

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

J. W. Pscheidt and D. Kroese  
Dept. of Botany and Plant Pathology  
Oregon State University  
Corvallis, OR 97331

### **Evaluation of fungicides for management of mummy berry, 2022.**

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 to 2.5 gal of a spray suspension was applied per 6 bushes (290 to 363 gal water/A). Treatments were applied on 29 Mar (vegetative bud break), 15 Apr (pre-bloom to early bloom), 27 Apr (early to full bloom) (0.51 mm rain at 8:00 pm), and 11 May (late bloom to petal fall). Each fungicide-treated bush was flanked on each side by non-treated bushes. Due to the extremely low number of apothecia and primary symptoms, bouquets of infected 'BlueRibbon' flowers from an organic farm were collected on 28 Apr and placed among 'Berkeley' flowers on 29 Apr. A total of 5 large bouquets were set up in buckets with water next to non-treated bushes but not within experimental blocks. The idea was that bees would help distribute inoculum in the blueberry planting thus increasing secondary mummy berry. Makaze (32 fl oz/A) plus Weddar 64 (10 fl oz/A) were tank mixed and applied on 4 Mar for weed control. No insecticides were used during the trial. Fertilizer (21-0-0-24 (S)) was applied at 8 oz/plant on 19 Apr and at 4 oz/plant on 17 Jun. Bushes were pruned 21 Feb by thinning out small, dead and spindly shoots and removing older non-productive stems. Overhead irrigation was started on 28 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 18 May. On 27 Jun, approximately 300 green berries were arbitrarily harvested from each bush and placed in a refrigerator. Over the next 10 days 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 during the dormant season 2021-22 was 5.4 inches below normal but spring weather conditions were very wet with the second wettest spring on record. Due to an excessively dry spring last year there were few pseudosclerotia (mummies) to be found this year. Several mummies under 'BlueRibbon' bushes at an organic farm were at germination and emergence on 10 Mar but none were at differentiation. A single apothecium was found in our 'Berkeley' plots on 28 Mar. We suspect it was out a few days prior as it was declining the next day and almost gone by 4 Apr. Primary mummy berry symptoms were first observed on widely scattered 'Berkeley' flower clusters on 9 May. Symptoms of secondary mummy berry were first found by cutting open green fruit on 13 Jun while classic symptoms were first observed on 27 Jun. Although low when compared to prior years, the number of primary strikes on non-treated bushes were not significantly different from strikes found on bushes treated with EcoSwing, GWN-10474, Regalia, ProBlad Verde alone, or Cevya. The lowest number of primary strikes was found on bushes treated with Sercadis but the number found on bushes treated with Indar alternated with ProBlad Verde was not significantly different. Non-treated bushes had significantly more mummy berry than fungicide treated bushes except for bushes treated with EcoSwing, GWN-10474, or Indar alternated with ProBlad Verde. The lowest percentage of mummy berry was found on bushes treated with Cevya, however, the percentage of fruit with mummy berry on bushes treated with Regalia, ProBlad Verde alone, Indar alternated with Proline or Sercadis were not significantly different. The 'Berkeley' bushes located next to each of the 5 infected 'BlueRibbon' bouquets only had 2.4% of the fruit with mummy berry which was not much different than other non-treated bushes. Fruit russeting was not significantly different among all treatments. No phytotoxicity was observed in bushes treated with any of the various materials used.

**Note:** A long term trial set up in the late summer of 2018 evaluating the survival of pseudosclerotia was monitored during the spring of 2022. Unlike previous years, pieces of partial or whole pseudosclerotia were not easily observed. Out of thousands originally placed here only one mummy was found. Also, with observations every few days, no apothecia were found this year. Heavy algal growth on the soil surface was noted in most plots. Bottom line – mummies survived and produced apothecia for 3 years but not after 4.

| Treatment & rate/A<br>or /100 gal as indicated below                   | Time of<br>application <sup>x</sup> | Mummy Berry                              |                                     | Russet <sup>z</sup><br>(%) |
|--|-------------------------------------|--|-------------------------------------|----------------------------|
|  |                                     | Primary strikes<br>per bush <sup>y</sup> | Secondary<br>(% Fruit) <sup>z</sup> |                            |
| Non-treated .....  | None.....                           | 15.2 ab                                  | 3.2 a                               | 12.0                       |
| EcoSwing at 2 pt plus<br>Nu-Film-P at 16 fl oz/100 gal.....            | All                                 | 9.7 bcd                                  | 2.0 abcd                            | 19.7                       |
| GWN 10474 at 21 oz plus<br>Nu-Film-P at 16 fl oz/100 gal.....          | All                                 | 13.0 abc                                 | 2.4 ab                              | 11.5                       |
| Regalia at 2 qt plus<br>Nu-Film-P at 16 fl oz/100 gal.....             | All                                 | 14.3 abc                                 | 1.2 bcde                            | 7.7                        |
| ProBlad Verde at 45.7 fl oz plus<br>Nu-Film-P at 16 fl oz/100 gal..... | All                                 | 15.7 a                                   | 1.2 bcde                            | 11.5                       |
| Indar 2F at 6 fl oz plus<br>Nu-Film-P at 16 fl oz/100 gal alternate    | A and C                             |  |                                     |                            |
| ProBlad Verde at 40 fl oz plus<br>Nu-Film-P at 16 fl oz/100 gal.....   | B and D                             | 6.7 de                                   | 2.1 abc                             | 15.2                       |
| Indar 2F at 6 fl oz plus<br>Nu-Film-P at 16 fl oz/100 gal alternate    | A and C                             |  |                                     |                            |
| Proline 480 SC at 5.7 fl oz plus<br>Nu-Film-P at 16 fl oz/100 gal..... | B and D                             | 8.7 cd                                   | 0.3 de                              | 11.8                       |
| Cevya at 5 fl oz plus<br>Dyne-amic at 12 fl oz/100 gal.....            | All...                              | 9.5 bcd                                  | 0.2 e                               | 10.3                       |
| Tesaris at 4.6 fl oz plus<br>Dyne-amic at 12 fl oz/100 gal.....        | All.....                            | 3.0 e                                    | 0.6 cde                             | 11.0                       |

<sup>x</sup> Treatments were applied on A = 29 Mar (vegetative bud break), B = 15 Apr pre-bloom, early bloom), C = 27 Apr (early to full bloom), and D = 11 May (late bloom to petal fall).

<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 ( $P=0.05$ ).

<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.