

**Table S1.** The pesticides used for common insect pests and diseases.

Vegetable Species	Common Insect Pests and Diseases	Pesticides	Dosage Form	Dilution Ratio	Safe Interval Period of Pesticides (d)
Cucumber	Downy mildew	Dimethomorph	50% WP	1500	1
		Cymoxanil	50% WP	2000	1
		Propamocarb hydrochloride	72.2% AS	800	3
	Corynespora target spot	Mancozeb	80.0% WG	1000	15
	Angular leaf spot	Zhongshengmycin	3% WP	600	3
	Scab	Flusilazole	40% EC	8000	1
		Azoxystrobin	25% SC	1000	3
	Fusarium wilt	Thiram	50% WP	600	7
		Thiophanate-Methyl	70% WP	600	1
	Powdery mildew	Flusilazole	40% EC	8000	2
		Kresoxim-methyl	50% WG	4000	1
		Pyraclostrobin	25% EC	2500	1
	Anthracnose	Prochloraz	50% WP	1500	1
		Chlorothalonil	75% WP	500	7
		Azoxystrobin	25% SC	2000	3
	Thrips	Blue sticky trap	-	-	-
		80 mesh insect proof net	-	-	-
		Spinosad	2.5% EC	1000	1
		Imidacloprid	10% WP	2000	1
	Aphids	Yellow sticky trap	-	-	-
		80 mesh insect proof net	-	-	-
		Imidacloprid	10.0% WP	2000	1
		Acetamiprid	3% EC	1500	1
		Alphacypermethrin	5% EC	5000-8000	3
Tomato	Early blight	Iprodione	50% WP	600	7
		Difenoconazole	10% WG	1000	7
		Azoxystrobin	25% SC	2000	3
	Late blight	Dimethomorph	50% WP	1500	1
		Cymoxanil	50% WP	2000	1
		Propamocarb hydrochloride	72.2% AS	800	7
	Gray mould	Procymidone	50.0% WP	1000	1
		Vinchlozoline	50% SC	800	4
	Powdery mildew	Flusilazole	40% EC	8000	2
		Kresoxim-methyl	50% WG	4000	1
		Pyraclostrobin	25% EC	2500	1
	Tobacco mosaic virus	Ningnanmycin	10% SP	1000	5
	Cucumber mosaic virus	Ningnanmycin	10% SP	1000	5
	Tomato spotted wilt virus	Ningnanmycin	10% SP	1000	5
	Aphids	Yellow sticky trap	-	-	-

	80 mesh insect proof net	-	-	-
	Imidacloprid	10% WP	2000	7
	Acetamiprid	3% EC	1500	7
	Pirimicarb	50% WP	4000	1
	Alphacypermethrin	5% EC	5000–8000	7
Leaf miner	Yellow sticky trap	-	-	-
	80 mesh insect proof net	-	-	-
	Cyromazine	10% SC	800	7
	Alphacypermethrin	5% EC	5000–8000	7
Whitefly	Yellow sticky trap	-	-	-
	60 mesh insect proof net	-	-	-
	Bifenthrin	2.5% EC	2000	1
	Imidacloprid	10% WP	2000	7
	Acetamiprid	3% EC	1500	7

AS, aqueous solution; EC, emulsifiable concentrate; SC, suspension concentrate; SP, soluble powder; WG, water-dispersible granule; WP, wettable powder. The pesticides were alternately used according to their safe interval period.

**Table S2.** The relative abundances of main harmful microbial genera.

Sampling Time	Treatments	<i>Cladosporium</i> (%)	<i>Verticillium</i> (%)	<i>Fusarium</i> (%)
5th post (2020.09.01)	CK	0.21	0.01	0.02
	R	0.25	0.04	0.05
6th pre (2020.12.21)	CK	0.79	0.64	0.04
	R	0.78	1.05	0.04

CK, the non-vegetable residue treatment; R, the vegetable residue treatment; pre, the pre-returning stage; post, the post-returning stage; number 5 and 6, the times of in situ vegetable residue return.