

Appendix Two

Results of SADIE within-field spatial pattern analysis (see Chapter eight).

Table 1. Horti grid 1: results of the SADIE analysis of arthropod groups collected via vacuum sampling of 25cm row of soybean plants. A number of aggregation indices are produced which quantify the degree of non-randomness within a set of data. The null-hypothesis being tested is that the counts within the grid are arranged randomly with respect to one another.

parameter	mean	variance	I _a	P _a	gaps		patches	
					mean V _j	P _j	mean V _i	P _i
n = 42								
% Eggs predated	44.64	2021.21	0.97	0.51	-0.95	0.57	0.97	0.51
Egg cards found	1.21	0.61	0.94	0.57	-0.88	0.80	0.95	0.56
No. eggs parasitised	NA							
% Leaf area loss**	2.45	5.18	1.38	0.03	-1.37	0.03	1.44	0.01
V Total arthropods	44.83	9074.34	0.77	0.95	-0.76	0.97	0.79	0.96
V Pests	33.40	7235.37	0.79	0.93	-0.76	0.96	0.91	0.66
V Predators	6.24	151.11	0.77	0.97	-0.77	0.98	0.89	0.78
V Predatory Hemiptera	NA							
V Syrphidae	NA							
V Araneae	0.52	0.40	0.86	0.82	-0.87	0.82	0.87	0.84
PT Total arthropods*	204.48	10006.16	1.30	0.05	-1.26	0.08	1.18	0.12
PT Pests**	5.64	15.36	1.74	0.00	-1.57	0.00	1.41	0.02
PT Wasps	2.00	2.15	1.21	0.10	-1.26	0.07	0.91	0.13
PT Other	72.36	4343.99	1.03	0.38	-0.96	0.54	0.92	0.62
PT Predators	124.48	3969.27	1.46	0.02	-1.37	0.03	1.36	0.03
PT Araneae	7.52	14.84	0.98	0.49	-1.00	0.44	0.89	0.75
PT Lycosidae	6.33	12.62	1.04	0.35	-1.01	0.40	1.05	0.31
PT Dermaptera**	30.14	407.69	2.10	0.00	-1.89	0.00	1.81	0.00
PT Predatory Coleoptera**	2.07	10.99	1.53	0.01	-1.46	0.01	1.55	0.00
PT Carabidae*	1.10	6.97	1.33	0.04	-1.34	0.04	1.12	0.21
PT Predatory Formicidae**	84.40	3476.15	1.37	0.03	-1.29	0.06	1.33	0.03
O Total arthropods	NA							
O Pests	NA							

iseed: 2104, k5psim: 153

V : Vacuum samples of 25cm of soybean row

PT: Catch per pitfall trap per six days

O: counts after observations on 25cm of soybean row

** Values are not distributed randomly within the sample grid, there are significant patches and gaps in the arthropod distribution.

* Values are distributed into gaps OR patches only

Table 2. Mendel grid 1: results of the SADIE analysis of arthropod groups collected via vacuum sampling of 25cm row of soybean plants. A number of aggregation indices are produced which quantify the degree of non-randomness within a set of data. The null-hypothesis being tested is that the counts within the grid are arranged randomly with respect to one another.

parameter	mean	variance	I_a	P_a	gaps		patches	
					mean V_j	P_j	mean V_i	P_i
n = 42								
% Eggs predated**	16.43	1013.76	1.58	0.00	-1.64	0.00	1.67	0.00
Egg cards found	0.57	0.49	1.24	0.07	-1.24	0.08	1.15	0.15
No. eggs parasitised	1.52	17.57	1.08	0.26	-1.07	0.28	1.17	0.14
% Leaf area loss**	3.19	5.28	1.71	0.00	-1.61	0.00	1.62	0.00
V Total arthropods	81.14	4073.10	0.88	0.76	-0.83	0.89	0.92	0.63
V Pests	59.71	3303.82	0.82	0.90	-0.76	0.99	0.87	0.78
V Other	14.67	139.93	0.90	0.68	-0.91	0.67	0.93	0.65
V Predators	5.60	26.25	1.31	0.05	-1.24	0.10	1.20	0.11
V Predatory Hemiptera	0.95	1.12	1.31	0.05	-1.31	0.05	1.26	0.06
V Syrphidae*	1.45	3.91	1.34	0.04	-1.29	0.06	1.26	0.07
V Araneae	0.59	0.64	0.93	0.60	-0.93	0.63	0.92	0.66
PT Total arthropods	226.43	4164.01	0.81	0.89	-0.87	0.79	0.89	0.73
PT Pests	26.57	288.78	0.97	0.52	-0.93	0.62	1.05	0.31
PT Wasps**	19.59	110.39	1.36	0.04	-1.35	0.03	1.42	0.02
PT Other	82.35	672.97	1.05	0.32	-1.02	0.39	1.08	0.25
PT Predators	97.90	1427.65	1.08	0.25	-1.04	0.32	1.17	0.13
PT Araneae**	3.62	7.03	1.91	0.00	-1.94	0.00	1.62	0.00
PT Lycosidae**	1.93	2.70	1.48	0.01	-1.52	0.01	1.39	0.02
PT Dermaptera**	0.86	1.49	1.39	0.03	-1.39	0.03	1.38	0.02
PT Predatory Formicidae	88.95	1365.56	1.18	0.13	-1.13	0.18	1.21	0.11
O Total arthropods	4.71	7.96	1.09	0.24	-1.10	0.23	1.13	0.17
O Pests*	2.90	2.43	1.31	0.04	-1.28	0.56	1.38	0.24

iseed: 2104, k5psim: 153

V : Vacuum samples of 25cm of soybean row

PT: Catch per pitfall trap per six days

O: counts after observations on 25cm of soybean row

** Values are not distributed randomly within the sample grid, there are significant patches and gaps in the arthropod distribution.

* Values are distributed into gaps OR patches only

Table 3. Mendel grid 2: results of the SADIE analysis of arthropod groups collected via vacuum sampling of 25cm row of soybean plants. A number of aggregation indices are produced which quantify the degree of non-randomness within a set of data. The null-hypothesis being tested is that the counts within the grid are arranged randomly with respect to one another.

n = 42 parameter	mean	variance	I_a	P_a	gaps mean V_j	P_j	patches mean V_i	P_i
% Eggs predated	37.74	1568.53	0.98	0.45	-1.01	0.39	1.04	0.32
Egg cards found	1.19	0.40	1.01	0.40	-1.01	0.38	1.01	0.39
No. eggs parasitised	NA							
% Leaf area loss**	5.95	12.53	1.96	0.00	-1.69	0.00	1.94	0.00
V Total arthropods*	48.96	579.75	1.24	0.09	-1.25	0.08	1.35	0.04
V Pests*	18.90	87.55	1.15	0.18	-1.16	0.15	0.13	0.03
V Predators**	6.74	14.69	1.72	0.00	-1.60	0.00	1.43	0.01
V Predatory Hemiptera**	1.60	2.05	1.52	0.01	-1.45	0.01	1.49	0.01
V Syrphidae	NA							
V Araneae*	2.93	7.14	1.39	0.03	-1.33	0.04	1.16	0.14
PT Total arthropods*	247.38	19885.02	1.21	0.10	-1.19	0.12	1.30	0.05
PT Pests	12.26	40.39	0.87	0.79	-0.97	0.50	0.83	0.92
PT Wasps	10.76	51.89	1.19	0.13	-1.18	0.13	1.16	0.13
PT Other**	123.83	6664.48	1.51	0.01	-1.45	0.02	1.36	0.03
PT Predators	100.52	9237.23	1.18	0.14	-1.15	0.17	0.96	0.52
PT Araneae	6.98	11.49	1.20	0.12	-1.12	0.19	1.22	0.09
PT Lycosidae	3.83	3.80	0.99	0.45	-1.01	0.39	1.04	0.32
PT Dermaptera	4.19	11.13	1.16	0.16	-1.17	0.14	1.16	0.13
PT Predatory Formicidae	86.02	8836.85	1.17	0.16	-1.16	0.15	0.95	0.56
O Total arthropods	2.50	8.60	1.26	0.08	-1.21	0.13	1.38	0.02
O Pests*	1.17	3.75	1.27	0.08	-1.21	0.11	1.38	0.03

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V : Vacuum samples of 25cm of soybean row

PT: Catch per pitfall trap per six days

O: counts after observations on 25cm of soybean row

** Values are not distributed randomly within the sample grid, there are significant patches and gaps in the arthropod distribution.

* Values are distributed into gaps OR patches only

Table 4. Gilbert A grid 1: results of the SADIE analysis of arthropod groups collected via vacuum sampling of 25cm row of soybean plants. A number of aggregation indices are produced which quantify the degree of non-randomness within a set of data. The null-hypothesis being tested is that the counts within the grid are arranged randomly with respect to one another.

parameter	mean	variance	I_a	P_a	gaps		patches	
					mean V_j	P_j	mean V_i	P_i
n = 45								
% Eggs predated	39.33	1583.64	1.06	0.30	-1.02	0.36	1.13	0.17
Egg cards found	0.56	0.25	0.94	0.95	-0.94	0.57	0.95	0.55
No. eggs parasitised	NA							
% Leaf area loss**	2.96	3.50	1.68	0.00	-1.53	0.01	1.49	0.01
V Total arthropods**	50.98	717.25	2.09	0.00	-1.92	0.00	1.92	0.00
V Pests**	45.77	641.04	2.02	0.00	-1.75	0.00	1.78	0.00
V Predators**	2.71	3.85	2.07	0.00	-2.04	0.00	2.12	0.00
V Predatory Hemiptera**	1.60	2.11	1.57	0.00	-1.47	0.01	1.42	0.02
V Syrphidae	NA							
V Araneae**	0.91	0.99	1.59	0.01	-1.60	0.00	1.35	0.03
PT Total arthropods	95.78	4320.31	0.94	0.57	-0.93	0.62	0.90	0.69
PT Pests	13.71	27.21	0.90	0.68	-0.95	0.57	0.93	0.63
PT Wasps	2.78	5.59	0.98	0.49	-0.95	0.55	1.14	0.17
PT Other	46.71	386.76	0.89	0.70	-0.98	0.47	0.91	0.68
PT Predators	32.58	4213.70	1.11	0.26	-1.09	0.28	0.90	0.65
PT Araneae**	4.84	15.82	2.07	0.00	-1.91	0.00	1.45	0.01
PT Lycosidae**	2.91	7.04	2.23	0.00	-2.14	0.00	1.87	0.00
PT Dermaptera	4.16	9.27	1.08	0.26	-1.08	0.27	1.02	0.39
PT Predatory Formicidae*	18.29	4339.03	1.35	0.03	-1.28	0.07	1.06	0.33
PT Predatory Staphylinidae**	0.47	0.89	1.79	0.00	-1.79	0.00	1.76	0.00
PT Carabidae*	2.27	6.11	1.26	0.07	-1.24	0.08	1.32	0.04

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V : Vacuum samples of 25cm of soybean row

PT: Catch per pitfall trap per six days

** Values are not distributed randomly within the sample grid, there are significant patches and gaps in the arthropod distribution.

* Values are distributed into gaps OR patches only

Table 5. Gilbert A grid 2: results of the SADIE analysis of arthropod groups collected via vacuum sampling of 25cm row of soybean plants. A number of aggregation indices are produced which quantify the degree of non-randomness within a set of data. The null-hypothesis being tested is that the counts within the grid are arranged randomly with respect to one another.

parameter	n = 45		I_a	P_a	gaps		patches	
	mean	variance			mean V_j	P_j	mean V_i	P_i
% Eggs predated	59.00	1900.68	1.03	0.33	-1.02	0.37	1.02	0.38
Egg cards found	0.71	0.21	1.01	0.22	-1.11	0.19	1.10	0.20
No. eggs parasitised	NA							
% Leaf area loss*	4.13	3.94	1.30	0.06	-1.58	0.00	1.35	0.03
V Total arthropods**	46.69	420.31	2.47	0.00	-2.20	0.00	2.09	0.00
V Pests**	37.62	378.33	2.50	0.00	-2.33	0.00	2.40	0.00
V Other*	4.27	8.15	1.29	0.06	-1.23	0.08	1.28	0.05
V Predators	3.91	4.40	0.92	0.62	-0.90	0.70	0.82	0.92
V Predatory Hemiptera	0.82	1.01	0.80	0.94	-0.80	0.93	0.82	0.95
V Syrphidae	NA							
V Araneae*	2.62	2.33	1.33	0.05	-1.24	0.08	1.14	0.17
PT Total arthropods	103.71	7849.39	1.22	0.13	-1.11	0.24	1.05	0.30
PT Pests*	16.80	260.80	1.42	0.02	-1.46	0.02	1.20	0.11
PT Wasps	4.51	7.07	0.94	0.56	-0.98	0.50	0.94	0.59
PT Other	33.51	220.35	1.15	0.17	-1.10	0.22	0.98	0.46
PT Predators*	48.89	7405.60	1.30	0.06	-1.21	0.12	1.30	0.05
PT Araneae	5.49	12.26	1.07	0.30	-0.93	0.61	1.04	0.32
PT Lycosidae	3.78	7.31	1.23	0.10	-1.17	0.16	1.19	0.11
PT Dermaptera*	2.98	14.11	1.49	0.02	-1.44	0.02	1.26	0.06
PT Predatory Formicidae	38.64	7480.60	1.29	0.06	-1.23	0.11	1.28	0.07
PT Predatory Staphylinidae	NA							
PT Carabidae	NA							

iseed: 2104, k5psim: 153

V : Vacuum samples of 25cm of soybean row

PT: Catch per pitfall trap per six days

** Values are not distributed randomly within the sample grid, there are significant patches and gaps in the arthropod distribution.

* Values are distributed into gaps OR patches only

Table 6. Gilbert C grid 1: results of the SADIE analysis of arthropod groups collected via vacuum sampling of 25cm row of soybean plants. A number of aggregation indices are produced which quantify the degree of non-randomness within a set of data. The null-hypothesis being tested is that the counts within the grid are arranged randomly with respect to one another.

parameter	mean	variance	I_a	P_a	gaps		patches	
					mean V_j	P_j	mean V_i	P_i
n = 42								
% Eggs predated*	32.38	1661.26	1.22	0.09	-1.30	0.04	1.25	0.07
Egg cards found	0.48	0.26	0.83	0.92	-0.84	0.91	0.83	0.94
No. eggs parasitised	NA							
% Leaf area loss*	3.60	7.52	1.43	0.02	-1.40	0.02	1.22	0.09
plant height (cm)*	22.29	93.53	1.48	0.01	-1.54	0.01	1.22	0.10
V Total arthropods	21.90	204.92	1.17	0.15	-1.09	0.26	1.25	0.07
V Pests*	18.26	146.78	1.15	0.16	-1.13	0.19	1.38	0.02
V Other**	1.74	4.00	1.61	0.00	-1.61	0.00	1.64	0.00
V Predators	1.45	2.69	0.79	0.94	-0.78	0.98	0.86	0.84
V Predatory Hemiptera	NA							
V Syrphidae	NA							
V Araneae	0.67	0.81	0.90	0.69	-0.91	0.67	0.99	0.44
PT Total arthropods**	83.10	1629.41	1.98	0.00	-1.90	0.00	1.98	0.00
PT Pests**	12.10	45.45	1.44	0.01	-1.33	0.04	1.37	0.03
PT Wasps	3.88	8.11	0.73	1.00	-0.75	0.99	0.83	0.93
PT Other**	39.62	621.02	1.76	0.00	-1.69	0.00	1.81	0.00
PT Predators**	27.50	558.60	1.61	0.00	-1.56	0.00	1.74	0.00
PT Araneae**	5.07	22.65	2.02	0.00	-1.83	0.00	1.69	0.00
PT Lycosidae**	2.67	9.06	1.67	0.00	-1.62	0.00	1.41	0.02
PT Dermoptera**	2.64	11.02	1.60	0.00	-1.61	0.00	1.74	0.00
PT Predatory Formicidae	7.29	354.12	1.24	0.09	-1.23	0.09	1.23	0.12
PT Predatory Staphylinidae	NA							
PT Carabidae**	10.07	127.97	1.92	0.00	-2.07	0.00	1.78	0.00

iseed: 2104, k5psim: 153

V : Vacuum samples of 25cm of soybean row

PT: Catch per pitfall trap per six days

** Values are not distributed randomly within the sample grid, there are significant patches and gaps in the arthropod distribution.

* Values are distributed into gaps OR patches only

Table 7. Gilbert C grid 2: results of the SADIE analysis of arthropod groups collected via vacuum sampling of 25cm row of soybean plants. A number of aggregation indices are produced which quantify the degree of non-randomness within a set of data. The null-hypothesis being tested is that the counts within the grid are arranged randomly with respect to one another.

parameter	mean	variance	I_a	P_a	gaps		patches	
					mean V_j	P_j	mean V_i	P_i
n = 42								
% Eggs predated*	39.64	1976.09	0.92	0.05	-0.92	0.64	0.90	0.71
Egg cards found	0.55	0.25	0.86	0.85	-0.86	0.85	0.86	0.85
No. eggs parasitised	NA							
plant height (cm)**	43.93	158.21	1.84	0.00	-1.54	0.01	1.89	0.00
% Leaf area loss	3.14	1.59	1.14	0.18	-1.22	0.10	1.23	0.09
V Total arthropods	38.31	122.99	0.85	0.81	-0.87	0.82	0.80	0.96
V Pests	30.52	133.62	0.87	0.78	-0.88	0.77	0.89	0.76
V Other*	2.64	8.77	1.28	0.07	-1.25	0.08	1.31	0.04
V Predators*	4.14	5.68	1.51	0.01	-1.39	0.02	1.27	0.06
V Predatory Hemiptera	1.62	2.14	1.20	0.12	-1.16	0.14	1.02	0.38
V Syrphidae	NA							
V Araneae*	2.21	2.51	1.24	0.09	-1.23	0.08	1.37	0.03
PT Total arthropods	134.55	5948.74	0.84	0.82	-0.87	0.78	0.99	0.48
PT Pests	26.07	61.48	1.33	0.05	-1.28	0.06	1.26	0.07
PT Wasps**	9.43	22.25	1.68	0.00	-1.66	0.00	1.63	0.00
PT Other**	39.19	181.38	2.14	0.00	-1.94	0.00	2.00	0.00
PT Predators	59.86	5746.85	0.94	0.60	-0.93	0.62	0.95	0.57
PT Araneae**	5.62	21.36	1.93	0.00	-1.95	0.00	1.55	0.00
PT Lycosidae**	3.50	14.45	2.13	0.00	-2.21	0.00	1.76	0.00
PT Dermaptera**	17.88	113.86	1.78	0.00	-1.59	0.00	1.59	0.00
PT Predatory Formicidae	28.17	5375.02	1.14	0.21	-1.17	0.16	0.98	0.48
PT Predatory Staphylinidae**	4.79	11.93	1.51	0.01	-1.48	0.01	1.52	0.01
PT Carabidae	1.67	4.72	0.97	0.49	-0.94	0.59	1.01	0.40

iseed: 2104, k5psim: 153

V : Vacuum samples of 25cm of soybean row

PT: Catch per pitfall trap per six days

** Values are not distributed randomly within the sample grid, there are significant patches and gaps in the arthropod distribution.

* Values are distributed into gaps OR patches only

Table 8. Gilbert C grid 3: results of the SADIE analysis of arthropod groups collected via vacuum sampling of 25cm row of soybean plants. A number of aggregation indices are produced which quantify the degree of non-randomness within a set of data. The null-hypothesis being tested is that the counts within the grid are arranged randomly with respect to one another.

parameter	mean	variance	I_a	P_a	gaps		patches	
					mean V_j	P_j	mean V_i	P_i
% Eggs predated	29.97	1819.58	1.03	0.09	-1.03	0.34	1.01	0.37
Egg cards found	0.31	0.22	1.21	0.10	-1.20	0.10	1.21	0.10
No. eggs parasitised	NA							
Plant height (cm)**	54.60	237.86	1.67	0.00	-1.45	0.01	1.63	0.00
% Leaf area loss	4.38	6.58	1.24	0.09	-1.26	0.07	1.26	0.06

iseed: 2104, k5psim: 153

** Values are not distributed randomly within the sample grid,
there are significant patches and gaps in the arthropod distribution.

* Values are distributed into gaps OR patches only