

BLUEBERRY (*Vaccinium corymbosum* 'Berkeley')
Mummy berry; *Monilinia vaccinii-corymbosi*

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Evaluation of various fungicides for management of mummy berry, 2016.

Fungicide treatments were arranged in a randomized complete block design in a block of 'Berkeley' blueberries planted in 1999 on 5 x 10 ft spacing. Each treatment consisted of 6 single-bush replicates. Fungicide treatments were applied using a hydraulic handgun sprayer at approximately 100 psi at a rate of 290 gal water/A. Approximately 2 gal of a spray suspension were applied per 6 bushes. Treatments were applied on 4 Mar (floral bud break), 11 Mar (early vegetative bud break), 24 Mar (prebloom), 6 Apr (25% bloom) and 19 Apr (70% bloom). The product Botector was applied using a low-pressure Stihl pump style backpack sprayer reserved only for biologicals. Each fungicide-treated bush was flanked on each side by non-treated bushes. Badge X2 (7 lb/A) was applied on 12 Nov 15 (>50% leaf drop) to prevent bacterial blight. Ridomil Gold SL (16 oz/A) was applied on 26 Feb for management of Phytophthora root rot. Omni Supreme Oil (1.5 gal/A) was applied on 8 Feb for management of scale insects. Makaze (generic glyphosate at 1 oz/gal) plus Forfeit 280 (1.5 fl oz/gal) was applied on 17 May to manage weeds. Bushes were pruned 8 to 11 Dec 15 by thinning out small, dead and spindly shoots and removing older non-productive stems. Four commercial honey bee hives arrived in a nearby cherry orchard on 28 Mar. Plots were not fertilized this year. Overhead irrigation was started on 2 Jun and continued three times per week for 2 hour sets during the growing season. The number of floral clusters and vegetative shoots per bush with symptoms of primary mummy berry was evaluated on 28 to 29 Apr 16. On 24 May, approximately 300 green berries were harvested arbitrarily from each Berkeley plant and placed in a refrigerator. Over the next week 200 berries were arbitrarily selected, cut in half and evaluated for symptoms of secondary mummy berry (white mycelial mats within the carpels of the berry).

Spring weather conditions were warm and wet in mid Feb pushing plant growth ahead of average by 2 weeks. Pseudosclerotia were at germination/emergence on 29 Feb, differentiation on 7 Mar and at sporulation (open apothecia) on 15 Mar 16. Last apothecium was found on 31 Mar for a 16 day primary infection period. Overall disease pressure was light. Primary mummy berry symptoms were first observed on both flower clusters and shoots starting 11 Apr. Classic symptoms of secondary mummy berry were first observed on 10 May. Bushes treated with the middle rate of Torino had the most floral strikes per bush, however, the number of strikes on bushes left non-treated or treated with Stimplex, Botector or the low rate of Torino were not significantly different. Floral strikes were not observed on any bush treated with Propulse, however, the number of strikes on bushes treated with Luna Tranquility, Proline or Mettle were not significantly different. Bushes treated with the middle rate of Torino had the most vegetative strikes per bush, however, the number of strikes on bushes treated with Actinovate alone were not significantly different. Vegetative strikes were not observed on any bush treated with Propulse or multiple applications of Proline, however, the number of strikes on bushes treated with Luna Tranquility, Proline once or Mettle were not significantly different. Non-treated bushes had the most mummy berry, however, the percentage of fruit with mummy berry on bushes treated with Actinovate, Stimplex, the middle rate of Torino or the high rate of Mettle were not significantly different. Mummy berry was not observed on any bush treated with Propulse or multiple applications of Proline, however, the percentage of fruit with mummy berry on bushes treated with the high rate of Torino, Luna Tranquility, or Proline once were not significantly different. Several biologicals did not do well even with low disease pressure but at greater than 7-day intervals. Future trials should test these biological materials at short intervals. Proline applied only once after apothecial discharge but before symptom development points to an effective place to position these materials for improved management of this disease. No phytotoxicity was observed in bushes treated with any of the various materials used.

Treatment & Rate/A or /100 gal as indicated below	Time of Application ^Z	Floral strikes per bush ^Y	Vegetative strikes per bush ^Y	Mummy Berry (% Fruit) ^Y
Non-treated	None.....	11.5 abc	3.5 bcd	11.2 a
Actinovate AG at 12 oz.....	All.....	9.2 bcd	5.2 ab	9.0 ab
Stimplex at 64 fl oz	All.....	12.0 ab	2.3 cde	9.5 ab
Actinovate AG at 12 oz plus				
Stimplex at 64 fl oz	All.....	14.5 ab	4.2 bc	7.3 abcd
Botector at 10 oz	All.....	10.8 abc	4.7 bc	6.4 bcd
Torino SC at 6 fl oz plus				
Nu-Film-P at 16 fl oz/100 gal ..	All.....	14.2 ab	3.3 bcd	4.6 cde
Torino SC at 9 fl oz plus				
Nu-Film-P at 16 fl oz/100 gal ..	All.....	16.2 a	7.5 a	7.5 abcd
Torino SC at 12 fl oz plus				
Nu-Film-P at 16 fl oz/100 gal ...	All.....	8.2 bcde	3.5 bcd	4.1 def
Propulse SC at 13.6 fl oz	All.....	0.0 f	0.0 e	0.0 f
Luna Tranquility at 13.6 fl oz.....	All.....	3.3 def	1.2 de	0.6 ef
Proline 480 SC at 5.7 fl oz	D only.....	0.2 f	0.7 e	1.3 ef
Proline 480 SC at 5.7 fl oz	All.....	0.2 f	0.0 e	0.0 f
Mettle at 10 fl oz plus				
Nu-Film-P at 16 fl oz/100 gal ..	All.....	5.0 cdef	1.3 de	6.4 bcd
Mettle at 15 fl oz plus				
Nu-Film-P at 16 fl oz/100 gal ..	All.....	1.5 ef	1.0 de	8.3 abc

^Z Treatments were applied on A = 4 Mar (floral bud break), B = 11 Mar (early vegetative bud break), C = 24 Mar (prebloom), D = 6 Apr (25% bloom) and E = 19 Apr (70% bloom).

^Y Means followed by same letter do not differ significantly based on Fisher's protected LSD ($P=0.05$).