC3	barcode12	2017	11	Virginia	C3	252,732	109,320	43.26
2	1711_VAM1	barcode01	2017	11	Virginia	M1	388,079	136,970	35.29
	1711_VAM2	barcode02	2017	11	Virginia	M2	302,728	109,643	36.22
	1711_VAM3	barcode03	2017	11	Virginia	M3	233,240	86,730	37.18
	1806_CA1	barcode04	2018	6	California	CA1	318,093	151,798	47.72
	1806_CA2	barcode05	2018	6	California	CA2	384,553	147,795	38.43
	1806_CA3	barcode06	2018	6	California	CA3	559,779	199,960	35.72
	1806_IL1	barcode07	2018	6	Illinois	IL1	365,124	125,683	34.42
	1806_IL2	barcode08	2018	6	Illinois	IL2	354,173	135,480	38.25
	1806_IL3	barcode09	2018	6	Illinois	IL3	278,987	112,239	40.23
	1806_NYNE	barcode10	2018	6	New York	NYNE	285,463	92,782	32.5
	1806_NYNW	barcode11	2018	6	New York	NYNW	440,410	116,212	26.39
	1806_NYSE	barcode12	2018	6	New York	NYSE	208,272	70,774	33.98
3	1806_NY1	barcode01	2018	6	New York	NY1	230,439	70,455	30.57
	1806_NY2	barcode02	2018	6	New York	NY2	299,596	68,726	22.94
	1806_NY3	barcode03	2018	6	New York	NY3	60,219	4,689	7.79
	1806_SC1	barcode04	2018	6	South Carolina	SC1	288,529	93,567	32.43
	1806_SC2	barcode05	2018	6	South Carolina	SC2	259,089	76,568	29.55
	1806_SC3	barcode06	2018	6	South Carolina	SC3	330,778	124,083	37.51
	1806_VAC1	barcode07	2018	6	Virginia	C1	323,776	92,037	28.43
	1806_VAC2	barcode08	2018	6	Virginia	C2	262,287	85,092	32.44

		1806_VAC3	barcode09	2018	6	Virginia	C3	223,785	67,595	30.21
		1806_VAM1	barcode10	2018	6	Virginia	M1	235,557	74,118	31.46
		1806_VAM2	barcode11	2018	6	Virginia	M2	375,500	113,940	30.34
		1806_VAM3	barcode12	2018	6	Virginia	M3	318,890	93,695	29.38
FAK96899	1	1811_CA1	barcode01	2018	11	California	CA1	413,509	135,074	32.67
		1811_CA2	barcode02	2018	11	California	CA2	545,771	183,650	33.65
		1811_CA3	barcode03	2018	11	California	CA3	252,149	94,622	37.53
		1811_VAC1	barcode04	2018	11	Virginia	C1	654,665	162,116	24.76
		1811_VAC2	barcode05	2018	11	Virginia	C2	495,873	138,932	28.02
		1811_VAC3	barcode06	2018	11	Virginia	C3	608,888	199,094	32.7
		1811_VAM1	barcode07	2018	11	Virginia	M1	399,416	111,706	27.97
		1811_VAM2	barcode08	2018	11	Virginia	M2	402,382	129,405	32.16
		1811_VAM3	barcode09	2018	11	Virginia	M3	255,650	167,883	65.67
		1811_IL1	barcode10	2018	11	Illinois	IL1	359,734	103,433	28.75
		1811_IL2	barcode11	2018	11	Illinois	IL2	514,291	116,361	22.63
		1811_IL3	barcode12	2018	11	Illinois	IL3	182,892	43,556	23.82
	2	1811_SC1	barcode01	2018	11	South Carolina	SC1	326,741	72,278	22.12
		1811_SC2	barcode02	2018	11	South Carolina	SC2	699,492	99,627	14.24
		1811_SC3	barcode03	2018	11	South Carolina	SC3	370,386	108,194	29.21
		1811_NYNE	barcode04	2018	11	New York	NYNE	422,761	60,853	14.39
		1811_NYNW	barcode05	2018	11	New York	NYNW	368,033	60,273	16.38
		1811_NYSE	barcode06	2018	11	New York	NYSE	305,199	30,750	10.08
		1601_VAC1	barcode07	2016	1	Virginia	C1	342,154	84,099	24.58
		1601_VAC2	barcode08	2016	1	Virginia	C2	368,717	48,635	13.19
		1601_VAC3	barcode09	2016	1	Virginia	C3	432,612	90,362	20.89
		1601_VAM1	barcode10	2016	1	Virginia	M1	364,527	21,609	5.93
		1601_VAM2	barcode11	2016	1	Virginia	M2	288,557	80,257	27.81
		1601_VAM3	barcode12	2016	1	Virginia	M3	370,746	55,479	14.96

Table S2. Mean differences of alpha diversity measurements between two seasons by year and state. Tukey HSD was used to test the significance of each pairwise comparison

Year	Measurement	State	Early summer (ES)	Late fall (LF)	ES-LF	*p*-value
2017	Observed OTU richness	California	2622	2157	465	0.0614
		Illinois	2750	2513	191	0.9236
		New York	2131	2367	-235	0.6724
		South Carolina	2601	2218	384	0.1991
		Virginia	2047	1780	267	0.2664
	Shannon index	California	6.51	6.13	0.372	0.0360
		Illinois	6.64	6.45	0.193	0.6953
		New York	5.93	6.28	-0.347	0.0247
		South Carolina	6.43	6.14	0.288	0.1949
		Virginia	5.96	5.87	0.098	0.9509
2018	Observed OTU richness	California	2764	2455	310	0.9772
		Illinois	2687	2560	127	1.0000
		New York	1912	3104	1193	0.0014
		South Carolina	2316	2536	220	0.9980
		Virginia	1338	1876	538	0.1946
	Shannon index	California	6.58	6.42	0.162	0.9601
		Illinois	6.69	6.53	0.157	0.9667
		New York	6.36	6.79	-0.431	0.0279
		South Carolina	6.36	6.26	0.097	0.9989
		Virginia	5.86	5.92	-0.058	0.9997

Significant *p*-values are shaded gray

Table S3. The five most abundant bacterial orders in garden soils by state, year, and season

	2017				2018			
State	**Early summer**	**%**	**Late fall**	**%**	**Early summer**	**%**	**Late fall**	**%**
California	*Burkholderiales*	17.7	*Rhizobiales*	18.0	*Burkholderiales*	20.7	*Rhizobiales*	17.1
	Rhizobiales	14.5	*Burkholderiales*	16.6	*Rhizobiales*	14.1	*Burkholderiales*	16.0
	Chitinophagales	5.7	*Vicinamibacterales*	6.2	*Xanthomonadales*	5.9	*Vicinamibacterales*	5.7
	Vicinamibacterales	5.5	*Acidobacteriales*	4.7	*Vicinamibacterales*	5.3	*Chitinophagales*	4.0
	Xanthomonadales	4.5	*Chitinophagales*	3.7	*Chitinophagales*	4.8	*Xanthomonadales*	3.3
Illinois	*Burkholderiales*	19.8	*Burkholderiales*	17.8	*Burkholderiales*	20.0	*Burkholderiales*	21.3
	Rhizobiales	13.5	*Rhizobiales*	15.7	*Rhizobiales*	11.0	*Rhizobiales*	14.3
	Chitinophagales	6.4	*Vicinamibacterales*	7.7	*Vicinamibacterales*	5.3	*Vicinamibacterales*	7.7
	Vicinamibacterales	4.5	*Chitinophagales*	5.5	*Chitinophagales*	4.9	*Chitinophagales*	3.4
	Xanthomonadales	3.3	*Gammaproteobacteria*	1.8	*Pseudomonadales*	4.6	*Pseudomonadales*	2.6
New York	*Rhizobiales*	15.7	*Burkholderiales*	17.8	*Rhizobiales*	18.6	*Rhizobiales*	17.6
	Xanthomonadales	12.9	*Rhizobiales*	16.5	*Burkholderiales*	13.9	*Burkholderiales*	11.1
	Acidobacteriales	12.5	*Vicinamibacterales*	6.9	*Vicinamibacterales*	5.0	*Sphingomonadales*	5.6
	Burkholderiales	8.9	*Chitinophagales*	2.9	*Sphingomonadales*	4.6	*Enterobacterales*	4.9
	Chitinophagales	4.7	*Gemmatimonadales*	2.1	*Xanthomonadales*	3.4	*Xanthomonadales*	3.0
South Carolina	*Rhizobiales*	15.1	*Burkholderiales*	21.1	*Rhizobiales*	21.0	*Rhizobiales*	20.1
	Burkholderiales	14.0	*Rhizobiales*	16.5	*Burkholderiales*	14.0	*Burkholderiales*	15.4
	Vicinamibacterales	7.7	*Vicinamibacterales*	8.6	*Vicinamibacterales*	7.2	*Vicinamibacterales*	11.3
	Chitinophagales	5.3	*Sphingomonadales*	2.6	*Chitinophagales*	3.0	*Sphingomonadales*	2.5
	Bacillales	5.0	*Chitinophagales*	2.5	*Polyangiales*	2.3	*Chitinophagales*	2.0
Virginia	*Rhizobiales*	21.0	*Rhizobiales*	16.8	*Burkholderiales*	16.4	*Rhizobiales*	21.6
	Burkholderiales	11.6	*Burkholderiales*	13.3	*Rhizobiales*	14.3	*Burkholderiales*	12.0
	Vicinamibacterales	8.4	*Vicinamibacterales*	9.8	*Vicinamibacterales*	8.7	*Vicinamibacterales*	8.1
	Bacillales	4.3	*Chitinophagales*	3.4	*Chitinophagales*	3.8	*Gaiellales*	4.4
	Gaiellales	2.9	*Gaiellales*	3.1	*Rokubacteriales*	2.7	*Solirubrobacterales*	2.5

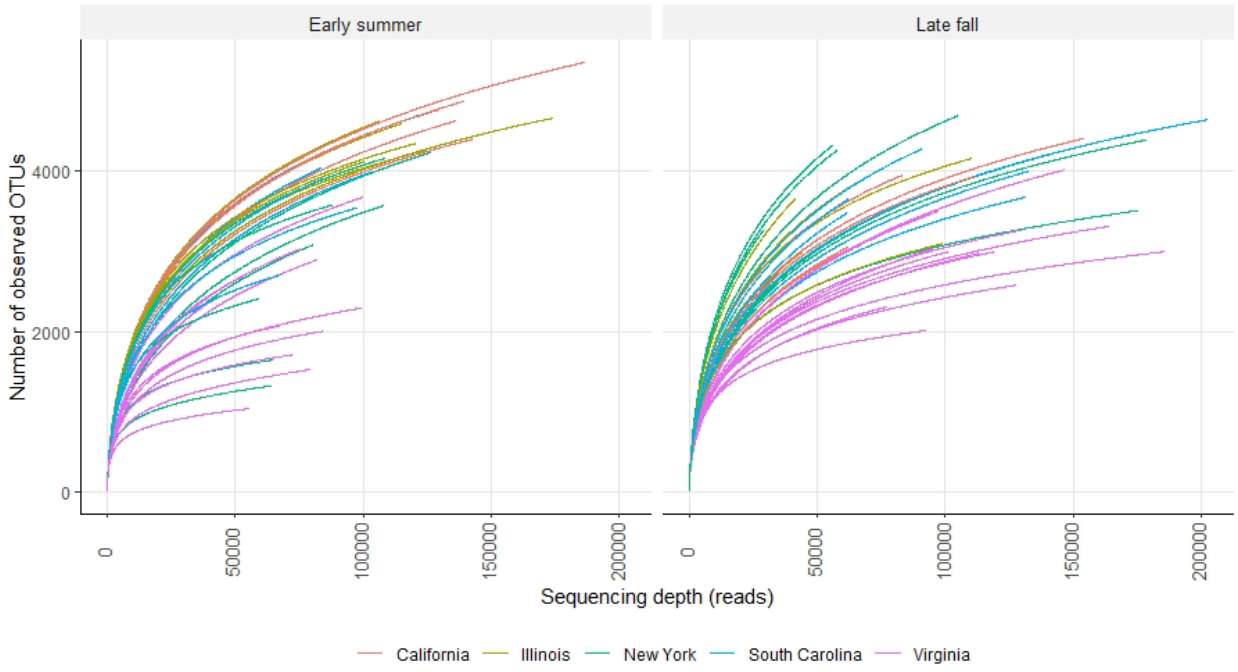


Figure S1. Rarefaction curve of sequencing depth and OTU numbers for samples collected from California, Illinois, New York, South Carolina, and Virginia in early summer and late fall on the left and right, respectively.

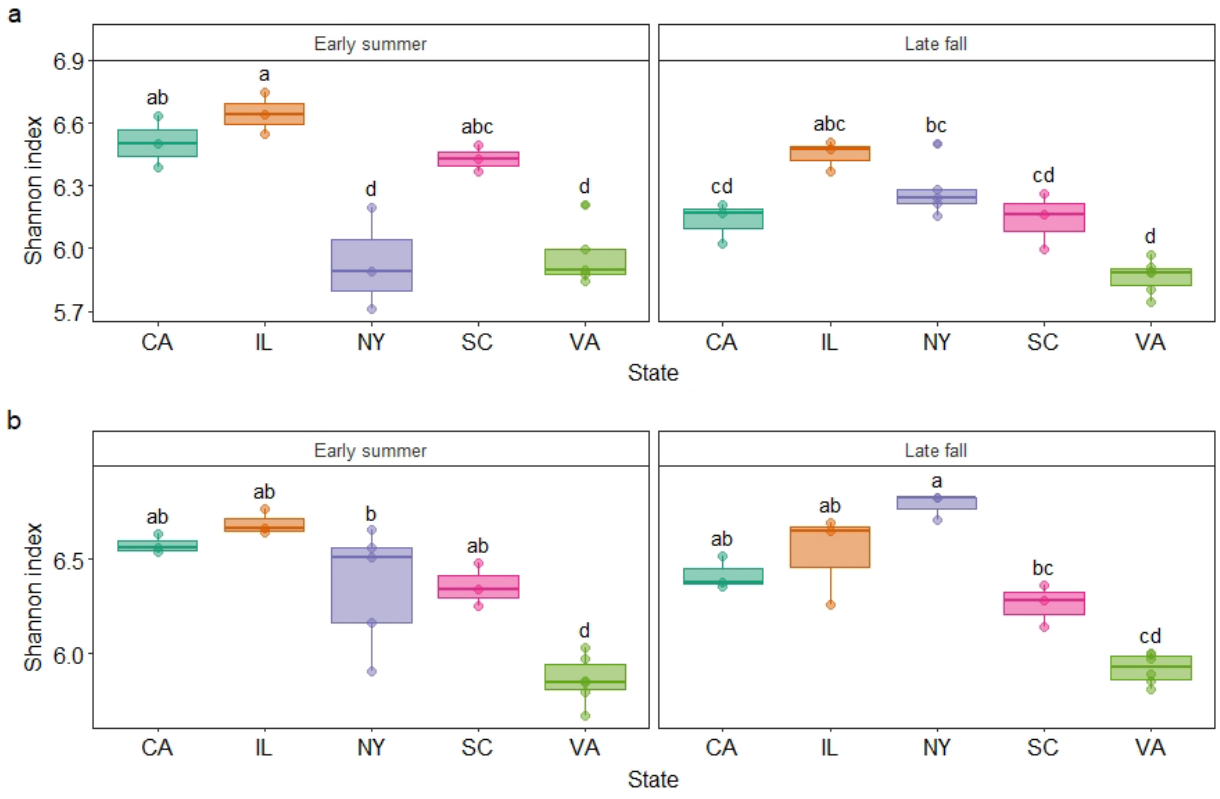


Figure S2. Shannon index of the early summer and late fall season samples collected from California (CA), Illinois (IL), New York (NY), South Carolina (SC), and Virginia (VA) in 2017 (**a**) and 2018 (**b**). Boxes topped by completely different letter(s) within each year and season differed according to Tukey HSD post hoc test at p=0.05.

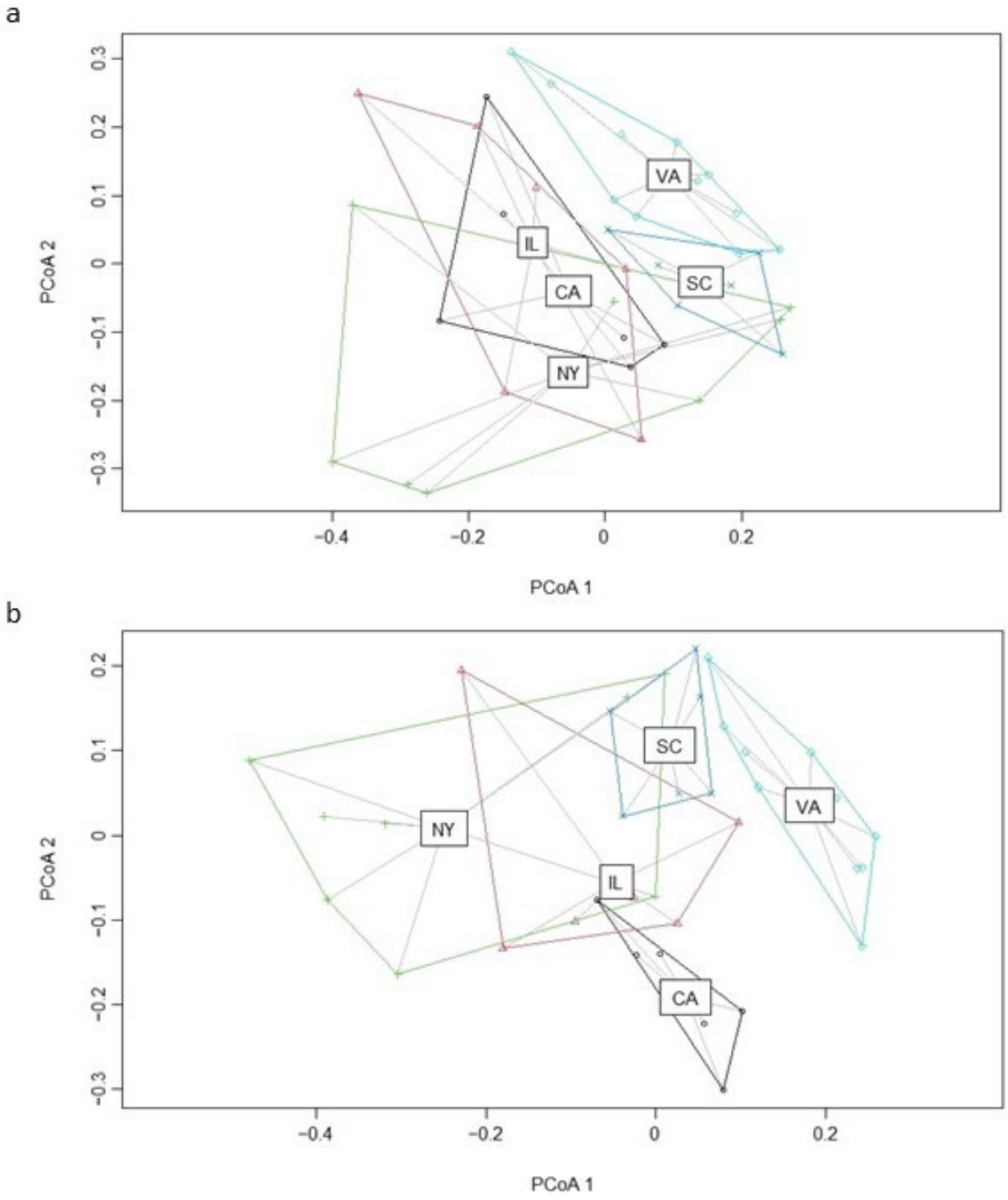


Figure S3. PCoA plots showing dispersion of Bray–Curtis distance among the 2017 (**a**) and 2018 (**b**) samples from different states – California (CA), Illinois (IL), New York (NY), South Carolina (SC) and Virginia (VA). Sample centroids are labeled.

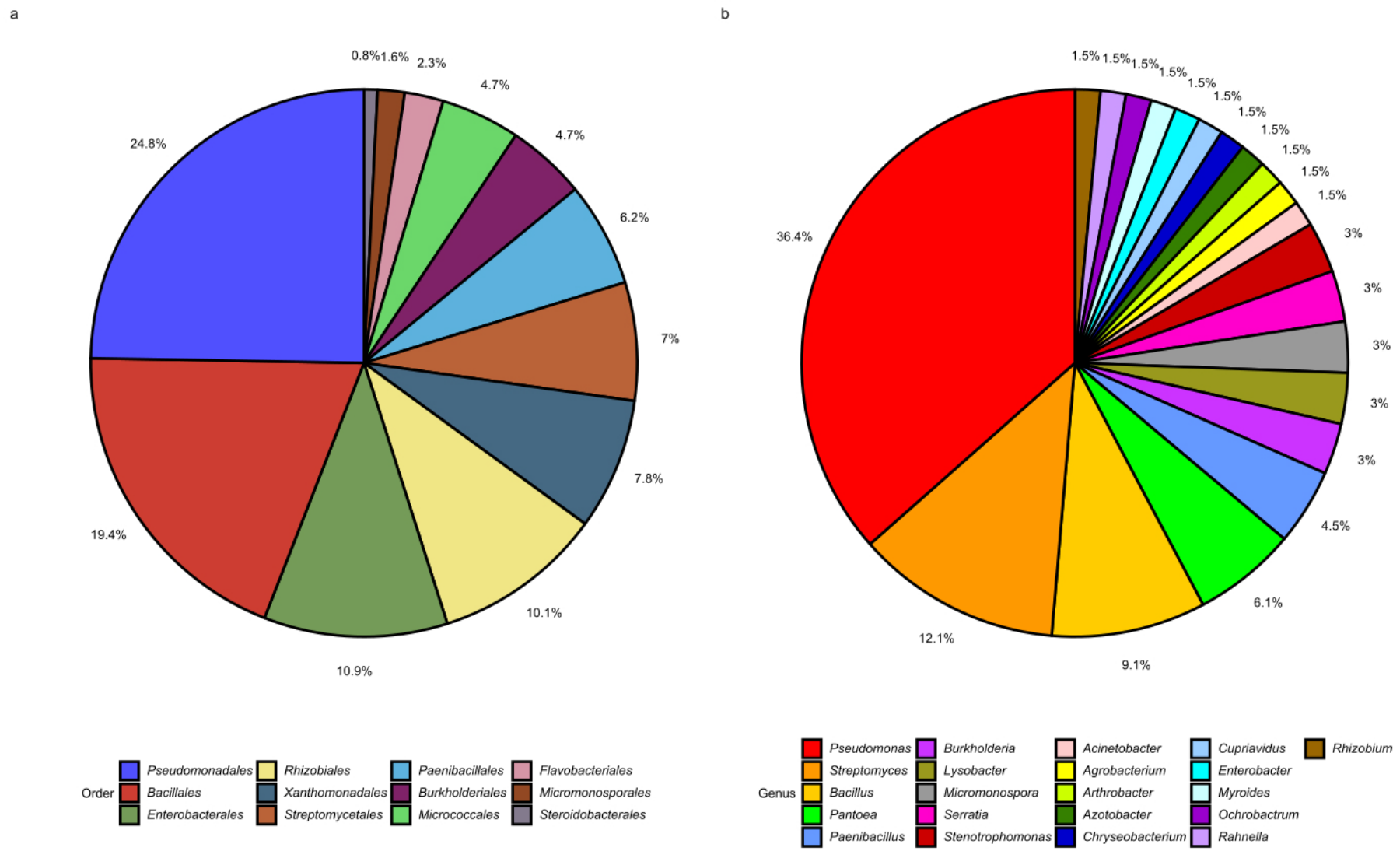


Figure S4. Pie chart showing the relative abundance of twelve bacterial orders (a) and twenty-one genera (b) to which the 66 identified species with biocontrol potentials belong, respectively.