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

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Evaluation of fungicides for management of mummy berry, 2020.

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 such that 2 gal of a spray suspension was applied per 6 bushes (145 gal water/A). Treatments were applied on 22 Mar (floral bud break and 0.25 in long), 31 Mar (vegetative bud swell), 5 Apr (pre-bloom, vegetative buds 0.25 in long), 12 Apr (very early bloom), 19 Apr (full bloom), 26 Apr, and 1 May (petal fall). Each fungicide-treated bush was flanked on each side by non-treated bushes. Badge SC (64 fl oz/A) was applied on 5 Nov 2019 (>50% leaf drop) to prevent bacterial blight. Makaze (2%) was applied with a backpack sprayer on 25 Feb for management of weeds. No insecticides or fertilizers were used during the trial. Bushes were pruned from 31 Dec 2019 to 9 Jan 2020 by thinning out small, dead and spindly shoots and removing older non-productive stems. Four commercial honey bee hives arrived in an adjacent field on 10 Apr and removed by 4 May. Overhead irrigation was started on 22 Jun and continued twice 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 19 May. On 2 Jun, approximately 300 green berries were arbitrarily harvested from each bush and placed in a refrigerator. Over the next week 200 berries were arbitrarily selected, cut in half and evaluated for symptoms of russeting and secondary mummy berry (white mycelial mats within the carpels of the berry). On 13 Jul, 100 healthy appearing, ripe berries were arbitrarily harvested from each bush. Berries were placed within moist chambers located in Cordley Hall, OSU campus. Berries were incubated at room temperature (70 to 74^{o}F) for 7 days. The number of berries with symptoms of various rots were evaluated and removed each day.

Rainfall for the growing season (Oct 2019 to Sep 2020) was almost half of the 116 yr average. Pseudosclerotia (mummies) were at germination on 2 Mar and a few apothecia were observed 25 Mar but very few when compared with previous growing seasons. Across the farm in a mummy survival trial without blueberries, apothecia were first observed on 16 Mar and continued to appear until 9 Apr for a 24 day infection period. Primary mummy berry symptoms were first observed on flower clusters on 20 Apr. Symptoms of secondary mummy berry were first found by cutting open green fruit on 26 May while classic symptoms were first observed on 22 Jun. Non-treated bushes had the most primary symptoms per bush as well as the most mummy berry. Although extremely low when compared to prior years, the number of primary strikes on non-treated bushes were significantly more than the number found on any of the fungicide treated bushes. Non-treated bushes had significantly more mummy berry than fungicide treated bushes except for bushes treated with ADL 1202, Indar 2F alternated with Luna Tranquility, or the Indar followed by Fontelis treatment. The lowest percentage of mummy berry was found on bushes treated with Proline, however, the percentage of fruit with mummy berry on bushes treated with Miravis, Miravis Prime, Fontelis only, Tilt or the Indar alternated with Fontelis treatment were not significantly different. Fruit russeting was low and not significantly different among all treatments (data not shown). In addition to fungi listed in Table 1 the following fungi were also observed on rotting fruit post-harvest at highly variable frequencies: *Colletotrichum acutatum* (ripe rot), *Rhizopus* sp., and *Alternaria tenuissima* (Alternaria fruit rot). There were no differences in fruit rot due to *Botrytis*, any other fungus or total fruit rots among the various treatments. This may have been due to a high infestation of Spotted Wing Drosophila which damaged an average of 5% of the fruit with a high of 26%. 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 [x]	Mummy Berry		Botrytis blight [z] (%)	All fruit rots [z] (%)
		Primary strikes per bush [y]	Secondary (% Fruit) [z]		
Non-treated ……	None……	2.0 a	4.8 a	2.0	6.8
Proline 480 SC at 5.7 fl oz ……	A, C, E, G	0.0 c	0.3 e	3.8	13.7
Miravis at 10.3 fl oz plus Rainer EA at 24 fl oz/100 gal…..	A, C, E, G	0.7 b	1.3 de	1.0	2.8
Miravis Prime at 13.4 fl oz plus Rainer EA at 24 fl oz/100 gal…..	A, C, E, G	0.0 c	1.8 cde	0.7	2.0
Fontelis at 24 fl oz plus Rainer EA at 24 fl oz/100 gal…..	A, C, E, G	0.3 bc	2.3 bcde	3.8	6.8
Indar 2F at 6 fl oz plus Rainer EA at 24 fl oz/100 gal then Fontelis at 24 fl oz plus Rainer EA at 24 fl oz/100 gal …..	A and C E and G.....	0.3 bc	3.6 abc	2.0	3.7
Indar 2F at 6 fl oz plus Rainer EA at 24 fl oz/100 gal Alt Fontelis at 24 fl oz plus Rainer EA at 24 fl oz/100 gal …..	A and E C and G….	0.2 bc	1.7 cde	3.7	5.3
ADL 1202 at 2.5 lb plus Syl-coat at 4 fl oz/100 gal…..	All…	0.3 bc	4.1 ab	2.2	29.3
Tilt at 6 fl oz Alt Luna Tranquility at 16 fl oz……..	A and E C and G….	0.3 bc	2.1 bcde	6.3	8.7
Indar 2F at 6 fl oz Alt Luna Tranquility at 16 fl oz……..	A and E C and G….	0.8 b	3.2 abcd	2.8	18.7

[x] Treatments were applied on A = 22 Mar (floral bud break and 0.25 in long), B = 31 Mar (vegetative bud swell), C = 5 Apr (pre-bloom, vegetative buds 0.25 in long), D = 12 Apr (very early bloom), E = 19 Apr (full bloom), F = 26 Apr, and G = 1 May (petal fall).

[y] Analysis of variance was based on log (x+1) transformation. Means followed by the same letter do not differ significantly based on Fisher's protected LSD (*P=0.05*).

[z] Means followed by same letter do not differ significantly based on Fisher's protected LSD (*P=0.05*). Means without letters are not significantly different.