STRAWBERRY (*Fragaria* x *ananassa* 'Radiance')
Botrytis fruit rot; *Botrytis cinerea*

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Evaluation of biorational products for control of Botrytis fruit rot in annual strawberry, 2015-2016.

Biorational products were evaluated for the control of Botrytis fruit rot (BFR) on strawberry in a commercial farm in Plant City, FL. Bare-root transplants from a Canadian nursery were planted on plastic-mulched raised beds on 11 Oct 15. Beds were 28 in. wide on 4-ft center with two staggered rows of plants spaced 16 in. apart within and 15 in. between rows. Prior to mulching, beds were treated with Pic-Clor 60 (200 lb/A). The experiment consisted of twenty two treatments arranged in a randomized complete block design with four blocks in adjacent rows. Plots consisted of 12 plants each in 10-ft of bed separated by 3-ft of bed with no plants. After planting, plots were overhead irrigated during the day for 10 days to facilitate establishment, then drip irrigation was used to deliver water and fertilizers until the end of the season. A CO_2 back-pack sprayer, calibrated to deliver 100 gal/A at 60 psi through two T-Jet 8002 hollow-cone nozzles, was used to apply the products. Applications were made weekly from 24 Nov 15 to 4 Mar 16 (15 weeks). The majority of the treatments were applied weekly, with the exception of Serenade Optimum, and two treatments of BAS 9747 1F, that were applied twice a week. Two of the treatments followed the Strawberry Advisory System (SAS) spray timing program and were sprayed with Switch 62.5WG after SAS indicated high disease risk when the crop was in bloom; Captan 80WDG or Companion were applied during the other weeks. The SAS-triggered applications during bloom periods were made on 24 Nov 15 (week 1), 15 Dec 15 (week 4), 12 Jan 16 (week 8), 2 Feb 16 (week 11), and 16 Feb 16 (week 13). Fruit were harvested twice weekly from 8 Dec 15 to 11 Mar 16 (25 harvests). Fruit were graded to determine yield by counting and weighing marketable fruit. Botrytis fruit rot (BFR) incidence was expressed as a percentage of the total number of fruit harvested. Data were analyzed by fitting a generalized linear mixed model using Proc GLIMMIX in SAS, and means were separated by Fisher's Protected LSD test (a = 0.05).

According to the Strawberry Advisory System, the 2015-2016 Florida Strawberry season had only 5 days that were highly conducive for BFR development (temperatures between 15 and 25 °C and ≥ 12 h of leaf wetness), which resulted in a low incidence of the disease throughout the season. BFR incidence was evaluated for the overall season and a disease peak, corresponding to those harvests when BFR incidence in the non-treated control exceeded 10% (29 Jan 16, 2 Feb 16, 5 Feb 16, 12 Feb 16, and 29 Feb 16). During the peak period, all treatments except Fracture, XM01 + Cohere, BAS 9747 1F + Cohere, Ph-D, and Companion reduced BFR incidence compared to the non-treated control. For the overall season, in addition to the treatments listed above, Fracture at high rate, Serenade Optimum weekly, Silwet L-77, BAS 9747 1 F at low rate applied twice a week, and Fracture + Cohere failed to reduce BFR. All the other treatments were effective reducing BFR incidence. None of the treatments significantly increased marketable yield. However, Silwet L-77 and Milstop reduced yields even though they also reduced BFR.

			Botrytis fruit rot (%)[y]	
Treatment (products and rates/A)	Spray timing[x]	Yield (lb/A)	Disease peaks	Season
Thiram 24/7 3pt	weekly	29468 a	1.0 g	1.0 e[z]
Omega 500 F 1.25 pt	weekly	28565 ab	2.0 fg	0.8 e
Bravo Weather Stik 1.5 pt	weekly	23648 cd	2.6 efg	1.0 e
Zeno-O-Spore 3 lb + Cohere 1 pt	weekly	25107 abcd	3.0 defg	1.9 bcde
Switch 62.5WG 14 oz Captan 80WDG 1.9 lb	1, 4, 8, 11, 13 other weeks	29384 a	3.1 defg	2.1 bcde
Switch 62.5WG 14 oz Companion 2 pt	1, 4, 8, 11, 13 other weeks	26947 abc	3.7 defg	1.6 de
Milstop 3.75 lb	weekly	17864 ef	4.7 cdefg	1.6 de
Serenade Optimum 16 oz	2x weekly	24098 bcd	5.1 cdefg	2.3 bcde
BAS 9747 1 F 0.5 lb	2x weekly	26382 abcd	5.4 cdefg	2.7 bcde
Zeno-O-Spore 3 lb + Milstop 2.5 lb	weekly	22952 cd	5.8 cdefg	1.8 cde
BAS 9747 1 F 0.5 lb	weekly	22497 cd	7.0 cdefg	2.7 bcde
Fracture 36.6 oz	weekly	22000 de	7.2 cdefg	3.5 abcde
Serenade Optimum 16 oz	weekly	25663 abcd	7.8 bcdefg	3.8 abcde
Silwet L-77 0.8 pt/A	weekly	14992 f	7.9 bcdefg	3.4 abcde
BAS 9747 1 F 0.25 lb	2x weekly	26778 abc	10.4 bcdef	4.3 abcd
Fracture 24.4 oz + Cohere 0.5pt	weekly	22182 de	11.7 bcdef	4.4 abcd
Fracture 24.4 oz	weekly	23975 cd	12.1 abcdef	4.3 abcd
XM01 3.4 pt + Cohere 0.5 pt	weekly	24873 bcd	12.7 abcde	4.9 ab
BAS 9747 1 F 0.5 lb + Cohere 1 pt	weekly	22007 de	13.1 abcd	4.6 abcd
Ph-D 6.2 oz	weekly	25721 abcd	14.4 abc	4.5 abcd
Companion 2 pt	weekly	23740 cd	17.7 ab	4.8 abc
Non-treated control	-	25539 abcd	22.3 a	6.1 a

[x] Week of application over a period of 15 weeks from 24 Nov 2015 to 4 Mar 2016.

[y] Incidence of BFR during disease incidence peaks corresponding to harvests on 29 Jan, 2 Feb, 5 Feb, 12 Feb, and 29 Feb; Season includes all harvests from 8 Dec 2015 to 11 Mar 2016.

[z] Means in a column followed by the same letter are not significantly different by Fisher's Protected LSD test (a = 0.05).