CHERRY (*Prunus avium* 'Bing')
Powdery Mildew; *Podosphaera clandestina*
Leaf Spot; *Blumeriella jaapii*
Shothole; *Wilsonomyces carpophilus*

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**Comparison of fungicides for management of cherry diseases, 2024.**

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 5 to 5.5 gal of a spray suspension were applied per 4 trees (109 to 120 gal water/A). Fungicide treatments were applied on 24 Apr (shuck split), 1 May, 10 May, 17 May, 23 May, 31 May, 6 Jun (color change well underway), 14 Jun, 19 Jun and 27 Jun. Omni Supreme Spray Oil (2.6 qt/A) was applied to the entire block on 9 Apr for Aphid management. Assail 70 WP (2.3 oz/A) was applied on 16 May to manage western cherry fruit fly and aphids. Insecticides were applied using a Rear's air blast speed sprayer. GlyStar Plus (5.7 pt/A) was applied on 18 Mar for management of weeds. Trees were pruned 6 to 7 Feb. Fertilizer was not applied this growing season. Fungal infection periods were monitored using a Meter Atmos 41 weather station equipped with standard sensors including one for leaf wetness. A total of 6 cherry leaf spot infection periods were detected from bud break through mid-Jun: 2 high infection periods (25 Apr and 2 Jun), 2 medium infection periods (22 Mar and 3 May) and 2 light infection periods (2 Apr and 2 Jun). Incidence and severity rating of powdery mildew on leaves was evaluated on 3 Jul by examining the last (distal) five (5) fully expanded leaves on each of 20 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. A powdery mildew leaf severity rating was assessed using a 0 to 5 scale where 0 = no powdery mildew, 1 = 1 to 10% infection, 2 = 10 to 20% infection, 3 = 20 to 30% infection, 4 = 40-50% infection, 5 = > 50% infection. Powdery mildew on fruit was not assessed. Incidence of cherry leaf spot was evaluated on 21 May by examining 100 fruit stems and all leaves on each of 15 vigorous shoots from around the tree (average of 217 leaves per 15 shoots ranging from 209 to 236 leaves). Defoliation was assessed on 17 Jul using a 0 to 5 scale where 0 = no defoliation, 1 = 1 to 10% defoliation, 2 = 10 to 20% defoliation, 3 = 20 to 30% defoliation, 4 = 40 to 50% defoliation, 5 = > 50% defoliation.

Rainfall during the dormant season 2023-24 was 4.1 inches above normal, spring weather conditions were close to long term norms while summer was accented by a few high heat events. Cherry leaf spot, shothole and powdery mildew were first observed on 13 May. Highest amount of powdery mildew was found on non-treated trees however, the amount found on trees treated with Dyne-Amic alone was not significantly different (Table 1). Lowest incidence of powdery mildew on leaves was on trees treated with Gatten. Lowest severity rating of powdery mildew on leaves was on trees treated with either Amara or Gatten. Only trees treated with Serenade had significantly lower incidence of shothole when compared with non-treated trees (Table 1). Highest amount of cherry leaf spot on stems or leaves was found on non-treated trees (Table 2). Lowest amount of cherry leaf spot on fruit stems was found on trees treated with Amara however, the amount found on trees treated with NAI-7510, Serenade or Gatten was not significantly different. Lowest amount of cherry leaf spot on leaves was found on trees treated with Amara or Serenade. Lowest defoliation rating was on trees treated with Amara however, the amount found on trees treated with NAI-7510 or Gatten was not significantly different. No phytotoxicity was specifically observed in trees treated with any of the materials used.

Table 1. Incidence and severity of powdery mildew on leaves and incidence of shothole on leaves.

| Treatment & Rate/A or /100 gal as indicated below | Time of Application [X] | Powdery Mildew | | Shothole (% leaves) [Y] |
|---|---|---|---|---|
| | | % leaves [Y] | Severity rating [Z] | |
| Non-treated…… | None…… | 94.5 a | 4.8 a | 30.6 ab |
| Amara at 2 qt plus Dyne-Amic at 32 fl oz/100 gal | All……. | 59.3 c | 1.8 d | 29.1 ab |
| NAI-7510 at 2 qt plus Dyne-Amic at 32 fl oz/100 gal | All…… | 80.5 b | 3.3 c | 28.5 abc |
| Serenade Opti at 20 oz plus Dyne-Amic at 32 fl oz/100 gal | All…… | 83.5 b | 3.5 bc | 24.9 c |
| Gatten at 8 fl oz plus Dyne-Amic at 32 fl oz/100 gal | All……. | 44.5 d | 1.8 d | 27.4 bc |
| Dyne-Amic at 32 fl oz/100 gal … | All..... | 94.0 a | 4.5 ab | 31.9 a |

[X] Treatments were applied on 24 Apr (shuck split), 1 May, 10 May, 17 May, 23 May, 31 May, 6 Jun (color change well underway), 14 Jun, 19 Jun and 27 Jun.

[Y] 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.

[Z] 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*).

Table 2. Incidence of cherry leaf spot on fruit stems and leaves and whole tree defoliation rating.

| Treatment & Rate/A or /100 gal as indicated below | Time of Application [X] | Cherry Leaf Spot | | Defoliation Rating [Z] |
|---|---|---|---|---|
| | | % fruit stems [Y] | % leaves [Y] | |
| Non-treated…….. | None…… | 75.0 a | 49.7 a | 4.8 a |
| Amara at 2 qt plus Dyne-Amic at 32 fl oz/100 gal … | All……. | 25.5 c | 27.0 c | 2.3 c |
| NAI-7510 at 2 qt plus Dyne-Amic at 32 fl oz/100 gal … | All…… | 33.5 c | 33.4 b | 2.8 bc |
| Serenade Opti at 20 oz plus Dyne-Amic at 32 fl oz/100 gal … | All…… | 30.0 c | 27.0 c | 3.5 b |
| Gatten at 8 fl oz plus Dyne-Amic at 32 fl oz/100 gal … | All……. | 28.0 c | 34.8 b | 2.8 bc |
| Dyne-Amic at 32 fl oz/100 gal …….. | All..... | 46.8 b | 32.8 b | 3.3 b |

[X] Treatments were applied on 24 Apr (shuck split), 1 May, 10 May, 17 May, 23 May, 31 May, 6 Jun (color change well underway), 14 Jun, 19 Jun and 27 Jun.

[Y] 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.

[Z] Defoliation was assessed on 17 Jul using a 0 to 5 scale where 0 = no defoliation, 1 = 1 to 10% defoliation, 2 = 10 to 20% defoliation, 3 = 20 to 30% defoliation, 4 = 40 to 50% defoliation, 5 = > 50% defoliation. 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*).