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

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Alternation of combination fungicides for management of apple diseases on Braeburn, 2011-2012.

    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 gal of a spray suspension was applied per 4 trees (135 gal/A). Treatments were applied on 16 Apr (tight cluster), 22 Apr (early pink), 6 May (full king bloom), 18 May (petal fall), 1 Jun (1[st]cover) and 17 Jun (2[nd]cover). No fertilizer was spread within tree rows. Trees were pruned on 27 Jan to 2 Feb. A dormant oil spray of Omni supreme-oil (5 gal/A) was applied on 31 Jan for aphid control. Asana XL (5 oz/A) was applied on 7 Jul for aphid and coddling moth management. Insecticide sprays were applied to the entire block using a Rear's air blast speed sprayer. Goal 2xL (32 fl oz/A) plus Glystar (24 fl oz/A) was applied on 8 Apr, then Rely (5 pt/A) plus Glystar (24 fl oz/A) was applied on 5 Jun, then Rely (5 pt/A) plus Glystar (32 fl oz/A) was applied on 20 Jul in the tree row for weed control. 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 (13 Apr and 26 May); 1 moderate infection period (30 May) and 3 low infection periods (5 Apr, 8 and 25 May). The incidence of leaf scab and powdery mildew was determined on 28 Jul, by examining all leaves from 20 arbitrarily selected vegetative shoots (176 to 357 leaves with an average of 299) from each tree. Incidence of scab on fruit and fruit russet was determined on 4 and 5 Aug by examining 100 fruit arbitrarily selected from each tree. A few trees, including two nontreated trees, had less than 100 fruit. The number of terminal buds infected with powdery mildew was determined on 4 May 12, by examining the entire tree.

    Although this was the 5th wettest spring on record it also was the 10th coldest. Numerous short cold wet periods did not always translate into disease infection periods. Early shoot growth and plant development was 2 to 3 weeks behind normal for most all of Oregon. Shoots covered with powdery mildew due to infection the previous year were observed on 9 May. Scab was first observed on nontreated trees on 25 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 DPX-Q8Y78, however, scab on trees treated with Luna Sensation, Inspire Super, or Merivon were not significantly different. No fruit scab was found on trees treated with DPX-Q8Y78, however, the amount of scab found on trees treated with any other fungicide combination were not significantly different. Fruit russeting was lowest on nontreated trees but trees treated with Inspire Super plus Syl-Tac only, Merivon, or DPX-Q8Y78 had significantly more. Most programs have comparable control of scab and powdery mildew. The substitution of Pristine in this program with Luna Sensation or Merivon or DPX-Q8Y78 gave significantly better leaf scab control. No phytotoxicity was observed in trees treated with any of the various materials used.All fungicide treated trees had significantly less overwintering infected terminal shoots the next season when compared to nontreated trees except for trees treated with Pristine alternate Procure plus Manzate.

Note: Write up is the same as found in last year's booklet except for the addition of the overwintering infected terminal shoot data for 2012.

| Treatment & Rate/A | Time of Application* | Apple Scab** | | Powdery Mildew | Fruit Russet | Powdery Mildew |
		Leaves (%)	Fruit (%)	Leaves (%)**	(%)**	Terminals (per tree)**
Nontreated ……………………..	None	63.4 a	81.5 a	55.8 a	5.5 d	8.8 a
Pristine 38 WDG at 18.5 oz plus						
Syl-Tac at 8 fl oz/100 gal water	A, C, E					
alternate with						
Procure 480 SC at 12 fl oz plus						
Manzate Pro-Stik 75 DG at 3 lb plus						
Syl-Tac at 8 fl oz/100 gal water ….	B, D, F……....	13.6 b	8.0 b	2.8 b	11.8 bcd	6.0 ab
Luna Sensation 500 SC at 5 fl oz	A, C, E					
alternate with						
Procure 480 SC at 12 fl oz plus						
Manzate Pro-Stik 75 DG at 3 lb plus						
Syl-Tac at 8 fl oz/100 gal water ….	B, D, F………	5.4 d	0.8 b	0.8 b	12.3 bcd	1.8 c
Inspire Super at 12 oz plus						
Syl-Tac at 8 fl oz/100 gal water	A, C, E					
alternate with						
Procure 480 SC at 12 fl oz plus						
Manzate Pro-Stik 75 DG at 3 lb plus						
Syl-Tac at 8 fl oz/100 gal water ….	B, D, F……....	8.9 bcd	1.8 b	2.1 b	10.5 cd	1.3 c
Inspire Super at 12 oz plus						
Syl-Tac at 8 fl oz/100 gal water….	All………….	7.7 cd	4.8 b	4.6 b	15.0 abc	1.5 c
Merivon 500 SC at 4 fl oz plus						
Sylgard 309 at 3.84 fl oz/100 gal	A, C, E					
alternate with						
Procure 480 SC at 12 fl oz plus						
Manzate Pro-Stik 75 DG at 3 lb plus						
Syl-Tac at 8 fl oz/100 gal water ….	B, D, F……....	7.8 cd	0.8 b	2.5 b	20.0 a	2.3 c
DPX - Q8Y78 at 18 fl oz plus						
Regulaid at 1 qt/100 gal	A, C, E					
alternate with						
Procure 480 SC at 12 fl oz plus						
Manzate Pro-Stik 75 DG at 3 lb plus						
Syl-Tac at 8 fl oz/100 gal water ….	B, D, F……....	4.7 d	0.0 b	2.9 b	17.8 ab	3.8 bc
Procure 480 SC at 12 fl oz plus						
Manzate Pro-Stik 75 DG at 3 lb plus						
Syl-Tac at 8 fl oz/100 gal water ….	All………….	12.4 bc	5.0 b	2.5 b	8.8 cd	1.8 c

* Treatments were applied on A = 16 Apr (tight cluster), B = 22 Apr (early pink), C = 6 May (full king bloom), D = 18 May (petal fall), E = 1 Jun (1st cover) and F = 17 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 do not differ significantly.