

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

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### **Evaluation of fungicides for management of mummy berry, 2019.**

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 145 gal water/A. Approximately 2 gal of a spray suspension were applied per 6 bushes. Treatments were applied on 30 Mar (floral bud break), 14 Apr (pre-bloom), 17 Apr, 28 Apr (full bloom), and 10 May (petal fall, late bloom). Each fungicide-treated bush was flanked on each side by non-treated bushes. Badge SC (64 fl oz/A) was applied on 5 Nov 2018 (>50% leaf drop) to prevent bacterial blight. No herbicides, insecticides or fertilizer was used during the trial. Bushes were pruned from 9 to 14 Jan 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 15 Apr and removed by 13 May. Overhead irrigation was started on 4 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 9 May. On 5 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).

Rainfall for the growing season (Oct 2018 to Sep 2019) was approximately 5 inches below the 115 yr average but temperatures were at the average of 59.2°F. March precipitation was 3 in below normal while April was 3 in above normal which led to localized flooding from April 9 to 11 in one part of the field. Blueberry growth started later than normal but unusually warm and dry weather at the end of April through mid-May accelerated plant growth. Pseudosclerotia (mummies) were at germination on 18 Mar, at emergence on 25 Mar, a few at sporulation on 29 Mar, apothecia were observed 5 Apr but no more found on 8 or 12 Apr for an approximate 8 day primary infection period. Very few apothecia were observed compared with previous growing seasons. Primary mummy berry symptoms were first observed on both flower clusters and vegetative shoots by 6 May. Classic symptoms of secondary mummy berry were first observed on 10 Jun. Non-treated bushes had the most floral and vegetative strikes per bush as well as the most mummy berry. The number of floral strikes on non-treated bushes were significantly more than the number found on any of the fungicide treated bushes. Floral strikes were not observed on bushes treated with multiple applications of Proline or Miravis Duo, however, the number of floral strikes on bushes treated with any of the other treatments were not significantly different. Vegetative strikes were not observed on any bushes treated with fungicide. Non-treated bushes had significantly more mummy berry than any of the fungicide treated bushes. The lowest percentage of mummy berry was found on bushes treated with Miravis Duo, however, the percentage of fruit with mummy berry on any of the other fungicide treated bushes were not significantly different. Fruit russeting was low and not significantly different among all treatments. No phytotoxicity was observed in bushes treated with any of the various materials used.

| Treatment & Rate/A<br>or /100 gal as indicated below   | Time of<br>Application <sup>x</sup> | Floral strikes<br>per bush <sup>y</sup> | Vegetative<br>strikes per bush <sup>y</sup> | Mummy Berry<br>(% Fruit) <sup>z</sup> | Russet<br>(% Fruit) <sup>z</sup> |
|--|-------------------------------------|---|---|---------------------------------------|----------------------------------|
| Non-treated .....  | None.....                           | 4.3 a                                   | 0.2   | 5.4 a                                 | 0.5                              |
| Proline 480 SC at 5.7 fl oz .....  | A, B, D, E...                       | 0.0 b                                   | 0.0   | 1.5 b                                 | 0.6                              |
| Proline 480 SC at 5.7 fl oz .....  | C only.....                         | 0.3 b                                   | 0.0   | 2.7 b                                 | 0.8                              |
| Indar 2F at 6 fl oz plus<br>Rainer EA at 24 fl oz/100 gal.....                                     | A, B, D, E...                       | 0.3 b                                   | 0.0   | 0.4 b                                 | 0.9                              |
| Indar 2F at 6 fl oz plus<br>Rainer EA at 24 fl oz/100 gal Alt<br>Luna Tranquility at 16 fl oz..... | A and D<br>B and E.....             | 0.5 b                                   | 0.0   | 1.8 b                                 | 0.4                              |
| Miravis Duo at 13.7 fl oz plus<br>Rainer EA at 24 fl oz/100 gal.....                               | A, B, D, E...                       | 0.0 b                                   | 0.0   | 0.1 b                                 | 1.0                              |
| Miravis Prime at 13.4 fl oz plus<br>Rainer EA at 24 fl oz/100 gal.....                             | A, B, D, E...                       | 0.8 b                                   | 0.0   | 0.5 b                                 | 1.3                              |

<sup>x</sup> Treatments were applied on A = 30 Mar (floral bud break), B = 14 Apr (pre-bloom), C = 17 Apr, D = 28 Apr (full bloom), and E = 10 May (petal fall, late bloom).

<sup>y</sup> 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 ( $P=0.05$ ). Means without letters are not significantly different.

<sup>z</sup> 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.