

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

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### Comparison of fungicides for management of cherry diseases, 2014.

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 approximately every 7 or 14 days using a hydraulic handgun sprayer at 100 psi, such that 6 gal of a spray suspension were applied per 4 trees (163 gal water/A). Fungicide treatments were applied on 29 Mar (popcorn), 3 Apr (Full Bloom), 25 Apr (late shuck-split, fruit set), 9 May, 16 May, 23 May, 30 May, 6 Jun and 20 Jun (preharvest). A dormant oil spray of Omni supreme-oil (1.5 gal/100 gal water) was applied on 26 Feb. Success (8 fl oz/A) was applied on 20 May and 24 Jun for management of aphid and Cherry fruit fly. Insecticides were applied using a Rear's air blast speed sprayer. Makaze (2 qt/A) was applied 12 Mar, Alion (5 fl oz/A) plus Reckon (48 oz/A) were applied on 4 Apr and Reckon (82 fl oz/A) was applied on 14 May for management of weeds. Trees were fertilized on 4 Apr with approximately 25 lb/A of 46-0-0. Fungal infection periods were monitored using an Adcon weather station equipped with standard sensors. A total of 10 cherry leaf spot infection periods were detected from Apr through June: 3 high infection periods (25 and 27 Mar and 8 May), 3 medium infection periods (17 and 22 Apr, and 25 Jun) and 4 light infection periods (5 Apr, 3 and 18 May 26 Jun). Trees treated during bloom were evaluated for brown rot blossom blight and cherry leaf spot on fruit stems. Incidence of brown rot blossom blight was evaluated on 14 Apr by examining 500 blossoms arbitrarily selected from the lower portion of each tree. The incidence of cherry leaf spot on fruit stems was evaluated on 13 Jun by examining 100 fruit arbitrarily selected from the lower half of each tree. Incidence of cherry leaf spot was evaluated on 21 and 22 May by examining all leaves on each of 10 vigorous shoots from around each tree (average of 101 leaves per 10 shoots). Entire trees were rated for defoliation on 8 Sep using a 0-4 scale where 0 = no defoliation, 1 = 1 to 10% defoliation, 2 = 10 to 25% defoliation, 3 = 25 to 50% defoliation, 4 = > 50% defoliation. Incidence of powdery mildew was evaluated on 10 and 11 Jul by examining the last (distal) five (5) fully expanded leaves on each of 10 shoots from around each 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.

Spring growing conditions had normal precipitation but warmer temperatures overall which resulted in an above average number of cherry leaf spot infection periods. Symptoms of brown rot blossom blight were first observed on 7 Apr at petal fall. Cherry leaf spot was first observed on 14 Apr and confirmed on 21 Apr. Symptoms of powdery mildew were first observed and confirmed on 2 Jun. All bloom 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 the bloom fungicide treatments. All bloom treatments had significantly less cherry leaf spot on fruit stems when compared to nontreated trees (Table 1). Lowest amount of leaf spot on stems was observed on trees treated during bloom with Abound or Luna Sensation alone but it was not significantly different from leaf spot that developed on stems treated with Azaka or Elevate. All treatments had significantly less cherry leaf spot on leaves when compared to nontreated trees (Table 2). Cherry leaf spot on leaves was lowest among the trees treated with fungicide during bloom. Defoliation appeared to be primarily due to cherry leaf spot. All treatments had significantly less defoliation when compared to nontreated trees (Table 2). Lowest defoliation was observed on trees treated with Abound or the high rate of Azaka. Defoliation on most other fungicide treated trees was not significantly different from trees treated with Abound except for trees treated with the low rate of Sonata or Quintec. All treatments had significantly lower incidence of powdery mildew when compared to nontreated trees (Table 2). Lowest powdery mildew was observed on trees treated with Luna Sensation alternated with Quintec, however, it was not significantly different from powdery mildew on all other fungicide treated trees except those treated with the low rate of Azaka. No phytotoxicity or growth regulation activity was observed in trees treated with any of the various materials used.

Table 1. Flower and fruit diseases on nontreated cherry trees and trees treated with fungicide during bloom.

Treatment & Rate/A or /100 gal as indicated below	Time of Application*	Brown Rot Blossom Blight (%)**	Cherry Leaf Spot Fruit Stems (%)**
Nontreated.....	None.....	15.7 a	81.3 a
Abound at 12 fl oz.....	A, B, C, D, F, H, I...	0.2 b	3.0 c
Azaka at 12 fl oz.....	A, B, C, D, F, H, I...	0.1 b	10.5 c
Azaka at 15.5 fl oz.....	A, B, C, D, F, H, I...	0.1 b	4.0 c
Luna Sensation at 5 fl oz plus Induce at 32 fl oz/100 gal .....	A, B, C, D, F, H, I...	0.1 b	3.0 c
Luna Sensation at 5 fl oz plus Induce at 32 fl oz/100 gal alternate Sonata ASO at 2 qt plus Induce at 32 fl oz/100 gal.....	A, C, E, H  B, D, G, I.....	0.5 b	23.5 b
Luna Sensation at 5 fl oz Elevate 50 WDG at 1.5 lb Quintec at 7 fl oz Serenade Optimum at 16 oz all with Induce at 32 fl oz/100 gal..	A, C, F, I B D H A, B, C, D, F, H, I ...	0.1 b	9.0 c

\* Fungicide treatments were applied on A = 29 Mar (popcorn), B = 3 Apr (Full Bloom), C = 25 Apr (late shuck-split, fruit set), D = 9 May, E = 16 May, F = 23 May, G = 30 May, H = 6 Jun and I = 20 Jun (preharvest). In general any application of Sonata was followed in 7 days with another fungicide application. All other fungicide applications were followed in two weeks with another fungicide application.

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

Table 2. Cherry leaf diseases.

Treatment & Rate/A or /100 gal as indicated below	Time of Application*	Cherry Leaf Spot		Powdery Mildew (% leaves)**
		Leaves (%)**	Defoliation***	
Nontreated.....	None.....	66.3 a	2.8 a	52.0 a
Abound at 12 fl oz.....	A, B, C, D, F, H, I...	2.0 c	0.5 d	11.0 bc
Azaka at 12 fl oz.....	A, B, C, D, F, H, I...	1.5 c	0.8 cd	19.5 b
Azaka at 15.5 fl oz.....	A, B, C, D, F, H, I...	0.0 c	0.5 d	12.0 bc
Luna Sensation at 5 fl oz plus Induce at 32 fl oz/100 gal .....	A, B, C, D, F, H, I...	0.2 c	0.8 cd	3.0 c
Luna Sensation at 5 fl oz plus Induce at 32 fl oz/100 gal ALT Sonata ASO at 2 qt plus Induce at 32 fl oz/100 gal.....	A, C, E, H B, D, G, I.....	10.5 bc	1.3 bcd	6.0 bc
Luna Sensation at 5 fl oz Elevate 50 WDG at 1.5 lb Quintec at 7 fl oz Serenade Optimum at 16 oz all with Induce at 32 fl oz/100 gal...	A, C, F, I B D H A, B, C, D, F, H, I ...	2.5 c	0.8 cd	5.0 c
Luna Sensation at 5 fl oz plus Induce at 32 fl oz/100 gal .....	C, D, F, H, I .....	26.3 b	1.0 bcd	11.0 bc
Luna Sensation at 5 fl oz plus Induce at 32 fl oz/100 gal ALT Sonata ASO at 1 qt plus Induce at 32 fl oz/100 gal.....	C, E, H D, G, I.....	28.5 b	1.8 b	2.0 c
Luna Sensation at 5 fl oz plus Induce at 32 fl oz/100 gal alternate Sonata ASO at 2 qt plus Induce at 32 fl oz/100 gal.....	C, E, H D, G, I.....	11.5 bc	1.0 bcd	8.0 bc
Luna Sensation at 5 fl oz plus Induce at 32 fl oz/100 gal ALT Quintec at 7 fl oz plus Induce at 32 fl oz/100 gal .....	C, F, I D, H .....	26.5 b	1.5 bc	1.0 c
TopGuard SC at 14 fl oz alternate Luna Sensation at 5 fl oz plus Induce at 32 fl oz/100 gal .	C, F, I D, H .....	26.5 b	0.8 cd	1.5 c

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\*\*\* Entire trees were rated for defoliation where 0 = no defoliation, 1 = 1 to 10% defoliation, 2 = 10 to 25% defoliation, 3 = 25 to 50% defoliation, 4 = > 50% defoliation.