

BLUEBERRY (*Vaccinium corymbosum* ‘Bluecrop’)
 Botrytis blossom blight; *Botrytis cinerea*
 Anthracnose fruit rot; *Colletotrichum fioriniae*
 Alternaria fruit rot; *Alternaria* spp.
 Mummy berry; *Monilina vaccinii-corymbosi*
 Stem blight; *Diaporthe vaccinii*

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Evaluating fungicides for control of botrytis blossom blight, anthracnose fruit rot, and stem blight in blueberries, 2024.

The experiment was conducted in a mature blueberry planting at the Southwest Michigan Research and Extension Center (SWMREC) in Benton Harbor, MI. Bushes were spaced at 5 x 10 ft. Treatments were applied to 3-bush plots and were replicated four times in a randomized complete block design. Sprays were applied with a RYOBI ONE+ 18v Cordless Battery 4 Gallon Backpack Chemical Sprayer with the adjustable nozzle. Spray volume was 40 gpa. Spray dates and phenological stages were as follows: 18 April (late green tip), 25 April (pink bud), 2 May (pink bud/bloom), 13 May (bloom/petal fall), 20 May (petal fall/green fruit), 28 May (green fruit), 3 June (green fruit), 17 June (green fruit), 24 June (green fruit/blue fruit), and 1 July (green fruit/blue fruit). Total rainfall between sprays was 0.37, 2.3, 2.1, 0.5, 2.2, 0.83, 1.07, 1.27, and 1.44in, respectively. Bushes were sprayed with *Colletotrichum fioriniae* conidia at a concentration of 1×10^6 spores/ml in each plot until runoff on 10 May (bloom), 16 May (bloom/petal fall), 10 June (green fruit), 28 June (green/blue fruit), and 2 July (green/blue fruit). Apothecia were observed starting on 18 April through 13 May. The number of botrytis blossom blight infected shoots and mummy berry shoot strikes were assessed on the middle bush of each plot on 11 May and the number of stem blight infected shoots were assessed on 19 May. The number of fruit showing symptoms of anthracnose fruit rot was assessed on the middle bush in each plot on 20 July. On 9 July, fifty ripe berries were harvested per plot, placed equidistantly on metal screens in aluminum trays, and incubated at room temperature and 100% relative humidity. The berries were then rated for post-harvest diseases after 14 days. This rating is denoted as ‘post-harvest rating’ below. All bushes were scouted for phytotoxicity throughout the season, and none was observed.

Treatment, rate/A	Application timing ^z	Number of shoots per bush with blossom blight, 11 May ^y	Control [%] ^x
Untreated		56.0 a	
Rhyme drench 7floz	3, 5,	23.75 b	[57]
Rhyme drench 7floz	1, 3, 5, 7	13.5 c	[76]
Rhyme drench 7floz	1, 2, 3, 4, 5, 7,	7.25 d	[87]
Rhyme foliar 7floz	1, 2, 3, 4, 5, 6, 7, 8, 9, 10	6.5 d	[88]
Indar 6 floz	1,		
Echo 720 4 pt	2, 3,		
Omega500F 20 floz + Elevate 1.5 lb	4, 5,		
Switch 14 oz	6, 8, 10		
Pristine 23 oz	7, 9,	0.0 c	[100]

^z Spray dates: 1 = 18 April (late green tip), 2 = 25 April (pink bud), 3 = 2 May (pink bud/bloom), 4 = 13 May (bloom/petal fall), 5 = 20 May (petal fall/green fruit), 6 = 28 May (green fruit), 7 = 3 June (green fruit), 8 = 17 June (green fruit), 9 = 24 June (green fruit/blue fruit), and 10 = 1 July (green fruit/blue fruit). Note only sprays 1 - 3 were applied before the blossom blight rating on 11 May.

^x Bracketed values denote percent control relative to the untreated control.

^yData did not pass Bartlett’s test for homogeneity of variance; some assumptions of the ANOVA may have been violated.

Treatment, rate/A	Application timing ^z	Number of shoot strikes per bush, 11 May	Control [%] ^x
Untreated		27.0 a	
Rhyme drench 7floz	1, 3, 5, 7	22.0 b	[18]
Rhyme drench 7floz	3, 5,	20.75 b	[23]
Rhyme drench 7floz	1, 2, 3, 4, 5, 7,	11.5 c	[57]
Rhyme foliar 7floz	1, 2, 3, 4, 5, 6, 7, 8, 9, 10	10.5 c	[61]
Indar 6 floz	1,		
Echo 720 4 pt	2, 3,		
Omega500F 20 floz + Elevate 1.5 lb	4, 5,		
Switch 14 oz	6, 8, 10		
Pristine 23 oz	7, 9,	0.0 d	[99]

^z Spray dates: 1 = 18 April (late green tip), 2 = 25 April (pink bud), 3 = 2 May (pink bud/bloom), 4 = 13 May (bloom/petal fall), 5 = 20 May (petal fall/green fruit), 6 = 28 May (green fruit), 7 = 3 June (green fruit), 8 = 17 June (green fruit), 9 = 24 June (green fruit/blue fruit), and 10 = 1 July (green fruit/blue fruit).

^x Bracketed values denote percent control relative to the untreated check.

Treatment, rate/A	Application timing ^z	Number of blighted stems per bush, 19 May	Control [%] ^x
Untreated		59.75 a	
Rhyme drench 7floz	3, 5,	40.75 b	[32]
Rhyme drench 7floz	1, 3, 5, 7	31.75 c	[47]
Rhyme drench 7floz	1, 2, 3, 4, 5, 7,	10.25 d	[83]
Rhyme foliar 7floz	1, 2, 3, 4, 5, 6, 7, 8, 9, 10	9.0 d	[85]
Indar 6 floz	1,		
Echo 720 4 pt	2, 3,		
Omega500F 20 floz + Elevate 1.5 lb	4, 5,		
Switch 14 oz	6, 8, 10		
Pristine 23 oz	7, 9,	0.0 e	[100]

^z Spray dates: 1 = 18 April (late green tip), 2 = 25 April (pink bud), 3 = 2 May (pink bud/bloom), 4 = 13 May (bloom/petal fall), 5 = 20 May (petal fall/green fruit), 6 = 28 May (green fruit), 7 = 3 June (green fruit), 8 = 17 June (green fruit), 9 = 24 June (green fruit/blue fruit), and 10 = 1 July (green fruit/blue fruit).

^x Bracketed values denote percent control relative to the untreated check.

Treatment, rate/A	Application timing ^z	Number of anthracnose infected per bush, 20 July ^y	Control [%] ^x
Untreated		88.75 a	
Rhyme drench 7floz	3, 5,	32.0 b	[64]
Rhyme foliar 7floz	1, 2, 3, 4, 5, 6, 7, 8, 9, 10	18.75 c	[70]
Rhyme drench 7floz	1, 3, 5, 7	12.25 d	[86]
Indar 6 floz	1,		
Echo 720 4 pt	2, 3,		
Omega500F 20 floz + Elevate 1.5 lb	4, 5,		
Switch 14 oz	6, 8, 10		
Pristine 23 oz	7, 9,	0.5 e	[99]
Rhyme drench 7floz	1, 2, 3, 4, 5, 7,	0.0 e	[100]

^z Spray dates: 1 = 18 April (late green tip), 2 = 25 April (pink bud), 3 = 2 May (pink bud/bloom), 4 = 13 May (bloom/petal fall), 5 = 20 May (petal fall/green fruit), 6 = 28 May (green fruit), 7 = 3 June (green fruit), 8 = 17 June (green fruit), 9 = 24 June (green fruit/blue fruit), and 10 = 1 July (green fruit/blue fruit).

^x Bracketed values denote percent control relative to the untreated check.

^y Values shown are actual means; statistical analysis was performed on square-root(x) transformed data.

Post-harvest rating of:						
Treatment, rate/A	Application timing ^z	Anthracnose fruit rot	Botrytis fruit rot	Alternaria fruit rot	% Marketable ^w	
		Incidence (%)	Incidence (%) ^x	Incidence (%)		
Untreated		72.5 a	1.0 b	0.5 b		[26]
Indar 6 floz	1,					
Echo 720 4 pt	2, 3,					
Omega500F 20 floz + Elevate 1.5 lb	4, 5,					
Switch 14 oz	6, 8, 10					
Pristine 23 oz	7, 9,	35.0 b	1.0 bc	5.5 b		[58]
Rhyme drench 7floz	3, 5,	29.0 b	5.0 ab	6.5 ab		[59.5]
Rhyme drench 7floz	1, 3, 5, 7	27.0 b	2.0 abc	4.0 b		[66.5]
Rhyme foliar 7floz	1, 2, 3, 4, 5, 6, 7, 8, 9, 10	22.0 b	6.5 a	13.5 a		[57.5]
Rhyme drench 7floz	1, 2, 3, 4, 5, 7,	18.5 b	0.0 c	4.0 b		[77.5]

^z Spray dates: 1 = 18 April (late green tip), 2 = 25 April (pink bud), 3 = 2 May (pink bud/bloom), 4 = 13 May (bloom/petal fall), 5 = 20 May (petal fall/green fruit), 6 = 28 May (green fruit), 7 = 3 June (green fruit), 8 = 17 June (green fruit), 9 = 24 June (green fruit/blue fruit), and 10 = 1 July (green fruit/blue fruit).

^w Other fruit rot fungi were observed and not reported

^x Column means followed by the same letter are not significantly different according to Fisher's Protected LSD test ($P \leq 0.05$).