

BLUEBERRY (*Vaccinium corymbosum* 'Berkley')  
Mummyberry; *Monilinia vaccinii-corymbosi*

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### **Fungicide control of mummyberry, 2005.**

Fungicide treatments were arranged in a randomized complete block design in a block of 'Berkley' 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 150 psi at a rate of 109 to 290 gal water/A, depending on the amount of foliage present on bushes at time of application. Approximately 0.75 to 2.0 gal of a spray suspension were applied per 6 bushes. Treatments were applied on 7 Mar (50% floral bud break), 23 Mar (very early bloom), 5 Apr (full bloom), 20 Apr (late bloom), 7 May (post bloom), and 20 May (green berry). A low rate of Funginex (12 fl oz/100 gal) was used on 20 Apr and 7 May but was then discontinued as it was not registered for use past bloom. Each fungicide treated bush was flanked on each side by nontreated bushes. Weeds were controlled using Roundup ULTRAMAX (2 qt/A) applied in the plant row on 18 Mar and Rely (3 qt/A) on 9 Jun. Bushes were pruned from 21 to 26 Jan by thinning out small and spindly shoots and removing older non-productive stems. Plots were fertilized on 31 Mar and 10 Jun with approximately 200 lb/A (based on in the bush row area) of Triple 16 (16-16-16-8). Due to extremely dry spring conditions, plants were overhead irrigated on 15 Mar and 27 Mar for 3 hours each to encourage apothecial development. Summer irrigation began on 3 Jun and was applied 2 times per week during the growing season. Cuprofix Disperss (8 lb/A) was applied on 11 Nov 04 (50% leaf drop) to help prevent bacterial blight. The number of floral clusters per plant with symptoms of primary mummyberry was evaluated on 25 to 26 Apr. The number of vegetative shoots per plant with symptoms of primary mummyberry was evaluated on 13 May. On 28 Jun, approximately 300 green, healthy appearing berries were harvested from each Berkley plant and placed in the refrigerator. Over the next few weeks 200 berries were arbitrarily selected, split in half and evaluated for symptoms of secondary mummyberry (white mycelial mats within the carpels of the berry).

The early spring season through early bloom was characterized as extremely dry with below average rainfall. Although above average rainfall occurred from mid-Mar to Jun, disease pressure was considered low. Only one apothecium was observed on 1 Apr between the 4<sup>th</sup> and 6<sup>th</sup> replicate. This had a large influence on the data so all analysis is based on only 4 replicates (1, 2, 3 and 5). A few primary mummyberry strikes were observed on both flower clusters and shoots starting on 18 Apr. Other floral problems due to *Botrytis*, anthracnose or *Pseudomonas* were observed throughout the blueberry planting and were difficult to separate out. Lowest amount of flower cluster blight was on bushes treated with Pristine although bushes treated with the combination of Bravo/Indar/Abound, Orbit alone, CaptEstate alone, Bravo/Indar/Scala, Kocide, Lime Sulfur or Serenade were not significantly different. Phytotoxicity was observed on 1 Apr on bushes treated with Pristine plus a high, 1% rate of Silwet L-77, which resulted in flowers with a necrotic vascular system. The rate of Silwet was reduced to the labeled rate of 0.01% and no other phytotoxicity problems were observed. Symptoms of primary mummyberry were more typical and easier to identify on vegetative shoots. Nontreated bushes had the most infected shoots per bush but bushes treated with Kocide or Lime Sulfur were not significantly different. Bushes treated with Orbit or the high rate of V-10116 had the fewest infected shoots per bush, however, bushes treated with Bravo/Indar/Abound/Captan, Indar, Funginex, CaptEstate, low or middle rate of V-10116, or serenade were not significantly different. Highest amount of green fruit with mummyberry was found on bushes treated with Kocide but bushes treated with Lime Sulfur or Serenade were not significantly different. Nontreated bushes had significantly less green fruit with mummyberry than bushes treated with Kocide. Only bushes treated with Pristine or the various rates of V-10116 had significantly less green fruit with mummyberry than nontreated bushes (a possible artifact of higher than label rates). Some leaf burning was observed on lime sulfur treated bushes on 6 Jun ten days after an abrupt period of hot weather. Major conclusions are hampered by low disease pressure combined with higher than target chemical rates. The organic treatments of Kocide or Lime Sulfur give poor control of mummyberry. Additional testing with Serenade is needed, especially at higher than label rates.

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Treatment & Rate/100 gal <sup>z</sup>	Application Date <sup>x</sup>	Primary Mummyberry Floral Clusters/plant <sup>y</sup>	Primary Mummyberry Shoots/plant <sup>y</sup>	Green Fruit with Mummyberry <sup>y</sup> (%)
Nontreated .....	None.....	2.8 abc	12.8 a	9.6 bc
Bravo Weatherstik at 32 fl oz then Indar 75 WSP at 2 oz plus Latron B1956 at 1 fl oz then .....	A  B			
Abound at 6.2 fl oz alternate..... Captan 80WDG at 2 lb plus Latron B1956 at 1 fl oz .....	C, E  D, F.....	0.8 def	4.3 cde	4.8 cd
Indar 75WP at 2oz plus Latron B1956 at 1 fl oz .....	All	3.0 ab	0.5 e	4.8 cd
Orbit EC at 6 fl oz .....	All	1.5 bcdef	0.3 e	5.5 cd
Funginex EC at 24 fl oz then .....	A, B, C			
Funginex EC at 12 fl oz .....	D, E	3.5 a	2.0 de	4.5 cd
CaptEvate 68WDG at 4.7 lb.....	All	0.5 ef	1.5 de	8.9 bc
V-10116 at 1.75 oz .....	All	2.3 abcde	0.3 e	2.3 d
V-10116 at 2.5 oz .....	All	2.5 abcd	1.5 de	2.3 d
V-10116 at 3.5 oz .....	All	2.3 abcde	0.3 e	1.0 d
Pristine 38EG at 18.5 oz/plus Silwet L-77 at 0.13 fl oz.....	All	0.3 f	0.5 e	2.3 d
Bravo Weatherstik at 32 fl oz then Indar 75 WSP at 2 oz plus Latron B1956 at 1 fl oz then	A  B			
Scala 60SC at 18 fl oz.....	C, D, E, F	0.8 def	6.5 bcd	6.5 cd
Kocide 2000 at 5lb.....	All	0.8 def	11.0 ab	17.1 a
Lime Sulfur EC (29%) at 2 gal....	All	1.5 bcdef	8.5 abc	13.5 ab
Serenade SC at 2 gal.....	All	1.0 cdef	4.5 cde	14.1 ab

<sup>x</sup> Treatments were applied on A = 7 Mar (floral bud break), B = 23 Mar (very early bloom), C = 5 Apr (full bloom), D = 20 Apr (late bloom), E = 7 May (post bloom), and F = 20 May (green berry).

<sup>y</sup> Means followed by same letter do not differ significantly based on Fisher's protected LSD (P=0.05).

<sup>z</sup> Original target application rate was to be 100 gal water solution/A for all treatments. Higher per gal rates resulted in higher per A rates than target for all chemical applications. Rates of water used were 109 gal/A (1<sup>st</sup> application), 218 gal/A (next three applications), and 290 gal/A on all subsequent applications. Due to how the trial was implemented and growth of plants we suspect actual water rates may have been slightly higher than shown.