

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

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Evaluation of various fungicides for management of mummy berry, 2015.

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 9 Mar (floral bud break), 16 Mar (vegetative bud break), 20 Mar (prebloom), 27 Mar (first flowers open), 3 Apr (early bloom), 10 Apr (full bloom), 17 Apr (some petal fall), 23 Apr (late bloom), and 1 May (end of bloom). Each fungicide-treated bush was flanked on each side by non-treated bushes. Nu-Cop 50 DF (8 lb/A) was applied on 8 Nov 14 (>50% leaf drop) to prevent bacterial blight. Makaze (generic glyphosate at 2.5 oz/gal) was applied on 25 Feb to control weeds. Bushes were pruned 6 to 12 Jan by thinning out small, dead and spindly shoots and removing older non-productive stems. Four commercial honey bee hives arrived on the farm 25 Mar. Plots were fertilized on 6 Apr and 5 May with approximately 33 lb/A (based on in the bush row area) of ammonium sulfate 20-0-0-22 at each application. Overhead irrigation was started on 4 May and continued twice per week during the growing season. The number of floral clusters and vegetative shoots per bush with symptoms of primary mummy berry was evaluated on 24 Apr. On 3 Jun, 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) and fruit russet.

Spring growing conditions were considered warm and dryer than normal however mummy berry disease pressure was considered moderate. Apothecia started to emerge and open on 16 Mar and continued until the last one was observed on 11 Apr. 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 8 Jun. Bushes treated with the biologicals Double Nickel or Serenade had the highest number of floral and vegetative mummy berry strikes per bush. The number of floral mummy berry strikes on bushes treated with the biologicals Double Nickel or Serenade or the low rate of Oso were not significantly different than those found on non-treated bushes. Lowest number of floral mummy berry strikes was found on bushes treated with the high rate of Fontelis, however, the number found on bushes treated with multiple Quash applications, Proline, or the low rate of Fontelis were not significantly different. The number of vegetative mummy berry strikes on bushes treated with Double Nickel, Serenade, Oso or a program including Quash and Proline prior to bloom were not significantly different than the number found on non-treated bushes. Lowest number of vegetative strikes was found on bushes treated with multiple Quash applications, however, the number found on bushes treated with Quash or Proline once at early bloom, Proline alternated with Serenade, or Fontelis were not significantly different. The highest amount of mummy berry fruit rot was on bushes treated with Double Nickel or Serenade. The amount of fruit with mummy berry symptoms on bushes treated with Double Nickel, Serenade, Quash once at early bloom, Oso or the low rate of Fontelis was not significantly different than on non-treated bushes. Mummy berry fruit rot was lowest on bushes treated with Proline alternated with Serenade, however, the number found on bushes treated with Proline once at early bloom were not significantly different. A single application of Quash (or Proline) at early bloom, just after the last apothecium was found but before primary symptoms are observed, was as effective against mummy berry as 5 applications throughout the pre-bloom and bloom periods. No phytotoxicity was observed in bushes treated with any of the various materials used. There was no significant difference among treatments with regard to russeted fruit (data not presented) which averaged 1.4%.

Treatment & Rate/A or /100 gal as indicated below	Time of Application ^x	Floral strikes per bush ^z	Vegetative strikes per bush ^z	Mummy Berry (% Fruit) ^z
Non-treated	None.....	33.3 ab	17.2 ab	34.8 ab
Quash 50 WDG at 2.5 oz.....	A, C, E, G, I..	2.7 cd	0.2 c	16.1 de
Quash 50 WDG at 2.5 oz.....	E.....	12.8 c	2.5 c	24.1 bcd
Proline 480 SC at 5.7 fl oz	E.....	4.3 cd	2.3 c	4.9 ef
Proline 480 SC at 5.7 fl oz alternate	A, D, G			
Serenade Opti at 20 oz.....	C, F, I.....	1.5 cd	0.5 c	0.3 f
Oso SC at 5.6 fl oz plus				
Induce at 6 fl oz/100 gal	A, C, E, G, I..	28.5 ab	13.5 b	28.3 abcd
Oso SC at 5.6 fl oz plus				
Induce at 6 fl oz/100 gal	All.....	26.0 b	17.0 ab	27.4 abcd
Double Nickel LC at 2 qt	A, C, E, G, I..	37.8 a	19.2 ab	38.2 a
Double Nickel LC at 2 qt	All.....	36.5 ab	21.3 a	35.0 ab
Serenade Opti at 20 oz.....	All.....	30.0 ab	22.8 a	31.7 abc
Fontelis at 16 fl oz plus				
Induce at 6 fl oz/100 gal	A, C, E, G, I..	2.5 cd	0.5 c	22.0 bcd
Fontelis at 24 fl oz plus				
Induce at 6 fl oz/100 gal	A, C, E, G, I..	0.2 d	0.3 c	17.3 de
Quash 50 WDG at 2.5 oz then	A			
Proline 480 SC at 5.7 fl oz then	C			
Pristine WDG at 18.5 oz then	E			
Omega 500 F at 20 fl oz.....	G, I.....	2.0 cd	13.7 b	21.3 cd

^x Treatments were applied on A = 9 Mar (floral bud break), B = 16 Mar (vegetative bud break), C = 20 Mar (prebloom), D = 27 Mar (first flowers open), E = 3 Apr (early bloom), F = 10 Apr (full bloom), G = 17 Apr (some petal fall), H = 23 Apr (late bloom), and I = 1 May (end of bloom).

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