

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

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Evaluation of organic materials for management of mummy berry and fruit rots, 2020.

Fungicide treatments were arranged in a (randomized) complete block design in a block of 'Blueribbon' 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 8 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 3 Mar (leaf emergence), 10 Mar, 17 Mar, 26 Mar, 3 Apr, 10 Apr (5% bloom), 17 Apr, 24 Apr (about 75% bloom), and 5 May (green berry). All bushes were treated with; Jet-Ag Sanitizer (0.13 gal/A) followed by Botector (6 oz/A) plus Stimplex (0.19 gal/A) on 27 May for *Botrytis* management; Entrust SC (4 fl oz/A) on 26 Jun then Tri-Fol (0.6 gal/A) plus Asa-Direct (2 pt/A) plus Vererate XC (1 gal/A) on 6 Jul then Entrust SC (5 fl oz/A) on 9 Jul for management of Spotted Wing Drosophila; and Jet-Ag Sanitizer (0.13 gal/A) on 2 Jul. The number of floral clusters and vegetative shoots per three bushes with symptoms of primary mummy berry was evaluated on 28 Apr. On 8 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 9 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 Cordley Hall, OSU campus. Berries were incubated at room temperature (70 to 74°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 24 Feb but Covid-19 restrictions prevented further observations. Primary mummy berry symptoms were plentiful and appeared evenly distributed across plots on 28 Apr and secondary fruit symptoms were also numerous during ripe fruit harvest on 9 Jul. Bushes treated with Regalia plus Serenade were the only ones with significantly fewer primary symptoms than non-treated bushes. Bushes treated with either Regalia plus Serenade or Oso had significantly fewer secondary mummy berry symptoms than non-treated bushes but were not significantly different than other fungicide treatments.

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) and *Alternaria tenuissima* (Alternaria Fruit Rot). Only bushes treated with Botector had significantly less fruit rot due to *Botrytis* than non-treated bushes. Levels of fruit rot due to *Botrytis* were low overall and may have been due to an application of Botector and other materials in the month prior to harvest. There were no differences in total fruit rots among the various treatments.

No phytotoxicity was observed on leaves or fruit from fungicide treated bushes.

Acknowledgement: We wish to thank Taylor Peterson and Stephanie Heckert for help harvesting green and ripe fruit.

Treatment & Rate/A or /100 gal as indicated below	Mummy Berry		Botrytis Blight ^z (%)	All Fruit Rots ^z (%)
	Primary strikes per bush ^y	Secondary (% Fruit) ^z		
Non-treated.....	105 a	50.4 a	1.8 a	2.0
Actinovate AG at 12 oz plus Algamin XTO at 48 fl oz or ...Stimplex ^x at 48 fl oz plus Nu-Film-P at 4 fl oz/100 gal...	87 a	45.8 ab	2.1 a	2.1
OSO 5% SC at 10 fl oz	83 a	39.5 b	0.9 ab	1.2
Regalia at 16 fl oz plus Serenade Opti WP at 20 oz.....	38 b	38.3 b	2.0 a	2.1
Botector at 15 oz plus Algamin XTO at 48 fl oz or ...Stimplex ^x at 48 fl oz	82 a	42.3 ab	0.3 b	0.5

^x Algamin was used for most application dates, however, Stimplex was substituted for Algamin on 3 Mar and 17 Apr.

^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.