

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

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### **Evaluation of fungicide products to control Botrytis fruit rot in annual strawberry, 2016-17.**

A replicated field experiment was conducted in a commercial strawberry farm in Plant City, FL to evaluate the efficacy of fungicide products for management of Botrytis fruit rot (BFR). Strawberry transplants from Canada were transplanted on 9 Sep 2016 into compacted raised beds measuring 28-in. wide on 4-ft. centers with two staggered rows of plants per bed, with 15in between rows. Beds were treated with Pic-Clo 60 (200 lb/A) before covering with black plastic mulch. Overhead irrigation was used for 10 days for establishment of the transplants. Water and fertilizers were provided through a drip irrigation system for the rest of the season. The experiment was arranged in a randomized complete block design with 20 treatments and 4 replications on adjacent beds. Each 9.4 ft-long plot contained 12 plants, consisting of two staggered rows 15 in. apart. Treatments were applied weekly from 25 Nov 2016 to 3 March 2017 (16 applications) using a CO<sub>2</sub> back-pack sprayer delivering 100 gal/A at 60 psi through a boom fitted with two T-Jet 8002 hollow-cone nozzles. For most treatments, primary test products were applied when weather conditions were conducive for disease development according to the Strawberry Advisory System (StAS; <http://agroclimate.org/tools/sas/>). Applications based on StAS alerts were made on 9 Dec 2016 (week 3), 15 Dec 2016 (4), 20 Jan 2017 (9), 10 Feb 2017 (12), 20 Feb 2017 (14), and 24 Feb 2017 (15). Captan was applied weekly when disease pressure was low. Fruit were harvested twice weekly from 13 Dec 2016 to 7 Mar 2017 (23 harvests). Harvested fruit were separated into marketable, unmarketable, and diseased categories and enumerated. Yield was determined by the weight of marketable fruit and BFR incidence was expressed as a percentage of all diseased fruit harvested. Data were analyzed by fitting a generalized linear mixed model in SAS, and means were separated according to Fisher's Protected LSD test ( $\alpha = 0.05$ ).

According to StAS, six days during the 2016-2017 strawberry season were conducive for BFR development, i.e., 17 to 25°C and  $\geq 12$  h of leaf wetness. Only three of those days were during the peak bloom in February, which resulted in low disease incidence for the season overall. Thus, BFR incidence is also presented for those harvests when incidence was higher than 10% in the non-treated control. Nine treatments containing the primary products A20560, Switch, Kenja, Merivon, Thiram SC, and Luna Tranquility reduced BFR incidence compared to the non-treated control during disease peaks. Disease incidence for the non-treated control was 4.6% over the entire season, similar to an experiment conducted at the same farm during the 2015-2016 season (3.5%). Over the entire season, there were no significant differences among treatments for BFR incidence due to low disease pressure. Yield is not presented due to high plant mortality in the experimental area.

Treatment (products and rates/100 gal.)	Application timing <sup>x</sup>	Botrytis fruit rot incidence (%) <sup>y</sup>	
		Disease Peak	Season
A20560 11.4 fl oz	3, 4, 9, 12, 14, 15		
Captan 80WDG 1.9 lb	1, 2, 5, 6, 7, 8, 11, 16	6.2 d	3.2
Switch 62.5WG 14 oz	3, 4, 9, 12, 14, 15		
Regalia 12% 52 fl oz	1, 2, 5, 6, 7, 8, 11, 16	6.3 d	2.4
Kenja 15.5 fl oz	3, 4, 9, 12, 14, 15		
Captan 80WDG 1.9 lb	1, 2, 5, 6, 7, 8, 11, 16	6.4 cd	3.2
Merivon 8 oz	3, 4, 9, 12, 14, 15		
Captan 80WDG 1.9 lb	1, 5, 7, 11		
Serifel 4 oz	2, 6, 8, 16	7.2 cd	2.6
Kenja 13.5 fl oz + VBS_FAQ 0.05% v/v	3, 4, 9, 12, 14, 15		
Captan 80WDG 1.9 lb	1, 2, 5, 6, 7, 8, 11, 16	7.6 cd	3.3
Switch 62.5WG 14 oz	3, 4, 9, 12, 14, 15		
Captan 80WDG 1.9 lb	1, 2, 5, 6, 7, 8, 11, 16	7.7 cd	2.9
Thiram SC 3 pt	3, 4, 9, 12, 14, 15		
Captan 80WDG 1.9 lb	1, 2, 5, 6, 7, 8, 11, 16	8.4 bcd	3.7
Luna Tranquility 16 oz + Captan 80WDG 1.9 lb	3, 4, 9, 12, 14, 15		
Captan 80WDG 1.9 lb	1, 2, 5, 6, 7, 8, 11, 16	8.6 bcd	3.2
Switch 62.5WG 14 oz	3, 9, 14		
Luna Tranquility 20 oz	4, 12, 15		
Captan 80WDG 1.9 lb	1, 5, 7, 11		
Serenade Opt 8 oz	2, 6, 8, 16	9.1 bcd	3.4
Switch 62.5WG 14 oz	3, 9, 14		
Luna Tranquility 20 oz	4, 12, 15		
Captan 80WDG 1.9 lb	1, 5, 7, 11		
Untreated	2, 6, 8, 10, 13, 16	9.7 abcd	2.7
Switch 62.5WG 14 oz + Regalia 12% 16 fl oz	3, 4, 9, 12, 14, 15		
Captan 80WDG 1.9 lb + Regalia 12% 16 fl oz	1, 2, 5, 6, 7, 8, 11, 16	9.7 abcd	3.5
Switch 62.5WG 14 oz	3, 4, 9, 12, 14, 15		
Captan 80WDG 1.9 lb	1, 5, 7, 11		
Serifel 4 oz	2, 6, 8, 16	9.9 abcd	3.4
Kenja 13.5 fl oz	3, 4, 9, 12, 14, 15		
Captan 80WDG 1.9 lb	1, 2, 5, 6, 7, 8, 11, 16	10.3 abcd	3.5
Switch 62.5WG 14 oz	3, 9, 14		
Luna Tranquility 20 oz	4, 12, 15		
Captan 80WDG 1.9 lb	1, 2, 5, 6, 7, 8, 11, 16	10.4 abcd	3.1
Merivon 11 oz	3, 4, 9, 12, 14, 15		
Captan 80WDG 1.9 lb	1, 2, 5, 6, 7, 8, 11, 16	10.6 abcd	4.8
Fontelis 24 fl oz bloom	3, 4, 9, 12, 14, 15		
Captan 80WDG 1.9 lb	1, 2, 5, 6, 7, 8, 11, 16	10.9 abcd	3.6
Luna Tranquility 20 oz + Captan 80WDG 1.9 lb	3, 4, 9, 12, 14, 15		
Captan 80WDG 1.9 lb	1, 2, 5, 6, 7, 8, 11, 16	11.2 abc	4.2
A19649 8.55 fl oz	3, 4, 9, 12, 14, 15		
Captan 80WDG 1.9 lb	1, 2, 5, 6, 7, 8, 11, 16	12.9 ab	4.5
Merivon 8 oz	3, 4, 9, 12, 14, 15		
Captan 80WDG 1.9 lb	1, 2, 5, 6, 7, 8, 11, 16	13.2 ab	5.0
Non-treated control	-	14.4 a	4.6 n.s. <sup>z</sup>

<sup>x</sup> Week of application over 16 weeks from 25 Nov 2016 to 3 Mar 2017.

<sup>y</sup> Average BFR incidence during two periods: disease incidence peaks consisting of harvests made 1 Jan, 28 Feb, 3 Mar, and 3 Mar 2017 when BFR incidence was higher than 10%; entire season corresponding to 23 harvests from 13 Dec 2016 to 7 Mar 2017.

<sup>z</sup> N.S.= Not significantly different by Fisher's protected LSD test ( $\alpha = 0.05$ ).