

APPLE (*Malus domestica* 'Braeburn')  
Scab; *Venturia inaequalis*  
Powdery Mildew; *Podosphaera leucotricha*

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### **Evaluation of fungicides for management of apple diseases on Braeburn, 2024**

Fungicide treatments were arranged in a randomized complete block design in an orchard of 'Braeburn' apples on ELMA-111 rootstock planted in 1995 on 20 x 20 ft spacing. Each treatment consisted of 5 single tree replicates. Fungicide treatments were applied using a hydraulic handgun sprayer at approximately 100 psi such that 4 to 5 gal of a spray suspension was applied per 5 trees (87 to 109 gal/A). Treatments were applied on 21 Mar (green tip to calyx), 29 Mar, 5 Apr (red bud), 11 Apr (king bloom), 18 Apr (full bloom), 24 Apr (petal fall), 2 May, 10 May (fruit set, traditional 1<sup>st</sup> cover), 23 May, 31 May, 7 Jun, 14 Jun, 19 Jun, and 28 Jun for a total of 14 applications. No fertilizer was spread within tree rows. Trees were pruned from 5 to 6 Feb. Omni Supreme Spray Oil (2.6 qt/A) was applied on 9 Apr for aphid management. Insecticide sprays were applied to the entire block using a Rear's air blast speed sprayer. GlyStar Plus (5.7 pt/A) was applied on 18 Mar for management of weeds. Apple scab infection periods were monitored using a Meter Atmos 41 weather station equipped with standard sensors including one for leaf wetness. Using a modified primary infection model (wet periods start with rain and end with 8 hr drying time), a total of 9 infection periods were detected from Apr through Jun: 3 high infection periods (25 Apr, 3 May, and 2 Jun), 4 moderate infection periods (22 Mar, 2 Apr, 1 May and 16 Jun) and 2 low infection periods (28 Mar and 6 Apr). The incidence of leaf scab and powdery mildew was determined on 10 Jul, by examining all leaves from 20 arbitrarily selected vegetative shoots (271 to 307 leaves with an average of 248) from each tree. The incidence of fruit scab and russet was determined on 7 Sep, by examining 100 fruit per tree. Analysis of fruit data excluded the non-treated trees which had very few fruit.

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. Scab was first observed on crabapple pollenizers on 25 Mar and then on non-treated trees on 8 Apr. Leaves with powdery mildew were first observed on 13 May. Fruit set was low due to a heavy crop load the preceding year resulting in too few fruit to analyze on non-treated trees. Highest amount of powdery mildew and scab on leaves was found on non-treated trees and was significantly higher than the powdery mildew or scab found on fungicide treated trees. Lowest incidence of powdery mildew on leaves and fruit russet was on trees treated with Gatten and was significantly lower than the powdery mildew or russet found on treated trees. The amount of powdery mildew on leaves on trees treated with NAI-7510 was significantly higher than on trees treated with Amara. The amount of fruit russet on trees treated with NAI-7510 was not significantly different than on trees treated with Amara. Lowest incidence of scab on leaves or fruit was on trees treated with Amara but it was not significantly different than the scab found on trees treated with NAI-7510 or Gatten. No phytotoxicity was specifically observed in trees treated with any of the materials used.

Treatment & rate/A or /100 gal as indicated below	Time of application <sup>X</sup>	Apple Scab <sup>Y</sup>		Powdery Mildew	Fruit Russet
		Leaves (%)	Fruit (%)	Leaves (%) <sup>Y</sup>	(%) <sup>Y</sup>
Non-treated .....	None .....	33.6 a	ND	62.9 a	ND
Amara at 2 qt plus					
Dithane F-45 at 2.5 qt plus					
Dyne-Amic at 32 fl oz/100 gal	All.....	6.6 c	29.6	26.7 d	31.8 bc
NAI-7510 at 2 qt plus					
Dithane F-45 at 2.5 qt plus					
Dyne-Amic at 32 fl oz/100 gal	All.....	7.5 bc	30.5	36.1 c	35.3 b
Serenade Opti at 20 oz plus					
Dithane F-45 at 2.5 qt plus					
Dyne-Amic at 32 fl oz/100 gal	All.....	9.8 b	31.0	29.3 d	27.4 c
Gatten at 8 fl oz plus					
Dithane F-45 at 2.5 qt plus					
Dyne-Amic at 32 fl oz/100 gal	All.....	7.6 bc	33.2	21.5 e	15.4 d
Dithane F-45 at 2.5 qt plus					
Dyne-Amic at 32 fl oz/100 gal	All.....	9.8 b	32.8	44.6 b	63.6 a

<sup>X</sup> Treatments were applied on 21 Mar (green tip to calyx), 29 Mar, 5 Apr (red bud), 11 Apr (king bloom), 18 Apr (full bloom), 24 Apr (petal fall), 2 May, 10 May (fruit set, traditional 1<sup>st</sup> cover), 23 May, 31 May, 7 Jun, 14 Jun, 19 Jun, and 28 Jun for a total of 14 applications.

<sup>Y</sup> 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.