

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

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### Evaluation of TopGuard for control of apple scab and powdery mildew on Braeburn apples, 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 7 gal of a spray suspension were applied per 4 trees (108 to 189 gal/A) depending on the time of year. Treatments were applied on 30 Mar (green-tip), 11 Apr (pink), 20 Apr (full bloom), 30 Apr (petal fall), 11 May (1<sup>st</sup> cover), 22 May (2<sup>nd</sup> cover), 1 Jun (3<sup>rd</sup> cover) and 11 Jun (4<sup>th</sup> cover). No fertilizer was spread within tree rows. Trees were pruned on 17 to 19 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). The incidence of leaf scab and powdery mildew was determined on 1 Aug, by examining all leaves from 20 arbitrarily selected vegetative shoots (320 to 405 leaves) from each tree. Incidence of scab on fruit and fruit russet was not evaluated due to variable 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 and powdery mildew than nontreated trees. Lowest amount of leaf scab was found on trees treated with Flint tank mixed with Captan, however, trees treated with TopGuard tank mixed with Captan or the high rate of TopGuard were not significantly different. There was no significant difference in disease control among the various TopGuard treated trees. Phytotoxicity was observed on trees treated with the high rate of TopGuard. Necrotic leaf spotting, bronzing, yellowing and marginal leaf burn was observed on about 5 to 10% of the oldest leaves. Younger leaves were free of these symptoms.

Treatment & Rate/A	Time of Application*	Apple Scab Leaves (%)**	Powdery Mildew Leaves (%)**
Nontreated .....	None .....	61.8 a	22.1 a
Flint 50 WDG at 2.5 oz plus			
Captan 50 WP at 4 lb then	A, B, C, D, E		
Captan 50 WP at 4 lb .....	F, G, H.....	5.5 c	8.3 b
TopGuard 125 SC at 13 fl oz then			
Captan 50 WP at 4 lb .....	F, G, H.....	19.0 b	5.8 b
TopGuard 125 SC at 13 fl oz plus			
Captan 50 WP at 4 lb then	A, B, C, D, E		
Captan 50 WP at 4 lb.....	F, G, H.....	9.5 bc	5.0 b
TopGuard 125 SC at 26 fl oz then			
Captan 50 WP at 4 lb .....	F, G, H.....	12.5 bc	5.5 b

\* Treatments were applied on A = 30 Mar (green-tip), B= 11 Apr (pink), C = 20 Apr (full bloom), D = 30 Apr (petal fall), E = 11 May (1<sup>st</sup> cover), F = 22 May (2<sup>nd</sup> cover), G = Jun (3<sup>rd</sup> cover) and H = 5 Jun (4<sup>th</sup> cover).

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