

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

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### **Evaluation of fungicides for management of apple scab and powdery mildew on Rome apples, 2011**

Fungicide treatments were arranged in a randomized complete block design in a block of 'Rome' apples on M-7 rootstock planted in 1979 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 were applied per 4 trees (136 gal/A). Treatments were applied on 3 May (all tight cluster, some pink), 13 May (all pink, early king bloom), 24 May (10% petal fall), 8 Jun (1<sup>st</sup> cover), 21 Jun (2<sup>nd</sup> cover), and 6 Jul (3<sup>rd</sup> cover) for a total of 6 applications. No fertilizer was spread within tree rows. A dormant oil spray of Omni supreme-oil (5 gal/A) was applied on 10 Feb for aphid control. Asana XL (5 oz/A) was applied on 7 Jul for aphid and codling moth management. Insecticide sprays were applied to the entire block using a Rear's air blast speed sprayer. Goal 2xL (32 fl oz/A) plus Glystar (24 fl oz/A) was applied on 8 Apr, then Rely (5 pt/A) plus Glystar (24 fl oz/A) was applied on 5 Jun, then Rely (5 pt/A) plus Glystar (32 fl oz/A) was applied on 20 Jul 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 6 infection periods were detected from early Apr through Jun: 2 high infection periods (13 Apr and 26 May); 1 moderate infection period (30 May) and 3 low infection periods (5 Apr, 8 and 25 May). Note that the 2 infection periods in Apr occurred prior to green tip. The incidence of leaf scab and powdery mildew was determined on 8 to 9 Aug, by examining all leaves from 20 arbitrarily selected vegetative shoots (148 to 298 leaves for an average of 222) from each tree. Incidence of scab on fruit and fruit russet was determined on 9 Aug by examining 100 fruit arbitrarily selected from each tree.

Although this was the 5<sup>th</sup> wettest spring on record it also was the 10<sup>th</sup> coldest. Numerous short cold wet periods did not always translate into disease infection periods. Early shoot growth and plant development was 2 to 3 weeks behind normal for most all of Oregon. Shoots covered with powdery mildew due to infection the previous year were observed on 9 May. Scab was first observed on nontreated crabapple trees in a nearby block on 11 Apr. All fungicide treatments had significantly less scab on leaves when compared to nontreated trees. Lowest scab on leaves was recorded on trees treated with Merivon plus Sylgard, however, scab on leaves from most all other treatments were not significantly different except on trees treated with Vivando or the low rate of Fontelis or DPX-YT669. Highest amount of fruit scab was found on nontreated trees but fruit from Vivando treated trees was not significantly different. Lowest scab on fruit was recorded on trees treated with Merivon, however, fruit scab on trees treated with the high rate of Fontelis or Fontelis plus Superior Oil was not significantly different. All fungicide treatments had significantly less powdery mildew on leaves when compared to nontreated trees. Lowest powdery mildew on leaves was recorded on trees treated with Merivon, however, powdery mildew on leaves from most all other treatments were not significantly different except on trees treated with the low rate of Fontelis plus Regulaid or the low rate of DPX-YT669 or the high rate with Regulaid. There was no significant difference among fungicide treatments with regard to fruit russet. In general, Merivon improved fruit scab control over Flint, Vivando does not control apple scab and Superior Oil may be a better surfactant for Fontelis than Regulaid. 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	78.1 a	86.8 a	52.3 a	6.3
Flint 50 WG at 2.5 oz plus Sylgard 309 at 42.6 fl oz/100 gal alternate with Procure 480 SC at 12 fl oz plus Manzate Pro-Stik 75 DG at 3 lb plus Syl-Tac at 8 fl oz/100 gal water .....	A, C, E B, D, F.....	14.0 e	21.3 bcd	3.9 d	4.3
Merivon 500 SC at 4 fl oz plus Sylgard 309 at 42.6 fl oz/100 gal alternate with Procure 480 SC at 12 fl oz plus Manzate Pro-Stik 75 DG at 3 lb plus Syl-Tac at 8 fl oz/100 gal water .....	A, C, E B, D, F.....	10.9 e	6.3 f	1.6 d	5.8
Flint 50 WG at 2.5 oz plus Sylgard 309 at 42.6 fl oz/100 gal.....	All.....	10.4 e	18.3 bcde	7.2 cd	9.0
Merivon 500 SC at 4 fl oz plus Sylgard 309 at 42.6 fl oz/100 gal.....	All.....	7.0 e	1.8 f	1.9 d	3.3
Merivon 500 SC at 5.5 fl oz plus Sylgard 309 at 42.6 fl oz/100 gal.....	All.....	9.4 e	1.5 f	1.6 d	6.5
Vivando 300 SC at 15.4 fl oz plus Sylgard 309 at 42.6 fl oz/100 gal.....	All.....	67.7 b	77.3 a	5.8 cd	5.5
Fontelis at 16 fl oz plus Regulaid at 1 qt/100 gal .....	All.....	24.3 c	24.0 bc	17.9 b	8.8
Fontelis at 16 fl oz plus Superior Oil at 2 qt/100 gal .....	All.....	13.8 e	10.5 def	7.4 cd	4.8
Fontelis at 20 fl oz plus Regulaid at 1 qt/100 gal .....	All.....	14.5 de	9.5 ef	6.4 cd	9.3
DPX - YT669 at 6 fl oz .....	All.....	23.7 cd	29.0 b	11.0 c	6.5
DPX - YT669 at 12 fl oz.....	All.....	15.7 cde	19.5 bcde	5.4 cd	7.3
DPX - YT669 at 12 fl oz plus Regulaid at 1 qt/100 gal .....	All.....	10.4 e	18.0 cde	10.8 c	8.3

\* Treatments were applied on A = 3 May (tight cluster), B = 13 May (pink, early king bloom), C = 24 May (10% petal fall), D = 8 Jun (1<sup>st</sup> cover), E = 21 Jun (2<sup>nd</sup> cover), and F = 6 Jul (3<sup>rd</sup> 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.