

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

J. W. Pscheidt and J. P. Bassinette
Dept. of Botany and Plant Pathology
Oregon State University
Corvallis, OR 97331-2903

Evaluation of combination fungicides for management of apple diseases on Braeburn, 2012

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 110 psi such that 5 gal of a spray suspension was applied per 4 trees (135 gal/A). Treatments were applied on 10 Apr (tight cluster), 24 Apr (full bloom), 9 May (petal fall), 20 May (quarter inch fruit), 31 May (1st cover), 13 Jun (2nd cover) and 27 Jun (3rd cover). No fertilizer was spread within tree rows. Trees were pruned on 12 to 20 Jan. Omni supreme-oil (2 gal/A) was applied on 15 Feb for aphid control. Pravado 1.6 (8 fl oz/A) was applied on 17 May for aphids and Success (8 fl oz/A) was applied on 15 Jun for codling moth management. Insecticide sprays were applied to the entire block using a Rear's air blast speed sprayer. Diuron (1 qt/A) plus generic glyphosate (1 qt formulated product/A) was applied on 7 Mar and Aim (2 fl oz/A) plus Rely (64 fl oz/A) was applied on 17 May in the tree row for weed control. Apple scab infection periods were monitored using an Adcon A730 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 14 infection periods were detected from late Mar through early Jun: 3 high infection periods (29 Mar, 10 Apr and 21 May); 2 moderate infection periods (28 Mar and 19 Apr) and 9 low infection periods (27 and 31 Mar, 3, 15, 17, and 29 Apr, 2, and 24 May and 8 Jun). However, the first 5 infection periods were during an extended green tip growth stage. The incidence of leaf scab and powdery mildew was determined on 18 and 19 Jul, by examining all leaves from 20 arbitrarily selected vegetative shoots (129 to 337 leaves with an average of 284) from each tree. Incidence of scab on fruit and fruit russet was determined on 16 Aug by examining 100 fruit arbitrarily selected from each tree. Nontreated trees had little to no fruit and were not included in the fruit analysis.

Spring weather conditions in Western Oregon were considered normal to wet. Scab was first observed on crabapple pollenizers on 9 Apr and then on nontreated trees on 16 Apr. Shoots covered with powdery mildew due to infection the previous year were also observed on 16 Apr. Scab severity was so high that nontreated trees had little to no fruit and no leaf area available for powdery mildew infection. All trees treated with fungicide had significantly less apple scab on leaves than nontreated trees. The lowest amount of leaf scab was found on trees treated with Luna Tranquility, however, scab on trees treated with Luna Sensation were not significantly different. Lowest amount of fruit scab was found on trees treated with Luna Sensation alone, however, the amount of fruit scab found on trees treated with Luna Tranquility was not significantly different. There was no significant difference among treatments with regard to powdery mildew on leaves or fruit russetting. No phytotoxicity was observed in trees treated with any of the various materials used.

Treatment & Rate/A	Time of Application*	Apple Scab**		Powdery Mildew Leaves (%)**	Fruit Russet (%)**
		Leaves (%)	Fruit (%)		
Nontreated	None	100 a	---	---	---
Pristine 38 WDG at 16.5 oz plus Koverall 75 DF at 48 oz plus Syl-Tac at 8 fl oz/100 gal water alternate with TopGuard SC at 13 fl oz plus Koverall 75 DF at 48 oz	A, C, E, G B, D, F.....	28.6 bc	39.0 a	3.7	16.0
Pristine 38 WDG at 16.5 oz plus Koverall 75 DF at 48 oz plus Syl-Tac at 8 fl oz/100 gal water alternate with Procure 480 SC at 12 fl oz plus Koverall 75 DF at 48 oz plus Syl-Tac at 8 fl oz/100 gal water	A, C, E, G B, D, F.....	34.1 b	44.3 a	4.8	11.5
Luna Sensation 500 SC at 5 fl oz alternate with Procure 480 SC at 12 fl oz plus Koverall 75 DF at 48 oz plus Syl-Tac at 8 fl oz/100 gal water	A, C, E, G B, D, F.....	24.2 cd	38.0 ab	4.4	16.0
Luna Sensation 500 SC at 5 fl oz	All.....	25.1 cd	21.5 c	3.0	10.5
Luna Tranquility 500 SC at 16 fl oz	All.....	19.5 d	29.8 bc	4.4	14.0

* Treatments were applied on A = 10 Apr (tight cluster), B = 24 Apr (full bloom), C = 9 May (petal fall), D = 20 May (quarter inch fruit), E = 31 May (1st cover), F = 13 Jun (2nd cover) and G = 27 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.