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

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

Evaluation of fungicides for control of apple scab and powdery mildew on Braeburn apples, 2008

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 to 6 gal of a spray suspension were applied per 4 trees (135 to 162 gal/A) depending on the time of year. Treatments were applied on 13 Apr (green-tip), 24 to 25 Apr (pink), 8 May (full bloom), 23 May (petal fall), 4 Jun (1stcover) and 19 Jun (2ndcover). Due to a rain shower soon after the 24 Apr application, all treatments were re-applied the next day on 25 Apr. No fertilizer was spread within tree rows. Trees were pruned on 29 Jan to 6 Feb. Insecticide sprays were applied to the entire block using a Rear's air blast speed sprayer. A dormant oil spray of Omni supreme-oil (5 gal/A) was applied on 26 Feb for aphid control. Assail 70 WDG (3.4 oz/A) was applied on 25 Jun for coddling moth management. Weeds, in the tree row, were treated with Goaltender (2 qt/A) plus Round-up Ultra max (2 qt/A) on 29 Feb and Round-up Ultra Max (4 qt/A) plus Rely (5 qt/A) on 12 Jun. 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 6 infection periods were detected from early Apr through Jun: 2 high infection periods (7 and 19 Apr); 1 moderate infection period (29 Apr) and 3 low infection periods (5 and 23 Apr, and 2 Jun). The incidence of leaf scab and powdery mildew was determined on 24 Jul, by examining all leaves from 20 arbitrarily selected vegetative shoots (254 to 364 leaves) from each tree. Incidence of scab on fruit and fruit russet was determined on 7 Aug by examining 100 fruit arbitrarily selected from each tree.

Spring weather conditions in Western Oregon were considered cool resulting in slow crop development and a 2 week delay in major growth stages through the growing season. First scab lesions were observed on 28 Apr. All trees treated with fungicide had significantly less apple scab or powdery mildew than nontreated trees. The lowest amount of leaf scab was found on trees treated with Flint plus Manzate, however, scab on trees treated with TopGuard plus Manzate were not significantly different. Lowest amount of fruit scab was found on trees treated with TopGuard (13 fl oz) plus Manzate, however, scab on trees treated with Flint plus Manzate or TopGuard (7 fl oz) plus Manzate were not significantly different. All trees treated with TopGuard regardless of rate or tank mix had the lowest powdery mildew levels. Little if any fruit russeting was observed on trees treated with TopGurad or Flint. Although trees treated with QL Agri plus Yucca Ag-Aide had significantly lower scab and powdery mildew levels when compared with nontreated trees, the level of control was not commercially acceptable. Phytotoxicity was observed on trees treated with the high rate of TopGuard beginning on 12 May. Necrotic leaf spotting, bronzing, yellowing and marginal leaf burn was observed on about 5 to 10% of the oldest leaves.

Treatment & Rate/A	Apple Scab*		Powdery Mildew	Fruit Russet
	Leaves (%)	Fruit (%)	Leaves (%)*	(%)*
Nontreated ……..	54.0 a	92.0 a	47.8 a	4.5 a
Flint 50 WDG at 2.5 oz plus Manzate Pro-Stik at 3 lb	5.3 e	7.3 ef	12.8 c	0.0 b
TopGuard 125 SC at 3.5 fl oz	29.3 c	73.5 b	2.5 d	0.3 b
TopGuard 125 SC at 7 fl oz	28.3 c	52.0 c	3.1 d	0.5 b
TopGuard 125 SC at 13 fl oz	26.0 c	38.8 d	5.4 cd	0.3 b
TopGuard 125 SC at 26 fl oz	17.3 d	14.0 e	4.4 d	0.3 b
TopGuard 125 SC at 3.5 fl oz plus Manzate Pro-Stik at 3 lb	9.3 de	14.5 e	3.0 d	0.0 b
TopGuard 125 SC at 7 fl oz plus Manzate Pro-Stik at 3 lb	11.3 de	8.0 ef	4.8 cd	0.5 b
TopGuard 125 SC at 13 fl oz plus Manzate Pro-Stik at 3 lb	11.5 de	4.3 f	6.0 cd	0.3 b
QL Agri at 2.8 pt plus Yucca Ag-Aide at 1.2 pt	41.3 b	72.0 b	38.3 b	5.5 a

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