

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

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Fungicides for control of apple scab and powdery mildew, 2006.

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 3 to 8 gal of a spray suspension were applied per 4 trees (108 – 217 gal/A) depending on the time of year. Treatments were applied on 31 Mar (green-tip), 11 Apr (pink), 28 Apr (full bloom), 10 May (petal fall), 25 May (1st cover), and 7 Jun (2nd cover). No fertilizer was spread within tree rows. Tree pruning occurred between 13 and 20 Jan. Insecticides, bacteriacides, and fruit thinning sprays were applied to the entire block using a Rear's air blast speed sprayer. A dormant oil spray (4 gal/A) was applied on 16 Feb for aphid control and Assail 70 WDG (5 oz/A) was applied on 7 Jun for codling moth management. Agri-mycin 17 (28.8 oz/A) was applied on 28 Apr for fire Blight prevention/control. Fruitone was applied on 17 May (5 PPM) as a fruit thinning agent. Weeds, in the tree row, were treated with Round-up UltraMax (32 oz/A) on 3 Mar, Rely (4qt/A) on 26 Apr and Buccaneer (16 oz/A) plus Rely (4qt/A) on 9 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: 2 high infection periods (7 and 22 May); 4 moderate infection periods (2 Apr, 21, 27 and 31 May) and 4 low infection periods (28 Mar, 15 Apr, and 1 and 3 Jun). The incidence of leaf scab and powdery mildew was determined on 1 to 3 Aug, by examining all leaves from 20 arbitrarily selected vegetative shoots (214 to 338 leaves) from each tree. Incidence of scab on fruit and fruit russet was evaluated on 27 to 28 Jul by picking and examining 100 fruit arbitrarily selected from each tree.

Spring weather conditions in Western Oregon were considered cold and wet. First scab lesions were observed on 7 Apr on crabapple pollenizers and 10 Apr on some nontreated Braeburn trees. All fungicide treated trees had significantly less apple scab on leaves than nontreated trees. Lowest amount of leaf scab was found on trees treated with the middle rate of DPX-LEM, however, all trees treated with DPX-LEM were not significantly different. Lowest amount of scab on fruit was found on trees treated with DPX-LEM plus Manzate but trees treated with Procure plus Manzate, Pristine plus Break Thru, or the middle rate of DPX-LEM were not significantly different. Trees treated with progressively higher rates of V-10116 generally had progressively better scab control. All fungicide treated trees had significantly less powdery mildew on leaves than nontreated trees. There were few differences among fungicide treatments with respect to powdery mildew. There was no significant difference among various treatments with respect to fruit russetting. No phytotoxicity was observed on any trees treated with fungicide.

Treatment & Rate/A	Time of Application *	Apple Scab**		Powdery Mildew	Fruit Russet
		Leaves (%)	Fruit (%)	Leaves (%)**	(%)**
Nontreated	None.....	67.8 a	97.8 a	8.1 a	0.0
Rally 40W at 5 oz +					
Manzate Pro-Stick 75DG at 3lb.	All.....	51.3 b	69.8 bc	1.1 c	0.5
Procure 480 SC at 12 fl oz +					
Manzate Pro-Stick 75DG at 3lb.	All.....	36.3 cde	17.3 gh	0.7 c	0.0
Procure 480 SC at 12 fl oz alternate A,C,E					
Pristine 38 WG at 14.5 oz +					
Break Thru at 4 fl oz/100gal	B,D,F.....	44.8 bc	61.8 cd	1.6 bc	0.0
Pristine 38 WG at 0.526 lb +					
Break Thru at 4 fl oz/100gal.....	All.....	34.8 de	7.5 h	3.3 b	0.0
DPX-LEM 17 at 14.4 fl oz.....	All.....	32.3 def	34.3 ef	0.9 c	0.3
DPX-LEM 17 at 20.6 fl oz.....	All.....	23.8 f	7.8 h	1.2 bc	0.8
DPX-LEM 17 at 30.6 fl oz.....	All.....	27.0 ef	11.5 gh	1.5 bc	0.5
DPX-LEM 17 at 9.6 fl oz +					
Manzate Pro-Stick 75DG at 3lb.	All.....	31.0 def	6.3 h	1.3 bc	0.5
DPX-LEM 17 at 14.4 fl oz +					
DPX-KQ926 at 2.3 fl oz.....	All.....	30.8 def	23.3 fg	1.1 c	0.3
V-10116 50 WD at 2 oz.....	All.....	49.0 b	98.5 a	2.3 bc	0.3
V-10116 50 WD at 4 oz.....	All.....	50.5 b	79.0 b	2.3 bc	0.5
V-10116 50 WD at 6 oz.....	All.....	37.0 cd	58.3 cd	2.5 bc	2.3
V-10116 50 WD at 8 oz.....	All.....	35.3 de	49.3 de	1.0 c	0.5

* Treatments were applied on A = 31 Mar (green-tip), B= 11 Apr (pink), C = 28 Apr (full bloom), D = 10 May (petal fall), E = 25 May (1st cover), and F = 7 Jun (2nd cover).

** Means followed by the same letter do not differ significantly based on Fisher's protected LSD (P=0.05). Means without letters were not significantly different.