

RESEARCH AND DEVELOPMENT
PROJECT REPORT



Determine Efficacy and Crop Safety of Zen-O-Spore Against Botrytis Fruit Rot
and Other Foliar Diseases on Strawberry in Florida

Trial ID:
BWI1501

Prepared for:
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Prepared by:



Winter 2015-2016

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ABSTRACT

Product(s) Tested: Zen-o-spore
Crop: Strawberry
Location: Parrish, FL
Duration of Project: 6 months
Objective: Determine efficacy of Zen-o-spore against botrytis fruit rot and foliar diseases on strawberries.

Findings:

- Zen-O-Spore had a slightly lower numerical incidence of botrytis than the grower standard treatment in both at harvest and post-harvest evaluations.
- No treatment provided superior protection against powdery mildew.
- No difference was detected in average berry size.

Narrative:

This study was conducted to evaluate the efficacy of Zen-o-spore against botrytis fruit rot and foliar diseases on strawberry crops in Florida.

This efficacy and demonstration trial took place at a production field operated by Pacific Tomato in Parrish, FL.

Strawberry green-top/bare-root plants (Radiance variety) were hand transplanted into planting beds on October, 15 2015 according to local commercial practice. The beds were 30 inches wide, 9 inches tall, and spaced 4 feet center to center. On each bed two planting lines of strawberry plants were spaced 14 inches apart and each strawberry plant within a line was spaced 14 inches apart. The total plant population was 18,668 plants per acre. The trial design was a modified randomized complete block design in which pseudo-replications were established differently treated sections of the field. The majority of the field was treated to the grower standard (treatment 1). One, 12 row block was treated with the grower standard and Zen-O-Spore at 3 lbs/acre (treatment 2). Differently treated plots for replications 1 and 2 were either in the grower standard treated rows adjacent to the grower standard + Zen-O-Spore treated rows (treatment 1) or in the grower standard + Zen-O-Spore treated rows themselves (treatment 2). Replications 3 and 4 were similarly placed on the opposite side of the treated area. Each plot was 30 feet long and 1 row (or 4 feet) wide.

The treatments were first applied on October 10, 2015 when the plants were at the 5% bloom stage. Applications continued at a 4 to 7 day interval for a total of 23 applications. The treatments were applied by spray with a commercial sprayer containing 6 hollow cone nozzles covering each planting bed (or two lines of strawberry plants) at 250 psi.

Efficacy against botrytis grey mold (*Botrytis cinerea*) was determined by two methods. Forty random ripe fruit per plot were harvested on a weekly basis for a total of nine times during the season. The marketable fruit were tallied and weighed and the unmarketable fruit were tallied and separated by defect type. Of note, fruit infected with grey mold had brown patches or spots on the calyx or receptacle and later stage symptoms included grey spore development on the receptacle. The cumulative grey mold incidence was determined by dividing the total number of grey mold infected fruit by the total number of fruit harvested. No statistically significant difference was found although treatment 2 had a numerically lower disease incidence than treatment 1 (26.12% vs. 29.41%).

Efficacy against grey mold was further evaluated by conducting a post-harvest evaluation. Ten random marketable strawberry fruit were selected from each plot and placed on a baking sheet in a laboratory room and kept at room temperature. The fruit were evaluated at 3, 5, and 7 days after harvest for symptoms of the disease. This process was repeated six times at six separate harvest events and the results from the different dates were averaged. No statistically significant difference was found but treatment 2 had a numerically lower incidence of botrytis than treatment 1 at 5 and 7 days after harvest.

The average fruit or berry weight was determined and no difference was detected.

Powdery mildew (*Podosphaera aphanis*) was evaluated by examining ten plants per plot and determining the percentage of the plant affected by the disease. The area under disease progress curve was established. No difference was detected.

No phytotoxicity was found in the trial.

MATERIALS AND METHODS

Treatments:

This study consisted of 2 treatments applied on October 10th (A), October 16th (B), October 22nd (C), October 24th (D), November 2nd (E), November 6th (F), November 12th (G), November 16th (H), November 19th (I), November 28th (J), December 19th (K), December 24th (L), December 26th (M), December 31st (N), January 7th (O), January 21st (P), January 30th (Q), February 5th (R), February 11th (S), February 16th (T), February 25th (U), March 1st (V), March 25th (W)

1. Grower standard*
2. Grower standard with Zen-o-spore at 3 lb/a.

*The farmer did not want to share his specific spray program. He did say all commercially available organically approved active ingredients that he knew of were in the spray program.

Application Equipment:

Treatment applications were performed using a tractor with a commercial boom applicator at 250 PSI. Six hollow cone nozzles were used per planting bed. The dilution of the product was at 100 gallons per acre.

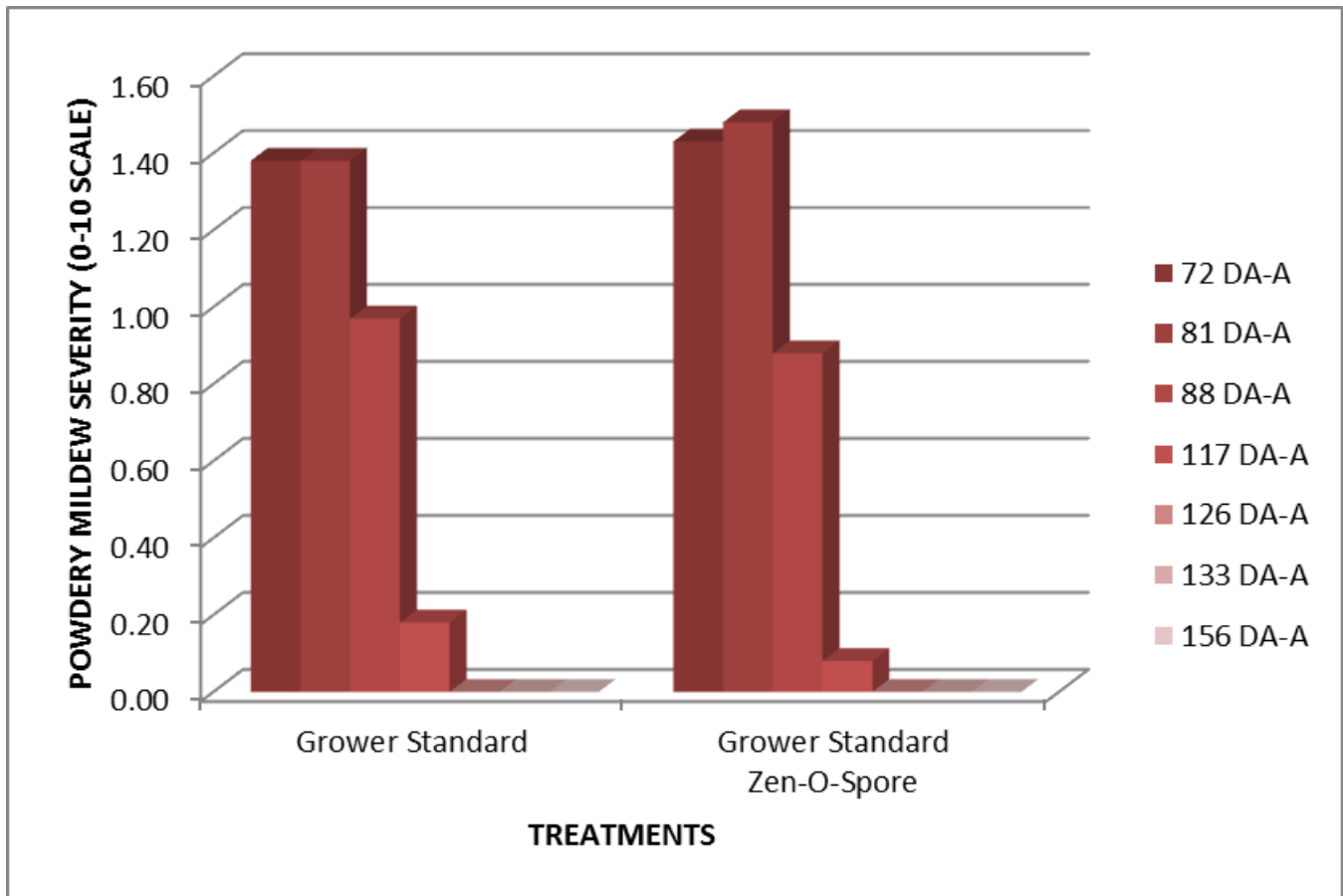
Evaluations:

Powdery mildew severity ratings were performed 12/21, 12/30, 1/6, 2/4, 2/13, 2/20, and 3/14. Botrytis incidence was evaluated on 12/21, 12/30, 1/6, 1/23, 2/4, 2/13, 3/2, 3/14, and 3/22. Statistics were analyzed using ANOVA mean comparison with LSD test and $\alpha=0.05$.

RESULTS

Table 1. Powdery Mildew Severity (0-10 Scale). Average disease severity evaluated per treatment listed by evaluation dates.

Trt No.	Treatment Name	Rate	Unit	72 DA-A		81 DA-A		88 DA-A		117 DA-A		126 DA-A		133 DA-A		156 DA-A	
				12/21/2015	12/30/2015	1/6/2015	2/4/2016	2/13/2016	2/20/2016	3/14/2016							
1	Grower Standard	1.38		a	1.38	a	0.97	a	0.18	a	0.00	a	0.00	a	0.00	a	
2	Grower Standard Zen-O-Spore	1.43	3 lb/a	a	1.48	a	0.88	a	0.08	a	0.00	a	0.00	a	0.00	a	

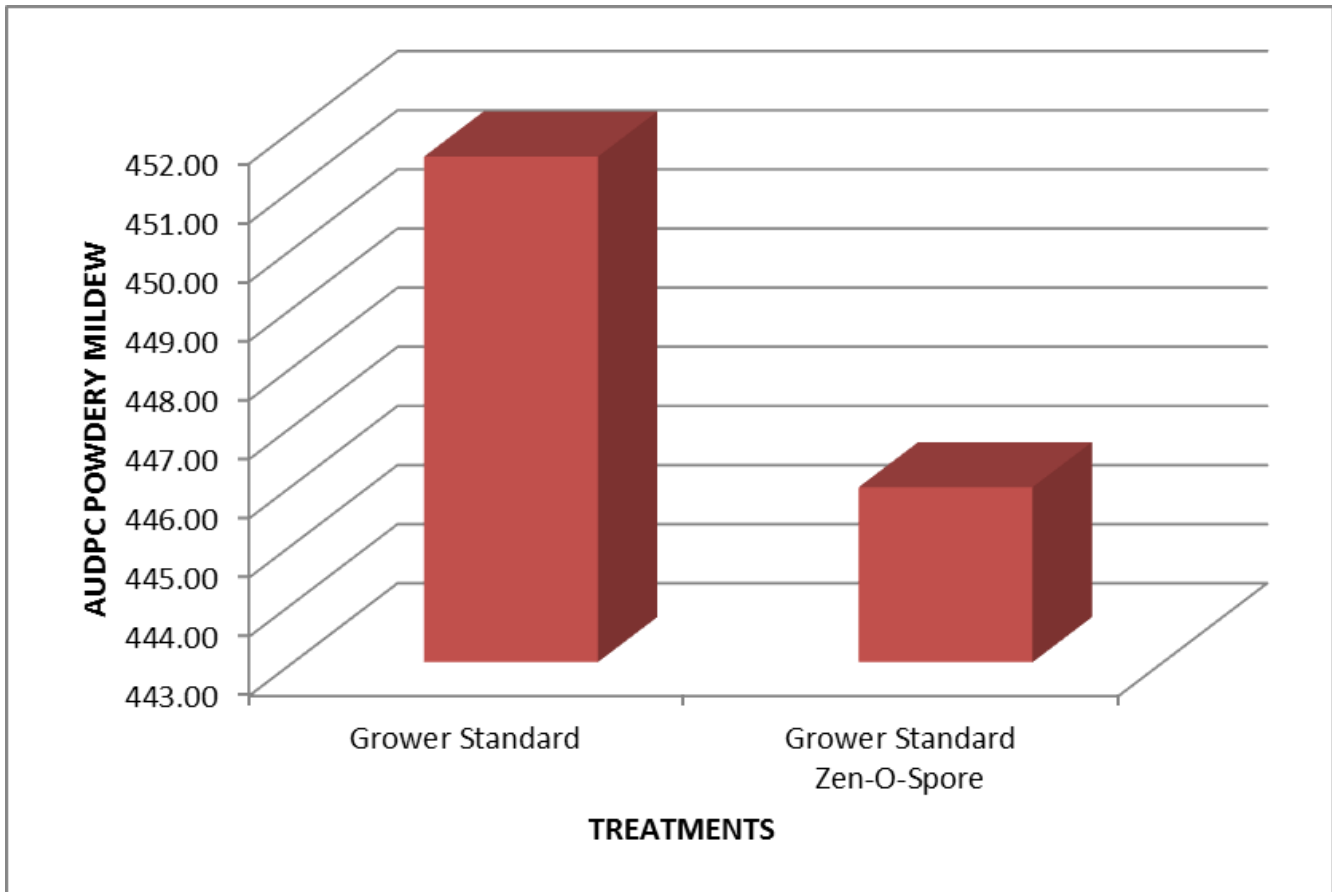


Graph 1. Powdery Mildew Severity (0-10 Scale). Graphical representation of average disease severity evaluated per treatment listed by evaluation dates.

RESULTS

Table 2. AUDPC Powdery Mildew. Average area under disease progress curve for powdery mildew listed by treatments.

Trt No.	Treatment Name	Rate	Rate Unit	AUDPC
1	Grower Standard			451.55 a
2	Grower Standard			445.96 a
	Zen-O-Spore	3	lb/a	

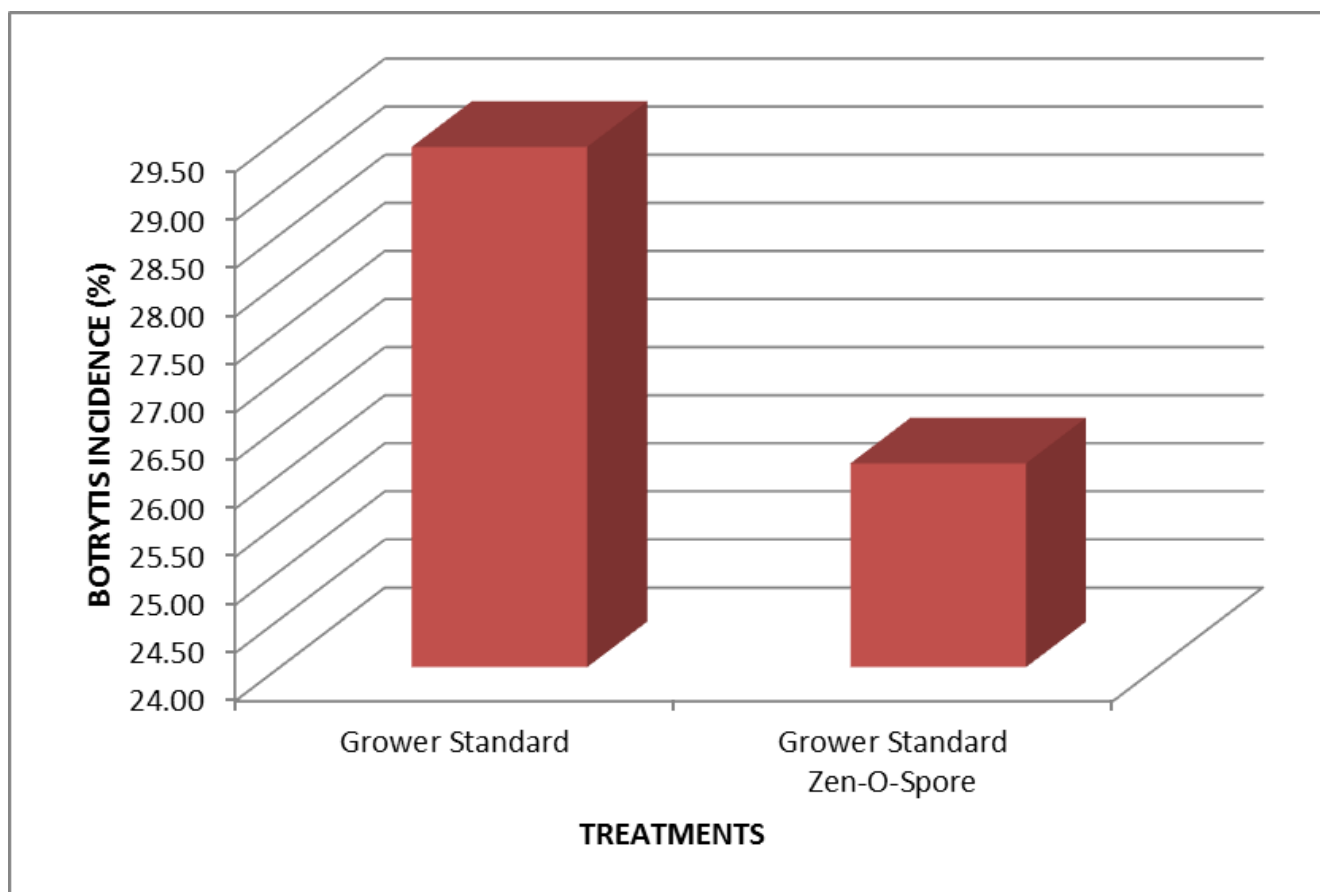


Graph 2. AUDPC Powdery Mildew. Graphical representation of average area under disease progress curve for powdery mildew listed by treatments.

RESULTS

Table 3. Botrytis Incidence (%). Average disease incidence on fruit listed per treatment.

Trt No.	Treatment Name	Rate	Unit	Botrytis Incidence
1	Grower Standard			29.41 a
2	Grower Standard Zen-O-Spore	3	lb/a	26.12 a

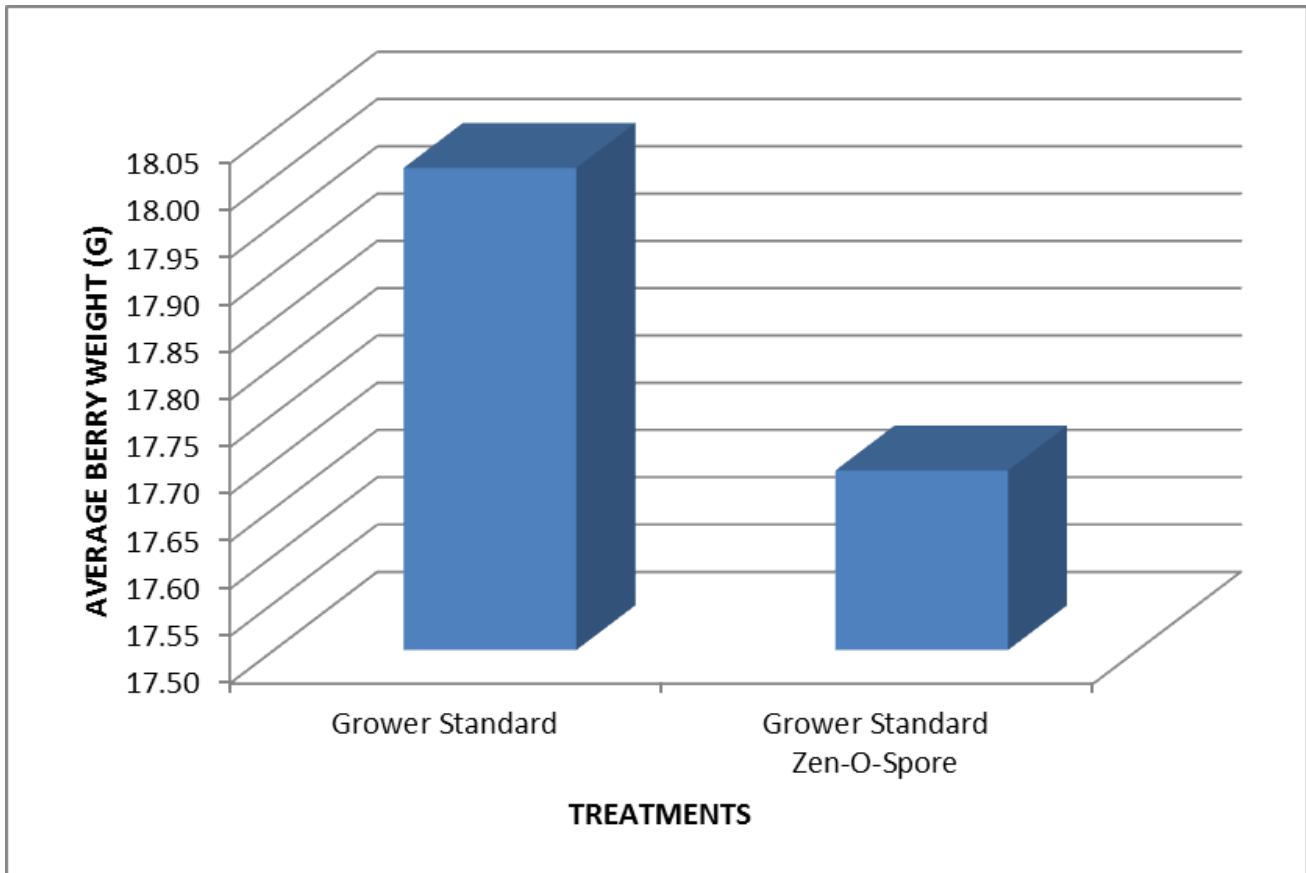


Graph 3. Botrytis Incidence (%). Graphical representation of average disease incidence on fruit listed per treatment.

RESULTS

Table 4. Average Berry Weight (g). Average weight of berries per replicated plot listed by treatments.

Trt No.	Treatment Name	Rate	Unit	Average Berry	
1	Grower Standard			18.01	a
2	Grower Standard			17.69	a
	Zen-O-Spore	3	lb/a		

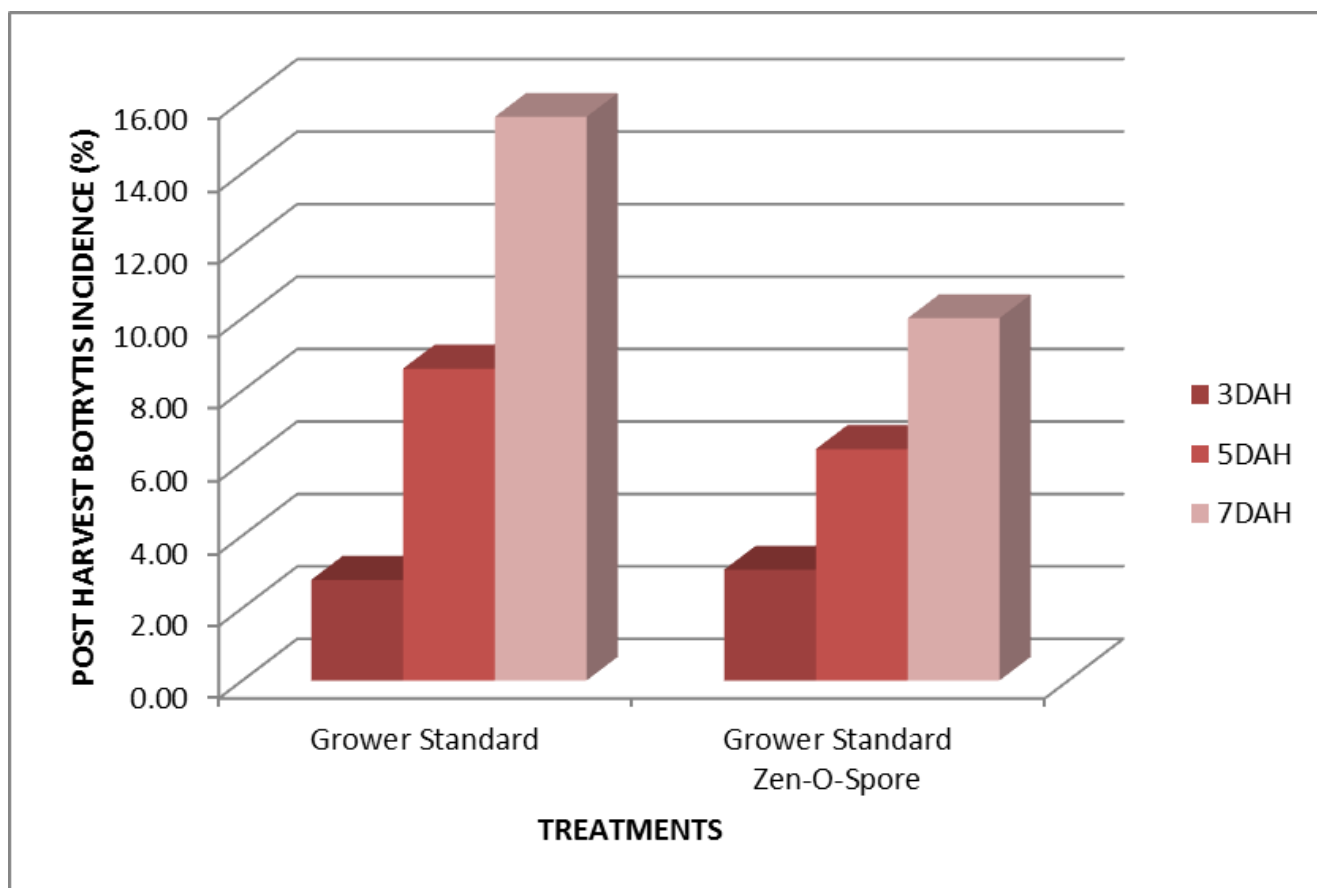


Graph 4. Average Berry Weight (g). Graphical representation of average weight of berries per replicated plot listed by treatments.

RESULTS

Table 5. Post-Harvest Botrytis Incidence. Average disease incidence on fruit per replicated plot, listed by treatments.

Trt No.	Treatment Name	Rate	Unit	3DAH	5DAH	7DAH
1	Grower Standard			2.78 a	8.61 a	15.56 a
2	Grower Standard Zen-O-Spore	3	lb/a	3.06 a	6.39 a	10.00 a



Graph 5. Post-Harvest Botrytis Incidence. Graphical representation of average disease incidence on fruit per replicated plot, listed by treatments.

CROP INFORMATION SHEET

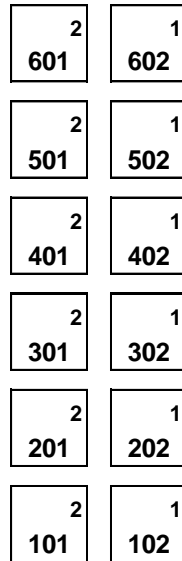
Principle Investigator: <u>Bradley Booker</u>	Location: <u>Parrish, FL</u>
Study Director: <u>Matthew Krause</u>	Grower: <u>Florida Ag Research</u>
Crop: <u>Strawberry</u>	Date/Duration: <u>6 months</u>
Cultivar: <u>Radiance</u>	Planting Date: <u>9/30/2015</u>
Test Products: <u>Zen-O-Spore</u>	Planting Method: <u>Transplanted</u>
Pest Species: <u>Botrytis</u>	Harvest Method: <u>By hand</u>
Objective: <u>To determine efficacy and crop safety of Zen-O-Spore against botrytis fruit rot and foliar diseases on strawberry in Florida</u>	Adjuvants: <u>None used</u>
Planting Density: <u>18668 plant/acre</u>	Application Method: <u>Foliar</u>
Row Spacing: <u>4 feet</u>	Calibration Method: <u>Time Recapture</u>
Soil Type: <u>Sandy Soil</u>	Application Equipment: <u>Commercial Strawberry Sprayer</u>
Plant Spacing: <u>14 in</u>	Irrigation Method: <u>Drip</u>
No. Treatments/Reps: <u>2 treatments/ 6 reps</u>	Application Dates: <u>10/10, 10/16, 10/22, 10/24, 11/2, 11/6, 11/12, 11/16, 11/19, 11/28, 12/19, 12/24, 12/26, 12/31, 1/7, 1/21, 1/30, 2/5, 2/11, 2/16, 2/25, 3/1, 3/25</u>
Statistical Design: <u>RCB</u>	Evaluation Dates: <u>12/21, 12/30, 1/6, 1/23, 2/4, 2/13, 2/20, 3/2, 3/14, 3/22</u>
No. Applications: <u>23</u>	
Appl. Frequency: <u>1-2 times per week</u>	

TREATMENT LIST

Reps: 6

Trt No.	Treatment Name	Rate		Rep					
		Rate	Unit	1	2	3	4	5	6
1	Grower Standard			102	202	302	402	502	602
2	Grower Standard Zen-O-Spore	3	lb/a	101	201	301	401	501	601

PLOT MAP



APPENDIX A: DAILY METEOROLOGICAL SUMMARY:
ONA, FLORIDA

Date	Precip. (in)	Air Temperature		Wind Direction	Wind Speed	Soil Temperature		Sol. Rad (ly)	Avg. Relative Humidity (%)
		Max.(F)	Min.(F)			Max.(F)	Min.(F)		
9/1/2015	0	92.64	74.34	142	3.68	85.14	80.62	239.4	86
9/2/2015	0	95.81	75.18	202	2.62	87.04	81.82	267.51	82
9/3/2015	0	94.59	75.04	316	2.8	86.63	82.45	246.52	82
9/4/2015	0.14	90.18	73.92	311	2.4	85.53	82.51	168.51	89
9/5/2015	1.45	92.88	72.45	50	2.35	86.2	81.32	235.43	85
9/6/2015	0.26	91.9	71.42	76	3.08	85.39	80.58	228.63	88
9/7/2015	0.05	87.96	71.71	132	3.47	83.55	80.87	147.16	92
9/8/2015	0.02	90.84	74.14	147	3.94	84.56	80.58	219.86	86
9/9/2015	0	93.76	73.2	132	2.51	86.09	81.23	244.84	84
9/10/2015	0	91.38	75.87	244	2	85.78	82.45	161.69	87
9/11/2015	0.05	93.99	72.32	237	3.18	86.94	81.84	241.57	85
9/12/2015	0.01	89.4	72.03	175	3.91	84.31	81.23	145.54	89
9/13/2015	0.06	86.77	73.02	15	2.9	84.76	80.6	181.86	89
9/14/2015	0	90.99	71.94	66	3.52	84.67	80.29	207.31	85
9/15/2015	0	86.02	73.44	80	4.91	83.07	80.47	168.51	89
9/16/2015	0.34	84.04	73.98	89	4.84	81.39	79.81	90.1	91
9/17/2015	0.28	85.19	72.64	82	4.07	82.22	78.94	112.09	92
9/18/2015	0.01	87.6	73.24	66	1.97	83.28	79.23	142.14	90
9/19/2015	0.01	91.35	73.17	6	2.31	84.27	79.9	185.64	86
9/20/2015	0	92.71	72.09	53	2.36	85.35	80.06	251.45	81
9/21/2015	0	92.3	72.1	70	2.58	85.26	80.4	250.74	77
9/22/2015	0	90.34	71.24	68	2.86	84.16	80.08	223.34	79
9/23/2015	0	91.13	71.11	52	2.59	84.74	79.66	230.65	84
9/24/2015	0	89.78	70.57	64	2.45	84.33	79.92	183.72	86
9/25/2015	0.03	90.91	72.03	93	3.04	84.72	80.15	189.22	86
9/26/2015	0.55	88.48	71.67	100	3.14	83.17	79.52	144.69	89
9/27/2015	0.45	88.09	73.27	102	2.91	83.07	79.07	130.32	91
9/28/2015	0.08	86.74	73.47	152	4	82.45	79.45	121.26	89
9/29/2015	0.67	85.42	73.35	195	4.88	81.7	78.53	126.98	93
9/30/2015	0	95.68	72.12	302	4.31	83.14	78.82	226.53	83
10/1/2015	0	96.48	70.81	325	3.83	83.1	78.75	228.14	82
10/2/2015	0	94.71	72.12	326	3.75	83.37	79.2	202.89	85
10/3/2015	0	85.98	65.17	292	4.5	80.42	77.74	175.42	84
10/4/2015	0.06	86.22	65.19	300	3.59	79.59	76.33	168.84	89
10/5/2015	0	88.27	65.82	307	2.55	79.74	76.39	153	86
10/6/2015	0	91.71	65.5	53	2.18	80.4	75.65	193.21	83
10/7/2015	0	93.38	66.88	74	3.27	80.65	76.39	197.2	82
10/8/2015	0	94.64	68.74	74	3.14	80.78	77.14	130.69	86
10/9/2015	0	96.6	69.03	43	2.47	82.26	77.22	198.83	84
10/10/2015	0.74	89.58	68.4	285	2.9	80.24	77.92	143.83	91
10/11/2015	0.09	90.01	64.8	296	3.07	80.56	76.15	207.99	84
10/12/2015	0	88.34	61.74	308	3.04	79.27	74.89	228.46	79
10/13/2015	0	87.28	62.53	191	2.19	78.49	74.32	142.34	88
10/14/2015	0	92.21	63.12	310	2.8	79.32	74.64	201.62	82
10/15/2015	0	92.44	64.22	53	3.16	79.5	74.75	214.48	78
10/16/2015	0	89.24	66.18	57	3.28	78.44	75.27	154.49	78
10/17/2015	0	89.83	62.15	61	2.93	78.12	74.05	215.91	74
10/18/2015	0	88.39	63.16	57	4.8	77.05	73.87	147.41	80
10/19/2015	0	85.3	62.24	75	7.25	75.83	72.73	196.03	70
10/20/2015	0	88.75	62.15	75	5.92	76.37	72.21	206.72	76

Date	Precip. (in)	Air Temperature		Wind Direction	Wind Speed	Soil Temperature		Sol. Rad (ly)	Avg. Relative Humidity (%)
		Max.(F)	Min.(F)			Max.(F)	Min.(F)		
10/21/2015	0.06	88.09	65.26	59	4.13	77.22	72.9	180.37	85
10/22/2015	0	89.96	66.54	66	4.78	77.56	73.56	186.34	81
10/23/2015	0	90.23	65.23	72	4.55	78.1	73.94	199.17	78
10/24/2015	0	90.12	61.16	76	4.32	76.91	72.64	189.22	79
10/25/2015	0	90.28	64.98	98	5	77.61	73.24	171.36	81
10/26/2015	0.02	88.23	66.13	111	6.93	77.25	73.99	148.72	81
10/27/2015	0.42	79.23	71.38	143	5.83	76.23	74.59	49.3	90
10/28/2015	0.29	80.35	69.62	191	3.69	77.52	74.59	71.26	94
10/29/2015	0	87.49	66.22	267	2.73	78.91	74.53	163.93	86
10/30/2015	0	86.76	63.18	68	1.92	78.04	73.04	179.74	82
10/31/2015	0	87.66	62.58	103	4.06	77.36	72.77	163.77	82
11/1/2015	0.25	89.58	71.94	141	3.65	79.23	75.07	150.5	85
11/2/2015	0	89.69	70.79	177	3.94	79.59	75.24	169.73	86
11/3/2015	0	90.07	68.77	100	2.68	80.01	75.33	186.08	83
11/4/2015	0	91.15	69.98	88	3.72	79.63	75.6	154.05	86
11/5/2015	0	88.95	69.82	103	5.69	79.12	76.23	197.05	81
11/6/2015	0	89.46	68.09	91	4.03	79.07	74.88	185.77	82
11/7/2015	0.55	93.36	67.66	100	3.44	79.32	74.79	167.95	85
11/8/2015	0.01	88.7	68.45	104	3.71	78.87	74.62	156.43	86
11/9/2015	0	89.31	71.55	203	3.4	79.59	75.7	144.92	86
11/10/2015	0.04	85.33	68.2	312	2.71	79.3	75.76	123.04	88
11/11/2015	0	87.82	66.34	59	2.42	78.75	75.43	127.99	86
11/12/2015	0	89.24	66.31	53	2.16	78.84	73.74	155.07	83
11/13/2015	0	87.49	67.37	23	2.37	78.71	74.71	146.35	81
11/14/2015	0	79.47	60.71	59	4.33	75.79	72.75	131.9	74
11/15/2015	0	77.72	64.22	73	5.05	74.07	72.05	75.97	79
11/16/2015	0	85.35	64.26	85	4.78	75.83	71.64	179.69	78
11/17/2015	0	84.79	66.09	97	6.29	75.76	72.3	143.61	82
11/18/2015	0	87.69	69.66	127	7.62	76.75	73.26	151.79	82
11/19/2015	0	85.32	69.8	141	3.88	77.83	74.14	96.04	87
11/20/2015	0.15	84.47	70.14	64	3.64	77.7	74.88	116.42	86
11/21/2015	0.03	80.55	67.95	80	2.68	76.35	73.8	47.11	91
11/22/2015	0.1	79.2	64.98	34	3.05	76.66	73.45	96.78	90
11/23/2015	0	70.48	49.01	24	3.23	73.67	67.59	200	71
11/24/2015	0	75.45	53.56	60	5.23	70.09	65.53	177.7	74
11/25/2015	0.03	78.22	58.87	67	5.19	70.86	66.94	136.1	78
11/26/2015	0	82.13	62.78	68	6.32	71.94	67.84	162.88	79
11/27/2015	0	81.57	63.5	57	4.69	72.72	68.52	163.64	80
11/28/2015	0	81.19	60.58	54	3.77	72.72	68.43	183.11	76
11/29/2015	0	81.52	60.24	62	3.43	72.52	67.69	165.13	82
11/30/2015	0	82.78	60.82	69	3.86	72.91	68.2	149.47	86
12/1/2015	0	85.37	65.84	92	3.27	74.86	70.21	150.72	84
12/2/2015	0	86.25	67.59	184	3.82	75.94	71.47	124.93	87
12/3/2015	1.21	75.11	59.88	54	3.35	74.23	70.5	42.68	94
12/4/2015	0.23	73.26	60.73	56	4.33	71.69	69.08	52.97	90
12/5/2015	0	81.28	66.92	61	5.8	73.06	69.91	118.83	84
12/6/2015	0	81.45	65.14	65	4.92	73.31	70.09	131.61	82
12/7/2015	0	75.25	56.5	38	3.5	73.11	69.89	152.63	86
12/8/2015	0	78.12	53.98	56	3.8	70.83	66.79	171.21	78
12/9/2015	0.16	76.64	61.66	48	2.8	72.21	68.16	120.79	90

Date	Precip. (in)	Air Temperature		Wind Direction	Wind Speed	Soil Temperature		Sol. Rad (ly)	Avg. Relative Humidity (%)
		Max.(F)	Min.(F)			Max.(F)	Min.(F)		
12/10/2015	0	80.29	58.24	29	2.01	72.28	67.91	133.44	86
12/11/2015	0	81.14	56.03	59	2.46	71.35	66.78	149.27	83
12/12/2015	0	85.01	60.39	73	4.47	71.89	67.28	161.33	82
12/13/2015	0.01	82.81	62.2	75	4.71	71.47	67.73	132.79	84
12/14/2015	0.01	83.88	67.93	177	4.8	73.71	70.34	116.23	88
12/15/2015	0	85.21	65.64	208	2.66	74.5	70.39	117.48	88
12/16/2015	0	85.64	62.37	124	2.74	74.57	70.07	146.32	84
12/17/2015	0	84.99	66.9	194	4.7	74.68	71.06	128.83	84
12/18/2015	0.4	73.44	58.62	297	3.85	72.9	69.55	36.95	78
12/19/2015	0	70.2	44.04	45	4.9	69.42	64.89	174.66	70
12/20/2015	0	76.89	51.06	65	5.08	68.04	63.43	167.15	75
12/21/2015	0	82.4	56.75	103	6.47	69.94	64.94	126.71	78
12/22/2015	0.03	84.49	68.4	147	5.05	72.61	69.03	108.99	77
12/23/2015	0	86.68	68.9	161	4.99	73.94	70.86	85.74	75
12/24/2015	0	85.62	68.85	135	5.71	74.64	71.49	123.95	71
12/25/2015	0	86.09	66.29	108	4.86	74.39	71.19	115.22	72
12/26/2015	0	85.91	65.35	113	6.07	74.08	70.84	137.95	70
12/27/2015	0	85.32	66.83	119	7.05	74.32	71.28	156.68	69
12/28/2015	0	86.56	66.7	145	5.29	74.53	71.37	133.62	68
12/29/2015	0	88.09	66.47	141	4.44	75.22	71.53	138.45	69
12/30/2015	0.04	87.4	65.39	116	4.59	74.91	71.35	134.99	68
12/31/2015	0.01	86.16	68.45	151	3.61	75.85	72.57	119.16	66
1/1/2016	0	84.31	64.44	246	2.59	75.42	71.8	129.91	65
1/2/2016	0	68.72	63.27	52	2.53	72.75	71.28	31.81	65
1/3/2016	0.66	64.24	56.16	21	3.33	71.24	67.37	22.79	65
1/4/2016	0	67.15	48	354	4.23	67.82	64.29	178.12	58
1/5/2016	0	70.75	47.19	60	6.29	65.79	62.15	146.81	67
1/6/2016	0	71.19	56.39	42	4.69	66.94	63.61	100.53	65
1/7/2016	0	69.87	56.43	65	2.86	67.33	65.17	70.64	60
1/8/2016	0.27	80.37	58.08	107	3.71	69.35	65.41	97.26	56
1/9/2016	0.27	80.58	59.67	147	3.54	70.57	66.58	122.26	57
1/10/2016	0.04	73.62	54.39	326	4.24	70.63	67.77	91.5	58
1/11/2016	0.02	65.89	43.1	10	3.05	67.68	63.5	181.96	65
1/12/2016	0	68.14	42.35	20	2.62	64.65	61.14	150.1	64
1/13/2016	0	62.56	44.5	31	2.6	62.73	60.24	89.16	63
1/14/2016	0	70.75	49.77	87	4.33	63.37	60.19	77.52	70
1/15/2016	1.69	75.38	56.23	229	6.71	67.17	63.07	102.87	85
1/16/2016	0.17	78.71	53.26	205	3.4	67.57	62.15	189.33	79
1/17/2016	1.22	72.27	48.29	301	8	67.23	63.63	156.58	83
1/18/2016	0	62.82	43.58	7	3.47	63.9	60.53	193.58	63
1/19/2016	0	59.04	37.96	31	3.29	62.15	58.82	184.87	62
1/20/2016	0	67.32	37.24	66	2.29	61.75	56.55	159.49	71
1/21/2016	0	70.83	44.96	108	5.15	61.93	57.7	121.26	76
1/22/2016	0.01	70.47	52.05	210	6.95	63.32	59.58	56.79	85
1/23/2016	0.01	59.14	42.95	309	10.91	61.45	58.19	166.73	73
1/24/2016	0	59.81	35.32	1	3.22	60.12	55.56	204.03	71
1/25/2016	0	71.46	34.4	90	2.64	61.09	54.28	192.68	78
1/26/2016	0	78.57	51.12	106	4.27	63.79	58.3	152.99	77
1/27/2016	1.23	69.58	64.35	172	3.62	65.37	63.01	25.82	95
1/28/2016	0.43	70.47	60.82	206	4.67	66.47	64.83	30.79	97

Date	Precip. (in)	Air Temperature		Wind Direction	Wind Speed	Soil Temperature		Sol. Rad (ly)	Avg. Relative Humidity (%)
		Max.(F)	Min.(F)			Max.(F)	Min.(F)		
1/29/2016	0.01	64.11	46.58	322	5.7	65.35	61.88	166.77	75
1/30/2016	0	70.3	45.79	155	1.76	64.2	59.52	169.35	76
1/31/2016	0	73.47	50.41	110	3.05	64.18	60.66	98.99	80
2/1/2016	0	82.96	58.59	130	3.08	67.98	62.91	151.81	83
2/2/2016	0	84.54	58.96	123	5.4	68.56	64.51	133.06	87
2/3/2016	0	85.57	68.14	159	6.77	70.34	67.03	144.39	82
2/4/2016	0.29	81.18	58.86	192	7.27	70.2	67.28	97.54	88
2/5/2016	0.01	63.43	45.59	22	5.34	67.91	62.53	228.17	62
2/6/2016	0.44	66.25	47.71	7	4.61	63.27	60.84	49.11	88
2/7/2016	0	58.77	39.79	320	8.7	61.5	58.69	206.76	74
2/8/2016	0	67.01	37.54	250	5.07	61.09	56.05	188.34	77
2/9/2016	0	62.76	50.92	304	9.38	60.3	58.24	132.52	61
2/10/2016	0	61.61	37.41	338	3.82	60.49	57.58	155.3	68
2/11/2016	0	70.2	35.38	30	2.22	61.05	54.79	228.05	71
2/12/2016	0	74.34	39.37	264	3.3	62.15	55.83	230.35	74
2/13/2016	0	74.25	47.89	320	4.08	63.03	57.87	219.38	72
2/14/2016	0	73	42.25	78	4.78	62.38	57.38	222.03	71
2/15/2016	0	73.87	53.46	124	7.6	62.98	59.56	97.04	83
2/16/2016	0.62	76.68	53.65	274	5.61	66.42	62.28	219.03	82
2/17/2016	0	75.63	48.43	345	3.27	65.82	61.14	234.65	76
2/18/2016	0	73.94	49.89	46	4.33	64.89	60.48	237.68	68
2/19/2016	0	75.33	50.32	76	5.18	64.49	60.31	199.19	71
2/20/2016	0	77.22	51.78	85	3.38	65.44	61.12	193.56	73
2/21/2016	0	78.57	48.52	93	2.61	65.71	60.66	161.38	76
2/22/2016	0	81.95	51.8	130	3.2	67.42	61.74	205.53	78
2/23/2016	0	82.35	61.41	156	5.25	68.23	64.9	144.42	84
2/24/2016	0.53	74.73	59.05	224	6.72	68.63	66.11	46.21	91
2/25/2016	0	65.26	45.52	313	6.9	66.56	62.44	244.7	70
2/26/2016	0	66.56	41.43	306	4.82	63.36	59.56	250.78	68
2/27/2016	0	66.56	38.3	351	3.38	62.55	57.72	252.16	64
2/28/2016	0	74.73	41.01	88	3.36	63.16	57.69	217.67	69
2/29/2016	0	78.58	52.54	67	2.82	65.52	60.44	206.51	70
3/1/2016	0	81.36	51.64	162	3.05	67.21	61.34	236.49	73
3/2/2016	0	80.4	54.91	288	4.36	67.19	63.14	178.79	80
3/3/2016	0	79.54	50.07	260	3.49	67.17	62.74	197.21	73
3/4/2016	0	81.14	54.64	296	5.11	68.02	64.2	247.05	72
3/5/2016	0	76.59	50.77	10	3.37	67.51	62.85	199.17	77
3/6/2016	0	77.13	49.23	37	4.34	67.33	62.58	270.7	61
3/7/2016	0	78.89	45.82	95	5.76	66.83	61.57	247.25	69
3/8/2016	0	79.21	53.47	114	7.59	66.96	63.01	188.57	69
3/9/2016	0	82	58.21	127	8.92	68.76	64.51	218.45	69
3/10/2016	0	85.23	58.39	128	8.4	69.76	64.83	222.88	73
3/11/2016	0	84.69	60.98	126	6.57	70.65	65.73	225.32	74
3/12/2016	0	86	63.3	154	6.14	71.78	66.65	213.28	76
3/13/2016	0	86.41	61.99	194	6.12	72.88	67.21	221.81	79
3/14/2016	0	85.06	64.24	239	6.25	73.4	68.59	215.23	81
3/15/2016	0.03	86.02	66.94	272	5.8	75.04	70.14	239.83	81
3/16/2016	0	87.71	64.87	296	3.75	76.14	70.16	233.4	81
3/17/2016	0	86.99	62.17	269	3.7	76.59	71.22	219.02	74
3/18/2016	0	84.72	56.8	247	2.93	74.26	68.95	179.46	73

Date	Precip. (in)	Air Temperature		Wind Direction	Wind Speed	Soil Temperature		Sol. Rad (ly)	Avg. Relative Humidity (%)
		Max.(F)	Min.(F)			Max.(F)	Min.(F)		
3/19/2016	0.75	77.85	59.85	170	4.02	71.19	68.7	56.31	89
3/20/2016	0	79.77	62.78	301	4.81	74.46	68.43	176.09	84
3/21/2016	0	64.54	45.57	2	4.93	70.47	65.46	270.61	53
3/22/2016	0	75.61	40.4	89	3.78	70.07	61.34	294.51	66
3/23/2016	0	81.01	47.66	111	5.22	69.89	62.94	235.75	71
3/24/2016	0.15	84.45	56.1	146	4.95	70.77	65.25	137.54	85
3/25/2016	0.02	84.76	59.95	150	3.83	74.03	67.33	177.15	84
3/26/2016	0.03	89.38	68.13	135	3.9	76.87	70.12	194.9	83
3/27/2016	0	86.29	67.96	185	4.81	75.58	71.53	153.61	86
3/28/2016	0	85.98	68.58	254	6.19	76.01	72.27	157.73	86
3/29/2016	0.09	77.9	65.25	200	3.02	73.6	71.02	55.03	94
3/30/2016	0.01	81.81	62.24	83	5.45	74.17	68.83	232.14	79
3/31/2016	0	86.97	62.24	165	5.03	75.74	68.97	246.65	80
4/1/2016	0	89.85	63.16	184	5.05	76.77	70.34	233.36	82
4/2/2016	0.19	80.1	68.04	219	4.3	73.47	71.58	42.42	92
4/3/2016	0	76.05	57.69	27	3.83	74.75	69.42	236.9	62
4/4/2016	0	82.04	55.51	14	3.01	75.9	67.86	264.7	69
4/5/2016	0	83.44	52.95	17	3.23	75.96	67.55	303.8	64
4/6/2016	0.51	81.32	55.72	110	6.05	73.92	68.2	255.98	75
4/7/2016	0.17	79.92	57.4	265	3.7	73.47	67.78	175.55	83
4/8/2016	0	81.54	55.33	276	4.1	74.39	66.69	285.57	76
4/9/2016	0	76.75	51.69	1	3.44	73.31	66.54	311.93	60
4/10/2016	0	81.34	46.85	86	4.39	72.95	65.26	295.88	65
4/11/2016	0	83.34	55.22	111	5.78	73.71	66.88	272.27	72
4/12/2016	0	85.23	53.83	46	2.8	76.19	67.57	281.44	73
4/13/2016	0	86.5	59.43	55	3.24	76.19	69.57	221.13	76
4/14/2016	0	88.45	63.48	83	3.87	77.83	70.99	222.8	80
4/15/2016	0.07	82.06	62.62	87	2.93	76.3	71.82	146.29	85
4/16/2016	0	80.47	66.27	82	7.24	75.97	71.35	211.04	83
4/17/2016	0	80.4	59.29	78	6.21	75.99	70.34	267.26	70
4/18/2016	0	81.68	57.15	63	4.54	76.33	69.26	254.41	72
4/19/2016	0	81.9	55.67	88	4.37	77.22	68.54	291.67	69
4/20/2016	0	82.09	53.58	94	4.19	76.93	69.08	267.02	68
4/21/2016	0	83.8	58.19	120	6.62	76.46	70.12	240.23	67
4/22/2016	0	86.45	62.31	183	5.35	78.4	71.19	239.16	76
4/23/2016	0	84.81	61.83	296	5.67	80.2	72.82	297.37	77
4/24/2016	0	88.43	57.18	65	3.17	80.6	71.71	275.4	72
4/25/2016	0	86.09	63.41	116	5.56	80.2	73.51	226.42	71
4/26/2016	0	88.56	64.74	106	3.63	82.6	74.16	277.86	68
4/27/2016	0	87.89	62.6	136	4.16	82.17	74.35	252.89	74
4/28/2016	0	91.92	61.45	138	3.62	84.29	74.44	299.07	74
4/29/2016	0	92.89	64.78	126	3.15	85.26	75.96	276.4	76
4/30/2016	0	87.28	65.34	127	5.78	82.6	76.8	227.08	75

APPENDIX B: PHOTOGRAPHS

PHOTOGRAPHS



Photo 1. Strawberry plants in experimental plot.



Photo 2. Overview of trial area.

APPENDIX C: SOIL CHARACTERIZATION

Soil Characteristics of Florida Ag Research Station Parrish, Florida

Parameter	Result	Unit
Cation Exchange Capacity	1.2	meq/100g
pH	5.1	
Sand	94.8	%
Silt	2.4	%
Clay	2.8	%
Organic Matter	1.5	%
Texture/Classification	Sand/Myakka- Myakka	
Fertility Level	Poor	
Soil Drainage	Poor	

USDA Web Soil Survey

APPENDIX D: DATA SUMMARIES

Florida Ag Research

To determine efficacy and crop safety of Zen-o-spore against botrytis fruit rot and other foliar diseases on strawberry in Florida

Trial ID: BW11501 Location: Parrish, FL Trial Year: 2015
 Protocol ID: Botrytis Strawberry Investigator: Bradley Booker
 Project ID: Study Director: Matthew Krause
 Sponsor Contact:

Pest Type	D Disease	D Disease	D Disease	D Disease	D Disease	D Disease	D Disease
Pest Code	PODOAP	PODOAP	PODOAP	PODOAP	PODOAP	PODOAP	PODOAP
Pest Scientific Name	Podospaera ap>	Podospaera ap>	Podospaera ap>	Podospaera ap>	Podospaera ap>	Podospaera ap>	Podospaera ap>
Pest Name	Powdery mildew>	Powdery mildew>	Powdery mildew>	Powdery mildew>	Powdery mildew>	Powdery mildew>	Powdery mildew>
Crop Code	FRASS	FRASS	FRASS	FRASS	FRASS	FRASS	FRASS
BBCH Scale	BSTR	BSTR	BSTR	BSTR	BSTR	BSTR	BSTR
Crop Scientific Name	Fragaria sp.	Fragaria sp.	Fragaria sp.	Fragaria sp.	Fragaria sp.	Fragaria sp.	Fragaria sp.
Crop Name	Strawberry	Strawberry	Strawberry	Strawberry	Strawberry	Strawberry	Strawberry
Crop Variety	Radiance	Radiance	Radiance	Radiance	Radiance	Radiance	Radiance
Description	PM Severity	PM Severity	PM Severity	PM Severity	PM Severity	PM Severity	PM Severity
Part Rated	Plant C	Plant C	Plant C	Plant C	Plant C	Plant C	Plant C
Rating Date	12/21/2015	12/30/2015	1/6/2016	2/4/2016	2/13/2016	2/20/2016	3/14/2016
Rating Type	PESSEV	PESSEV	PESSEV	PESSEV	PESSEV	PESSEV	PESSEV
Rating Unit	0-10	0-10	0-10	0-10	0-10	0-10	0-10
Sample Size, Unit	1 plot	1 plot	1 plot	1 plot	1 plot	1 plot	1 plot
Collection Basis, Unit	10 plant	10 plant	10 plant	10 plant	10 plant	10 plant	10 plant
Number of Subsamples	10	10	10	10	10	10	10
SE Group No.	1	3	6	6	6	6	6
Days After First/Last Applic.	72 2	81 4	88 6	117 5	126 2	133 4	156 13
Trt-Eval Interval	72 DA-A	81 DA-A	88 DA-A	117 DA-A	126 DA-A	133 DA-A	156 DA-A
Plant-Eval Interval	82 DP-1	91 DP-1	98 DP-1	127 DP-1	136 DP-1	143 DP-1	166 DP-1
ARM Action Codes							
Number of Decimals	2	2	2	2	2	2	2
Trt Treatment	Rate Appl						
No. Name	Rate Unit Code						
1 Grower Standard	1.38a	2 1.38a	3 0.97a	4 0.18a	5 0.00a	6 0.00a	7 0.00a
2 Grower Standard	1.43a	1.48a	0.88a	0.08a	0.00a	0.00a	0.00a
Zen-O-Spore	3lb/a	ABCDEF GHIJK-W	ABCDEF GHIJK-W				
LSD P=.05	0.110	0.474	0.348	0.148	.	.	.
Standard Deviation	0.074	0.319	0.234	0.100	0.000	0.000	0.000
CV	5.27	22.28	25.32	75.0	0.0	0.0	0.0
Bartlett's X2	0.083	2.477	0.038	0.336	0.0	0.0	0.0
P(Bartlett's X2)	0.773	0.116	0.846	0.562	.	.	.
Skewness	0.4295	0.0071	-0.0449	0.5585	.	.	.
Kurtosis	-1.5604	-1.2519	-0.8353	-0.3094	.	.	.
Replicate F	11.424	0.170	0.027	0.533	0.000	0.000	0.000
Replicate Prob(F)	0.0091	0.9629	0.9994	0.7465	1.0000	1.0000	1.0000
Treatment F	1.364	0.294	0.380	3.000	0.000	0.000	0.000
Treatment Prob(F)	0.2956	0.6109	0.5646	0.1438	1.0000	1.0000	1.0000

Means followed by same letter or symbol do not significantly differ (P=.05, Duncan's New MRT)
 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.
 Missing data estimates are included in columns: Yates=68
 Could not calculate LSD (% mean diff) for columns 5,6,7,9,55 because error mean square = 0.

Florida Ag Research

To determine efficacy and crop safety of Zen-o-spore against botrytis fruit rot and other foliar diseases on strawberry in Florida

Trial ID: BWI1501 Location: Parrish, FL Trial Year: 2015
 Protocol ID: Botrytis Strawberry Investigator: Bradley Booker
 Project ID: Study Director: Matthew Krause
 Sponsor Contact:

Pest Type	D Disease	D Disease	D Disease	D Disease	D Disease	D Disease	D Disease	D Disease	D Disease	
Pest Code	PODOAP	BOTRSP	BOTRSP	BOTRSP	BOTRSP	BOTRSP	BOTRSP	BOTRSP	BOTRSP	
Pest Scientific Name	Podosphaera ap>	Botrytis sp.	Botrytis sp.	Botrytis sp.	Botrytis sp.	Botrytis sp.	Botrytis sp.	Botrytis sp.	Botrytis sp.	
Pest Name	Powdery mildew>	Botrytis sp.	Botrytis sp.	Botrytis sp.	Botrytis sp.	Botrytis sp.	Botrytis sp.	Botrytis sp.	Botrytis sp.	
Crop Code	FRASS	FRASS	FRASS	FRASS	FRASS	FRASS	FRASS	FRASS	FRASS	
BBCH Scale	BSTR	BSTR	BSTR	BSTR	BSTR	BSTR	BSTR	BSTR	BSTR	
Crop Scientific Name	Fragaria sp.	Fragaria sp.	Fragaria sp.	Fragaria sp.	Fragaria sp.	Fragaria sp.	Fragaria sp.	Fragaria sp.	Fragaria sp.	
Crop Name	Strawberry	Strawberry	Strawberry	Strawberry	Strawberry	Strawberry	Strawberry	Strawberry	Strawberry	
Crop Variety	Radiance	Radiance	Radiance	Radiance	Radiance	Radiance	Radiance	Radiance	Radiance	
Description	PM Severity	Botrytis Incid>	Botrytis Incid>	Botrytis Incid>	Botrytis Incid>	Botrytis Incid>	Botrytis Incid>	Botrytis Incid>	Botrytis Incid>	
Part Rated	Plant C	FRUUNM C	FRUUNM C	FRUUNM C	FRUUNM C	FRUUNM C	FRUUNM C	FRUUNM C	FRUUNM C	
Rating Date		12/21/2015	12/30/2015	1/6/2016	1/23/2016	2/4/2016	2/13/2016	3/2/2016	3/14/2016	
Rating Type		PESINC	PESINC	PESINC	PESINC	PESINC	PESINC	PESINC	PESINC	
Rating Unit	AUDPC	%	%	%	%	%	%	%	%	
Sample Size, Unit	1 plot	1 plot	1 plot	1 plot	1 plot	1 plot	1 plot	1 plot	1 plot	
Collection Basis, Unit	10 plant	20 plant	20 plant	20 plant	20 plant	20 plant	20 plant	20 plant	20 plant	
Number of Subsamples	1	1	1	1	1	1	1	1	1	
SE Group No.	38	2	4	7	24	24	24	24	24	
Days After First/Last Applic.		72 2	81 4	88 6	105 2	117 5	126 2	144 1	156 13	
Trt-Eval Interval		72 DA-A	81 DA-A	88 DA-A	105 DA-A	117 DA-A	126 DA-A	144 DA-A	156 DA-A	
Plant-Eval Interval		82 DP-1	91 DP-1	98 DP-1	115 DP-1	127 DP-1	136 DP-1	154 DP-1	166 DP-1	
ARM Action Codes	T5 AUDPC									
Number of Decimals	2	2	2	2	2	2	2	2	2	
Trt Treatment	Rate Appl									
No. Name	Rate Unit Code	8	9	10	11	12	13	14	15	16
1 Grower Standard		38.18a	0.00a	16.67a	56.67a	21.00a	34.33a	41.67a	32.00a	23.67a
2 Grower Standard	ABCDEFGHIJK-W	35.80a	0.00a	18.75a	45.83a	23.17a	26.67a	44.50a	26.33a	22.17a
Zen-O-Spore	3lb/a ABCDEFGHIJK-W									
LSD P=.05		8.122	.	5.355	13.850	18.766	9.213	14.441	13.152	7.110
Standard Deviation		5.473	0.000	3.608	9.332	12.644	6.208	9.731	8.862	4.791
CV		14.8	0.0	20.38	18.21	57.26	20.35	22.59	30.38	20.9
Bartlett's X2		0.021	0.0	0.084	8.156	0.154	1.249	0.018	3.583	0.34
P(Bartlett's X2)		0.885	.	0.772	0.004*	0.695	0.264	0.892	0.058	0.56
Skewness		0.1612	.	-0.0394	-0.8532	1.2955*	-0.2214	-0.7354	1.6385*	0.1217
Kurtosis		-0.5821	.	-0.1868	-0.9359	0.5712	-1.2729	-0.3858	3.1369*	0.5654
Replicate F		0.191	0.000	20.200	0.617	0.847	1.464	1.528	2.385	7.716
Replicate Prob(F)		0.9531	1.0000	0.0025	0.6953	0.5699	0.3431	0.3265	0.1810	0.0213
Treatment F		0.565	0.000	1.000	4.043	0.088	4.576	0.254	1.227	0.294
Treatment Prob(F)		0.4861	1.0000	0.3632	0.1006	0.7786	0.0854	0.6355	0.3185	0.6109

Florida Ag Research

To determine efficacy and crop safety of Zen-o-spore against botrytis fruit rot and other foliar diseases on strawberry in Florida

Trial ID: BWI1501 Location: Parrish, FL Trial Year: 2015
 Protocol ID: Botrytis Strawberry Investigator: Bradley Booker
 Project ID: Study Director: Matthew Krause
 Sponsor Contact:

Pest Type	D Disease	D Disease	FRASS	FRASS	FRASS	FRASS	FRASS	FRASS	
Pest Code	BOTRSP	BOTRSP	BOTRSP	BOTRSP	BOTRSP	BOTRSP	BOTRSP	BOTRSP	
Pest Scientific Name	Botrytis sp.	Botrytis sp.	Botrytis sp.	Botrytis sp.	Botrytis sp.	Botrytis sp.	Botrytis sp.	Botrytis sp.	
Pest Name	Botrytis sp.	Botrytis sp.	Botrytis sp.	Botrytis sp.	Botrytis sp.	Botrytis sp.	Botrytis sp.	Botrytis sp.	
Crop Code	FRASS	FRASS	FRASS	FRASS	FRASS	FRASS	FRASS	FRASS	
BBCH Scale	BSTR	BSTR	BSTR	BSTR	BSTR	BSTR	BSTR	BSTR	
Crop Scientific Name	Fragaria sp.	Fragaria sp.	Fragaria sp.	Fragaria sp.	Fragaria sp.	Fragaria sp.	Fragaria sp.	Fragaria sp.	
Crop Name	Strawberry	Strawberry	Strawberry	Strawberry	Strawberry	Strawberry	Strawberry	Strawberry	
Crop Variety	Radiance	Radiance	Radiance	Radiance	Radiance	Radiance	Radiance	Radiance	
Description	Botrytis Incid>	Botrytis Incid>	Avg. Berry Wei>	Avg. Berry Wei>	Avg. Berry Wei>	Avg. Berry Wei>	Avg. Berry Wei>	Avg. Berry Wei>	
Part Rated	FRUUNM C	FRUUNM C	FRUMAR C	FRUMAR C	FRUMAR C	FRUMAR C	FRUMAR C	FRUMAR C	
Rating Date	3/22/2016		12/30/2015	1/6/2015	1/23/2016	2/4/2016	2/13/2016	3/2/2016	
Rating Type	PESINC	PESINC	WEIGHT	WEIGHT	WEIGHT	WEIGHT	WEIGHT	WEIGHT	
Rating Unit	%	%	g	g	g	g	g	g	
Sample Size, Unit	1 plot	1 plot	1 BERRY	1 BERRY	1 BERRY	1 BERRY	1 BERRY	1 BERRY	
Collection Basis, Unit	20 plant	20 plant	1 PLOT	1 PLOT	1 PLOT	1 PLOT	1 PLOT	1 PLOT	
Number of Subsamples	1	1	1	1	1	1	1	1	
SE Group No.	32	26	8	9	29	29	29	29	
Days After First/Last Applic.	164 21		81 4	-277 -277	105 2	117 5	126 2	144 1	
Trt-Eval Interval	164 DA-A		81 DA-A	-277 DA-A	105 DA-A	117 DA-A	126 DA-A	144 DA-A	
Plant-Eval Interval	174 DP-1		91 DP-1	-267 DP-1	115 DP-1	127 DP-1	136 DP-1	154 DP-1	
ARM Action Codes		T1							
Number of Decimals	2	2	2	2	2	2	2	2	
Trt Treatment	Rate Appl								
No. Name	Rate Unit Code								
1 Grower Standard		17	18	19	20	21	22	23	24
2 Grower Standard	ABCDEF GHIJK-W	38.67a	29.41a	21.68a	20.25a	16.13a	16.84a	13.62a	15.15a
Zen-O-Spore	3lb/a ABCDEF GHIJK-W	27.67a	26.12a	21.56a	20.58a	13.32a	18.16a	13.43a	16.49a
LSD P=.05		18.948	3.994	5.646	2.753	6.439	3.809	2.926	1.825
Standard Deviation		12.767	2.691	3.804	1.855	4.339	2.567	1.971	1.230
CV		38.49	9.69	17.6	9.09	29.46	14.67	14.57	7.77
Bartlett's X2		1.731	0.448	0.005	0.0	1.758	0.275	1.101	1.893
P(Bartlett's X2)		0.188	0.503	0.946	0.985	0.185	0.60	0.294	0.169
Skewness		-0.9735	-0.3068	-0.0854	-0.2148	-0.8282	0.2195	1.013	-1.4333*
Kurtosis		2.3776	-0.5999	-0.6183	-0.8069	0.1014	-0.971	1.8917	2.355
Replicate F		1.111	0.494	0.378	0.401	0.862	0.903	4.901	3.270
Replicate Prob(F)		0.4553	0.7715	0.8454	0.8307	0.5628	0.5431	0.0530	0.1097
Treatment F		2.227	4.475	0.003	0.094	1.254	0.791	0.029	3.547
Treatment Prob(F)		0.1958	0.0880	0.9615	0.7719	0.3137	0.4146	0.8719	0.1184

Florida Ag Research

To determine efficacy and crop safety of Zen-o-spore against botrytis fruit rot and other foliar diseases on strawberry in Florida

Trial ID: BWI1501 Location: Parrish, FL Trial Year: 2015
 Protocol ID: Botrytis Strawberry Investigator: Bradley Booker
 Project ID: Study Director: Matthew Krause
 Sponsor Contact:

Pest Type	D Disease	D Disease	D Disease	D Disease	D Disease	D Disease	D Disease	D Disease	D Disease	D Disease
Pest Code	BOTRSP	BOTRSP	BOTRSP	BOTRSP	BOTRSP	BOTRSP	BOTRSP	BOTRSP	BOTRSP	BOTRSP
Pest Scientific Name	Botrytis sp.	Botrytis sp.	Botrytis sp.	Botrytis sp.	Botrytis sp.	Botrytis sp.	Botrytis sp.	Botrytis sp.	Botrytis sp.	Botrytis sp.
Pest Name	Botrytis sp.	Botrytis sp.	Botrytis sp.	Botrytis sp.	Botrytis sp.	Botrytis sp.	Botrytis sp.	Botrytis sp.	Botrytis sp.	Botrytis sp.
Crop Code	FRASS	FRASS	FRASS	FRASS	FRASS	FRASS	FRASS	FRASS	FRASS	FRASS
BBCH Scale	BSTR	BSTR	BSTR	BSTR	BSTR	BSTR	BSTR	BSTR	BSTR	BSTR
Crop Scientific Name	Fragaria sp.	Fragaria sp.	Fragaria sp.	Fragaria sp.	Fragaria sp.	Fragaria sp.	Fragaria sp.	Fragaria sp.	Fragaria sp.	Fragaria sp.
Crop Name	Strawberry	Strawberry	Strawberry	Strawberry	Strawberry	Strawberry	Strawberry	Strawberry	Strawberry	Strawberry
Crop Variety	Radiance	Radiance	Radiance	Radiance	Radiance	Radiance	Radiance	Radiance	Radiance	Radiance
Description	3 DAH	5 DAH	7 DAH	3 DAH	5 DAH	7 DAH	3 DAH	5 DAH	7 DAH	3 DAH
Part Rated	FRUUNM C									
Rating Date	1/2/2016	1/4/2016	1/6/2016	1/9/2016	1/11/2016	1/13/2016	1/26/2016	1/28/2016	1/30/2016	2/7/2016
Rating Type	PESINC	PESINC	PESINC	PESINC	PESINC	PESINC	PESINC	PESINC	PESINC	PESINC
Rating Unit	%	%	%	%	%	%	%	%	%	%
Sample Size, Unit										
Collection Basis, Unit										
Number of Subsamples	1	1	1	1	1	1	1	1	1	1
SE Group No.	15	16	17	18	18	18	19	19	19	20
Days After First/Last Applic.	84 2	86 4	88 6	91 2	93 4	95 6	108 5	110 7	112 9	120 2
Trt-Eval Interval	84 DA-A	86 DA-A	88 DA-A	91 DA-A	93 DA-A	95 DA-A	108 DA-A	110 DA-A	112 DA-A	120 DA-A
Plant-Eval Interval	94 DP-1	96 DP-1	98 DP-1	101 DP-1	103 DP-1	105 DP-1	118 DP-1	120 DP-1	122 DP-1	130 DP-1
ARM Action Codes										
Number of Decimals	2	2	2	2	2	2	2	2	2	2
Trt Treatment										
No. Name	34	35	36	37	38	39	40	41	42	43
1 Grower Standard	1.67a	6.67a	11.67a	1.67a	8.33a	20.00a	1.67a	5.00a	5.00a	5.00a
2 Grower Standard										
Zen-O-Spore	5.00a	6.67a	10.00a	0.00a	1.67a	3.33a	1.67a	5.00a	6.67a	1.67a
LSD P=.05	10.839	14.841	24.311	4.284	10.839	23.622	6.637	11.496	13.949	5.419
Standard Deviation	7.303	10.000	16.381	2.887	7.303	15.916	4.472	7.746	9.399	3.651
CV	219.09	150.0	151.21	346.41	146.06	136.43	268.33	154.92	161.12	109.54
Bartlett's X2	2.266	0.722	0.078	0.0	1.682	2.266	0.0	0.0	0.637	0.406
P(Bartlett's X2)	0.132	0.396	0.78	.	0.195	0.132	.	.	0.425	0.524
Skewness	1.9301*	1.4979*	1.3684*	3.4641*	1.0679	0.7686	2.0552*	1.2894*	1.7118*	0.8124
Kurtosis	3.1653*	1.7016	0.6872	12.0*	0.352	-1.1109	2.64*	0.1497	2.226	-1.65
Replicate F	0.625	1.133	0.851	1.000	0.375	0.368	0.667	1.333	1.453	2.500
Replicate Prob(F)	0.6907	0.4471	0.5681	0.5000	0.8472	0.8514	0.6664	0.3800	0.3460	0.1687
Treatment F	0.625	0.000	0.031	1.000	2.500	3.289	0.000	0.000	0.094	2.500
Treatment Prob(F)	0.4650	1.0000	0.8670	0.3632	0.1747	0.1295	1.0000	1.0000	0.7711	0.1747

Florida Ag Research

To determine efficacy and crop safety of Zen-o-spore against botrytis fruit rot and other foliar diseases on strawberry in Florida

Trial ID: BWI1501 Location: Parrish, FL Trial Year: 2015
 Protocol ID: Botrytis Strawberry Investigator: Bradley Booker
 Project ID: Study Director: Matthew Krause
 Sponsor Contact:

Pest Type	D Disease	D Disease	D Disease	D Disease	D Disease	D Disease	D Disease	D Disease	D Disease	D Disease
Pest Code	BOTRSP	BOTRSP	BOTRSP	BOTRSP	BOTRSP	BOTRSP	BOTRSP	BOTRSP	BOTRSP	BOTRSP
Pest Scientific Name	Botrytis sp.	Botrytis sp.	Botrytis sp.	Botrytis sp.	Botrytis sp.	Botrytis sp.	Botrytis sp.	Botrytis sp.	Botrytis sp.	Botrytis sp.
Pest Name	Botrytis sp.	Botrytis sp.	Botrytis sp.	Botrytis sp.	Botrytis sp.	Botrytis sp.	Botrytis sp.	Botrytis sp.	Botrytis sp.	Botrytis sp.
Crop Code	FRASS	FRASS	FRASS	FRASS	FRASS	FRASS	FRASS	FRASS	FRASS	FRASS
BBCH Scale	BSTR	BSTR	BSTR	BSTR	BSTR	BSTR	BSTR	BSTR	BSTR	BSTR
Crop Scientific Name	Fragaria sp.	Fragaria sp.	Fragaria sp.	Fragaria sp.	Fragaria sp.	Fragaria sp.	Fragaria sp.	Fragaria sp.	Fragaria sp.	Fragaria sp.
Crop Name	Strawberry	Strawberry	Strawberry	Strawberry	Strawberry	Strawberry	Strawberry	Strawberry	Strawberry	Strawberry
Crop Variety	Radiance	Radiance	Radiance	Radiance	Radiance	Radiance	Radiance	Radiance	Radiance	Radiance
Description	5 DAH	7 DAH	3 DAH	5 DAH	7 DAH	3 DAH	5 DAH	7 DAH	3 DAH	5 DAH
Part Rated										
Rating Date	2/9/2016	2/11/2016	2/16/2016	2/18/2016	2/20/2016	3/17/2016	3/19/2016	3/21/2016		
Rating Type	PESINC	PESINC	PESINC	PESINC	PESINC	PESINC	PESINC	PESINC	PESINC	PESINC
Rating Unit	%	%	%	%	%	%	%	%	%	%
Sample Size, Unit										
Collection Basis, Unit										
Number of Subsamples	1	1	1	1	1	1	1	1	1	1
SE Group No.	20	20	21	21	21	22	23	23	34	35
Days After First/Last Applic.	122 4	124 6	129 5	131 2	133 4	159 16	161 18	163 20		
Trt-Eval Interval	122 DA-A	124 DA-A	129 DA-A	131 DA-A	133 DA-A	159 DA-A	161 DA-A	163 DA-A		
Plant-Eval Interval	132 DP-1	134 DP-1	139 DP-1	141 DP-1	143 DP-1	169 DP-1	171 DP-1	173 DP-1		
ARM Action Codes									T2	T3
Number of Decimals	2	2	2	2	2	2	2	2	2	2
Trt Treatment										
No. Name	44	45	46	47	48	49	50	51	52	53
1 Grower Standard	11.67a	18.33a	5.00a	13.33a	23.33a	1.67a	6.67a	15.00a	2.78a	8.61a
2 Grower Standard										
Zen-O-Spore	5.00a	8.33a	6.67a	13.33a	20.00a	3.33a	6.67a	11.67a	3.06a	6.39a
LSD P=.05	10.839	11.496	7.900	9.386	15.800	7.900	9.386	21.677	2.802	2.390
Standard Deviation	7.303	7.746	5.323	6.325	10.646	5.323	6.325	14.606	1.888	1.610
CV	87.64	58.09	91.25	47.43	49.13	212.92	94.87	109.54	64.73	21.47
Bartlett's X2	0.053	0.0	0.74	0.0	2.583	0.261	0.966	0.01	1.195	0.019
P(Bartlett's X2)	0.818	.	0.39	.	0.108	0.61	0.326	0.919	0.274	0.89
Skewness	0.3541	0.1387	0.7352	0.668	-0.3884	1.3267*	0.4387	0.4881	0.5405	-0.1592
Kurtosis	-1.4473	-0.2538	-0.1896	0.924	1.0991	-0.3259	-0.3367	-1.1182	-0.6049	-1.8363
Replicate F	1.375	0.889	2.412	2.333	1.000	0.529	1.333	0.344	2.143	5.786
Replicate Prob(F)	0.3676	0.5498	0.1780	0.1870	0.5000	0.7490	0.3800	0.8669	0.2113	0.0383
Treatment F	2.500	5.000	0.294	0.000	0.294	0.294	0.000	0.156	0.065	5.714
Treatment Prob(F)	0.1747	0.0756	0.6109	1.0000	0.6109	0.6109	1.0000	0.7089	0.8090	0.0624

Florida Ag Research

To determine efficacy and crop safety of Zen-o-spore against botrytis fruit rot and other foliar diseases on strawberry in Florida

Trial ID: BWI1501 Location: Parrish, FL Trial Year: 2015
 Protocol ID: Botrytis Strawberry Investigator: Bradley Booker
 Project ID: Study Director: Matthew Krause
 Sponsor Contact:

Pest Type	D Disease		D Disease		D Disease		D Disease		D Disease		D Disease		
Pest Code	BOTRSP		RIZPSP		RIZPSP		RIZPSP		RIZPSP		RIZPSP		
Pest Scientific Name	Botrytis sp.		Rhizopus sp.		Rhizopus sp.		Rhizopus sp.		Rhizopus sp.		Rhizopus sp.		
Pest Name	Botrytis sp.		Rhizopus sp.		Rhizopus sp.		Rhizopus sp.		Rhizopus sp.		Rhizopus sp.		
Crop Code	FRASS		FRASS		FRASS		FRASS		FRASS		FRASS		
BBCH Scale	BSTR		BSTR		BSTR		BSTR		BSTR		BSTR		
Crop Scientific Name	Fragaria sp.		Fragaria sp.		Fragaria sp.		Fragaria sp.		Fragaria sp.		Fragaria sp.		
Crop Name	Strawberry		Strawberry		Strawberry		Strawberry		Strawberry		Strawberry		
Crop Variety	Radiance		Radiance		Radiance		Radiance		Radiance		Radiance		
Description	7 DAH		3DAH		5DAH		7DAH		3DAH		5DAH		
Part Rated	Fruit P		Fruit P		Fruit P		Fruit P		Fruit P		Fruit P		
Rating Date	1/2/2016		1/4/2016		1/6/2016		1/9/2016		1/11/2016		1/13/2016		
Rating Type	PESINC		PESINC		PESINC		PESINC		PESINC		PESINC		
Rating Unit	%		%		%		%		%		%		
Sample Size, Unit	1 PLOT		1 PLOT		1 PLOT		1 PLOT		1 PLOT		1 PLOT		
Collection Basis, Unit	1 PLOT		1 PLOT		1 PLOT		1 PLOT		1 PLOT		1 PLOT		
Number of Subsamples	1		1		1		1		1		1		
SE Group No.	36		39		42		42		42		43		
Days After First/Last Applic.			84 2		86 4		88 6		91 2		93 4		
Trt-Eval Interval			84 DA-A		86 DA-A		88 DA-A		91 DA-A		93 DA-A		
Plant-Eval Interval			94 DP-1		96 DP-1		98 DP-1		101 DP-1		103 DP-1		
ARM Action Codes	T4												
Number of Decimals	2												
Trt Treatment	Rate Appl												
No. Name	Rate	Unit	Code	54	55	56	57	58	59	60	61	62	63
1 Grower Standard	15.56a					1.3a	2.5a	5.0a	1.8a	2.7a	4.5a	0.3a	1.2a
2 Grower Standard	10.00a		ABCDEF GHIJK-W			1.8a	2.8a	5.3a	1.8a	2.8a	4.2a	0.5a	1.3a
Zen-O-Spore		3lb/a	ABCDEF GHIJK-W										
LSD P=.05	6.698			0.57		0.54	1.27	0.94	0.43	1.27	0.79	1.03	
Standard Deviation	4.513			0.39		0.37	0.86	0.63	0.29	0.86	0.53	0.70	
CV	35.32			24.46		13.69	16.57	34.5	10.5	19.76	127.75	55.62	
Bartlett's X2	0.254			0.261		0.406	0.04	1.998	0.163	3.728	0.017	0.205	
P(Bartlett's X2)	0.615			0.61		0.524	0.842	0.158	0.686	0.053	0.898	0.65	
Skewness	0.0044			-0.3884		-0.8124	-0.3541	0.3851	0.5669	0.668	0.3884	-0.0348	
Kurtosis	-1.7074			-2.2629		-1.65	-1.4473	-0.055	-1.4465	0.924	-2.2629	-1.3989	
Replicate F	0.836			1.889		2.500	1.000	5.833	18.600	0.727	1.000	4.034	
Replicate Prob(F)	0.5753			0.2510		0.1687	0.5000	0.0377	0.0030	0.6324	0.5000	0.0760	
Treatment F	4.545			5.000		2.500	0.455	0.000	1.000	0.455	0.294	0.172	
Treatment Prob(F)	0.0862			0.0756		0.1747	0.5301	1.0000	0.3632	0.5301	0.6109	0.6952	

Florida Ag Research

To determine efficacy and crop safety of Zen-o-spore against botrytis fruit rot and other foliar diseases on strawberry in Florida

Trial ID: BWI1501 Location: Parrish, FL Trial Year: 2015
 Protocol ID: Botrytis Strawberry Investigator: Bradley Booker
 Project ID: Study Director: Matthew Krause
 Sponsor Contact:

Pest Type	D Disease	D Disease	D Disease	D Disease	D Disease	D Disease	D Disease	D Disease	D Disease	D Disease	
Pest Code	RIZPSP	RIZPSP	RIZPSP	RIZPSP	RIZPSP	RIZPSP	RIZPSP	RIZPSP	RIZPSP	RIZPSP	
Pest Scientific Name	Rhizopus sp.	Rhizopus sp.	Rhizopus sp.	Rhizopus sp.	Rhizopus sp.	Rhizopus sp.	Rhizopus sp.	Rhizopus sp.	Rhizopus sp.	Rhizopus sp.	
Pest Name	Rhizopus sp.	Rhizopus sp.	Rhizopus sp.	Rhizopus sp.	Rhizopus sp.	Rhizopus sp.	Rhizopus sp.	Rhizopus sp.	Rhizopus sp.	Rhizopus sp.	
Crop Code	FRASS	FRASS	FRASS	FRASS	FRASS	FRASS	FRASS	FRASS	FRASS	FRASS	
BBCH Scale	BSTR	BSTR	BSTR	BSTR	BSTR	BSTR	BSTR	BSTR	BSTR	BSTR	
Crop Scientific Name	Fragaria sp.	Fragaria sp.	Fragaria sp.	Fragaria sp.	Fragaria sp.	Fragaria sp.	Fragaria sp.	Fragaria sp.	Fragaria sp.	Fragaria sp.	
Crop Name	Strawberry	Strawberry	Strawberry	Strawberry	Strawberry	Strawberry	Strawberry	Strawberry	Strawberry	Strawberry	
Crop Variety	Radiance	Radiance	Radiance	Radiance	Radiance	Radiance	Radiance	Radiance	Radiance	Radiance	
Description	7DAH	3DAH	5DAH	7DAH	3DAH	5DAH	7DAH	3DAH	5DAH	7DAH	
Part Rated	Fruit P	Fruit P	Fruit P	Fruit P	Fruit P	Fruit P	Fruit P	Fruit P	Fruit P	Fruit P	
Rating Date	1/30/2016	2/7/2016	2/9/2016	2/11/2016	2/16/2016	2/18/2016	2/20/2016	3/17/2016	3/19/2016	3/21/2016	
Rating Type	PESINC	PESINC	PESINC	PESINC	PESINC	PESINC	PESINC	PESINC	PESINC	PESINC	
Rating Unit	%	%	%	%	%	%	%	%	%	%	
Sample Size, Unit	1 PLOT	1 PLOT	1 PLOT	1 PLOT	1 PLOT	1 PLOT	1 PLOT	1 PLOT	1 PLOT	1 PLOT	
Collection Basis, Unit	1 PLOT	1 PLOT	1 PLOT	1 PLOT	1 PLOT	1 PLOT	1 PLOT	1 PLOT	1 PLOT	1 PLOT	
Number of Subsamples	1	1	1	1	1	1	1	1	1	1	
SE Group No.	45	46	46	47	48	48	49	50	50	51	
Days After First/Last Applic.	112 9	120 2	122 4	124 6	129 5	131 2	133 4	159 16	161 18	163 20	
Trt-Eval Interval	112 DA-A	120 DA-A	122 DA-A	124 DA-A	129 DA-A	131 DA-A	133 DA-A	159 DA-A	161 DA-A	163 DA-A	
Plant-Eval Interval	122 DP-1	130 DP-1	132 DP-1	134 DP-1	139 DP-1	141 DP-1	143 DP-1	169 DP-1	171 DP-1	173 DP-1	
ARM Action Codes											
Number of Decimals											
Trt Treatment	Rate Appl										
No. Name	Rate Unit Code	64	65	66	67	68	69	70	71	72	73
1 Grower Standard		2.3a	0.7a	1.3a	2.3a	0.3a	1.3a	2.3a	1.2a	2.2a	2.8a
2 Grower Standard	ABCDEFGHIJK-W	2.7a	1.0a	2.0a	2.5a	0.5a	1.2a	1.8a	1.7a	2.7a	3.7a
Zen-O-Spore	3lb/a ABCDEFGHIJK-W										
LSD P=.05		1.27	1.58	1.58	2.92	0.95	1.03	1.59	1.45	1.45	2.52
Standard Deviation		0.86	1.06	1.06	1.97	0.60	0.70	1.07	0.97	0.97	1.70
CV		34.25	127.75	63.87	81.54	142.83	55.62	51.47	68.8	40.33	52.25
Bartlett's X2		0.01	1.882	2.583	5.929	0.0	0.661	0.469	4.48	4.48	2.576
P(Bartlett's X2)		0.922	0.17	0.108	0.015*	1.00	0.416	0.494	0.034*	0.034*	0.108
Skewness		0.1978	1.1771	0.8044	2.0094*	0.2128	-0.1703	0.7121	1.0276	1.0276	0.709
Kurtosis		-1.0039	1.3341	0.905	5.5925*	-2.4444	-0.0913	0.5327	2.0472	2.0472	0.8107
Replicate F		11.182	0.647	1.000	1.309	0.800	0.724	0.420	1.561	1.561	1.092
Replicate Prob(F)		0.0096	0.6777	0.5000	0.3874	0.6023	0.6341	0.8183	0.3184	0.3184	0.4625
Treatment F		0.455	0.294	1.176	0.021	0.235	0.172	0.652	0.789	0.789	0.723
Treatment Prob(F)		0.5301	0.6109	0.3276	0.8893	0.6530	0.6952	0.4560	0.4150	0.4150	0.4341

Florida Ag Research

To determine efficacy and crop safety of Zen-o-spore against botrytis fruit rot and other foliar diseases on strawberry in Florida

Pest Type

D, Disease, G-BYRD7, G-DisStg = Disease, such as a fungus, bacteria, or virus

Pest Code

PODOAP, Podosphaera aphanis, = US

BOTRSP, Botrytis sp., = US

RIZPSP, Rhizopus sp., = US

Crop Code

FRASS, BSTR, Fragaria sp., = US

Part Rated

Plant = plant

FRUUNM = fruit - unmarketable

FRUMAR = fruit - marketable

Fruit = fruit

C = Crop is Part Rated

P = Pest is Part Rated

Rating Type

PESSEV = pest severity

PESINC = pest incidence

WEIGHT = weight

Count = count

Rating Unit

0-10 = 0-10 index/scale

AUDPC = area under disease process curve

% = percent

g = gram

Number = number

plot = total plot

BERRY = berry

plant = plant/plant biomass/shrub

PLOT = total plot

Plant-Eval Interval

82 DP-1 = 1 FRASS 9/30/2015

91 DP-1 = 1 FRASS 9/30/2015

98 DP-1 = 1 FRASS 9/30/2015

127 DP-1 = 1 FRASS 9/30/2015

136 DP-1 = 1 FRASS 9/30/2015

143 DP-1 = 1 FRASS 9/30/2015

166 DP-1 = 1 FRASS 9/30/2015

115 DP-1 = 1 FRASS 9/30/2015

154 DP-1 = 1 FRASS 9/30/2015

174 DP-1 = 1 FRASS 9/30/2015

-267 DP-1 = 1 FRASS 9/30/2015

94 DP-1 = 1 FRASS 9/30/2015

96 DP-1 = 1 FRASS 9/30/2015

101 DP-1 = 1 FRASS 9/30/2015

103 DP-1 = 1 FRASS 9/30/2015

105 DP-1 = 1 FRASS 9/30/2015

118 DP-1 = 1 FRASS 9/30/2015

120 DP-1 = 1 FRASS 9/30/2015

122 DP-1 = 1 FRASS 9/30/2015

130 DP-1 = 1 FRASS 9/30/2015

Florida Ag Research

To determine efficacy and crop safety of Zen-o-spore against botrytis fruit rot and other foliar diseases on strawberry in Florida

Trial ID: BWI1501 Location: Parrish, FL Trial Year: 2015
Protocol ID: Botrytis Strawberry Investigator: Bradley Booker
Project ID: Study Director: Matthew Krause
Sponsor Contact:

132 DP-1 = 1 FRASS 9/30/2015
134 DP-1 = 1 FRASS 9/30/2015
139 DP-1 = 1 FRASS 9/30/2015
141 DP-1 = 1 FRASS 9/30/2015
169 DP-1 = 1 FRASS 9/30/2015
171 DP-1 = 1 FRASS 9/30/2015
173 DP-1 = 1 FRASS 9/30/2015

ARM Action Codes

T5 = &@AUDPC(@MATCH(EPT=PODOAP,EDT=PESSEV,ERU=0-10))
T1 = ([C9]+[C10]+[C11]+[C12]+[C13]+[C14]+[C15]+[C16]+[C17])/9
T6 = ([C19]+[C20]+[C21]+[C22]+[C23]+[C24]+[C25]+[C26])/8
T2 = ([C34]+[C37]+[C40]+[C43]+[C46]+[C49])/6
T3 = ([C35]+[C38]+[C41]+[C44]+[C47]+[C50])/6
T4 = ([C36]+[C39]+[C42]+[C45]+[C48]+[C51])/6

Florida Ag Research

To determine efficacy and crop safety of Zen-o-spore against botrytis fruit rot and other foliar diseases on strawberry in Florida

Trial ID: BWI1501 Location: Parrish, FL Trial Year: 2015
 Protocol ID: Botrytis Strawberry Investigator: Bradley Booker
 Project ID: Study Director: Matthew Krause
 Sponsor Contact:

Pest Type	D Disease		D Disease		D Disease		D Disease		D Disease		D Disease	
Pest Code	ODOAP		ODOAP		ODOAP		ODOAP		ODOAP		ODOAP	
Pest Scientific Name	Podosphaera ap>		Podosphaera ap>		Podosphaera ap>		Podosphaera ap>		Podosphaera ap>		Podosphaera ap>	
Pest Name	Powdery mildew>		Powdery mildew>		Powdery mildew>		Powdery mildew>		Powdery mildew>		Powdery mildew>	
Crop Code	FRASS		FRASS		FRASS		FRASS		FRASS		FRASS	
BBCH Scale	BSTR		BSTR		BSTR		BSTR		BSTR		BSTR	
Crop Scientific Name	Fragaria sp.		Fragaria sp.		Fragaria sp.		Fragaria sp.		Fragaria sp.		Fragaria sp.	
Crop Name	Strawberry		Strawberry		Strawberry		Strawberry		Strawberry		Strawberry	
Crop Variety	Radiance		Radiance		Radiance		Radiance		Radiance		Radiance	
Description	PM Severity		PM Severity		PM Severity		PM Severity		PM Severity		PM Severity	
Part Rated	Plant C		Plant C		Plant C		Plant C		Plant C		Plant C	
Rating Date	12/21/2015		12/30/2015		1/6/2016		2/13/2016		2/20/2016		3/14/2016	
Rating Type	PESSEV		PESSEV		PESSEV		PESSEV		PESSEV		PESSEV	
Rating Unit	0-10		0-10		0-10		0-10		0-10		0-10	
Sample Size, Unit	1 plot		1 plot		1 plot		1 plot		1 plot		1 plot	
Collection Basis, Unit	10 plant		10 plant		10 plant		10 plant		10 plant		10 plant	
Number of Subsamples	10		10		10		10		10		10	
SE Group No.	1		3		6		6		6		6	
Days After First/Last Applic.	72 2		81 4		88 6		117 5		126 2		133 4	
Trt-Eval Interval	72 DA-A		81 DA-A		88 DA-A		117 DA-A		126 DA-A		133 DA-A	
Plant-Eval Interval	82 DP-1		91 DP-1		98 DP-1		127 DP-1		136 DP-1		143 DP-1	
ARM Action Codes												
Number of Decimals	2		2		2		2		2		2	
Trt Treatment	Rate Appl											
No. Name	Rate	Unit	Code	Plot	1	2	3	4	5	6	7	
1 Grower Standard				102	1.60	1.30	1.20	0.30	0.00	0.00	0.00	
				202	1.60	1.30	0.90	0.10	0.00	0.00	0.00	
				302	1.30	1.50	1.00	0.10	0.00	0.00	0.00	
				402	1.30	1.40	0.90	0.30	0.00	0.00	0.00	
				502	1.30	1.20	0.70	0.20	0.00	0.00	0.00	
				602	1.20	1.60	1.10	0.10	0.00	0.00	0.00	
				Mean =	1.38	1.38	0.97	0.18	0.00	0.00	0.00	
2 Grower Standard Zen-O-Spore			ABCDEF GHIJK-W	101	1.60	1.70	0.70	0.00	0.00	0.00	0.00	
		3lb/a	ABCDEF GHIJK-W	201	1.70	1.80	0.90	0.00	0.00	0.00	0.00	
				301	1.20	1.10	0.90	0.10	0.00	0.00	0.00	
				401	1.50	1.50	1.00	0.10	0.00	0.00	0.00	
				501	1.30	1.70	1.10	0.10	0.00	0.00	0.00	
				601	1.30	1.10	0.70	0.20	0.00	0.00	0.00	
				Mean =	1.43	1.48	0.88	0.08	0.00	0.00	0.00	

Florida Ag Research

To determine efficacy and crop safety of Zen-o-spore against botrytis fruit rot and other foliar diseases on strawberry in Florida

Trial ID: BWI1501 Location: Parrish, FL Trial Year: 2015
 Protocol ID: Botrytis Strawberry Investigator: Bradley Booker
 Project ID: Study Director: Matthew Krause
 Sponsor Contact:

Pest Type	D Disease	D Disease	D Disease	D Disease	D Disease	D Disease	D Disease	D Disease		
Pest Code	PODOAP	BOTRSP	BOTRSP	BOTRSP	BOTRSP	BOTRSP	BOTRSP	BOTRSP		
Pest Scientific Name	Podosphaera ap>	Botrytis sp.	Botrytis sp.	Botrytis sp.	Botrytis sp.	Botrytis sp.	Botrytis sp.	Botrytis sp.		
Pest Name	Powdery mildew>	Botrytis sp.	Botrytis sp.	Botrytis sp.	Botrytis sp.	Botrytis sp.	Botrytis sp.	Botrytis sp.		
Crop Code	FRASS	FRASS	FRASS	FRASS	FRASS	FRASS	FRASS	FRASS		
BBCH Scale	BSTR	BSTR	BSTR	BSTR	BSTR	BSTR	BSTR	BSTR		
Crop Scientific Name	Fragaria sp.	Fragaria sp.	Fragaria sp.	Fragaria sp.	Fragaria sp.	Fragaria sp.	Fragaria sp.	Fragaria sp.		
Crop Name	Strawberry	Strawberry	Strawberry	Strawberry	Strawberry	Strawberry	Strawberry	Strawberry		
Crop Variety	Radiance	Radiance	Radiance	Radiance	Radiance	Radiance	Radiance	Radiance		
Description	PM Severity	Botrytis Incid>	Botrytis Incid>	Botrytis Incid>	Botrytis Incid>	Botrytis Incid>	Botrytis Incid>	Botrytis Incid>		
Part Rated	Plant C	FRUUNM C	FRUUNM C	FRUUNM C	FRUUNM C	FRUUNM C	FRUUNM C	FRUUNM C		
Rating Date		12/21/2015	12/30/2015	1/6/2016	1/23/2016	2/4/2016	2/13/2016	3/2/2016		
Rating Type		PESINC	PESINC	PESINC	PESINC	PESINC	PESINC	PESINC		
Rating Unit	AUDPC	%	%	%	%	%	%	%		
Sample Size, Unit	1 plot	1 plot	1 plot	1 plot	1 plot	1 plot	1 plot	1 plot		
Collection Basis, Unit	10 plant	20 plant	20 plant	20 plant	20 plant	20 plant	20 plant	20 plant		
Number of Subsamples	1	1	1	1	1	1	1	1		
SE Group No.	38	2	5	7	24	24	24	24		
Days After First/Last Applic.		72 2	81 4	88 6	105 2	117 5	126 2	144 1		
Trt-Eval Interval		72 DA-A	81 DA-A	88 DA-A	105 DA-A	117 DA-A	126 DA-A	144 DA-A		
Plant-Eval Interval		82 DP-1	91 DP-1	98 DP-1	115 DP-1	127 DP-1	136 DP-1	154 DP-1		
ARM Action Codes	T5 AUDPC									
Number of Decimals	2	2	2	2	2	2	2	2		
Trt Treatment	Rate Appl									
No. Name	Rate Unit Code	Plot								
1 Grower Standard		8	9	10	11	12	13	14		
		102	44.90	0.00	25.00	55.00	13.00	33.00	50.00	17.00
		202	35.70	0.00	12.50	55.00	20.00	33.00	42.00	25.00
		302	37.75	0.00	12.50	60.00	47.00	33.00	50.00	25.00
		402	38.95	0.00	31.25	55.00	20.00	40.00	33.00	42.00
		502	31.85	0.00	18.75	55.00	13.00	40.00	25.00	25.00
		602	39.90	0.00	0.00	60.00	13.00	27.00	50.00	58.00
		Mean =	38.18	0.00	16.67	56.67	21.00	34.33	41.67	32.00
2 Grower Standard	ABCDEF GHIJK-W	101	33.40	0.00	18.75	35.00	20.00	33.00	50.00	17.00
Zen-O-Spore	3lb/a ABCDEF GHIJK-W	201	38.25	0.00	18.75	45.00	40.00	20.00	25.00	25.00
		301	32.30	0.00	12.50	40.00	20.00	20.00	58.00	25.00
		401	38.65	0.00	37.50	60.00	13.00	20.00	50.00	25.00
		501	41.15	0.00	25.00	60.00	13.00	40.00	42.00	33.00
		601	31.05	0.00	0.00	35.00	33.00	27.00	42.00	33.00
		Mean =	35.80	0.00	18.75	45.83	23.17	26.67	44.50	26.33

Florida Ag Research

To determine efficacy and crop safety of Zen-o-spore against botrytis fruit rot and other foliar diseases on strawberry in Florida

Trial ID: BWI1501 Location: Parrish, FL Trial Year: 2015
 Protocol ID: Botrytis Strawberry Investigator: Bradley Booker
 Project ID: Study Director: Matthew Krause
 Sponsor Contact:

Pest Type	D Disease	D Disease	D Disease	FRASS	FRASS	FRASS	FRASS	FRASS		
Pest Code	BOTRSP	BOTRSP	BOTRSP	BOTRSP	BOTRSP	BOTRSP	BOTRSP	BOTRSP		
Pest Scientific Name	Botrytis sp.	Botrytis sp.	Botrytis sp.	Botrytis sp.	Botrytis sp.	Botrytis sp.	Botrytis sp.	Botrytis sp.		
Pest Name	Botrytis sp.	Botrytis sp.	Botrytis sp.	Botrytis sp.	Botrytis sp.	Botrytis sp.	Botrytis sp.	Botrytis sp.		
Crop Code	FRASS	FRASS	FRASS	FRASS	FRASS	FRASS	FRASS	FRASS		
BBCH Scale	BSTR	BSTR	BSTR	BSTR	BSTR	BSTR	BSTR	BSTR		
Crop Scientific Name	Fragaria sp.	Fragaria sp.	Fragaria sp.	Fragaria sp.	Fragaria sp.	Fragaria sp.	Fragaria sp.	Fragaria sp.		
Crop Name	Strawberry	Strawberry	Strawberry	Strawberry	Strawberry	Strawberry	Strawberry	Strawberry		
Crop Variety	Radiance	Radiance	Radiance	Radiance	Radiance	Radiance	Radiance	Radiance		
Description	Botrytis Incid>	Botrytis Incid>	Botrytis Incid>	Avg. Berry Wei>	Avg. Berry Wei>	Avg. Berry Wei>	Avg. Berry Wei>	Avg. Berry Wei>		
Part Rated	FRUUNM C	FRUUNM C	FRUUNM C	FRUMAR C	FRUMAR C	FRUMAR C	FRUMAR C	FRUMAR C		
Rating Date	3/14/2016	3/22/2016		12/30/2015	1/6/2015	1/23/2016	2/4/2016	2/13/2016		
Rating Type	PESINC	PESINC	PESINC	WEIGHT	WEIGHT	WEIGHT	WEIGHT	WEIGHT		
Rating Unit	%	%	%	g	g	g	g	g		
Sample Size, Unit	1 plot	1 plot	1 plot	1 BERRY	1 BERRY	1 BERRY	1 BERRY	1 BERRY		
Collection Basis, Unit	20 plant	20 plant	20 plant	1 PLOT	1 PLOT	1 PLOT	1 PLOT	1 PLOT		
Number of Subsamples	1	1	1	1	1	1	1	1		
SE Group No.	24	32	26	8	9	29	29	29		
Days After First/Last Applic.	156 13	164 21		81 4	-277 -277	105 2	117 5	126 2		
Trt-Eval Interval	156 DA-A	164 DA-A		81 DA-A	-277 DA-A	105 DA-A	117 DA-A	126 DA-A		
Plant-Eval Interval	166 DP-1	174 DP-1		91 DP-1	-267 DP-1	115 DP-1	127 DP-1	136 DP-1		
ARM Action Codes			T1							
Number of Decimals	2	2	2	2	2	2	2	2		
Trt Treatment	Rate Appl									
No. Name	Rate Unit Code	Plot								
1 Grower Standard		16	17	18	19	20	21	22		
		23								
		102	25.00	33.00	27.89	16.41	22.00	18.62	16.82	11.61
		202	25.00	33.00	27.28	22.86	18.89	15.79	16.12	11.38
		302	8.00	50.00	31.72	20.39	21.13	5.88	16.42	9.87
		402	17.00	33.00	30.14	25.00	19.11	19.90	15.89	15.15
		502	25.00	50.00	27.97	24.18	21.78	19.12	14.74	21.16
		602	42.00	33.00	31.44	21.21	18.63	17.46	21.07	12.59
		Mean =	23.67	38.67	29.41	21.68	20.25	16.13	16.84	13.62
2 Grower Standard	ABCDEF GHIJK-W	101	25.00	25.00	24.86	23.70	20.69	17.14	19.70	12.46
Zen-O-Spore	3lb/a ABCDEF GHIJK-W	201	25.00	33.00	25.75	21.71	22.82	9.30	19.62	14.28
		301	17.00	33.00	25.06	18.41	17.92	15.00	18.26	9.02
		401	8.00	50.00	29.28	18.34	20.63	13.97	21.35	13.84
		501	25.00	25.00	29.22	20.61	20.75	13.42	13.55	16.34
		601	33.00	0.00	22.56	26.62	20.69	11.10	16.47	14.66
		Mean =	22.17	27.67	26.12	21.56	20.58	13.32	18.16	13.43

Florida Ag Research

To determine efficacy and crop safety of Zen-o-spore against botrytis fruit rot and other foliar diseases on strawberry in Florida

Trial ID: BWI1501 Location: Parrish, FL Trial Year: 2015
 Protocol ID: Botrytis Strawberry Investigator: Bradley Booker
 Project ID: Study Director: Matthew Krause
 Sponsor Contact:

Pest Type	FRASS		FRASS		FRASS		FRASS		FRASS		FRASS		FRASS	
Pest Code	BSTR		BSTR		BSTR		BSTR		BSTR		BSTR		BSTR	
Pest Scientific Name	Fragaria sp.		Fragaria sp.		Fragaria sp.		Fragaria sp.		Fragaria sp.		Fragaria sp.		Fragaria sp.	
Pest Name	Strawberry		Strawberry		Strawberry		Strawberry		Strawberry		Strawberry		Strawberry	
Crop Code	FRASS		FRASS		FRASS		FRASS		FRASS		FRASS		FRASS	
BBCH Scale	BSTR		BSTR		BSTR		BSTR		BSTR		BSTR		BSTR	
Crop Scientific Name	Fragaria sp.		Fragaria sp.		Fragaria sp.		Fragaria sp.		Fragaria sp.		Fragaria sp.		Fragaria sp.	
Crop Name	Strawberry		Strawberry		Strawberry		Strawberry		Strawberry		Strawberry		Strawberry	
Crop Variety	Radiance		Radiance		Radiance		Radiance		Radiance		Radiance		Radiance	
Description	Avg. Berry Wei>		Avg. Berry Wei>		Avg. Berry Wei>		Avg. Berry Wei>		# Marketable		# Marketable		# Marketable	
Part Rated	FRUMAR C		FRUMAR C		FRUMAR C		FRUMAR C		FRUMAR C		FRUMAR C		FRUMAR C	
Rating Date	3/2/2016		3/14/2016		3/22/2016		1/23/2016		2/4/2016		2/13/2016		3/2/2016	
Rating Type	WEIGHT		WEIGHT		WEIGHT		WEIGHT		Count		Count		Count	
Rating Unit	g		g		g		g		Number		Number		Number	
Sample Size, Unit	1 BERRY		1 BERRY		1 BERRY		1 BERRY							
Collection Basis, Unit	1 PLOT		1 PLOT		1 PLOT		1 PLOT							
Number of Subsamples	1		1		1		1							
SE Group No.	29		29		33		41		11		11		11	
Days After First/Last Applic.	144 1		156 13		164 21				105 2		117 5		126 2	
Trt-Eval Interval	144 DA-A		156 DA-A		164 DA-A				105 DA-A		117 DA-A		126 DA-A	
Plant-Eval Interval	154 DP-1		166 DP-1		174 DP-1				115 DP-1		127 DP-1		136 DP-1	
ARM Action Codes							T6							
Number of Decimals	2		2		2		2		2		2		2	
Trt Treatment	Rate Appl													
No. Name	Rate	Unit	Code	Plot	24	25	26	27	28	29	30	31		
1 Grower Standard				102	16.76	16.28	29.02	18.44	13.00	10.00	6.00	10.00		
				202	16.18	16.51	20.13	17.23	12.00	10.00	7.00	9.00		
				302	16.34	18.25	22.26	16.32	8.00	10.00	6.00	9.00		
				402	13.43	17.57	22.59	18.58	12.00	9.00	8.00	7.00		
				502	16.85	17.28	28.46	20.45	13.00	9.00	9.00	9.00		
				602	11.35	14.33	19.66	17.03	13.00	11.00	6.00	5.00		
				Mean =	15.15	16.70	23.69	18.01	11.83	9.83	7.00	8.17		
2 Grower Standard Zen-O-Spore			ABCDEF GHIJK-W	101	16.93	16.46	22.19	18.66	12.00	10.00	6.00	10.00		
		3lb/a	ABCDEF GHIJK-W	201	18.24	17.73	21.21	18.11	9.00	12.00	9.00	9.00		
				301	17.20	19.09	19.33	16.78	12.00	12.00	5.00	9.00		
				401	15.78	18.04	23.96	18.24	13.00	12.00	6.00	9.00		
				501	15.69	17.21	16.07	16.71	13.00	9.00	7.00	8.00		
				601	15.08	15.44	20.94	17.63	10.00	11.00	7.00	8.00		
				Mean =	16.49	17.33	20.62	17.69	11.50	11.00	6.67	8.83		

Florida Ag Research

To determine efficacy and crop safety of Zen-o-spore against botrytis fruit rot and other foliar diseases on strawberry in Florida

Trial ID: BWI1501 Location: Parrish, FL Trial Year: 2015
 Protocol ID: Botrytis Strawberry Investigator: Bradley Booker
 Project ID: Study Director: Matthew Krause
 Sponsor Contact:

Pest Type	FRASS		FRASS		FRASS		FRASS		FRASS		FRASS			
Pest Code	BSTR		BSTR		BSTR		BSTR		BSTR		BSTR			
Pest Scientific Name	Fragaria sp.		Fragaria sp.		Fragaria sp.		Fragaria sp.		Fragaria sp.		Fragaria sp.			
Pest Name	Strawberry		Strawberry		Strawberry		Strawberry		Strawberry		Strawberry			
Crop Code	FRASS		FRASS		FRASS		FRASS		FRASS		FRASS			
BBCH Scale	BSTR		BSTR		BSTR		BSTR		BSTR		BSTR			
Crop Scientific Name	Fragaria sp.		Fragaria sp.		Fragaria sp.		Fragaria sp.		Fragaria sp.		Fragaria sp.			
Crop Name	Strawberry		Strawberry		Strawberry		Strawberry		Strawberry		Strawberry			
Crop Variety	Radiance		Radiance		Radiance		Radiance		Radiance		Radiance			
Description	# Marketable		# Marketable		3 DAH		5 DAH		7 DAH		3 DAH			
Part Rated	FRUMAR C		FRUMAR C		FRUJNM C		FRUJNM C		FRUJNM C		FRUJNM C			
Rating Date	3/14/2016		3/22/2016		1/2/2016		1/4/2016		1/6/2016		1/9/2016			
Rating Type	Count		Count		PESINC		PESINC		PESINC		PESINC			
Rating Unit	Number		Number		%		%		%		%			
Sample Size, Unit	1		1		1		1		1		1			
Collection Basis, Unit	11		30		15		16		17		18			
Number of Subsamples	156		164		84		86		88		91			
SE Group No.	13		21		2		4		6		2			
Days After First/Last Applic.	156 DA-A		164 DA-A		84 DA-A		86 DA-A		88 DA-A		91 DA-A			
Trt-Eval Interval	166 DP-1		174 DP-1		94 DP-1		96 DP-1		98 DP-1		101 DP-1			
Plant-Eval Interval	166 DP-1		174 DP-1		94 DP-1		96 DP-1		98 DP-1		101 DP-1			
ARM Action Codes	166 DP-1		174 DP-1		94 DP-1		96 DP-1		98 DP-1		101 DP-1			
Number of Decimals	2		2		2		2		2		2			
Trt Treatment	Rate Appl		Rate Appl		Rate Appl		Rate Appl		Rate Appl		Rate Appl			
No. Name	Rate	Unit	Code	Plot	32	33	34	35	36	37	38	39	40	41
1 Grower Standard				102	9.00	8.00	10.00	20.00	40.00	0.00	10.00	30.00	0.00	0.00
				202	9.00	8.00	0.00	0.00	0.00	0.00	10.00	20.00	0.00	10.00
				302	11.00	6.00	0.00	0.00	10.00	0.00	10.00	30.00	10.00	20.00
				402	10.00	8.00	0.00	10.00	10.00	0.00	0.00	0.00	0.00	0.00
				502	9.00	6.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
				602	7.00	8.00	0.00	10.00	10.00	10.00	20.00	40.00	0.00	0.00
				Mean =	9.17	7.33	1.67	6.67	11.67	1.67	8.33	20.00	1.67	5.00
2 Grower Standard Zen-O-Spore			ABCDEF	101	9.00	9.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			GHIJK-W	201	9.00	8.00	0.00	0.00	0.00	0.00	0.00	0.00	10.00	20.00
		3lb/a	ABCDEF	301	10.00	8.00	10.00	10.00	20.00	0.00	0.00	0.00	0.00	0.00
			GHIJK-W	401	11.00	6.00	20.00	30.00	40.00	0.00	0.00	0.00	0.00	0.00
				501	9.00	9.00	0.00	0.00	0.00	0.00	10.00	20.00	0.00	0.00
				601	8.00	12.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.00
				Mean =	9.33	8.67	5.00	6.67	10.00	0.00	1.67	3.33	1.67	5.00

Florida Ag Research

To determine efficacy and crop safety of Zen-o-spore against botrytis fruit rot and other foliar diseases on strawberry in Florida

Trial ID: BWI1501 Location: Parrish, FL Trial Year: 2015
 Protocol ID: Botrytis Strawberry Investigator: Bradley Booker
 Project ID: Study Director: Matthew Krause
 Sponsor Contact:

Pest Type	D Disease	D Disease	D Disease	D Disease	D Disease	D Disease	D Disease	D Disease	D Disease	D Disease	
Pest Code	BOTRSP	BOTRSP	BOTRSP	BOTRSP	BOTRSP	BOTRSP	BOTRSP	BOTRSP	BOTRSP	BOTRSP	
Pest Scientific Name	Botrytis sp.	Botrytis sp.	Botrytis sp.	Botrytis sp.	Botrytis sp.	Botrytis sp.	Botrytis sp.	Botrytis sp.	Botrytis sp.	Botrytis sp.	
Pest Name	Botrytis sp.	Botrytis sp.	Botrytis sp.	Botrytis sp.	Botrytis sp.	Botrytis sp.	Botrytis sp.	Botrytis sp.	Botrytis sp.	Botrytis sp.	
Crop Code	FRASS	FRASS	FRASS	FRASS	FRASS	FRASS	FRASS	FRASS	FRASS	FRASS	
BBCH Scale	BSTR	BSTR	BSTR	BSTR	BSTR	BSTR	BSTR	BSTR	BSTR	BSTR	
Crop Scientific Name	Fragaria sp.	Fragaria sp.	Fragaria sp.	Fragaria sp.	Fragaria sp.	Fragaria sp.	Fragaria sp.	Fragaria sp.	Fragaria sp.	Fragaria sp.	
Crop Name	Strawberry	Strawberry	Strawberry	Strawberry	Strawberry	Strawberry	Strawberry	Strawberry	Strawberry	Strawberry	
Crop Variety	Radiance	Radiance	Radiance	Radiance	Radiance	Radiance	Radiance	Radiance	Radiance	Radiance	
Description	7 DAH	3 DAH	5 DAH	7 DAH	3 DAH	5 DAH	7 DAH	3 DAH	5 DAH	7 DAH	
Part Rated											
Rating Date	1/30/2016	2/7/2016	2/9/2016	2/11/2016	2/16/2016	2/18/2016	2/20/2016	3/17/2016	3/19/2016	3/21/2016	
Rating Type	PESINC	PESINC	PESINC	PESINC	PESINC	PESINC	PESINC	PESINC	PESINC	PESINC	
Rating Unit	%	%	%	%	%	%	%	%	%	%	
Sample Size, Unit											
Collection Basis, Unit											
Number of Subsamples	1	1	1	1	1	1	1	1	1	1	
SE Group No.	19	20	20	20	21	21	21	22	23	23	
Days After First/Last Applic.	112 9	120 2	122 4	124 6	129 5	131 2	133 4	159 16	161 18	163 20	
Trt-Eval Interval	112 DA-A	120 DA-A	122 DA-A	124 DA-A	129 DA-A	131 DA-A	133 DA-A	159 DA-A	161 DA-A	163 DA-A	
Plant-Eval Interval	122 DP-1	130 DP-1	132 DP-1	134 DP-1	139 DP-1	141 DP-1	143 DP-1	169 DP-1	171 DP-1	173 DP-1	
ARM Action Codes											
Number of Decimals	2	2	2	2	2	2	2	2	2	2	
Trt Treatment	Rate Appl										
No. Name	Rate Unit Code	Plot									
1 Grower Standard		42	43	44	45	46	47	48	49	50	51
		102	202	302	402	502	602	Mean =			
		0.00	10.00	20.00	20.00	10.00	10.00	5.00			
		10.00	0.00	10.00	20.00	10.00	10.00	18.33			
		20.00	10.00	10.00	20.00	0.00	20.00	5.00			
		0.00	10.00	20.00	30.00	0.00	20.00	13.33			
		0.00	0.00	10.00	10.00	0.00	0.00	5.00			
		0.00	0.00	0.00	10.00	10.00	10.00	13.33			
		0.00	0.00	0.00	10.00	10.00	10.00	23.33			
		0.00	0.00	0.00	10.00	10.00	10.00	1.67			
		5.00	5.00	11.67	18.33	5.00	13.33	6.67			
2 Grower Standard	ABCDEF GHIJK-W	101									
Zen-O-Spore	3lb/a ABCDEF GHIJK-W	201									
		301									
		401									
		501									
		601									
		Mean =									
		0.00	10.00	20.00	20.00	10.00	10.00	5.00			
		30.00	0.00	0.00	0.00	0.00	10.00	8.33			
		0.00	0.00	0.00	0.00	0.00	10.00	6.67			
		0.00	0.00	0.00	10.00	10.00	10.00	13.33			
		0.00	0.00	0.00	10.00	0.00	10.00	20.00			
		10.00	0.00	10.00	10.00	10.00	10.00	3.33			
		6.67	1.67	5.00	8.33	6.67	20.00	6.67			

Florida Ag Research

To determine efficacy and crop safety of Zen-o-spore against botrytis fruit rot and other foliar diseases on strawberry in Florida

Trial ID: BWI1501 Location: Parrish, FL Trial Year: 2015
 Protocol ID: Botrytis Strawberry Investigator: Bradley Booker
 Project ID: Study Director: Matthew Krause
 Sponsor Contact:

Pest Type	D Disease	D Disease	D Disease	D Disease	D Disease	D Disease	D Disease	D Disease	D Disease					
Pest Code	BOTRSP	BOTRSP	BOTRSP		RIZPSP	RIZPSP	RIZPSP	RIZPSP	RIZPSP					
Pest Scientific Name	Botrytis sp.	Botrytis sp.	Botrytis sp.		Rhizopus sp.	Rhizopus sp.	Rhizopus sp.	Rhizopus sp.	Rhizopus sp.					
Pest Name	Botrytis sp.	Botrytis sp.	Botrytis sp.		Rhizopus sp.	Rhizopus sp.	Rhizopus sp.	Rhizopus sp.	Rhizopus sp.					
Crop Code	FRASS	FRASS	FRASS		FRASS	FRASS	FRASS	FRASS	FRASS					
BBCH Scale	BSTR	BSTR	BSTR		BSTR	BSTR	BSTR	BSTR	BSTR					
Crop Scientific Name	Fragaria sp.	Fragaria sp.	Fragaria sp.		Fragaria sp.	Fragaria sp.	Fragaria sp.	Fragaria sp.	Fragaria sp.					
Crop Name	Strawberry	Strawberry	Strawberry		Strawberry	Strawberry	Strawberry	Strawberry	Strawberry					
Crop Variety	Radiance	Radiance	Radiance		Radiance	Radiance	Radiance	Radiance	Radiance					
Description	3 DAH	5 DAH	7 DAH		3DAH	5DAH	7DAH	3DAH	5DAH					
Part Rated					Fruit P	Fruit P	Fruit P	Fruit P	Fruit P					
Rating Date					1/2/2016	1/4/2016	1/6/2016	1/9/2016	1/11/2016					
Rating Type	PESINC	PESINC	PESINC		PESINC	PESINC	PESINC	PESINC	PESINC					
Rating Unit	%	%	%		%	%	%	%	%					
Sample Size, Unit					1 PLOT	1 PLOT	1 PLOT	1 PLOT	1 PLOT					
Collection Basis, Unit					1 PLOT	1 PLOT	1 PLOT	1 PLOT	1 PLOT					
Number of Subsamples	1	1	1	1	1	1	1	1	1					
SE Group No.	34	35	36	39	42	42	42	42	43					
Days After First/Last Applic.					84 2	86 4	88 6	91 2	93 4					
Trt-Eval Interval					84 DA-A	86 DA-A	88 DA-A	91 DA-A	93 DA-A					
Plant-Eval Interval					94 DP-1	96 DP-1	98 DP-1	101 DP-1	103 DP-1					
ARM Action Codes	T2	T3	T4											
Number of Decimals	2	2	2											
Trt Treatment	Rate	Appl												
No. Name	Rate	Unit	Code	Plot	52	53	54	55	56	57	58	59	60	61
1 Grower Standard				102	5.00	11.67	20.00		1.0	2.0	4.0	2.0	3.0	4.0
				202	3.33	10.00	18.33		1.0	3.0	5.0	3.0	4.0	5.0
				302	3.33	10.00	18.33		2.0	3.0	4.0	2.0	3.0	6.0
				402	1.67	10.00	15.00		1.0	2.0	5.0	1.0	2.0	5.0
				502	0.00	3.33	6.67		1.0	2.0	6.0	1.0	2.0	4.0
				602	3.33	6.67	15.00		2.0	3.0	6.0	2.0	2.0	3.0
				Mean =	2.78	8.61	15.56		1.3	2.5	5.0	1.8	2.7	4.5
2 Grower Standard Zen-O-Spore			ABCDEFGHIJK-W	101	6.67	10.00	11.67		2.0	3.0	4.0	3.0	4.0	4.0
		3lb/a	ABCDEFGHIJK-W	201	1.67	5.00	6.67		2.0	3.0	6.0	4.0	4.0	4.0
				301	1.67	5.00	8.33		2.0	3.0	6.0	2.0	3.0	4.0
				401	6.67	10.00	16.67		1.0	2.0	6.0	1.0	2.0	4.0
				501	0.00	3.33	10.00		2.0	3.0	5.0	0.0	2.0	5.0
				601	1.67	5.00	6.67		2.0	3.0	5.0	1.0	2.0	4.0
				Mean =	3.06	6.39	10.00		1.8	2.8	5.3	1.8	2.8	4.2

Florida Ag Research

To determine efficacy and crop safety of Zen-o-spore against botrytis fruit rot and other foliar diseases on strawberry in Florida

Trial ID: BWI1501 Location: Parrish, FL Trial Year: 2015
 Protocol ID: Botrytis Strawberry Investigator: Bradley Booker
 Project ID: Study Director: Matthew Krause
 Sponsor Contact:

Pest Type	D Disease	D Disease	D Disease	D Disease	D Disease	D Disease	D Disease	D Disease	D Disease	
Pest Code	RIZPSP	RIZPSP	RIZPSP	RIZPSP	RIZPSP	RIZPSP	RIZPSP	RIZPSP	RIZPSP	
Pest Scientific Name	Rhizopus sp.	Rhizopus sp.	Rhizopus sp.	Rhizopus sp.	Rhizopus sp.	Rhizopus sp.	Rhizopus sp.	Rhizopus sp.	Rhizopus sp.	
Pest Name	Rhizopus sp.	Rhizopus sp.	Rhizopus sp.	Rhizopus sp.	Rhizopus sp.	Rhizopus sp.	Rhizopus sp.	Rhizopus sp.	Rhizopus sp.	
Crop Code	FRASS	FRASS	FRASS	FRASS	FRASS	FRASS	FRASS	FRASS	FRASS	
BBCH Scale	BSTR	BSTR	BSTR	BSTR	BSTR	BSTR	BSTR	BSTR	BSTR	
Crop Scientific Name	Fragaria sp.	Fragaria sp.	Fragaria sp.	Fragaria sp.	Fragaria sp.	Fragaria sp.	Fragaria sp.	Fragaria sp.	Fragaria sp.	
Crop Name	Strawberry	Strawberry	Strawberry	Strawberry	Strawberry	Strawberry	Strawberry	Strawberry	Strawberry	
Crop Variety	Radiance	Radiance	Radiance	Radiance	Radiance	Radiance	Radiance	Radiance	Radiance	
Description	3DAH	5DAH	7DAH	3DAH	5DAH	7DAH	3DAH	5DAH	7DAH	
Part Rated	Fruit P	Fruit P	Fruit P	Fruit P	Fruit P	Fruit P	Fruit P	Fruit P	Fruit P	
Rating Date	1/26/2016	1/28/2016	1/30/2016	2/7/2016	2/9/2016	2/11/2016	2/16/2016	2/18/2016	2/20/2016	
Rating Type	PESINC	PESINC	PESINC	PESINC	PESINC	PESINC	PESINC	PESINC	PESINC	
Rating Unit	%	%	%	%	%	%	%	%	%	
Sample Size, Unit	1 PLOT	1 PLOT	1 PLOT	1 PLOT	1 PLOT	1 PLOT	1 PLOT	1 PLOT	1 PLOT	
Collection Basis, Unit	1 PLOT	1 PLOT	1 PLOT	1 PLOT	1 PLOT	1 PLOT	1 PLOT	1 PLOT	1 PLOT	
Number of Subsamples	1	1	1	1	1	1	1	1	1	
SE Group No.	44	44	45	46	46	47	48	48	49	
Days After First/Last Applic.	108 5	110 7	112 9	120 2	122 4	124 6	129 5	131 2	133 4	
Trt-Eval Interval	108 DA-A	110 DA-A	112 DA-A	120 DA-A	122 DA-A	124 DA-A	129 DA-A	131 DA-A	133 DA-A	
Plant-Eval Interval	118 DP-1	120 DP-1	122 DP-1	130 DP-1	132 DP-1	134 DP-1	139 DP-1	141 DP-1	143 DP-1	
ARM Action Codes										
Number of Decimals										
Trt Treatment	Rate Appl									
No. Name	Rate Unit Code	Plot								
1 Grower Standard		62	63	64	65	66	67	68	69	70
102		0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	3.0
202		0.0	0.0	0.0	0.0	1.0	1.0	1.0	2.0	2.0
302		1.0	2.0	3.0	0.0	1.0	1.0	0.0	1.0	2.0
402		1.0	2.0	2.0	0.0	1.0	2.0	0.0	1.0	1.0
502		0.0	2.0	4.0	3.0	4.0	8.0	0.0*	2.0	4.0
602		0.0	1.0	5.0	1.0	1.0	2.0	1.0	1.0	2.0
Mean =		0.3	1.2	2.3	0.7	1.3	2.3	0.3	1.3	2.3
2 Grower Standard	ABCDEFGHIJK-W	101								
Zen-O-Spore	3lb/a ABCDEFGHIJK-W	201								
301		0.0	1.0	2.0	1.0	2.0	3.0	1.0	2.0	3.0
401		1.0	2.0	4.0	2.0	3.0	3.0	1.0	1.0	2.0
501		1.0	2.0	3.0	1.0	2.0	3.0	0.0	0.0	1.0
601		1.0	3.0	6.0	0.0	1.0	1.0	0.0	1.0	1.0
Mean =		0.5	1.3	2.7	1.0	2.0	2.5	0.5	1.2	1.8

Florida Ag Research

To determine efficacy and crop safety of Zen-o-spore against botrytis fruit rot and other foliar diseases on strawberry in Florida

Trial ID: BWI1501 Location: Parrish, FL Trial Year: 2015
 Protocol ID: Botrytis Strawberry Investigator: Bradley Booker
 Project ID: Study Director: Matthew Krause
 Sponsor Contact:

Pest Type	D Disease	D Disease	D Disease
Pest Code	RIZPSP	RIZPSP	RIZPSP
Pest Scientific Name	Rhizopus sp.	Rhizopus sp.	Rhizopus sp.
Pest Name	Rhizopus sp.	Rhizopus sp.	Rhizopus sp.
Crop Code	FRASS	FRASS	FRASS
BBCH Scale	BSTR	BSTR	BSTR
Crop Scientific Name	Fragaria sp.	Fragaria sp.	Fragaria sp.
Crop Name	Strawberry	Strawberry	Strawberry
Crop Variety	Radiance	Radiance	Radiance
Description	3DAH	5DAH	7DAH
Part Rated	Fruit P	Fruit P	Fruit P
Rating Date	3/17/2016	3/19/2016	3/21/2016
Rating Type	PESINC	PESINC	PESINC
Rating Unit	%	%	%
Sample Size, Unit	1 PLOT	1 PLOT	1 PLOT
Collection Basis, Unit	1 PLOT	1 PLOT	1 PLOT
Number of Subsamples	1	1	1
SE Group No.	50	50	51
Days After First/Last Applic.	159 16	161 18	163 20
Trt-Eval Interval	159 DA-A	161 DA-A	163 DA-A
Plant-Eval Interval	169 DP-1	171 DP-1	173 DP-1
ARM Action Codes			
Number of Decimals			
Trt Treatment	Rate Appl		
No. Name	Rate Unit Code	Plot	
		71	72
1 Grower Standard			73
		0.0	1.0
		1.0	2.0
		0.0	1.0
		1.0	2.0
		4.0	5.0
		1.0	2.0
	Mean =	1.2	2.2
2 Grower Standard	ABCDEFGHIJK-W	1.0	2.0
Zen-O-Spore	3lb/a ABCDEFGHIJK-W	2.0	3.0
		2.0	3.0
		2.0	3.0
		2.0	3.0
		2.0	3.0
		1.0	2.0
	Mean =	1.7	2.7
			3.7

Florida Ag Research

To determine efficacy and crop safety of Zen-o-spore against botrytis fruit rot and other foliar diseases on strawberry in Florida

Pest Type

D, Disease, G-BYRD7, G-DisStg = Disease, such as a fungus, bacteria, or virus

Pest Code

PODOAP, Podosphaera aphanis, = US

BOTRSP, Botrytis sp., = US

RIZPSP, Rhizopus sp., = US

Crop Code

FRASS, BSTR, Fragaria sp., = US

Part Rated

Plant = plant

FRUUNM = fruit - unmarketable

FRUMAR = fruit - marketable

Fruit = fruit

C = Crop is Part Rated

P = Pest is Part Rated

Rating Type

PESSEV = pest severity

PESINC = pest incidence

WEIGHT = weight

Count = count

Rating Unit

0-10 = 0-10 index/scale

AUDPC = area under disease process curve

% = percent

g = gram

Number = number

plot = total plot

BERRY = berry

plant = plant/plant biomass/shrub

PLOT = total plot

Plant-Eval Interval

82 DP-1 = 1 FRASS 9/30/2015

91 DP-1 = 1 FRASS 9/30/2015

98 DP-1 = 1 FRASS 9/30/2015

127 DP-1 = 1 FRASS 9/30/2015

136 DP-1 = 1 FRASS 9/30/2015

143 DP-1 = 1 FRASS 9/30/2015

166 DP-1 = 1 FRASS 9/30/2015

115 DP-1 = 1 FRASS 9/30/2015

154 DP-1 = 1 FRASS 9/30/2015

174 DP-1 = 1 FRASS 9/30/2015

-267 DP-1 = 1 FRASS 9/30/2015

94 DP-1 = 1 FRASS 9/30/2015

96 DP-1 = 1 FRASS 9/30/2015

101 DP-1 = 1 FRASS 9/30/2015

103 DP-1 = 1 FRASS 9/30/2015

105 DP-1 = 1 FRASS 9/30/2015

118 DP-1 = 1 FRASS 9/30/2015

120 DP-1 = 1 FRASS 9/30/2015

122 DP-1 = 1 FRASS 9/30/2015

130 DP-1 = 1 FRASS 9/30/2015

Florida Ag Research

To determine efficacy and crop safety of Zen-o-spore against botrytis fruit rot and other foliar diseases on strawberry in Florida

Trial ID: BWI1501 Location: Parrish, FL Trial Year: 2015
Protocol ID: Botrytis Strawberry Investigator: Bradley Booker
Project ID: Study Director: Matthew Krause
Sponsor Contact:

132 DP-1 = 1 FRASS 9/30/2015
134 DP-1 = 1 FRASS 9/30/2015
139 DP-1 = 1 FRASS 9/30/2015
141 DP-1 = 1 FRASS 9/30/2015
169 DP-1 = 1 FRASS 9/30/2015
171 DP-1 = 1 FRASS 9/30/2015
173 DP-1 = 1 FRASS 9/30/2015

ARM Action Codes

T5 = &@AUDPC(@MATCH(EPT=PODOAP,EDT=PESSEV,ERU=0-10))
T1 = (([C9]+[C10]+[C11]+[C12]+[C13]+[C14]+[C15]+[C16]+[C17])/9)
T6 = (([C19]+[C20]+[C21]+[C22]+[C23]+[C24]+[C25]+[C26])/8)
T2 = (([C34]+[C37]+[C40]+[C43]+[C46]+[C49])/6)
T3 = (([C35]+[C38]+[C41]+[C44]+[C47]+[C50])/6)
T4 = (([C36]+[C39]+[C42]+[C45]+[C48]+[C51])/6)