

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

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Evaluation of a growth regulator for control of apple diseases, 2007

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 4 to 6 gal of a spray suspension were applied per 4 trees (108 to 135 gal/A) depending on the time of year. Treatments were applied on 30 Mar (pre-pink), 26 Apr (late bloom/petal fall), and 25 May (cover, 2 inch fruit). No fertilizer was spread within tree rows. Trees were pruned from 16 to 17 Jan. Insecticide sprays were applied to the entire block using a Rear's air blast speed sprayer. Omni dormant oil spray (4 gal/A) was applied on 4 Mar for aphid control. Assail 70 WDG (5 oz/A) was applied on 25 May and 10 Jul and Success (8 oz/A) was applied on 8 Jun for codling moth management. Weeds, in the tree row, were treated with Buccaneer (16 oz/A) plus Goaltender (8 oz/A) on 13 Mar and with Buccaneer (16 oz/A) plus Rely (16 oz/A) on 8 May. The entire block of trees was irrigated using low angle sprinkler heads for 8 hours in late Aug. 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 10 infection periods were detected from bud break in late Mar through Jun: 3 high infection periods (8, 11 and 21 Apr); 2 moderate infection periods (16 Apr and 3 May) and 5 low infection periods (7 Apr, 1, 18 and 20 May and 9 Jun). Terminal shoot length was determined on 3 Jul by measuring the length of 20 arbitrarily selected vegetative shoots from each tree. The incidence of leaf scab and powdery mildew was determined on 2 Aug, by examining all leaves from 20 arbitrarily selected vegetative shoots (242 to 404 leaves) from each tree. Incidence of scab on fruit and fruit russet was not evaluated due to poor fruit set throughout the block.

Spring weather conditions in Western Oregon were considered average with plenty of wet periods at moderate temperatures resulting in several infection periods for various diseases. First scab lesions were observed on 9 Apr on crabapple pollenizers within this block. All fungicide treated trees had significantly less apple scab than nontreated trees except trees treated twice with CVG-349. All fungicide treated trees had significantly less powdery mildew than nontreated trees. The amount of disease on trees treated once with CVG-349 was not significantly different than the amount on trees treated twice with Banner Maxx plus OHP 6672. Trees treated with CVG-349 had significantly shorter (and fatter) shoots than on nontreated trees. This difference was observed by 4 Jun. Based on research from other areas of the country this same set of trees should be observed over the next three years to see if the fungicidal effects are retained in future years.

| Treatment & Rate/100 gal | Time of Application* | Apple Scab Leaves (%)** | Powdery Mildew Leaves (%)** | Ave. Shoot Length (in)** |
|-------------------------------|----------------------|-------------------------|-----------------------------|--------------------------|
| Nontreated | None | 52.3 a | 11.5 a | 21.3 a |
| CVG-349 at 80 oz plus | | | | |
| Quest at 32 oz plus | | | | |
| Nufilm at 16 oz | A..... | 23.0 b | 7.5 b | 15.1 b |
| CVG-349 at 80 oz plus | | | | |
| Quest at 32 oz plus | | | | |
| Nufilm at 16 oz | A, C..... | 54.5 a | 4.5 cd | 8.6 c |
| Banner Maxx at 4 oz plus | | | | |
| OHP 6672 4.5 L at 20 oz | A, B..... | 17.3 bc | 5.8 bc | 20.8 a |
| Banner Maxx at 4 oz plus | | | | |
| OHP 6672 4.5 L at 20 oz | A, B, C..... | 11.3 d | 2.9 d | 18.2 ab |

* Treatments were applied on A = 30 Mar (pre-pink), B= 26 Apr (full bloom) and/or C = 25 May (cover, 2 inch fruit).

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