

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

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EFFICACY OF FUNGICIDES FOR CONTROL OF APPLE SCAB AND POWDERY MILDEW, 2000: Fungicide treatments were arranged in a randomized complete block design in a block of 'Rome' apples on M-7 rootstock planted in 1979 on 20 x 20 ft spacing. Each treatment consisted of 4 single tree replicates. Fungicide treatments were applied using a hydraulic handgun sprayer at 200 psi at a rate of 200 gal water/A. Approximately 7.5 gal of a spray suspension were applied per 4 trees. Treatments were applied on 19 Apr (95% pink), 1 May (50% full bloom), 18 May (70% petal fall), 3 Jun (1st cover), and 17 Jun (2nd cover). Insecticides were applied to the entire block using an air blast speed sprayer on 7 Mar (Weco Supreme Oil at 4 gal/A plus Diazinon 50 WP at 4 lb/A), 28 Jun (Guthion at 2 lb/A), and 9 Aug (Diazinon 50 WP at 4 lb/A) for rosey apple aphid and codling moth management. Goal 2xL (3 qt/A) tank mixed with Gyphos (2 qt/A) and R-11 (0.5%) was applied to control weeds in the tree row floor on 12 Apr. Roundup Ultra at 3 qt/A was also used on 24 Aug. Apple scab infection periods were monitored using a Luft Agro-Meterological station (HP-100). 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 Apr through Jun: 4 high infection periods (14 Apr, 9 May, 6 and 11 Jun); 2 moderate infection periods (12 and 21 Apr); and 4 light infection periods (28 Apr, 1, 7 and 27 May). The incidence of leaf scab and powdery mildew was determined on 6 Jun by examining all leaves from 10 vegetative shoots (97-112 leaves) randomly selected from the lower portion of each tree. The incidence of a ring of russeted tissue at the calyx end of the fruit was assessed on 11 Jul by examining all the fruit on each tree. A final assessment of the fruit was performed on 3 Oct by picking and examining 100 fruit per tree for incidence of scab and russet (excluding the ring russet).

All fungicide treated trees had significantly less leaf scab than nontreated trees. Significant differences in leaf scab among trees treated with fungicide were not detected. Due to high disease pressure, nontreated trees did not produce enough fruit for fruit scab or russet evaluations. There was no significant difference when the percentage of fruit scab was compared among all remaining treatments. All fungicide treated trees had significantly less powdery mildew than nontreated trees. Powdery mildew was not observed on several trees, however, significant differences in leaves with powdery mildew among trees treated with any of the fungicides were not detected. There was no significant difference when the percentage of fruit with russet was compared among fungicide treatments. None of the fungicide treated trees had a significantly higher amount of ring russet at the calyx end of the fruit than any other treatment. This ring russet was observed on many different trees treated with a wide variety of organic, non-organic and biological fungicides. It may have been related to a late frost event on 24 Apr (low of 30°F). No phytotoxicity was observed on any trees treated with any fungicide.

Treatment & Rate/A	Time of Application ⁴	Apple Scab		Powdery Mildew	Fruit Russet	
		Leaves (%) ¹	Fruit (%) ²	Leaves (%) ¹	Entire surface (%) ²	Ring at calyx end (%) ¹
Nontreated	None.....	51.6 a	---	7.0 a	---	---
Procure 50 WS 10 oz + Penncozeb 75 DF 3 lb	all	7.8 b	5.0	0.3 b	2.5	8.8
Procure 50 WS 10 oz + Penncozeb 75 DF 3 lb then.....	P, FB, PF					
Microthiol 80 DF 10 lb	C1 and C2.....	13.5 b	6.7	0.0 b	3.4	16.8
Procure 50 WP 10 oz + Penncozeb 75 DF 3 lb or	P, PF, C2					
Flint 50 WG 2 oz.....	FB and C1.....	2.5 b	7.4	0.3 b	2.9	5.5
Flint 50 WG 2 oz.or.....	P, PF, C2					
Rally 40 WP 5 oz.....	FB and C1.....	4.6 b	9.1	0.0 b	4.1	5.0
Rally 40 WP 5 oz or	P, PF, C2					
Flint 50 WG 2 oz.....	FB and C1.....	1.0 b	3.8	0.0 b	1.6	12.8
Sovran 50 WG 4 oz or	P, FB, C2					
Rally 40 WP 5 oz.....	PF and C1	15.2 b	7.0	0.0 b	2.3	5.8

¹ Means followed by same letter do not differ significantly based on Fisher's protected LSD (P=0.05).

² Means do not differ significantly based on Fisher's protected LSD (P=0.05).

³ --- = Little to no fruit developed on these trees.

⁴ Treatments were applied on 19 Apr (P), 1 May (FB), 18 May (PF), 3 Jun (C1) and 17 Jun (C2).