

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

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#### **Fungicides for control of apple scab and powdery mildew, 2004.**

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 6 single tree replicates. Fungicide treatments were applied using a hydraulic handgun sprayer at 150 psi at a rate of 109 to 163 gal water/A. Approximately 8 to 12 gal of a spray suspension were applied per 6 trees depending on the time of year. Treatments were applied on 24 Mar (tight cluster), 8 Apr (king bloom), 22 Apr (full bloom), 6 May (1<sup>st</sup> cover), 20 May (2<sup>nd</sup> cover), and 3 Jun (3<sup>rd</sup> cover). No fertilizer was spread within tree rows. Tree pruning began on 23 Jan and was finished on 2 Mar. Insecticides were applied to the entire block using a Rear's air blast speed sprayer on 25 May (Success at 8 fl oz/A), 25 Jun (Assail 70 WDG at 2.7 oz/A), and 9 Aug (Assail 70 WDG at 2.7 oz/A) for codling moth management. Fall weeds, in the tree row, were treated with Glystar (3 qt/A) plus Goal 2XL (3 qt/A) on 23 Oct 03. In the spring, weeds in the tree row were treated with Oryzalin 4AS (4 qt/A) on 15 Apr. 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 9 infection periods were detected from bud break in late Mar through Jun: 2 high infection periods, (25 Mar and 18 Apr); 1 moderate infection period (13 Apr) and 6 low infection periods (6, 7, 17, 27, and 28 May and 8 Jun). The incidence of leaf scab and powdery mildew was determined on 27-29 Jul and 4-5 Aug, respectively, by examining all leaves from 20 vegetative shoots (247-467 leaves) randomly selected from each tree. Incidence of fruit scab and russet was evaluated on 7 Jul and 4-6 Oct, respectively, by picking and examining up to 100 fruit/tree. The fruit set on nontreated trees ranged from 17 to 99 pieces while treated trees generally had 400 or more pieces. Evaluation for fruit russet on nontreated trees was impractical due to high scab severity.

Although growers considered this to be a wetter than normal spring, monthly rainfall was either near to below normal and the number of scab infection periods was average for Western Oregon. All fungicide treated trees had significantly less apple scab on leaves or fruit than nontreated trees. Trees treated with Rally had an uncharacteristically high amount of scab. This level was so high that fungal resistance to this chemical is highly suspected. Trees treated with Scala had significantly more fruit scab than trees treated with Pristine or Flint alone. Disease pressure from powdery mildew was low this year. All fungicide treated trees had significantly less powdery mildew than nontreated trees except those treated with Scala. Trees treated with Scala alone had significantly more leaves with powdery mildew than nontreated trees. The addition of Sylgard 309 with Pristine resulted in significantly fewer leaves with powdery mildew when compared to trees treated with only Pristine. Fruit russetting was not considered a problem this year. A minor but significant amount of russetting at the stem end of the apple was detected on trees treated with Superior Spray Oil. No major phytotoxicity was observed on any trees treated with fungicide.

Treatment & Rate/A	Time of Application*	Apple Scab**		Powdery Mildew Leaves (%)**	Fruit Russet (%)**
		Leaves (%)	Fruit (%)		
Nontreated .....	none .....	91.9 a	99.8 a	5.8 b	***
Rally 40W at 5 oz.....	All.....	44.8 b	93.2 b	0.9 de	0.7 b
Pristine 38 WG at 0.92 lb.....	All.....	7.5 c	5.5 d	2.9 cd	2.2 ab
Pristine 38 WG at 0.92 lb +					
Superior Spray Oil at 1% v/v..	All.....	2.6 c	2.3 d	1.1 de	3.7 a
Pristine 38 WG at 0.92 lb +					
Latron B-1956 at 12-15 fl oz...	All.....	5.7 c	2.5 d	2.2 de	0.7 b
Pristine 38 WG at 0.92 lb +					
Sylgard 309 at 16-20 fl oz.....	All.....	2.2 c	1.0 d	0.5 e	1.8 b
Flint 50 WG at 2 oz.....	All.....	2.7 c	4.7 d	1.5 de	1.8 b
Scala 60 SC at 10 fl oz.....	All.....	4.8 c	24.5 c	10.4 a	1.2 b
Scala 60 SC at 7 fl oz then					
Flint 50 WG at 2 oz wt.....	A, B, E, & F C, D.....	8.0 c	30.2 c	4.2 bc	1.8 b

\* Treatments were applied on A = 24 Mar (tight cluster), B= 8 Apr (king bloom), C = 22 Apr (full bloom), D = 6 May (1<sup>st</sup> cover), E = 20 May (2<sup>nd</sup> cover), and F = 3 Jun (3<sup>rd</sup> cover).

\*\* Means followed by the same letter do not differ significantly based on Fisher's protected LSD (P=0.05).

\*\*\* Not enough fruit to make measurement.