

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, 2015

Fungicide treatments were arranged in a randomized complete block design in a block of 'Braeburn' apples on ELMA-111 rootstock planted in 1995 on 20 x 20 ft spacing. Each treatment consisted of 4 single tree replicates. Fungicide treatments were applied using a hydraulic handgun sprayer at approximately 100 psi such that 5 gal of a spray suspension was applied per 4 trees (136 gal/A). Treatments were applied on 17 Mar (half inch green to tight cluster), 30 Mar (pink), 8 Apr (full bloom), 22 Apr (petal fall), 6 May (1st cover), 20 May (2nd cover) and 3 Jun (3rd cover). No fertilizer was spread within tree rows. Trees were pruned on 14 to 27 Jan. A dormant oil spray of Omni supreme-oil (1.5 gal/A) was applied on 17 Feb for aphid control. Assana XL (5 oz/A) was applied 21 May and Success (7.5 fl oz/A) was applied on 16 Jun for aphid and codling moth management. Insecticide sprays were applied to the entire block using a Rear's air blast speed sprayer. Alion (4 fl oz/A) plus Reckon 280 SL (3 pt/A) were applied on 11 Feb, Reckon 280 (90 fl oz/A) was applied on 9 Apr and Forefit 280 (2 qt/A) was applied on 16 Jun for weed control. Apple scab infection periods were monitored using an Adcon weather station equipped with standard sensors. 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 mid Mar through Jun: 2 high infection periods (13 and 22 Mar); 3 moderate infection periods (31 Mar, 11 and 31 May); and 4 low infection periods (20 Mar, 6, 8 and 13 Apr). The incidence of leaf scab and powdery mildew was determined on 10 Jul, by examining all leaves from 20 arbitrarily selected vegetative shoots (251 to 395 leaves with an average of 348) from each tree. Incidence of scab on fruit and fruit russet was determined on 10 to 11 Aug by examining 100 fruit arbitrarily selected from each tree.

Spring growing conditions were considered warm and dryer than normal resulting in only moderate disease pressure. Scab was first observed on crabapple pollenizers on 6 Apr and then on nontreated trees on 13 Apr. Shoots covered with powdery mildew due to infection the previous year were also observed on 13 Apr. All trees treated with fungicide had significantly less apple scab on leaves or fruit than nontreated trees. The lowest amount of leaf scab was found on trees treated with Merivon or Luna Sensation alone, however, leaf scab on trees treated with most other programs were not significantly different except those treated with Serenade. There was no significant difference among fungicide treatments with regard to fruit scab. All trees treated with fungicide had significantly less powdery mildew on leaves than nontreated trees. The lowest amount of powdery mildew was found on trees treated with Merivon or Luna Sensation alternated with Procure plus Koverall, however, powdery mildew on trees treated with most other programs were not significantly different except those treated with Serenade. There was no significant difference among any treatments with regard to fruit russet. There was no significant difference in disease among trees treated with any of the three rates of Aprovia. No phytotoxicity was observed in trees treated with any of the various materials used.

Treatment & Rate/A or /100 gal as indicated below	Time of Application*	Apple Scab**		Powdery Mildew	Fruit Russet
		Leaves (%)	Fruit (%)	Leaves (%)**	(%)**
Nontreated	None.....	67.0 a	76.8 a	16.5 a	16.8
Procure 480 SC at 12 fl oz plus Koverall 75 DF 3 lb alternate with Merivon SC at 5.5 fl oz.....	A, C, E, G B, D, F.....	6.2 c	0.3 b	1.0 c	12.5
Procure 480 SC at 12 fl oz plus Koverall 75 DF 3 lb alternate with Aprovia EC SC at 4.1 fl oz plus Koverall 75 DF 3 lb.....	A, C, E, G B, D, F.....	10.8 bc	0.3 b	1.4 c	8.0
Procure 480 SC at 12 fl oz plus Koverall 75 DF 3 lb alternate with Aprovia EC SC at 5.5 fl oz plus Koverall 75 DF 3 lb.....	A, C, E, G B, D, F.....	11.0 bc	0.5 b	1.6 c	10.8
Procure 480 SC at 12 fl oz plus Koverall 75 DF 3 lb alternate with Aprovia EC SC at 6.84 fl oz plus Koverall 75 DF 3 lb.....	A, C, E, G B, D, F.....	7.9 c	1.5 b	1.5 c	8.3
Luna Sensation at 5 fl oz plus Induce at 32 fl oz/100 gal	All.....	6.2 c	1.3 b	1.3 c	7.3
Luna Sensation at 5 fl oz plus Induce at 32 fl oz/100 gal ... alternate with Procure 480 SC at 12 fl oz plus Koverall 75 DF 48 oz	A, C, E, G B, D, F.....	8.3 c	0.3 b	1.0 c	10.8
Luna Sensation at 5 fl oz plus Induce at 32 fl oz/100 gal then Procure 480 SC at 12 fl oz plus Koverall 75 DF 48 oz alternate with Serenade Opti at 16 oz plus Phostrol at 5 oz.....	A B, D, F C, E, G.....	22.4 b	0.8 b	7.5 b	8.5

* Treatments were applied on A = 17 Mar (half inch green to tight cluster), B = 30 Mar (pink), C = 8 Apr (full bloom), D = 22 Apr (petal fall), E = 6 May(1stcover), F = 20 May (2ndcover) and G = 3 Jun (3rd cover).

**Means followed by the same letter do not differ significantly based on Fisher's protected LSD ($P=0.05$). Means without letters do not differ significantly.