CHERRY (*Prunus avium* 'Bing')
Brown Rot Blossom Blight; *Monilinia* sp.
Leaf Spot; *Blumeriella jaapii*
Powdery Mildew; *Podosphaera clandestina*
Gray Mold; *Botrytis cinerea*

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Comparison of fungicides for management of cherry diseases, 2015.

Treatments were arranged in a randomized complete block design in a 'Bing' sweet cherry orchard on Mazzard F12-1 rootstock planted in 1995 on 20 x 20 ft spacing and grafted in 1998. Each treatment consisted of 4 single tree replicates. Fungicides were applied using a hydraulic handgun sprayer at 100 psi, such that 6 gal of a spray suspension were applied per 4 trees (164 gal water/A). Fungicide treatments were applied on 26 Mar (popcorn), 2 Apr (full bloom), 15 Apr (petal fall), 29 Apr (fruit set), 12 May, 26 May and 9 Jun (preharvest). A dormant oil spray of Omni supreme-oil (1.5 gal/A) was applied on 18 Feb. Assana XL (5 oz/A) was applied on 21 May for aphids and Success (6 fl oz/A) was applied on 16 Jun for aphid and Cherry fruit fly control. Insecticides were applied using a Rear's air blast speed sprayer. GoalTender (1 pt/A) plus Makaze (1 qt/A) was applied on 17 Feb then Reckon 280 SL (1 qt/A) was applied 15 May and Forefit 280 (2 qt/A) was applied on 16 Jun for weed and sucker control. Trees were pruned from 29 Jan to 17 Feb to reduce height and thin canopy. Trees were not fertilized. BirdShield (1gal/A) was applied on 28 May to reduce bird predation of fruit. Fungal infection periods were monitored using an Adcon A730 weather station equipped with standard sensors. A total of 5 cherry leaf spot infection periods were detected from Mar through May: 0 high infection periods, 1 medium infection periods (22 Mar) and 4 light infection periods (20 Mar, 11, 20 and 31 May). Incidence of brown rot blossom blight was evaluated on 14 Apr by examining 500 blossoms arbitrarily selected from the lower portion of each tree. Incidence of cherry leaf spot was evaluated on 24 to 25 Jun by examining all leaves on each of 10 vigorous shoots from around the tree (average of 150 leaves per 10 shoots). Incidence of powdery mildew was evaluated on 24 to 25 Jun by examining the last (distal) five (5) fully expanded leaves on each of 10 shoots from around the tree. To compensate for variations in tree vigor only shoots showing high vigor and strong growth were selected for disease evaluation. Powdery Mildew on fruit was not assessed. On 10 Jun, 100, arbitrarily selected, healthy appearing, ripe fruit were harvested from each tree. Cherries were then placed on wire racks within moist chambers located in Cordley Hall. Cherries were incubated at ambient room temperature (70 to 80^{o}F) for 20 days. The number of cherries with symptoms of various fungal rots were evaluated and removed each day.

Spring growing conditions were considered warm and dry resulting in accelerated plant development, low brown rot pressure but favorable conditions for powdery mildew. Symptoms of brown rot blossom blight were first observed on 6 Apr at the start of petal fall. Cherry leaf spot was first observed on 20 Apr on cherry fruit stems and on leaves on 27 Apr. Symptoms of powdery mildew were first observed and confirmed on 18 May. All treatments had significantly less brown rot blossom blight when compared to nontreated trees (Table 1). There was no significant difference in brown rot blossom blight among any of the fungicide treated trees. There was no significant difference in brown rot fruit rot among any of the treatments including fruit from nontreated trees. Highest amount of post harvest gray mold was found on fruit from trees treated with Torino but it was not significantly different from gray mold found on nontreated trees or trees treated with the low rate of Dolphinet or the Oso fungicide program. Lowest amount of post harvest gray mold was found on fruit from trees treated with Merivon but it was not significantly different from that found on trees treated with the middle and high rate of Dolphinet, Oso alone, Pristine or Luna Sensation. Highest total amount of post harvest rot was found on fruit from trees treated with Torino but it was not significantly different from total rot found on nontreated trees or trees treated with the low rate of Dolphinet or the Oso fungicide program. Lowest total amount of post harvest rot was found on fruit from trees treated with Luna Sensation but it was not significantly different from that found on trees treated with Merivon, the middle and high rate of Dolphinet, Oso alone or Pristine. In addition to brown rot and gray mold the following fungi were also observed on rotting fruit at highly variable frequencies: *Alternaria* sp., *Cladosporium* sp., *Rhizopus* sp., *Fusarium* sp., and *Penicillium* sp. Highest amount of cherry leaf spot was found on nontreated trees but the amount found on trees treated with the middle and high rate of Torino, middle rate of Dolphinet, or Oso alone was not significantly different. Lowest amount of cherry leaf spot was found on trees treated with Luna Sensation but the amount found on trees treated with Merivon or Pristine was not significantly different. Highest amount of powdery mildew was found on nontreated trees but the amount found on trees treated with the middle of Dolphinet, or Oso alone was not significantly different. Lowest amount of powdery mildew was found on trees treated with Luna Sensation but the amount found on trees treated with Torino, Merivon, Oso/Quintec or Pristine/Quintec was not significantly different. No phytotoxicity was observed in trees treated with any of the various materials used.

Table 1. Flower and fruit diseases.

Treatment & Rate/A or /100 gal as indicated below	Time of Application*	Brown Rot Blossom Blight (%)**	Post Harvest Fruit Rot (%)**		
			Brown Rot	Gray Mold	Total Rot
Nontreated…….	None……	14.3 a	6.0	7.8 a	31.8 ab
Torino SC at 5 fl oz plus					
Silwet L-77 at 6 fl oz/100 gal	All……	1.3 b	3.3	11.3 ab	27.8 abc
Torino SC at 6.5 fl oz plus					
Silwet L-77 at 6 fl oz/100 gal	All……	0.0 b	0.8	12.5 a	36.5 a
Torino SC at 8 fl oz plus					
Silwet L-77 at 6 fl oz/100 gal	All……...	1.8 b	3.0	5.5 abc	22.0 abcd
Merivon at 6 fl oz plus					
Induce at 32 fl oz/100 gal	All……...	0.3 b	0.5	0.3 d	10.8 def
Dolphinet SC at 28.9 fl oz plus					
Induce at 32 fl oz/100 gal	All……...	1.3 b	2.0	5.3 abc	16.8 abcde
Dolphinet SC at 43.4 fl oz plus					
Induce at 32 fl oz/100 gal	All……...	1.3 b	3.5	1.5 bcd	17.8 bcdef
Dolphinet SC at 57.8 fl oz plus					
Induce at 32 fl oz/100 gal	All……...	0.0 b	1.0	1.5 cd	14.8 cdef
Oso 5% SC at 6.5 fl oz plus					
Induce at 32 fl oz/100 gal	All……...	0.5 b	1.3	0.3 d	15.8 bcdef
Oso 5% SC at 6.5 fl oz plus					
Induce at 32 fl oz/100 gal then	A				
Elevate 50 WDG at 1.5 lb plus					
Rovral 4F at 2 pt then	B				
Oso 5% SC at 6.5 fl oz plus					
Induce at 32 fl oz/100 gal alt	C, E, G				
Quintec SC at 7 oz.....	D, F…….	0.3 b	1.3	3.3 abcd	18.0 abcd
Pristine 38 WDG at 14.5 fl oz then	A				
Elevate 50 WDG at 1.5 lb plus					
Rovral 4F at 2 pt then	B				
Pristine at 14.5 fl oz alternate	C, E, G				
Quintec SC at 7 oz.....	D, F…….	0.0 b	0.3	0.5 d	13.5 def
Luna Sensation at 5 fl oz plus					
Induce at 32 fl oz/100 gal ….	All ..…….	0.0 b	0.0	0.8 d	6.3 ef
Luna Sensation at 5 fl oz plus					
Induce at 32 fl oz/100 gal then	A				
Serenade Opti at 16 oz plus					
Induce at 32 fl oz/100 gal then	B, E				
Luna Sensation at 5 fl oz plus					
Induce at 32 fl oz/100 gal alt	C, F				
Quintec SC at 7 oz.....……	D, G…….	0.0 b	0.0	0.8 d	5.3 f

* Fungicide treatments were applied on A = 26 Mar (popcorn), B = 2 Apr (full bloom), C = 15 Apr (petal fall), D = 29 Apr (fruit set), E = 12 May, F = 26 May and G = 9 Jun (preharvest).

** Means followed by the same letter do not differ significantly based on Fisher's protected LSD (*P=0.05*). Means without letters did not differ significantly. Analysis based on an arcsine square root transformation.

Table 2. Cherry leaf diseases.

Treatment & Rate/A or /100 gal as indicated below	Time of Application*	Cherry Leaf Spot (% leaves)**	Powdery Mildew (% leaves)**
Nontreated……..	None……	69.8 a	53.5 a
Torino SC at 5 fl oz plus Silwet L-77 at 6 fl oz/100 gal	All……..	25.8 d	19.5 cde
Torino SC at 6.5 fl oz plus Silwet L-77 at 6 fl oz/100 gal	All……	63.3 abc	16.0 cde
Torino SC at 8 fl oz plus Silwet L-77 at 6 fl oz/100 gal	All……	64.5 ab	5.5 e
Merivon at 6 fl oz plus Induce at 32 fl oz/100 gal	All……	2.0 e	17.5 cde
Dolphinet SC at 28.9 fl oz plus Induce at 32 fl oz/100 gal	All……	51.5 bc	32.0 bcd
Dolphinet SC at 43.4 fl oz plus Induce at 32 fl oz/100 gal	All……	68.8 a	35.0 abc
Dolphinet SC at 57.8 fl oz plus Induce at 32 fl oz/100 gal	All……	48.5 c	27.5 bcd
Oso 5% SC at 6.5 fl oz plus Induce at 32 fl oz/100 gal	All……	68.3 a	43.0 ab
Oso 5% SC at 6.5 fl oz plus Induce at 32 fl oz/100 gal then	A		
Elevate 50 WDG at 1.5 lb plus Rovral 4F at 2 pt then	B		
Oso 5% SC at 6.5 fl oz plus Induce at 32 fl oz/100 gal alt	C, E, G		
Quintec SC at 7 oz.....	D, F…….	26.3 d	16.5 cde
Pristine 38 WDG at 14.5 fl oz then	A		
Elevate 50 WDG at 1.5 lb plus Rovral 4F at 2 pt then	B		
Pristine at 14.5 fl oz alternate	C, E, G		
Quintec SC at 7 oz.....	D, F……..	2.7 e	12.0 de
Luna Sensation at 5 fl oz plus Induce at 32 fl oz/100 gal ….	All……	0.8 e	2.5 e
Luna Sensation at 5 fl oz plus Induce at 32 fl oz/100 gal then	A		
Serenade Opti at 16 oz plus Induce at 32 fl oz/100 gal then	B, E		
Luna Sensation at 5 fl oz plus Induce at 32 fl oz/100 gal alt	C, F		
Quintec SC at 7 oz.....……	D, G…….	4.5 e	12.5 de

* Fungicide treatments were applied on A = 26 Mar (popcorn), B = 2 Apr (full bloom), C = 15 Apr (petal fall), D = 29 Apr (fruit set), E = 12 May, F = 26 May and G = 9 Jun (preharvest).

** Means followed by the same letter do not differ significantly based on Fisher's protected LSD (*P=0.05*).