

BLUEBERRY (*Vaccinium corymbosum* 'Blue Ribbon') Mummy Berry; *Monilinia vaccinii-corymbosi*  
Botrytis Blight; *Botrytis cinerea*  
Alternaria Fruit Rot; *Alternaria tenuissima*

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### **Evaluation of organic materials for management of mummy berry and fruit rots, 2021.**

Fungicide treatments were arranged in a (randomized) complete block design in a block of 'Blue Ribbon' blueberries planted in 2014 on 3 x 11 ft spacing at Riverbend Organic Farm. Each treatment consisted of a set of bushes 3 rows wide and 42 ft long replicated 4 times. Fungicide treatments were applied using an electrostatic sprayer at a rate of 12.5 gal water/A. Treatments were applied at 7 to 10 day intervals on 16 Mar (floral bud break), 23 Mar, 30 Mar, 6 Apr (vegetative bud break), 15 Apr, 23 Apr, 3 May (bloom) and 13 May. All bushes were treated with; PureSpray Green (3 gal/A) on 1 Mar, Dipel DF (0.5 lb/A) plus Clean Boron (32 fl oz/A) on 3 May, Aza-Direct (32 fl oz/A) plus Entrust SC (4 fl oz/A) plus Transcend CNI (1 pt/100 gal) on 23 Jun for management of scale and Spotted Wing Drosophila; and Jet-Ag Sanitizer (0.13 gal/A) on 18 Jun and 7 Jul. The number of floral clusters and vegetative shoots per five bushes with symptoms of primary mummy berry was evaluated on 4 May. On 3 Jun, approximately 300 green berries were arbitrarily harvested from a single bush in the center of each plot and placed in a refrigerator. Over the next several days 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). On 12 Jul, 100 healthy appearing, ripe berries were arbitrarily harvested from the same single bush in the center of each plot. Berries were placed within moist chambers located in laboratories at 4575 SW Research Way. Berries were incubated at room temperature (60 to 72°F) for 21 days. The number of berries with symptoms of various rots were evaluated and removed each day.

Rainfall for the growing season (Oct 2020 to Sep 2021) was well below average with spring rainfall the lowest ever recorded. An unusual climate change related heat dome (heat wave) occurred for 3 days in late June with temperatures at or above 100°F. The season was considered unfavorable for disease development. Pseudosclerotia (mummies) were at emergence on 3 Mar, differentiation by 5 Apr and sporulation (fresh apothecia) on 7 Apr. Primary mummy berry symptoms were found 20 Apr. Symptoms of secondary mummy berry were found by cutting open green fruit on 27 May while classic symptoms were found widely scattered on 12 Jul during ripe fruit harvest. Fruit rots that develop in moist chambers after harvest were primarily due to *Botrytis cinerea* (Botrytis Blight) and *Alternaria tenuissima* (Alternaria Fruit Rot). None of the various treatments were significantly different from each other including the non-treated control bushes with respect to mummy berry or any of the fruit rots. No phytotoxicity was observed on leaves or fruit from fungicide treated bushes.

Treatment & Rate/A or /100 gal as indicated below <sup>x</sup>	Mummy Berry		Botrytis Fruit	Alternaria Fruit	All Fruit
	Primary strikes per 5 bushes <sup>y</sup>	Secondary (% Fruit) <sup>z</sup>	Rot <sup>z</sup> (%)	Rot <sup>z</sup> (%)	Rots <sup>z</sup> (%)
Non-treated.....	30.8	20.0	1.8	2.8	6.5
OSO 5% SC at 9.7 fl oz .....	32.0	14.3	2.0	1.0	4.5
OSO 5% SC at 4.85 fl oz applied twice for a total of 9.7 fl oz.....	28.5	15.8	4.5	1.3	8.3
Regalia at 16 fl oz plus Serenade Opti WP at 16 oz 3X then OSO 5% SC at 9.7 fl oz 5X .....	19.8	12.6	1.3	0.8	4.5
Regalia at 16 fl oz plus Serenade Opti WP at 16 oz .....	22.5	18.3	2.0	0.5	2.8
Regalia at 16 fl oz plus Serenade Opti WP at 16 oz 3X then OSO 5% SC at 13 fl oz then Serenade ASO at 16 oz plus Triggrr at 24 fl oz/100 gal then Botector at 6 oz plus Triggrr at 24 fl oz/100 gal 2X then Serenade ASO at 16 oz plus Triggrr at 24 fl oz/100 gal .....	25.0	16.6	1.8	5.0	7.8
Howler at 5 lb.....	18.3	15.1	3.8	3.0	9.0

<sup>x</sup> Spray application dates included 16 Mar (floral bud break), 23 Mar, 30 Mar, 6 Apr (vegetative bud break), 15 Apr, 23 Apr, 3 May (bloom) and 13 May. 2X, 3X, 5X = those materials were applied 2, 3, or 5 times in succeeding applications.

<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.